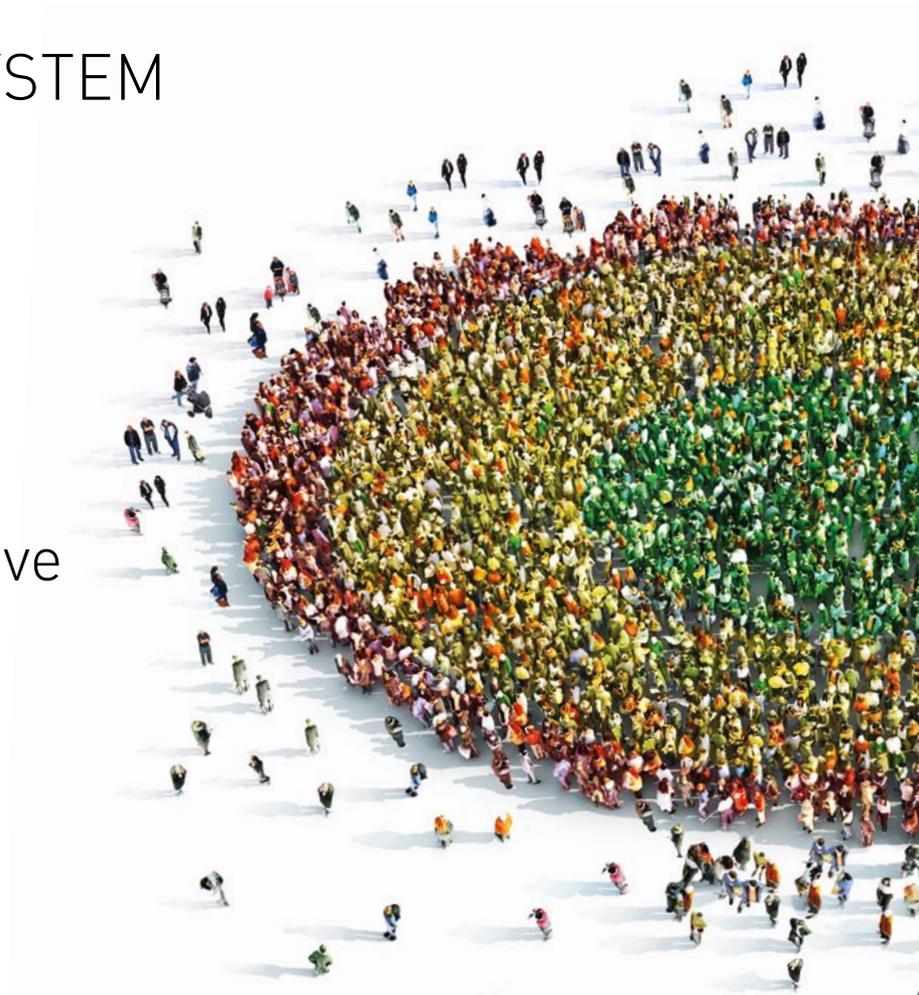


# EVALUATING THE NETWORK HEALTHCARE SYSTEM PERFORMANCE

2014 Results  
of the Italian Regional Collaborative





Scuola Superiore Sant'Anna  
Institute of Management  
Management and Health Laboratory

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A.P. Bolzano, A.P. Trento, Apulia, Basilicata, Calabria, Emilia-Romagna,  
Friuli Venezia Giulia, Lazio, Liguria, Lombardy, Marche,  
Sardinia, Tuscany, Umbria, Veneto

## **2014 Results of the Italian Regional Collaborative**

Edited by Sabina Nuti, Federico Vola, Pietro Amat

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## EVALUATING THE NETWORK HEALTHCARE SYSTEM PERFORMANCE

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## Notes on translation

### The Italian healthcare system

The Italian healthcare system is governed by the following principles:

- it is universal: it is accessible to the entire population;
- it is comprehensive: it provides the full range of prevention, treatment and rehabilitation services;
- it is (almost) free of charge at the point of delivery;
- it is mainly financed through general taxation (Beveridge model), supplemented by co-payments for pharmaceuticals and outpatient care;
- it is regionally based: since the early 1990s, legislative reforms have gradually transferred political, administrative, fiscal and financial responsibilities regarding the provision of health care from the national government to the twenty Regions.

The system is currently organized at three levels: national, regional and local.

The central government has a stewardship role. The Ministry of Health and the Ministry of Finance – in agreement with the Regions – determine the core health benefits, to be uniformly granted across Italy (Essentials Levels of Care) – and allocate to the Regions the financial resources collected through general taxation. Since the early 2000s, the health care budget has been allocated to the Regions based on capitation, partially adjusted by the age distribution of the population.

The Italian Parliament defines the legal framework. National agencies are in charge of contracting with key stakeholders, such as pharmaceutical industries and trade unions. The Ministry of Finance and the Ministry of Health may also intervene in the event of persistent financial deficit and take over regional healthcare management.

The Regions are in charge of organizing and delivering primary, secondary and tertiary healthcare services, as well as preventive and health promotion services. They define their own regional health plans, coordinate the strategies of the regional Health Authorities, allocate the budget within their systems and monitor quality, appropriateness and efficiency of the services provided. As a consequence of the devolution policy, Italy has now twenty regional health systems, which may differ from one another.

At the local level, the Italian healthcare system includes three main providers:

- local health authorities (geographically based organizations, which are responsible for delivering public health, community health services and primary care directly, and secondary and specialist care through directly managed facilities, or by commissioning services to public hospital institutions or private accredited providers);
- public hospital institutions (which often cooperate with Medicine Schools and work as Teaching Hospitals);
- private accredited providers.

In general, doctors employed by the National Health Service are salaried and have civil servant status, although general practitioners and paediatricians are independent

professionals, paid via a combination of capitation and fee-for-services for some interventions.

### The Italian healthcare system: key figures – Last year available

- 60.8 million inhabitants
- 2.1 trillion: Gross Domestic Product (\$PPP)
- 20 Regions (Trentino-Alto Adige Region is divided in two Autonomous Provinces: Trento and Bolzano)
- 8.8%: the share of GDP allocated to health spending (excluding capital expenditure), compared with an OECD average of 8.9%
- 3077 USD: per capita spending on health, compared with an OECD average of USD 3453 (\$PPP). Public sources account for 77% of overall health spending, just above the OECD average
- 3.9: practising doctors per 1000 people (OECD average: 3.3)
- 6.1: practising nurses per 1000 people (OECD average: 9.1)

### The Network

Since 2008, the Management and Health Laboratory has promoted the collaboration among Italian Regions: this network shares the same performance evaluation system first developed by the Management and Health Laboratory. The aim of this initiative is allowing Regions to compare and to benchmark the performance of their healthcare systems in terms of clinical quality, appropriateness and efficiency. Fifteen Regions adhered to the network in 2015.

Further information on the Italian healthcare system can be found in:

Ferré F., de Belvis A.G., Valerio L., Longhi S., Lazzari A., Fattore G., Ricciardi W., Maresso A. (2014), "Italy: Health System Review", *Health Systems in Transition*, 16(4): 1–168, <http://www.euro.who.int/en/about-us/partners/observatory/publications/health-system-reviews-hits/full-list-of-country-hits/italy-hit-2014>

France G., Taroni F., Donatini A. (2005), "The Italian health-care system", *Health Economics*, 14 (SUPPL. 1), 187–202, <http://doi.org/10.1002/hec.1035>

Mapelli V. (2012), *Il sistema sanitario italiano*, Bologna: Il Mulino.

OECD, *Health Statistics and Country notes*: <http://www.oecd.org/els/health-systems/health-data.htm>

World Health Organization, *Country notes*: <http://www.who.int/countries/en/>

## Acronyms and abbreviations

AHPI	Average Hospital Performance Index	ICD	International Classification of Diseases
AIFA	Italian Medicine Agency (Agenzia italiana del farmaco)	INAIL	National Institute for Insurance against Accidents at Work
AIOM	Italian Association of Medical Oncology	INRAN	National Institute for Research on Food and Nutrition
AIRTUM	Italian Association of Cancer Registries	IRCCS	National Hospital for Scientific Research
AMA	Against Medical Advice	ISPO	Institute for the Study and Prevention of Cancer
AMI	Acute myocardial infarction	ISTAT	National Institute of Statistics
AO/AOU	Hospital trust/Teaching hospital	LA FLOWS	Sets of information/data that Health Authorities must transmit regularly to the Region and to the national level. These report data on costs related to the Essential Levels of Care delivery
AP	Autonomous Province	LHA	Local Health Authorities: geographically based organizations, which deliver public health, community health services and primary care, and secondary and specialist care either directly or through public hospital institutions or accredited private providers under contractual agreement with them.
API	Application Programming Interface	MDC	Major Diagnostic Category
AS/USL/AUSL/ AULSS/ASS	Local health authority	MMR	Measles, Mumps, and Rubella
ASSR	Regional Agency for Health and Social Care	MRI	Magnetic Resonance Imaging
ATC	Anatomical Therapeutic Chemical classification	NMR	Nuclear magnetic resonance
BMI	Body Mass Index	NSO	The National Screening Observatory was established in 2001 for the prevention of female cancers. In 2004 a ministerial order made this body the technical instrument supporting the Italian Regions in the definition, monitoring and evaluation process of screening programs
CAWI	Computer Assisted Web Interview	NTSV	Nulliparous, term, single, vertex
CEDAP	Register of Delivery Certificates	NVP	National Vaccination Plan
CIPE	Inter-ministerial Committee for Economic Planning	OECD	Organisation for Economic Co-operation
COPD	Chronic Obstructive Pulmonary Disease	OSMED	National Observatory on the Use of Medicines
COLOR CODES	Triage code given to establish the priority of access to treatment in the Emergency Department. The colour codes assigned according to the patient's level of urgency may be red, yellow, green and white, in decreasing order of severity.	PASSI	Since 2007, every Italian Local Health Authority has collected data on its population's lifestyles by means of the "PASSI" survey ("Progress of the Local Authorities for Health in Italy"). PASSI is the Italian monitoring system on health-related behaviours in the adult population and is organized by the Ministry of Labour, Health, and Welfare and by the Istituto Superiore di Sanità (Superior Health Institute).
DDD	Defined Daily Dose	PES	Performance Evaluation System
DH	Day Hospital	PNE	National Outcome Evaluation Program
DPR	Presidential Decree	REM/RMR	Regional Mortality Register
DRG	Diagnostic-related group	RENCAM	Nominal Registry of Causes of Death
DWH	Data warehouse	SER	Regional Epidemiological System
ED	Emergency Department	SISSR	Regional Healthcare Information System
ELC	Essential Levels of Care. Nationally defined core health benefits, which must be guaranteed to all inhabitants free or with co-payment. ELCs include public health, community health medicine and primary care, and hospital care.	WHO	World Health Organization
EUSOMA	European Society of Breast Cancer Specialists		
GISMA	Mammography screening Italian Group		
HDR	Hospital Discharge Records. Set of information/data that each hospital must transmit regularly to the Region and to the national level. It is the main and most used source of information for the evaluation of performance in healthcare		
HPV	Human Papilloma Virus		



# 1

## INTRODUCTION

## EVALUATING THE PUBLIC HEALTHCARE SYSTEM: SOME SHARED VALUE-BASED PREMISES

Ever since the late 1980's, Italian legislation has repeatedly underlined the need to introduce and apply - at all levels of the public administration - principles and tools that combine the public body's duty of service with efficient and cost-effective delivery of these services.<sup>1</sup> Many international institutions, such as the European Central Bank and the OECD, have recommended the introduction of Performance Evaluation Systems, especially in the healthcare sector, as means of relaunching Italy's economy. Although not profit-driven, public service institutions must nonetheless create added value, and their strategies and management must be evaluated accordingly.<sup>2</sup>

Ouchi defines performance evaluation as "the process of results monitoring, to be compared to a standard that determines 'rewards' or changes to the line of action",<sup>3</sup> in other words a cybernetic process. The process should not be construed as a hierarchical tool - which, in any case, would not be very effective in public organizations comprising *professional bureaucracies*,<sup>4</sup> but rather as a mechanism to be integrated into the evolving organizational forms of the system itself.

Evaluating a public service is complex given the complexity of what needs to be evaluated, in the case of public healthcare, a vast, complex spectrum of results that are interrelated and conditioned by their environment. This is crucial in the healthcare sector where users have asymmetric information and where resource use is considerable. The ever-increasing healthcare expenditure is due both to the exponential rise of health needs and to great stride made in technology and research. This has induced all Western countries with universal healthcare coverage to adopt complex governing tools. The key point of these governing systems is the introduction of multidimensional Performance Evaluation Systems able to take on board the complexity of the outputs of healthcare provision.

Performance Evaluation Systems are fundamental in the current economic downturn. The fall in available resources could force Italy's healthcare system to make indiscriminate cuts without fully understanding the consequences.

1 E. Borgonovi, *I principi dell'azienda nell'economia pubblica, Introduzione*, in *Ripartire dall'azienda, Atti del convegno dedicato al prof. Carlo Masini*, Egea, Milano 1996.

2 V. Coda, *Il problema della valutazione della strategia*, in «Economia e Management», n. 12, 1990.

3 W.G. Ouchi, *The relationship between organizational structure and organizational control*, in «Administrative Science Quarterly», vol. 22, 1977, pp. 95-113.

4 H. Mintzberg, *La progettazione dell'organizzazione aziendale*, Bologna, Il Mulino, 1996, pp. 291-324.

Performance evaluation, especially when focused on appropriateness, must provide information on where to save costs, reduce waste and reallocate resources to value-adding services for citizens.<sup>5</sup>

These considerations led the Region of Tuscany to adopt the Performance Evaluation System designed by the Management and Health Laboratory of Scuola Superiore Sant'Anna (Pisa - Italy) in 2004,<sup>6</sup> a system allowing multi-dimensional assessment of Health Authority - including Teaching Hospital - performance. The Performance Evaluation System has since become a fundamental tool flanking and supporting regional governance systems. It now contains about 300 indicators, grouped into 50 composite indicators, which cover six areas: population health; compliance with regional strategies; quality, appropriateness, continuity of care, patient safety; patient satisfaction; staff satisfaction; efficiency and financial performance. A target chart (a "dartboard") with five concentric bands shows the score attributed (range 0 to 5). The closer to the bull's eye, the higher the score. The "dartboard" is jointly a simple yet complex solution. It is simple because its metaphor is easy-to-read. It is complex because it provides the possibility of taking a closer look into the composite indicators, which like in a game of Chinese boxes, contain many sub-indicators. As a transparent graphic model it allows comparison between healthcare authorities not only in terms of economic and financial performance, but also clinical quality and patient satisfaction. This is a major question since the exclusive yardstick of efficiency, i.e. mere reduction of resources employed, to assess a public service is of little or no significance. Efficiency is a relative concept comparing resources used against results obtained. Monitoring resource management processes is not just a question of the amount of resources used, but what results are obtained with a given employment of resources. Increasing efficiency requires resource reallocation in order to achieve better service and quality outputs at the same cost.

The evaluation system was also adopted by the Liguria Region in 2008 and Piedmont and Umbria in 2009. Valle d'Aosta, the Autonomous Provinces of Trento and Bolzano, Marche and Basilicata adopted the system subsequently. In 2011, Piedmont and Valle d'Aosta chose to leave the network, but later, Veneto, Emilia-Romagna and Friuli Venezia Giulia became members.

Although some indicators are regional specific, the majority are the same for all Regions. The Regions may have different organizational models, but all of them are required to meet the same national objectives of appropriateness, quality and efficiency. The systematic interregional evaluation of results allows each Region

5 S. Nuti, M. Vainieri, A. Bonini, *Disinvestment for reallocation: a process to identify priorities in healthcare*, in «Health Policy», 2010, vol. 95, n. 2-3, pp. 137-143.

6 S. Nuti, *La valutazione della Performance in Sanità*, Il Mulino, Milano 2008.

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to test their organizational model.

In 2015, five more Regions chose to experiment the Performance Evaluation System: Calabria, Lazio, Lombardy, Apulia and Sardinia. It was an important challenge both for them and for the Performance Evaluation System as a whole. While the decision to participate in a systematic and transparent comparative network requires a data processing investment, it above all triggers an 'accountability' logic, which in turn encourages a new type of relationship between each Region and its citizens. Regions such as the Lombardy with a long legacy of healthcare performance evaluation, look to the systematic interregional benchmarking process offered by the network. For other Regions, such as Calabria, it is an opportunity to consolidate their data management and performance evaluation skills.

Including Regions with very different performance levels and organizational models in the evaluation system allows the robustness of the indicators to be tested and if necessary rethought to reflect regional performance outputs more accurately by removing certain distortions deriving from different organizational infrastructures. This is the basis for the "experimental" participation of the five latest Regions joining the network. In fact, while they have shared their data – here benchmarked against the other Regions/Health Authorities –, their performance is not represented in the dartboard for two reasons.

The first is that some Regions joined the evaluation system half way through 2015 and so did not have sufficient time to process all the data. To offer an accurate picture of the complexity of the regional healthcare systems, the dartboard requires at least 100 indicator scores.

Secondly, the criteria for the composite indicators – the "dots" on the dartboard – may reflect the specific organizational logic of the regional healthcare systems to first join the system. Given the different organizational models, all the new Regions must finish processing all their indicators before deciding how to best represent their results. 2016 will be dedicated to finalizing these two aspects in order to present – starting with the 2015 Report – dartboards for Calabria, Lazio, Lombardy, Apulia and Sardinia. In 2016, we will also see the definitive consolidation into the network of another important part of the Health Authorities' evaluation: Teaching Hospitals carried out in 2014 and 2015 a systematic comparative analysis to define a set of indicators that would accurately represent their specific mission and role in the healthcare sector. These Authorities have a different institutional mission to the other Health Authorities. First, as designated centres of excellence, they treat the most complex cases. Second, together with Italy's universities, they train the country's future healthcare professionals. Third, their mission also includes research to further clinical practice.

Clearly therefore, Teaching Hospitals, by their very nature, are a challenge to the evaluation system, primarily on account of the specificity of their activities that can only be measured and evaluated with special ad hoc indicators. Secondly, given different type of clinical cases involved and the interaction between clinical, teaching and research practices, comparing Teaching Hospital with other healthcare authorities may produce distorted results. For these reasons, Teaching Hospitals have been grouped as clusters and their performance benchmarked with the cluster of comparable providers. The collaboration between the *Centro di Ricerca Interuniversitaria per i Servizi di Pubblica Utilità* (the Interuniversity Research Centre for Public Services) of Milan's Bicocca University and the Management and Health Laboratory aims to extend the hospital evaluation methods developed in the Lombardy Region to the other Healthcare Authorities in the network. Teaching Hospital managers will then be provided with an accurate evaluation of the outcomes of their specialities. To overcome potential bias, indicators are risk adjusted and standardized for differences in patient complexity. Moreover, specializations are compared across the board, meaning that heart surgery in one facility is compared with heart surgery in similar facilities across the network, ensuring consistent evaluation across the different clinical specialities.

In addition, a specific working group has been studying an *ad hoc* set of indicators for paediatric hospitals. In 2014, the Management and Health Laboratory began meeting with regional professionals to decide on a group of suitable indicators. The preliminary results will be presented in 2016 and offer hospital managers and professionals a set of tools for the governance of their clinical and organizational practices. In 2015, another collaboration project was carried out with the Department of Biomedical and Neuromotor Sciences at the University of Bologna, coordinated by Professor Maria Pia Fantini. With the help of healthcare professionals, several important indicators were further improved for maternal-infant care, mental health and oncological diseases.

The 2014 results are presented in this report. We describe below the performance comparison methodology adopted by the Regions belonging to the network. First, however, we should underline the key words and values guiding the regional representatives and MeS researchers.

The key concept underlying the whole exercise is that benchmarking is essential in the healthcare sector. In a system where collaborative (and non-competitive) strategies are adopted by all the actors, benchmarking, i.e., systematic comparison of performance, is the basic way to detect best practices and avoid inward-looking behaviour. Many indicators do not have a standard on which to base their evaluations, and organizations can only verify if the results they obtain

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are better or worse than the year before. This can be extremely reductive, tending to monitor marginal improvements within a given system rather than assess whether the setting is appropriate or sustainable.

If, for example, 70% of the users of a service in a given area are satisfied and a 2% increase on the previous year is recorded, the performance trend could be considered good. However, the view changes if we find out that the same service in neighbouring areas has a higher satisfaction rate. The first area's performance becomes poor compared to the others. By the same token, very different results achieved with the same resources and under the same conditions can signal substantially different organizational solutions adopted by the institutions in question. In addition, many institutions are sometimes over-preoccupied with introducing incremental improvements rather than bringing about disruptive organizational innovations.

For all these reasons, a permanent comparative model is the most indicated for all the institutions of a given system. There must be systematic, transparent and public comparison of numbers, choices and results between institutions at a regional, national and international level. Not only is this the way to render a public system accountable to its citizens. It is also the means of discovering its weak points and – more especially – how to learn from them and right them. Benchmarking results, system comparisons, analysing different situations with a view to finding ways to improve them are the best way forward. Not only an error-correcting exercise, it is also an opportunity to see how systems can be improved and developed. Analysing the performance of other institutions and comparing it with their own, managers can identify appropriate goals, known to be feasible because achieved by other similar organizations. In addition, benchmarking allows researchers and policy makers to systematically calculate performance variation within and between Regions. Reducing unwarranted variation is one of the main objectives of universal coverage healthcare whose aim is to guarantee equal rights to all citizens. Understanding the determining factors and acting on them to reduce performance variation is a strategic priority for Italian policy makers and healthcare managers. This is essential to avoid what the British call “postcode medicine”, i.e., healthcare service discrepancies between different geographical areas.

Two other key words are ‘merit’ and ‘reputation’.

Many scholars have highlighted that the turnaround of the Italian public administration must be based on merit, transparency and accountability. The very fact of being a public institution requires it to rigorously enforce all contractual rules and regulations, taking care to avoid any opportunistic conduct in violation of citizens' rights. To this end, Performance Evaluation Systems are fundamental

tools. They can be classified into three types: ‘intelligence systems’, i.e., tools providing a synthetic framework of the outputs and context of the organizations (background information); ‘target systems’, i.e. where measurable objectives are defined in quantitative terms and according to deadlines; and ‘ranking systems’, where the performance of every institution is measured in an aggregated, graded way clearly showing whether results are positive or negative.

An example of an “intelligence system” in healthcare is the Scottish system used in recent years. Wales, on the other hand, has a “target system”, while England has been using the “ranking system”, which evaluates all English institutions (expressed in “stars”) producing print and digital format reports of the results.<sup>7</sup> Among the UK systems, England showed the highest improvement rate, succeeding in convincing organizations to change. The system leveraged two elements: classifying institutions as “value-worthy”, i.e., those that improved their service quality in conditions of economic sustainability – and those that were ineffective; secondly, public disclosure of this clear cut classification. Making results public significantly damages the reputation of managers of poorly performing institutions and the health professionals who work for them, reputation being a highly prized aspect of trained medical staff. Indeed the ability of evaluation systems to trigger institutional change is closely linked to their ability to damage or enhance a person's reputation. Much more than traditional incentive schemes, esteem and reputation affect the behaviours of healthcare managers and professionals.

To be effective, however, “ranking-based” evaluation systems must use systematic and rigorous data sources that cannot be manipulated by the evaluatees. A system is badly designed if it can be improperly used for incorrect behaviour or personal gain.

There is no doubt that our society has drastically changed in recent years, thanks to surprising technological advances, new lifestyles and lower information costs, which have revolutionised communication processes inside and outside public administrations. Population needs in the meantime are not fewer but greater. However, these changes have also changed the set of answers that public administrations can provide. The public healthcare system must therefore reorganize its services on the basis of performance evaluations and comparisons if it is to provide appropriate sustainable responses to the needs of its population. If public institutions learn how to prioritize their strategies and guarantee high quality, they will be able to provide new services and discontinue others that do not guarantee returns. Services must adapt themselves to changing needs, not to operator demands. We should welcome transparency and public information policies based on evidence and numbers for they allow us to correctly evaluate

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<http://ratings2005.healthcarecommission.org.uk/>

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the system choices and help citizens understand why certain decisions are made. A real cultural change must begin. Healthcare systems have proven they are innovative organizations. Many initiatives and plans are being implemented but they lack evaluation systems and data support. The challenge for the public sector is to systematically introduce evidence-based decision-making.

Healthcare professionals are increasingly oriented towards evidence-based medicine. This must also be the case for managers. Unfortunately, too often public administrations make decisions based on common sense rather than numbers. While political choices may entail some aspects of uncertainty, making decisions based on real numbers is very different from deciding without any reference to quantitative evidence. Furthermore, performance evaluation makes policy makers as well as technical staff accountable for their results. Yet while numbers can be analysed and make healthcare organizations understandable, there is often paradoxically an excess of data. Processes and results are measurable. The problem is transitioning from the measurement phase to the evaluation phase. Public organizations still face problems implementing this transition. Inefficiency, unfair access and inappropriateness are often reported but it is difficult to hold employees responsible for them. Performance evaluation can be an excellent opportunity for public services to make professionals and policy makers accountable for their results, as well as provide evidence-based support for resource allocation.

In many public service organizations budget-planning is an exercise geared to trying to obtain more resources than those allotted (“we can’t manage anymore with what we have, we need more resources”). During budget negotiations, little thought is given to where financial resources can be saved and given to other much-needed areas. Nothing ever changes; resources are added but never allocated elsewhere. Reallocating resources means making changes and this can break the pre-existing balance of power. Numbers can, instead, give those who must make choices the strength to reallocate resources.<sup>8</sup> Reallocation must be done, otherwise the public healthcare system will become unsustainable and no longer able to meet the changing needs of today’s citizens.

‘Transparency’ is another key word in performance evaluation.

To fulfil its mission, a public organization must be responsibly and transparently managed. Public administrators may not spend more financial resources than those allocated by society. In addition, the resources provided cannot be allocated in arbitrary fashion but on the basis of transparent, evidence-based decision-making. We must ask ourselves if we have the right evidence to confirm our scale of priorities, whether we want to invest resources for the elderly, chronically ill

<sup>8</sup> S. Nuti, M. Vainieri, A. Bonini, *Disinvestment for reallocation: a process to identify priorities in healthcare*, in «Health Policy», 2010, vol. 95, n. 2-3, pp. 137-143.

patients, or oncological pathways. Will our choices meet the needs of the users? Or is it the decision of a manager who thinks it’s a good idea at the time? Of course, the final decision will be a partially discretionary choice, but the decision-making process has to be transparent from the very beginning.

The last, and *sine qua non*, step is the ‘sharing’ process. Public healthcare organizations are complex systems with both a professional and managerial hierarchy. This dual hierarchy implies a higher level of professionalism than in other types of institutions. It also means that professionals have to be involved in both the governance and evaluation of their organisation if evaluation is to be a success. Every staff member must contribute to and each professional accept the rules of the game and the criteria used to evaluate them. Otherwise, they will not accept the need for behavioural change and will not strive to improve performance.<sup>9</sup> Therefore, criteria-sharing, performance evaluation and learning processes for behavioural changes are the key elements needed. Performance evaluation only works if it can impact and modify professional practice. Although a sharing process has begun, the introduction of evaluation systems may meet with resistance. In order to avoid this, the public healthcare system must act with policy continuity and consistency. Resistance to change cyclically occurs, because people always find it difficult to cast themselves into question, especially when they believe they are contributing to the best of their ability.

<sup>9</sup> M. Abernethy, J. Stoelwinder, *The role of professional control in the management of complex organizations*, in «Accounting, Organizations and Society», 1995, 20, 1, pp. 1-17.



# 2

COMPARING REGIONAL PERFORMANCES:  
BENCHMARKING METHODOLOGY  
AND RESULTS REPORTING

## Introduction

The Network Project was launched in 2008 with the collaboration of four Italian Regions: Liguria, Piedmont, Tuscany and Umbria. The autonomous province of Trento, the autonomous province of Bolzano and Marche joined in 2010, followed by Basilicata in 2011, Veneto in 2012, Emilia-Romagna and Friuli Venezia Giulia in 2014. Calabria, Lazio, Lombardy and Apulia became part of the project in 2015.

The Network Project aims to provide a tool to evaluate regional healthcare performances with a set of common indicators.

In order to develop a multidimensional performance evaluation system (PES), the Network Project applied the system designed by the Management and Health Laboratory (MeS Lab) of the Scuola Superiore Sant'Anna (Pisa – Italy) and successfully used by Tuscany since 2004. The MeS Lab partnered with the Tuscany Region in 2002 to design an evaluation system, which was subsequently jointly patented.<sup>1</sup> With the Network Project launch, the PES was adapted to take into account the distinctive features of each regional healthcare system. As a result, around 200 benchmarking indicators were defined with the aim of describing and analysing the multiple performance dimensions of the regional healthcare systems.

The MeS Laboratory developed the system and is in charge of updating it, innovating the indicators and organising meetings with regional representatives to share the major updates and disseminate best practices.

The Regional technical bodies are responsible for calculating the indicators. The MeS Laboratory provides the Regions with an IT platform for uploading, validating, managing, storing, returning and visualizing data. The platform is powered by ETL technology designed by the MeS Lab.

Since 2015, data have been returned to the Regions through API (Application Programming Interface) technologies. This tool allows software developers to interrogate the Evaluation System database and extract indicators and information. The system allows simple effective integration of PES data into regional and local control systems.<sup>2</sup>

## Evaluation system architecture

The aim of the evaluation system is to provide the Regions with an inter-regional healthcare benchmarking tool to measure, compare and report their own performance against that of the other Regions. Comparisons can also be intra-regional, i.e. among the various Health Authorities of the same Region. In this case, each Region may include specific indicators that take into account particular aspects of pertinence to its regional strategy but not necessarily of interest to the other Regions. While this possibility is primarily addressed to Regions with many Health Authorities, it also allows Regions with only one Health Authority – such as Marche, and the autonomous provinces of Trento and Bolzano – to create an intra-regional or intra-provincial “dartboard”, with individual health districts and/or hospitals as the basic unit of analysis.

<sup>1</sup> Further information on the MeS Laboratory available at <http://meslab.santannapisa.it>

<sup>2</sup> For further details, see <http://performance.sssup.it/netval/controller/api/index.php>

Healthcare performances are monitored and analysed according to six dimensions. Approximately 200 indicators have been calculated. 100 involve an evaluation, while another 100 are “observational” (see Table 1). The indicator-selection process aims to highlight the fundamental aspects of performance in a complex system like healthcare. To facilitate the interpretation of the results, the 200 indicators are grouped in 37 “synthetic” indicators. The score given to each composite indicator is the simple or weighted mean of the scores attributed to the sub-indicators.

The six evaluation dimensions are as follows:

- A – Population health;
- B – Regional strategy compliance;
- C – Quality, appropriateness, continuity of care, patient safety;
- D – Patient satisfaction;
- E – Staff satisfaction;
- F – Efficiency and financial performance.

## Population health (dimension A)

The indicators of this dimension represent the starting and arrival points of any healthcare system, since improving the health of its population is the main goal of any healthcare system. Measuring population health often implies measuring the absence of health, most readily quantifiable in the number of deaths occurring within that population. Based on this premise, four mortality indicators have been identified: infant mortality (A1), cancer mortality (A2), circulatory disease mortality (A3) and suicide mortality (A4). Indicators are expressed on a 3-year basis since some mortality rates have low absolute values and a comparison between annual rates would suffer from the stochastic variability of the data. Indicator A10 was added to this dimension as it describes population health status on the basis of the “PASSI” survey (national project “*Guadagnare Salute*”), which monitors population lifestyles.

These indicators move slowly over time and any current improvement is often the result of choices made in the past. It follows therefore that their trends cannot be directly attributed to Local Authority management. As a result, they are not reported on the dashboard, but represented separately to provide contextual information.

## Regional strategy compliance (B)

Health Authorities are accountable for their efficiency and effectiveness, not only as autonomous entities, but also as components of the regional healthcare system. Health Authorities must therefore be compliant with regional strategies, in other words, fully implement the Regional Health Plan and regional resolutions within the timeframes required.

Indicators of this dimension evaluate the activity of the Health Authorities in the areas of pain management (B4), home care services (B28), promotion of healthy lifestyles (B2), cancer screenings (B5) and vaccine coverage (B7).

### **Quality, appropriateness, continuity of care, patient safety (C)**

The indicators of this dimension aim to monitor the quality, appropriateness, continuity of care, efficiency and patient safety of healthcare services, both in terms of hospital performance as well as primary care. The first area monitored is the control of infectious disease (B8). The term “demand management” refers to hospitalization rates (indicator C1) and is defined as the capacity of Health Authorities to direct user access to the healthcare system and channel utilization levels of hospitals and primary care facilities.

“Efficiency” is generally accepted as indicating the capacity of an organization to maximize the value-added of available resources. In hospital care, this concept is measured by the following indicators: performance index for average length of hospital stay for acute medical DRGs (C2a.M), performance index for average length of hospital stay for acute surgical DRGs (C2a.C), and average preoperative length of stay for elective surgery (C3b). The pursuit of appropriateness at all levels of care is a key aspect of service delivery and essential if timely access to good quality services is to be made available to those in need, and the adverse effects on health of healthcare consumerism avoided. Moreover, the very sustainability of the healthcare system depends on appropriate recourse to healthcare services. This aspect is evaluated with indicators such as surgical appropriateness (C4), medical appropriateness (C14), diagnostic appropriateness (C13a) and, with regard to pharmaceuticals, drug prescription appropriateness (C9) and pharmaceutical compliance (C21). Elective surgery rates (C18) are also monitored, any variability found suggesting possible discrepancies in appropriateness.

Clinical quality is evaluated on the basis of a set of indicators that assess the adoption of clinical protocols and instrumental techniques (C5) and clinical risk (C6), this latter a measure of patient safety.

The composite indicator “hospital-primary care integration” (C8a) is evaluated by monitoring the effectiveness of primary care activities in terms of care continuity, adequate specialist care management and adherence to diagnostic and therapeutic clinical pathways.

Some specific care pathways are also analysed. The maternal and child care pathway indicator (C7) evaluates the quality of maternity healthcare services while the chronic care management indicator (C11a) aims to promote the development of disease management pathways for the main chronic diseases (heart failure, diabetes and COPD). The mental health indicator (C15) investigates both hospital response and primary care response to mental health disorders. The evaluation system monitors the emergency pathway (C16) and the oncological pathway (C10), with particular attention paid to breast cancer.

### **Patient satisfaction (D)**

This dimension considers the assessment of health services by citizens and users. Citizen/user opinion should be a major focus if this item is to impact strategic and organizational decisions of the Health Authorities. The evaluation should go beyond a generic assessment of customer satisfaction and also take into account a broader view of patient experience as reported by more detailed interviews.

Every year the Regions of the Network decide which surveys are of major interest for their own particular organizational structure.

All Regions monitor the leaving rate from their Emergency Department (D9) - the number of patients voluntarily leaving the ED after triage - and the percentage of hospitalised patients leaving the hospital against medical advice (D18). Both indicators are correlated with, and are a proxy for patient satisfaction (Murante et al, 2013).

### **Staff satisfaction (E)**

This dimension considers the satisfaction of Health Authority employees. Many studies reveal the correlation between staff satisfaction, working climate, and user satisfaction. If the ultimate goal is to improve healthcare services, focus must be given to managerial mechanisms conducive to operator involvement in any improvement strategy.

Internal evaluation is complex, requiring ad hoc data gathering through questionnaires compiled by employees. Data are collected using the C.A.W.I. (Computer Assisted Web Interview) methodology, i.e. an on-line questionnaire, hosted by Scuola Superiore Sant’Anna servers. Staff satisfaction is evaluated on the basis of the participation rate in the staff satisfaction survey (E1), the evaluation of training activities by employees (E9), the evaluation of management by employees (E10) and the evaluation of the Health Authorities’ communication and information services (E11). The staff satisfaction survey is carried out every two years. Although it was conducted in 2014 in Tuscany, Basilicata and Friuli Venezia Giulia, it is not reported here, being the subject of *ad hoc* reports.

### **Efficiency and financial performance (F)**

This dimension is designed to assess how resources are used, both generally (through budget analysis), and more specifically, with reference to resource allocation in certain areas (such as the pharmaceutical area). The system evaluates the governance of the pharmaceutical sector by monitoring of pharmaceuticals and medical devices governance (F10b) and the propensity for off-patent drug prescription (F12a). Since 2013, public spending on hospital pharmaceuticals has also been monitored. Safety at the workplace is evaluated by the composite indicator F15. Health expenditure per capita (F17), the average cost for hospital care (F18) and the cost for medical diagnosis services (F19) are also monitored.

All indicators are reported in Table 1. The present report includes only evaluated indicators. Observational indicators are available at <http://performance.sssup.it/netval>.



**Table 1.** The table lists all the indicators of the Regional Evaluation System for 2014. Composite indicators are shown in bold. The performance band is given for each indicator. Blue dots indicate “observational” indicators. Composite indicators are the simple or weighted average of a set of sub-indicators and therefore do not have performance bands, but a score ranging from 0 to 5. However, some “composite” indicators (e.g., A2) are not the result of a group of sub-indicators, but a value unto themselves, and are therefore attributed a score ranging from 0 to 5 on the basis of their performance bands.

code	indicator	performance score bands								
<b>A1</b>	<b>Infant mortality</b>	●	●	●	●	●				
A1.1	Infant mortality in the first year of life	●	1,8	●	2,4	●	3	●	3,6	●
A1.2	Early neonatal mortality (in the first 6 days of life)			●						
A1.3	Neonatal mortality (in the first 28 days of life)			●						
<b>A2</b>	<b>Cancer mortality</b>	●	150	●	160	●	170	●	180	●
<b>A3</b>	<b>Circulatory disease mortality</b>	●	138	●	147	●	156	●	165	●
<b>A4</b>	<b>Suicide mortality</b>	●	4,3	●	5,4	●	6,5	●	7,6	●
<b>A10</b>	<b>Lifestyles</b>	●		●		●		●		●
A6.1.1	Percentage of sedentary people	●	15	●	21	●	27	●	33	●
A6.2.1	Percentage of overweight or obese people	●	34	●	38	●	42	●	46	●
A6.3.1	Percentage of high-risk alcohol consumers	●	10	●	16	●	22	●	28	●
A6.4.1	Percentage of smokers	●	24	●	27	●	30	●	33	●
<b>B2</b>	<b>Promotion of healthy lifestyles</b>	●		●		●		●		●
A6.1.2	Percentage of sedentary people advised by their doctor or by other healthcare professionals to exercise	●	26	●	31	●	36	●	41	●
A6.2.2	Percentage of overweight or obese people advised by their doctor or by other healthcare professionals to lose or maintain weight	●	20	●	40	●	60	●	80	●
A6.2.3	Percentage of overweight or obese people advised by their doctor or by other healthcare professionals to exercise	●	20	●	40	●	60	●	80	●
A6.3.2	Percentage of alcohol consumers at higher risk advised by their doctor or by other healthcare professionals to reduce alcohol consumption	●	3	●	5	●	7	●	9	●
A6.4.2	Percentage of smokers advised by their doctor or by other healthcare professionals to quit smoking	●	20	●	40	●	60	●	80	●
<b>B4</b>	<b>Opioid consumption</b>	●		●		●		●		●
B4.1.1	Opioid consumption	●	1,6	●	2,1	●	2,5	●	2,9	●
<b>B5</b>	<b>Invitation and uptake rates of cancer screening programmes</b>	●		●		●		●		●
B5.1	Mammography screening	●		●		●		●		●
B5.1.1	Adjusted invitation rate for mammographic screening	●	80	●	85	●	90	●	95	●
B5.1.2	Adjusted uptake of mammographic screening	●	40	●	50	●	60	●	70	●
B5.2	Cervical screening	●		●		●		●		●
B5.2.1	Adjusted invitation rate to cervical screening	●	80	●	85	●	90	●	95	●
B5.2.2	Adjusted uptake of cervical screening	●	30	●	40	●	50	●	60	●
B5.3	Colorectal screening	●		●		●		●		●
B5.3.1	Adjusted invitation rate for colorectal screening	●	80	●	85	●	90	●	95	●
B5.3.2	Adjusted uptake of colorectal screening	●	35	●	45	●	55	●	65	●
<b>B7</b>	<b>Vaccine coverage</b>	●		●		●		●		●
B7.1	MMR vaccine coverage	●	80	●	85	●	90	●	95	●
B7.2	Flu vaccine coverage for the elderly	●	50	●	58,3	●	66,7	●	75	●
B7.3	Papillomavirus (HPV) vaccine coverage	●	62	●	68	●	74	●	80	●
B7.4	Flu vaccine coverage for workers in the healthcare sector	●	7	●	16	●	25	●	34	●
B7.5	Meningococcal vaccine coverage	●	80	●	85	●	90	●	95	●
B7.6	Pneumococcal vaccine coverage	●	80	●	85	●	90	●	95	●
B7.7	Hexavalent vaccine coverage	●	80	●	85	●	90	●	95	●
<b>B28</b>	<b>Homecare</b>	●		●		●		●		●
B28.1.1	Percentage of elderly provided with homecare				●					
B28.1.2	Percentage of elderly provided with homecare, with assessment	●	4	●	6	●	8	●	10	●
B28.2.5	Percentage of residents over-75 discharged from hospital, receiving at least one home visit within 2 days				●					
B28.2.9	Percentage of home care service plans for the elderly with a care intensity coefficient of > 0.13				●					

code	indicator	performance score bands					
<b>B8</b>	<b>Infectious diseases</b>						
B8.1	Invasive bacterial diseases with microbial type strain						
B8.2	Tuberculosis prevalence rate						
B8.3	Percentage of culture tests for pulmonary tuberculosis diagnosis						
B8.4	Confirmation of pulmonary tuberculosis diagnosis by culture						
<b>C1</b>	<b>Healthcare demand management capability</b>						
C1.1	Standardized hospitalization rate	●	●	●	●	●	●
C1.1.1	Standardized hospitalization rate of acute inpatients	● 139	● 146	● 153	● 160	●	●
C1.1.1.1	Standardized hospitalization rate of acute medical DRGs (0-64 years)			● 110	● 117	●	●
C1.1.2	Standardized hospitalization rate of acute outpatients			●			
C1.1.2.1	Standardized hospitalization rate of acute medical outpatients	● 7	● 10	● 13	● 16	●	●
C1.1.2.2	Standardized hospitalization rate of acute surgical outpatients			●			
C1.1.2.2.1	Standardized hospitalization rate of surgical outpatients			●			
C1.1.3	Standardized hospitalization rate for post-acute care			●			
C1.3	Per capita hospital beds			●			
C1.5	Case-mix index (teaching hospitals)			●			
C1.6	Percentage of surgical inpatient admissions			●			
<b>C2a.M</b>	<b>Performance index for average hospital length of stay of acute medical DRGs</b>	● -1,2	● -0,55	● 0,1	● 0,75	●	●
<b>C2a.C</b>	<b>Performance index for average hospital length of stay of acute surgical DRGs</b>	● -1,2	● -0,55	● 0,1	● 0,75	●	●
<b>C3b</b>	<b>Preoperative average length of stay for elective surgery</b>	●	●	●	●	●	●
C3.4	Preoperative average hospital length of stay for elective surgery of more than 1 day (teaching/research/autonomous general hospitals)	● 0,85	● 1	● 1,15	● 1,3	●	●
C3.5	Preoperative average length of hospital stay for elective surgery of more than 1 day (Local Health Authorities)			●			
<b>C14</b>	<b>Appropriateness of care</b>						
C4.8	Medical ELC DRGs: standardized hospitalization rate	● 135	● 179	● 223	● 267	●	●
C14.2	Percentage of medical outpatient hospital admissions for diagnostic purposes			●			
C14.2a	DH admissions for diagnostic purposes	● 1,7	● 3,1	● 4,5	● 5,8	●	●
C14.2.2	Percentage of medical outpatient admissions for diagnostic purposes - paediatric			●			
C14.3	Percentage of short medical hospital stays			●			
C14.3a	Admission rate for short medical hospital stays	● 5,2	● 8,3	● 11,4	● 14,5	●	●
C14.3.2	Percentage of short medical hospital stays - paediatrics			●			
C14.4	Percentage of over-threshold medical admissions of patients > 65 years	● 2	● 3	● 4	● 5	●	●
C14.5	Standardized medical outpatient admission rate			●			
<b>C4</b>	<b>Surgical appropriateness</b>						
C4.1	Percentage of medical DRGs discharged from surgical wards	● 15	● 19	● 23	● 27	●	●
C4.1.1	Percentage of medical DRGs discharged from surgical wards: inpatient admissions	● 15	● 19	● 23	● 27	●	●
C4.1.2	Percentage of medical DRGs discharged from surgical wards: outpatient admissions	● 10	● 15	● 20	● 25	●	●
C4.4	Percentage of laparoscopic cholecystectomies performed in one day	● 10	● 30	● 50	● 70	●	●
C4.7	Percentage of Day Surgery admissions for "ELC surgical DRGs"	● 45	● 55	● 65	● 75	●	●
C4.13	DRGs at high-risk of inappropriateness			●			
<b>C5</b>	<b>Quality of the care process</b>						
C5.1	Percentage of readmissions within 30 days	● 4,3	● 4,8	● 5,3	● 5,8	●	●
C5.2	Percentage of femoral neck fractures operated within 2 days of admission	● 41	● 54	● 67	● 80	●	●

code	indicator	performance score bands								
C5.3	Percentage of transurethral prostatectomies	●	65	●	75	●	85	●	95	●
C5.10	Percentage of laparoscopic colon resections				●					
C5.11	Percentage of laparoscopic appendectomies in women aged 15-49				●					
C5.12	Percentage of operated femur fractures of all diagnosed femur fractures				●					
C16.7	Percentage of surgical admissions from Emergency Department (ED) with surgical DRG on discharge	●	45	●	55	●	65	●	75	●
<b>C6</b>	<b>Clinical risk</b>				●					
C6.4.1	Postoperative sepsis in elective surgery				●					
C6.4.2	Intra-hospital mortality of low-mortality DRG patients				●					
C6.4.3	Vein thrombosis or pulmonary embolism following surgery				●					
<b>C7</b>	<b>Maternal and child care</b>	●		●	●	●	●	●	●	●
C7.1	Percentage of C-section deliveries (NTSV)	●	15	●	20	●	25	●	30	●
C7.1.2	Percentage of C-section deliveries in the 1st group of Robson's classification				●					
C7.1.3	Percentage of C-section deliveries in the 2nd group of Robson's classification				●					
C7.1.4	Percentage of elective C-section deliveries over NTSV deliveries				●					
C7.2	Percentage of induced labours				●					
C7.3	Percentage of episiotomies (NTSV)	●	15	●	25	●	35	●	45	●
C7.6	Percentage of assisted deliveries (forceps or ventouse)	●	2,5	●	5	●	7,5	●	10	●
C7.20	Percentage of severe peri-/intra-partum asphyxia				●					
C7.13	Percentage of foreign women attending the first visit late (>12th week of gestation)				●					
C7.13.1	Percentage of women with low education level attending the first visit late (>12th week of gestation)				●					
C7.14	Percentage of foreign women attending fewer than 4 visits during pregnancy				●					
C7.14.1	Percentage of women with low level of education attending fewer than 4 visits during pregnancy				●					
C7.7	Paediatric hospitalization rate (0-14 years)	●	6,4	●	8	●	9,6	●	11,2	●
C7.7.1	Admission rate during the first year of life	●	32	●	39	●	46	●	53	●
C7.7.2	Paediatric admission rate (1-5 years)				●					
C7.7.3	Paediatric admission rate (6-13 years)				●					
C17.4	Delivery volumes	●	0	●	0	●	0	●	0	●
C17.4.1	Percentage of admissions over the childbirth threshold	●	80	●	85	●	90	●	95	●
C17.4.2	Dispersion index of deliveries in facilities under the childbirth threshold	●	15	●	30	●	45	●	60	●
<b>C8a</b>	<b>Hospital-primary care integration</b>	●		●	●	●	●	●	●	●
C8b.2	Hospital admission rate with length of stay of over 30 days	●	0,9	●	1,2	●	1,5	●	1,8	●
C8a.2	Percentage of readmissions 31 -180 days following discharge				●					
C8a.3	Underage conception rate (12-17 years)				●					
C11a.4.1	Pneumonia hospitalization rate (20-74 years)				●					
C8a.19.1	Paediatric hospitalization rate for asthma (2-17 years)	●	30	●	50	●	70	●	90	●
C8a.19.2	Paediatric hospitalization rate for gastroenteritis (0-17 years)	●	60	●	120	●	180	●	240	●
<b>C9</b>	<b>Appropriate prescribing of medication</b>	●		●	●	●	●	●	●	●
C9.1	Proton pump inhibitor consumption (antacids) 	●	21	●	25	●	29	●	33	●
C9.3	Incidence of sartans (antihypertensives) on substances acting on the renin-angiotensin system	●	26	●	30	●	34	●	38	●
C9.4	Consumption of selective serotonin reuptake inhibitors (antidepressants)	●	22	●	26	●	30	●	34	●
C9.8.1.1	Consumption of antibiotics	●	13,5	●	16,5	●	19,5	●	22,5	●

code	indicator	performance score bands							
C9.8.1.1.1	Paediatric antibiotic consumption								
C9.8.1.1.2	Paediatric cephalosporin consumption								
C9.9.2	Consumption of antipsychotics								
<b>C10</b>	<b>Oncological pathway</b>	●	●	●	●	●	●	●	●
C10.2.1	Percentage of breast-conserving or nipple/skin sparing surgery for breast cancer	● 65	● 70	● 75	● 80	●			
C10.2.2	Percentage of women undergoing sentinel lymph node excision					●			
C10.2.2.1	Percentage of women undergoing radical axillary lymph node excision					●			
F10.2.1	Average expenditure for oncological drugs					●			
C17.1	Breast cancer surgery volumes					●			
C17.1.1	Percentage of over-threshold breast cancer admissions					●			
C17.1.2	Dispersion index of cases in wards under the breast cancer threshold					●			
C17.5	Prostate cancer surgery volumes					●			
C17.5.1	Percentage of over- threshold prostate cancer admissions	● 60	● 70	● 80	● 90	●			
C17.5.2	Dispersion index of cases in wards under the prostate cancer threshold	● 10	● 20	● 30	● 40	●			
<b>C11a</b>	<b>Effectiveness of chronic care management</b>	●	●	●	●	●	●	●	●
C11a.1.1	Heart failure hospitalization rate (50-74 years)	● 155	● 205	● 255	● 305	●			
C11a.1.1.1	Standardized heart failure hospitalization rate (over 18 years)					●			
C11a.2.1	Diabetes hospitalization rate (35-74 years)	● 20	● 30	● 40	● 50	●			
C11a.2.1.1	Standardized hospitalization rate for diabetes complications (over 18 years)					●			
C11a.2.4	Major amputation rate for diabetes	● 31	● 53	● 75	● 97	●			
C11a.3.1	COPD hospitalization rate (50-74 years)	● 38	● 53	● 68	● 83	●			
C11a.3.1.1	Standardized COPD hospitalization rate (over 18 years)					●			
<b>C13a</b>	<b>Diagnostic appropriateness</b>	●	●	●	●	●	●	●	●
C13.1	Standardized ambulatory service rate					●			
C13.2	Standardized medical imaging rate					●			
C13.2.1	Standardized CT scan rate					●			
C13.2.2	Standardized magnetic resonance imaging (MRI) scan rate					●			
C13a.2.2.1	Musculoskeletal MRI scan rate (> 65 years)	● 15	● 20	● 25	● 30	●			
C13a.2.2.1.1	Standardized musculoskeletal and spine MRI scan rate (over 18 years)					●			
C13a.2.2.2	Percentage of patients repeating lumbar MRI scan within 12 months	● 5,8	● 6,8	● 7,8	● 8,8	●			
<b>C15</b>	<b>Mental health</b>	●	●	●	●	●	●	●	●
C8a.13a	Percentage of psychiatric patient readmissions 8 - 30 days following discharge	●	●	●	●	●			
C8a.13.2	Percentage of psychiatric patient readmissions within 7 days from discharge	● 0,6	● 2,4	● 4,1	● 5,9	●			
C8a.5	Hospitalization rate for psychiatric disorders	● 175,2	● 281,3	● 387,4	● 493,5	●			
C8a.5.1	Hospitalization rate for schizophrenia and psychotic disorders					●			
C8a.5.2	Hospitalization rate for mood disorders					●			
C8a.5.3	Hospitalization rate for mild to moderate depression					●			
C8a.5.4	Hospitalization rate for anxiety and adjustment disorders					●			
C8a.5.5	Hospitalization rate for personality disorders					●			
C8a.5.6	Hospitalization rate for other mental health diagnoses					●			
C8a.5.7	Hospitalization rate for dementia					●			
C8a.5.8	Hospitalization rate for substance-induced mental disorders					●			
C15.8	Performance index for average length of stay for psychiatric disorders					●			
C15.2	Contact with the department of mental health within 7 days from discharge					●			

code	indicator	performance score bands									
C15.9.1	Output of the therapy process: percentage of patients dropping out of the project (mental health)										●
C15.9.2	Output of the therapy process: percentage of patients dropping out of the project (addictions)										●
C8a.7	Hospitalization rate for psychiatric disorders (0-17 years)										●
C15.11	Dropout from primary care services for severe neuropsychiatric disorders										●
<b>C16</b>	<b>Emergency Department</b>	●	●	●	●	●	●	●	●	●	●
C16.1	Percentage of yellow code patients visited within 30 minutes	●	60	●	70	●	80	●	90	●	●
C16.2	Percentage of green code patients visited within 1 hour	●	60	●	70	●	80	●	90	●	●
C16.3	Percentage of green code patients not referred to hospital and with a length of stay <=4h	●	75	●	80	●	85	●	90	●	●
C16.4	Percentage of patients referred to hospital with a length of stay <=8h	●	80	●	85	●	90	●	95	●	●
C16.11	Emergency vehicle response time	●	14	●	18	●	22	●	26	●	●
<b>C18</b>	<b>Appropriateness of elective surgery</b>	●	●	●	●	●	●	●	●	●	●
C18.1	Standardized hospitalization rate for tonsillectomy	●	114,1	●	199,7	●	285,3	●	370,9	●	●
C18.2	Standardized hospitalization rate for cholecystectomy										●
C18.3	Standardized hospitalization rate for laparoscopic cholecystectomy										●
C18.4	Standardized hospitalization rate for knee replacement surgery										●
C18.5	Standardized hospitalization rate for hip replacement surgery										●
C18.6	Standardized hospitalization rate for vein stripping	●	55	●	90	●	125	●	160	●	●
C18.7	Standardized hospitalization rate for percutaneous coronary interventions (PCI)										●
C18.8	Standardized hospitalization rate for transurethral prostatectomy for benign prostatic hyperplasia										●
C18.9	Standardized hospitalization rate for hysterectomy										●
C18.10	Standardized hospitalization rate for knee arthroscopy										●
<b>C21</b>	<b>Pharmaceutical compliance</b>	●	●	●	●	●	●	●	●	●	●
C21.1.1	Percentage of AMI patients prescribed beta blockers following discharge										●
C21.1.2	Percentage of AMI patients prescribed statins following discharge										●
C21.1.3	Percentage of AMI patients prescribed ACE inhibitors or sartans following discharge										●
C21.1.4	Percentage of AMI patients prescribed antiplatelet therapy following discharge										●
C9.2	Percentage of statin-treated patients abandoning drug therapy	●	8,3	●	9,8	●	11,4	●	12,9	●	●
C9.9.1.1	Percentage of antidepressant-treated patients abandoning drug therapy	●	18,5	●	21,5	●	24,5	●	27,5	●	●
<b>D9</b>	<b>Patients leaving the Emergency Department without being seen (LWBS)</b>	●	1,25	●	2,5	●	3,75	●	5	●	●
<b>D18</b>	<b>Percentage of hospitalized patients leaving against medical advice</b>	●	0,35	●	0,7	●	1,05	●	1,4	●	●
<b>F10b</b>	<b>Governance of pharmaceutical and medical device expenditure</b>	●	●	●	●	●	●	●	●	●	●
F10.1	Local per capita pharmaceutical expenditure   	●	155,1	●	165,3	●	175,5	●	185,8	●	●
F10.2	Public pharmaceutical expenditure (hospitals)										●
F10.2.2	Average expenditure for TNF-alpha inhibitors										●
F10.3	Public expenditure on medical devices (hospitals)										●
F10.3.1	Public expenditure on extensively used medical devices										●
<b>F12a</b>	<b>Drug prescription efficiency</b>	●	●	●	●	●	●	●	●	●	●
F12a.2	Prescription of off-patent statins	●	78,3	●	81,7	●	85,1	●	88,4	●	●
F12a.6	Prescription of off-patent dihydropyridine derivatives (antihypertensives)	●	86,6	●	89,1	●	91,7	●	94,3	●	●
F12a.7	Prescription of off-patent ACE inhibitors (antihypertensives), in combination with other drugs	●	76	●	80	●	84	●	88	●	●

code	indicator	performance score bands				
F12a.9	Prescription of off-patent fluoroquinolones (antibiotics)	● 84,1	● 87,2	● 90,4	● 93,6	●
F12.11a	Prescription of off-patent sartans (alone or in combination with other drugs)	● 64,1	● 74,4	● 84,7	● 95	●
F12a.14	Prescription of off-patent drugs	● 74,4	● 75,6	● 76,7	● 77,9	●
<b>F15</b>	<b>Health and Safety at the workplace</b>	●	●	●	●	●
F15.1.1	Number of accident investigations with findings of infringements/ number of accident investigations			●		
F15.1.2	Number of occupational disease investigations with findings of infringements /number of occupational disease investigations			●		
F15.2	Inspection coverage	●	●	●	●	●
F15.2.1	Number of companies inspected /number of companies with employees	● 2,25	● 5	● 7,75	● 10,5	●
F15.2.2	Number of construction companies inspected /number of registered construction companies	● 13	● 27	● 41	● 55	●
F15.2.3	Number of construction sites inspected /number of registered construction sites	● 5	● 14	● 23	● 32	●
F15.3	Productivity	●	●	●	●	●
F15.3.1	Number of companies inspected /number of Health and Safety at the workplace and Judicial Police operators	● 16	● 37	● 58	● 79	●
F15.3.2	Number of inspections/ number of Health and Safety at the workplace and Judicial Police operators	● 18	● 67	● 116	● 165	●
<b>F17</b>	<b>Per capita health expenditure (Regions)</b>	● 1740	● 1889	● 2039	● 2189	●
<b>F17</b>	<b>Per capita health expenditure (Local Health Authorities)</b>	● 1476	● 1641	● 1806	● 1971	●
F17.1	Per capita expenditure for hospital care			●		
F17.1.1	Per capita expenditure for acute inpatient hospital admissions/day hospital/day surgery			●		
F17.2	Per capita expenditure for public health in living and working environments			●		
F17.3	Per capita expenditure for primary and specialist care			●		
F17.3.1	Per capita expenditure for specialist healthcare			●		
F17.3.1.1	Per capita expenditure for diagnostic medical imaging			●		
F17.3.2	Per capita expenditure for general practice			●		
<b>F18</b>	<b>Average cost for hospital care</b>	●	●	●	●	●
F18.1	Average hospital cost per weighted case	● 3202,43	● 4050,86	● 4899,29	● 5747,72	●
<b>F19</b>	<b>Cost for diagnostic tests</b>	● 0,69	● 0,97	● 1,25	● 1,53	●

**The Network of Regions: the sharing process**

The Network of Regions was activated by the MeS Laboratory in 2008 and initially involved four Regions. The first performance dimension analysed was "Quality, appropriateness, continuity of care, patient safety", with 45 indicators. Over the years, other Regions joined the system. Adopting a shared decision process, all six performance dimensions were developed progressively, with a current total of around 200 indicators.

The main goal of this sharing process was to ensure transparent project implementation, essential to facilitating acceptance of the tool as a means of going beyond a self-referential approach in healthcare, and improving performance by systematic comparison with other entities.

In the first few years, the evaluation process was based on quintiles. Performance results were assigned to one of five equal-sized colour bands, as shown in Figure 1. The method had its limitations, however. Regions with a large number of Health Authorities tended to attain only average performance scores. To avoid this shortcoming, from 2011 onwards the Regions began sharing reference standards for each indicator, with the result that the performance bands now reflect these standards.

SCORE	BAND COLOUR	PERFORMANCE
4 - 5	DARK GREEN	EXCELLENT
3 - 4	GREEN	GOOD
2 - 3	YELLOW	AVERAGE
1 - 2	ORANGE	POOR
0 - 1	RED	VERY POOR

Figure 1. Performance evaluation bands.

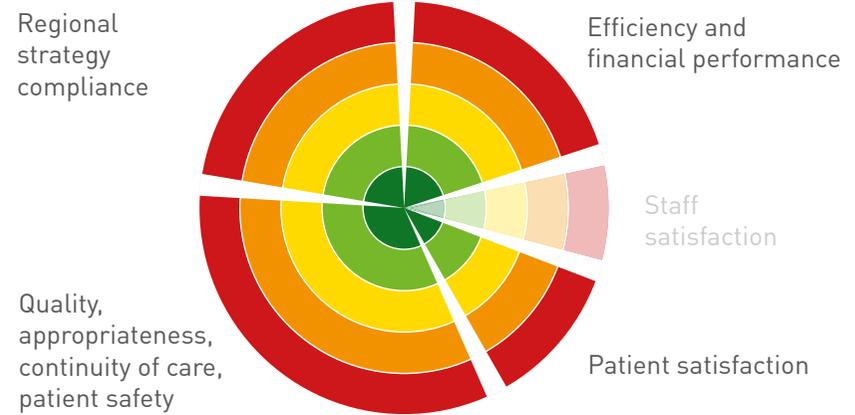


Figure 2. The dartboard and the five indicator dimensions.

**Performance reporting**

Since 2008, an annual report has been published of the healthcare results of the Regions and their Health Authorities. For the first two years, only internal use was made of the report by the Regions belonging to the Network as a means of facilitating knowledge dissemination and understanding of the benchmarking tool among system players. In 2010, the reports have been made publicly available to all stakeholders, including citizens and users. Indeed, the Regions belonging to the Network consider transparency and accountability as fundamental values.

The report includes the rationale for each indicator, the calculation criteria and the comparisons between Regions and the Health Authorities of all Regions.

Indicators are graphically depicted on a "dartboard" (Figure 2). The dartboard has been conceptualized to simultaneously summarize in a single figure the six performance dimensions of the system. It offers an immediate overview of the strengths and weaknesses of the Regions/Health Authorities. Best performance indicators are found in the centre of the dartboard. Worst performance indicators are located in the outer red band of the dartboard.

Each indicator is graphically shown on a cartogram and by means of two histograms. The first histogram shows the comparison between all the Regions, and also the ongoing trend evidenced (Figure 3). The second histogram reports the comparison between all the Health Authorities of each Region or Province (Figure 4).

The dartboard allows visualization of the most relevant performance results, giving a "snapshot" of each organization's strengths and weaknesses. It does not, however, highlight the trend of each Health Authority and of each Region. A new performance representation – the performance map – has been developed to show performance improvements. The map shows the performance of each organization (Region/Province/Health Authority) in

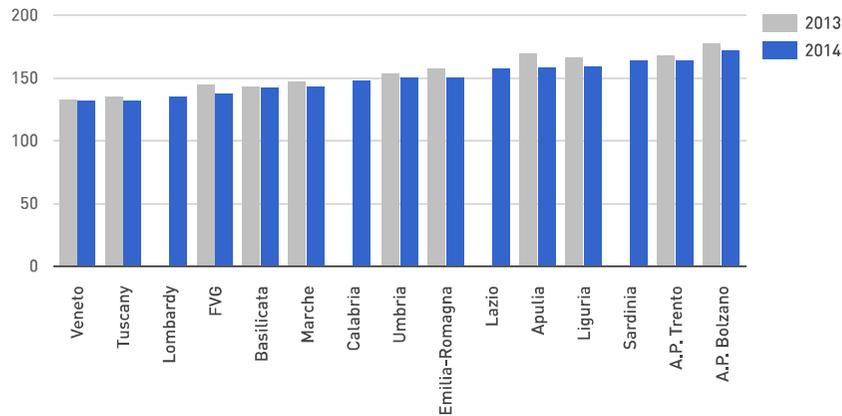


Figure 3. Regional comparison chart.

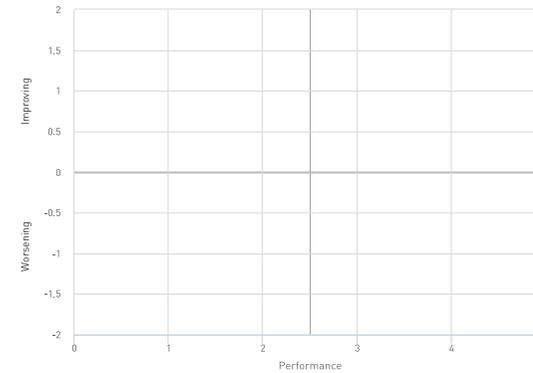


Figure 5. Performance map.

the current year and the improvement attained, measured against the previous year and against the other organizations.

The maps (see Figure 5) show the improvement attained (indicated on the vertical axis, y) by each indicator, calculated as the 2014-2013 percentage variation re-scaled to a range going from -2 to +2 (where -2 indicates the worst improvement and +2 the best improvement). Performance (shown on the horizontal axis, x) corresponds to the 2014 performance score for each indicator.

The maps therefore comprise four main quadrants. An indicator located in the upper

right quadrant has achieved good performance both in terms of the 2014 results and the 2013/2014 improvement. An indicator located in the upper left quadrant, although not attaining a good score in 2014, nonetheless shows improvement on 2013 (compared to other Regions/Provinces/Health Authorities) and is 'on the path' to improvement. An indicator located in the lower right quadrant is one that although showing a good result in 2014, reveals a downward trend (compared to the others), placing it in an "alert" status. Finally, an indicator located in the lower left quadrant is an "area to be improved", with poor performance and with a worsening trend.

Two performance maps are presented for each Region. The first focuses on hospital services, the second on primary care (Table 2 and Table 3). Due to the large number of indicators in the system, we have included only the most significant indicators, i.e. those considered drivers of the others, for which data for the current and past years are available.

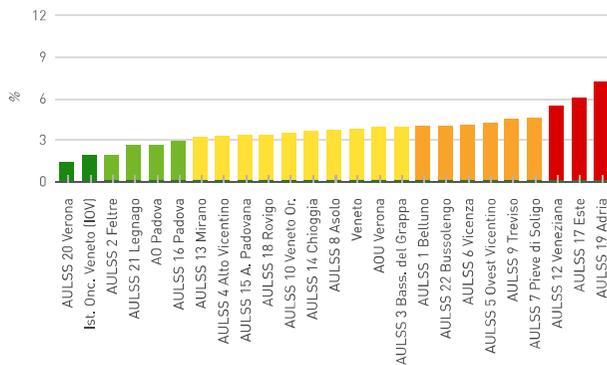


Figure 4. Health Authorities comparison chart.

C2a.M	Performance index for average hospital length of stay of acute medical DRGs
C2a.C	Performance index for average hospital length of stay of acute surgical DRGs
C3.4	Preoperative average hospital length of stay for elective surgery of more than 1 day (teaching/research/autonomous general hospitals)
C4.1	Percentage of medical DRGs discharged from surgical wards
C4.7	Percentage of Day Surgery admissions for "ELC surgical DRGs"
C5.1	Percentage of readmissions within 30 days
C5.2	Percentage of femoral neck fractures operated within 2 days of admission
C5.3	Percentage of transurethral prostatectomies
C16.7	Percentage of surgical admissions from Emergency Department (ED) with surgical DRG on discharge
C7.1	Percentage of C-section deliveries (NTSV)
C16.1	Percentage of yellow code patients visited within 30 minutes
D9	Patients leaving the Emergency Department without being seen (LWBS)
D18	Percentage of hospitalized patients leaving against medical advice
C16.4	Percentage of patients referred to hospital with a length of stay <=8h
F18.1	Average hospital cost per weighted case

**Table 2.** List of the indicators included in the hospital services performance map.

B4.1.1	Opioid consumption
B7.2	Flu vaccine coverage for the elderly
B28.1.2	Percentage of elderly provided with homecare, with assessment
C1.1.1	Standardized hospitalization rate of acute inpatients
C4.8	Medical ELC DRGs: standardized hospitalization rate
C7.7	Paediatric hospitalization rate (0-14 years)
C8b.2	Hospital admission rate with length of stay of over 30 days
C8a.13a	Percentage of psychiatric patient readmissions 8 - 30 days following discharge
C9.8.1.1	Consumption of antibiotics
C11a.1.1	Heart failure hospitalization rate (50-74 years)
C11a.2.1	Diabetes hospitalization rate (35-74 years)
C11a.3.1	COPD hospitalization rate (50-74 years)
C13a.2.2.1	Musculoskeletal MRI scan rate (> 65 years)
C13a.2.2.2	Percentage of patients repeating lumbar MRI scan within 12 months
F10.1	Local per capita pharmaceutical expenditure   
F12a.14	Prescription of off-patent drugs

**Table 3.** List of the indicators included in the primary care performance map.



3

THE DARTBOARDS

## The Performance of Basilicata Region in 2014

Improving its population's health is the goal of every healthcare system. The population of the Basilicata presented low cancer and suicide rates, but more critical cardiovascular and infant mortality. The national "PASSI" survey highlighted the need to pay more attention to population lifestyles, in particular obesity and sedentary life. General practitioners in the Region do not, however, seem to show particular awareness of these issues.

As regards the ability to implement specific health policies, vaccine coverage proved generally good, with the exception of the flu vaccine for the elderly, which dropped sharply compared to 2013. In addition, focus on pain management - measured through opioid consumption - was still scant.

Although the hospitalization rate reflected good demand management capacity, medical day hospital numbers remain a critical issue. Recourse of medical cases to the hospital care setting still showed some inappropriateness: the high day hospital admission rates for diagnostic procedures and the high percentage of medical admissions over the threshold of patient of over 65 years signal possible problems in redirecting activities towards outpatient and primary care. Proper use of the surgical care setting was also shown to be critical. Length of hospital stay, however, performed well in both medical and surgery units.

The organization and quality of hospital processes presented mixed performance. For example, widespread use of transurethral prostate resection has to be set against the suboptimal timeframes observed for femur fractures.

Emergency Department waiting times proved on the whole very moderate. This was reflected in the lower percentage of people leaving the Emergency Department without being seen. On the other hand, the high number of voluntary discharges against medical advice observed indicates low patient satisfaction of hospital services.

The maternal and child pathway proved critical, with particularly high recourse to caesarean delivery. The oncological pathway performed well, despite a certain widespread distribution of surgical cases among hospitals. Mental healthcare indicators returned an average performance, although the high number of readmissions for psychiatric pathologies within 8 - 30 days points to primary care issues.

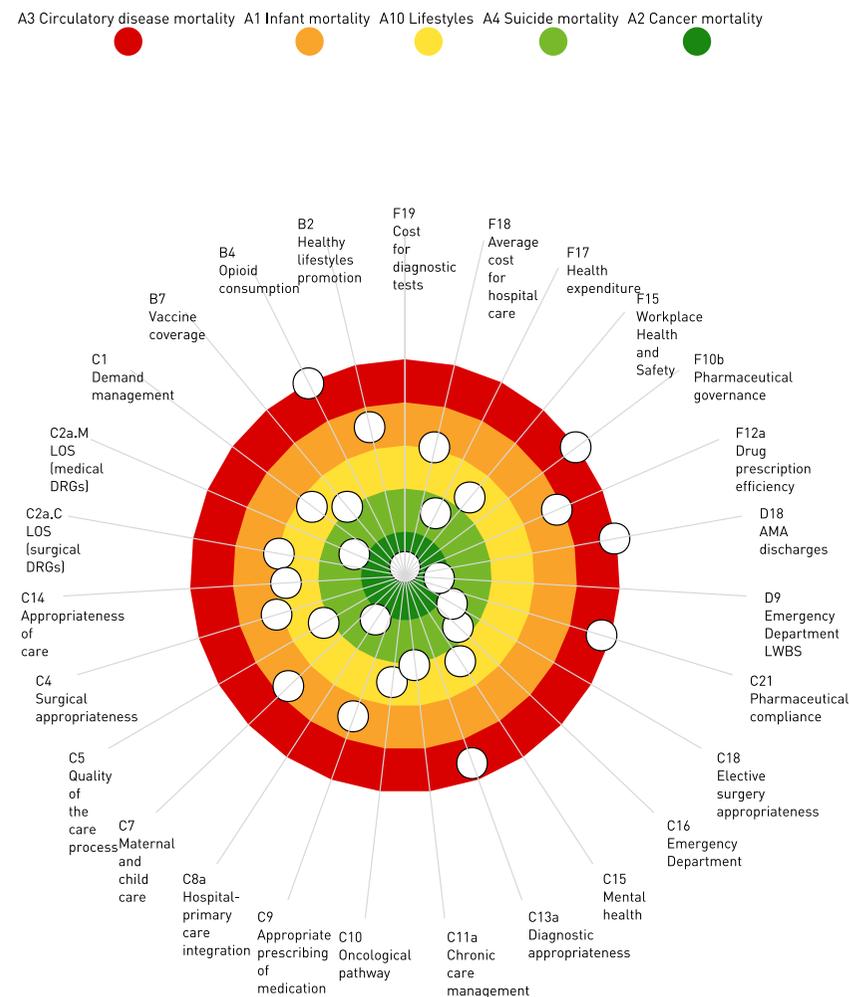
In terms of potential inappropriate surgery, both tonsillectomy and vein stripping procedures were moderate. Some potential inappropriateness of diagnostic procedures was observed, however: the number of musculoskeletal MRIs administered to the elderly and lumbar MRI repeated within 12 months - two diagnostic procedures at high-risk of inappropriateness - was high.

The evaluation showed an improvement in chronic disease care, with a fall in hospitalization rates for practically all the major pathologies. Indicators on hospital-primary care integration were generally positive.

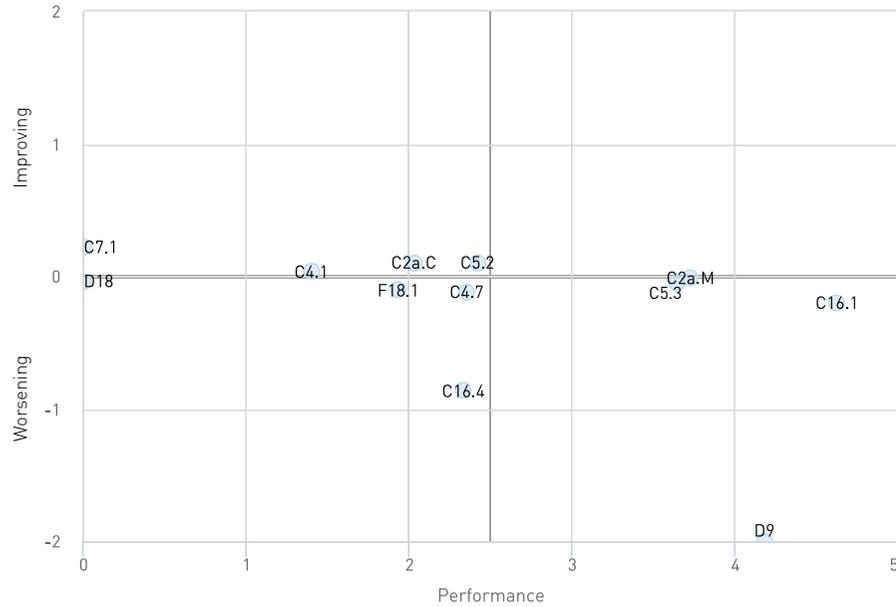
Pharmaceutical management proved an area requiring closer attention, along with the attendant high pharmaceutical expenditure. Indicators showed poor prescription appropriateness, low compliance and scant inclination to prescribe off-patent drugs.

Overall healthcare costs were generally in line with the average of the other Regions, with substantially lower costs for diagnostic activity but higher hospitalization expenditure.

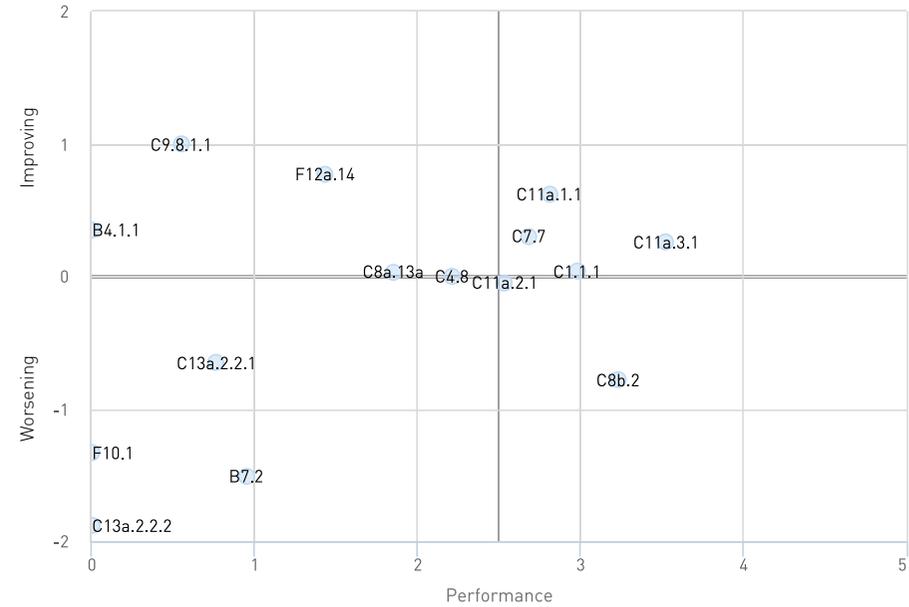
## Population's health - 2010-2012



### HOSPITAL SERVICES PERFORMANCE MAP



### PRIMARY CARE PERFORMANCE MAP

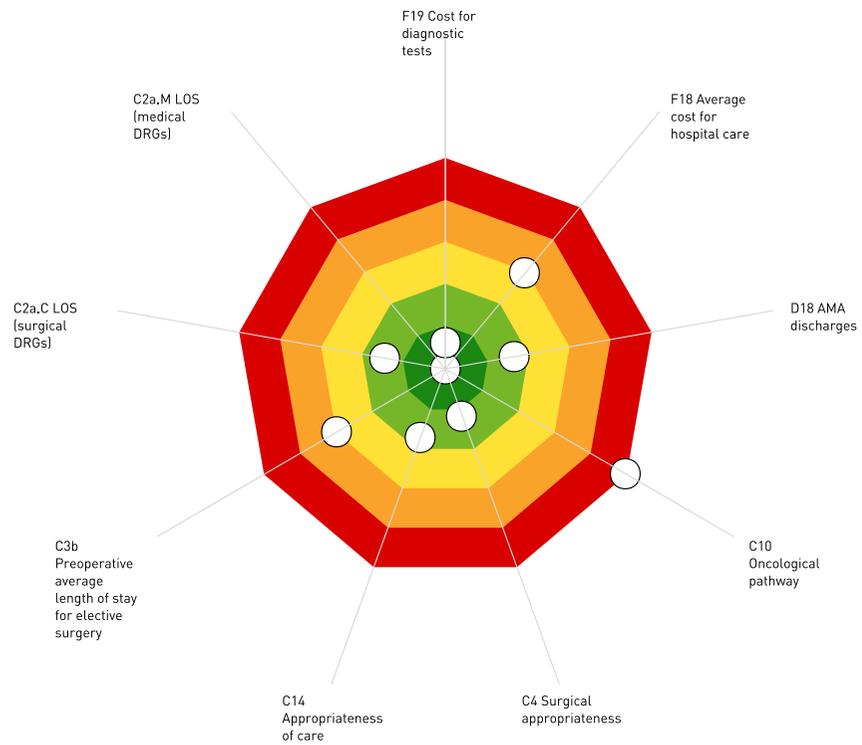


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F18.1	Average hospital cost per weighted case

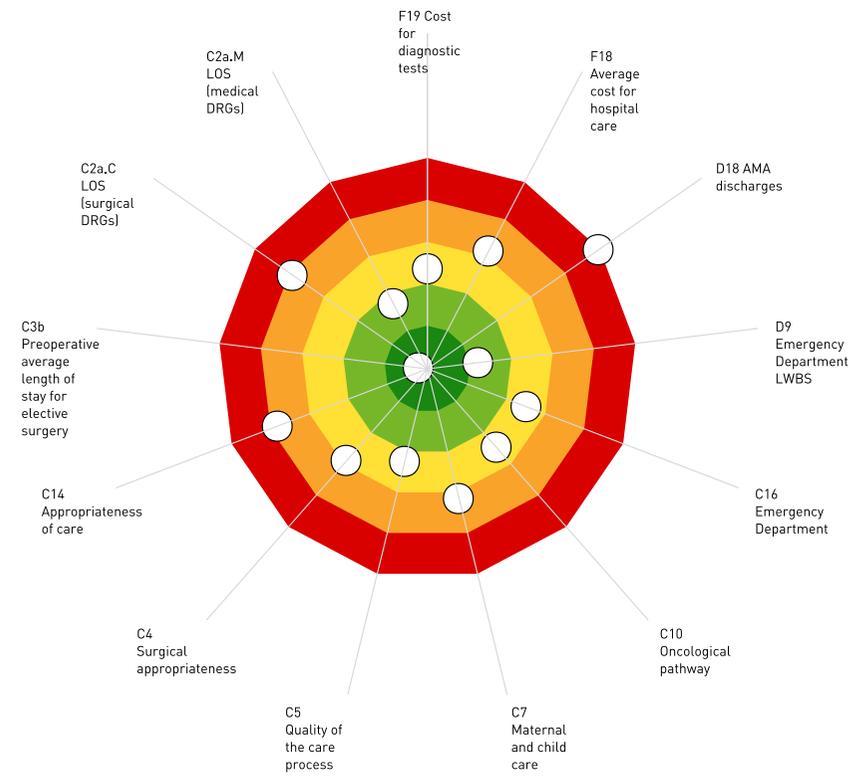
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C13a.2.2.1	Musculoskeletal MRI scan rate (> 65 years)
C13a.2.2.2	Percentage of patients repeating lumbar MRI scan within 12 months
F10.1	Local per capita pharmaceutical expenditure   
F12a.14	Prescription of off-patent drugs



## IRCCS CROB Rionero



## A0 S. Carlo



## The Performance of Emilia-Romagna Region in 2014

Improving its population's health is the goal of every healthcare system. The population of Emilia-Romagna presented low cardiovascular mortality, while infant and cancer mortality rates were in line with the other Regions. The suicide rate was observed to be higher than in the other Regions of the network. The national "PASSI" survey showed the population to have generally healthy lifestyles, despite the higher percentage of obese and overweight people in Emilia Romagna compared to the other Regions. However, general practitioners proved committed to promoting healthy lifestyles.

In terms of implementing specific health policies, vaccination coverage was in line with the other Regions, although more attention should be paid to flu vaccine. Opioid prescription – considered a proxy for pain management capability – achieved average performance levels. Cancer screening, on the other hand, stood out for the excellent results.

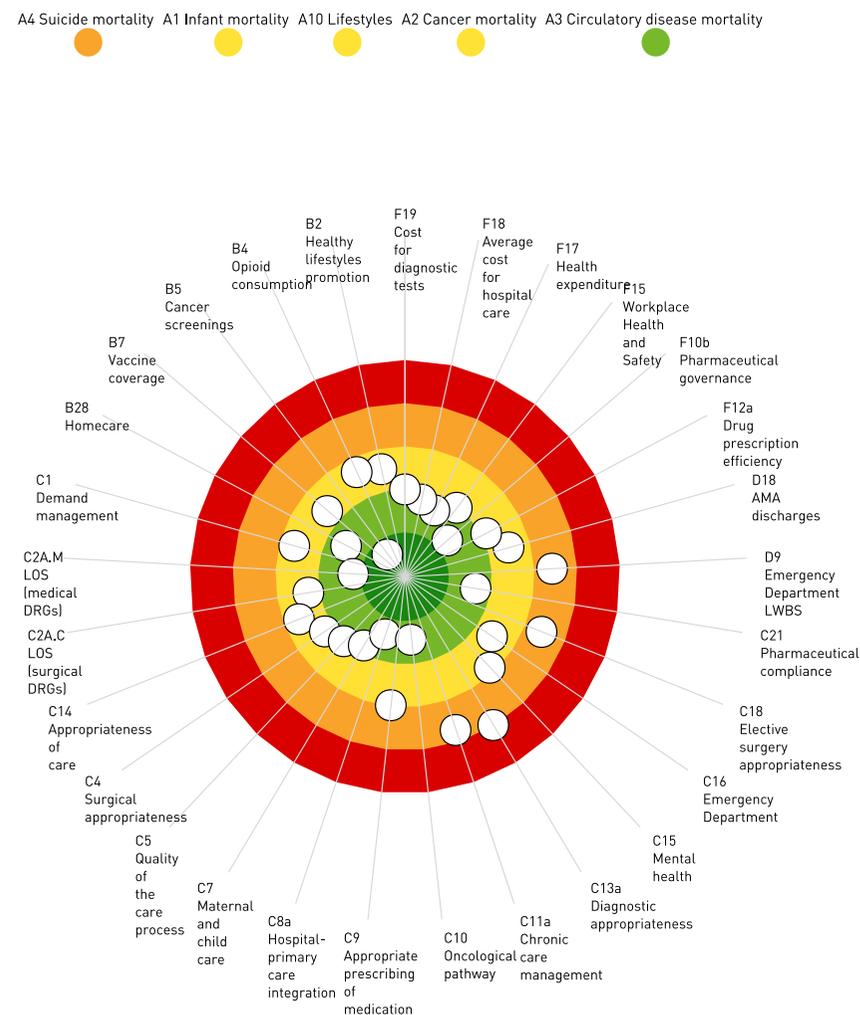
The moderate hospitalization rate reflected good demand management capability. Management of medical cases still presented some elements of inappropriateness: the high hospitalization rate of ELC DRGs is possibly indicative of difficulty to redirect some activities to outpatient facilities and primary care. The surgical care setting suffers particularly from inappropriate use. It follows that the day surgery setting - still not fully implemented in some Local Health Authorities - must be further enhanced. Length of hospital stay presented very good overall performance rates for both medical and surgical cases. These latter were seen to have further improved on 2013. The organization of hospital processes proved generally good. Waiting times in the Emergency Departments were in line with the other Regions, despite some difficulty in the timely management of green and yellow codes, reflected in the above average - and increasing - dropout rate. The number of hospitalized patients leaving against medical advice – a proxy indicator of low patient satisfaction – was in line with the other Regions.

The management of the maternal and child pathway proved excellent, with low recourse to caesarean delivery and episiotomy. The oncological pathway presented excellent results in terms of outputs, despite widespread distribution of prostate cancer procedures. Mental healthcare indicators returned average performance, although the high number of readmissions for psychiatric pathologies within 7 days of discharge needs further investigation.

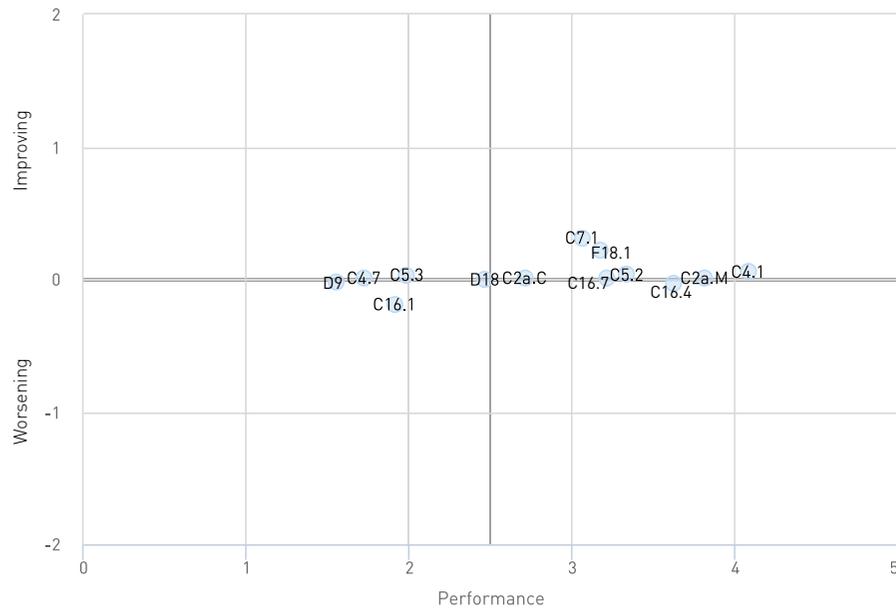
In terms of potentially inappropriate surgery, both tonsillectomy and vein stripping procedures were performed more frequently than the average for the Regions, although a wide variation was observed among the Emilia-Romagna Local Health Authorities. The large number of diagnostic musculoskeletal resonance procedures carried out on the elderly and lumbar MRI repeated within 12 months signals the likelihood of inappropriateness. Chronic disease management was still seen to be a critical area, despite the falloff in hospitalization rates for all major diseases. Indicators assessing integration between hospital and primary care were excellent, with limited hospitalization rates for paediatric diseases. Although still about the average, hospitalization for paediatric gastroenteritis showed a downward trend.

Pharmaceutical expenditure proved the lowest in the network. This is the result of good prescription appropriateness, patient compliance and off-patent drug prescription by doctors. Overall costs and diagnostic costs were in line with the average of the Regions. Hospital care costs were seen to be the lowest in the network.

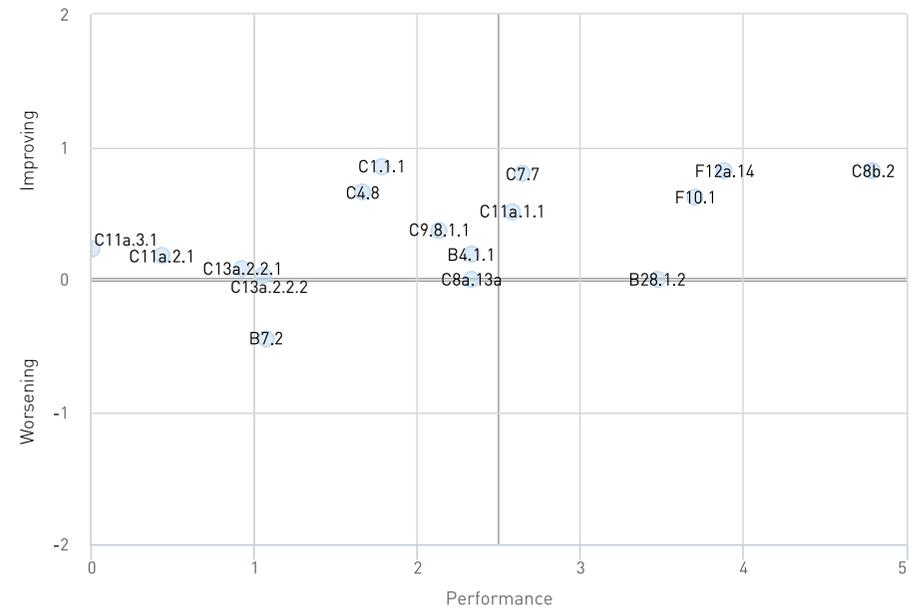
## Population's health - 2010-2012



HOSPITAL SERVICES PERFORMANCE MAP



PRIMARY CARE PERFORMANCE MAP



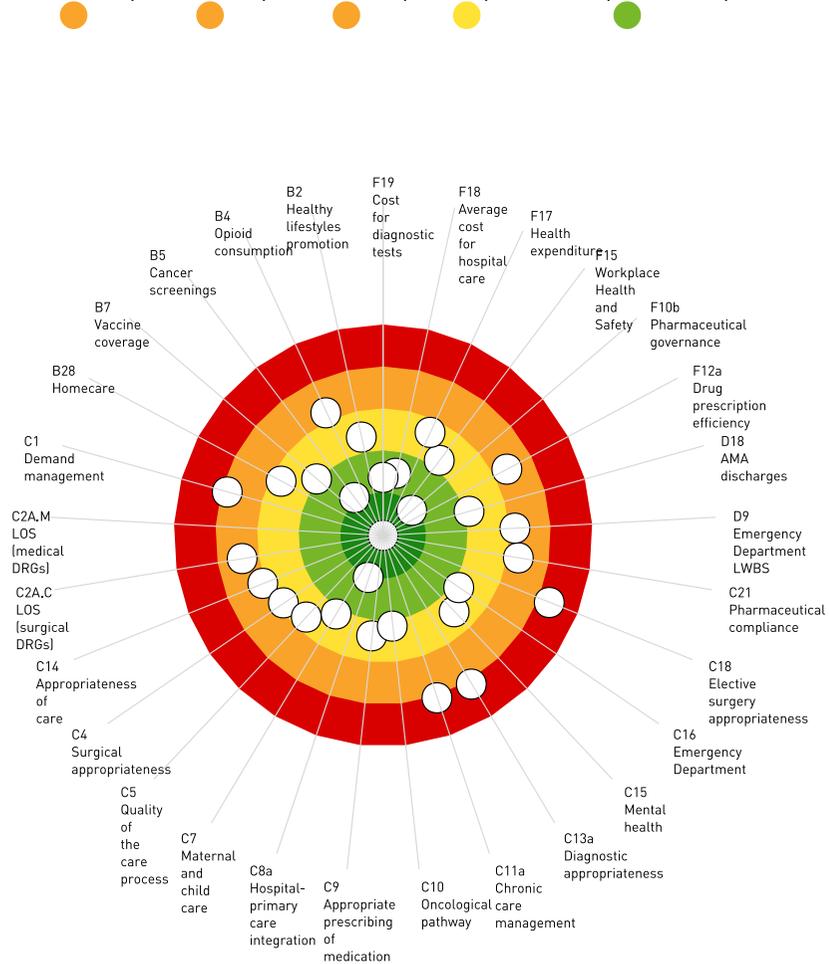
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F10.1	Local per capita pharmaceutical expenditure   
F12a.14	Prescription of off-patent drugs

# AUSL Piacenza

## Population's health - 2010-2012

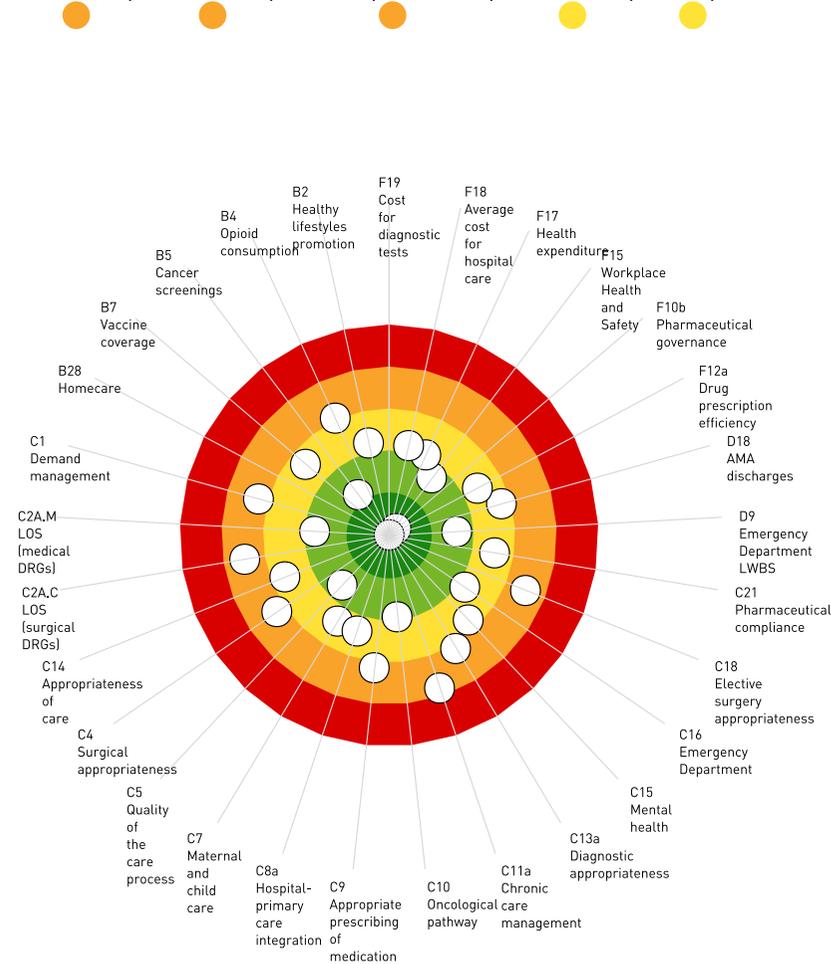
A2 Cancer mortality A1 Infant mortality A4 Suicide mortality A10 Lifestyles A3 Circulatory disease mortality



# AUSL Parma

## Population's health - 2010-2012

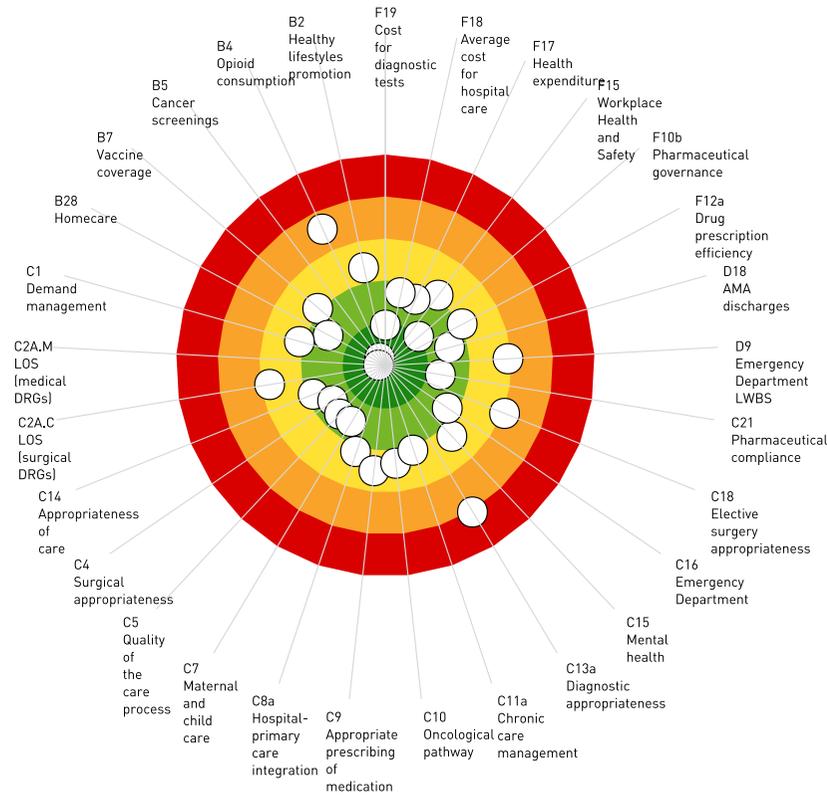
A1 Infant mortality A4 Suicide mortality A3 Circulatory disease mortality A2 Cancer mortality A10 Lifestyles



# AUSL Reggio Emilia

Population's health - 2010-2012

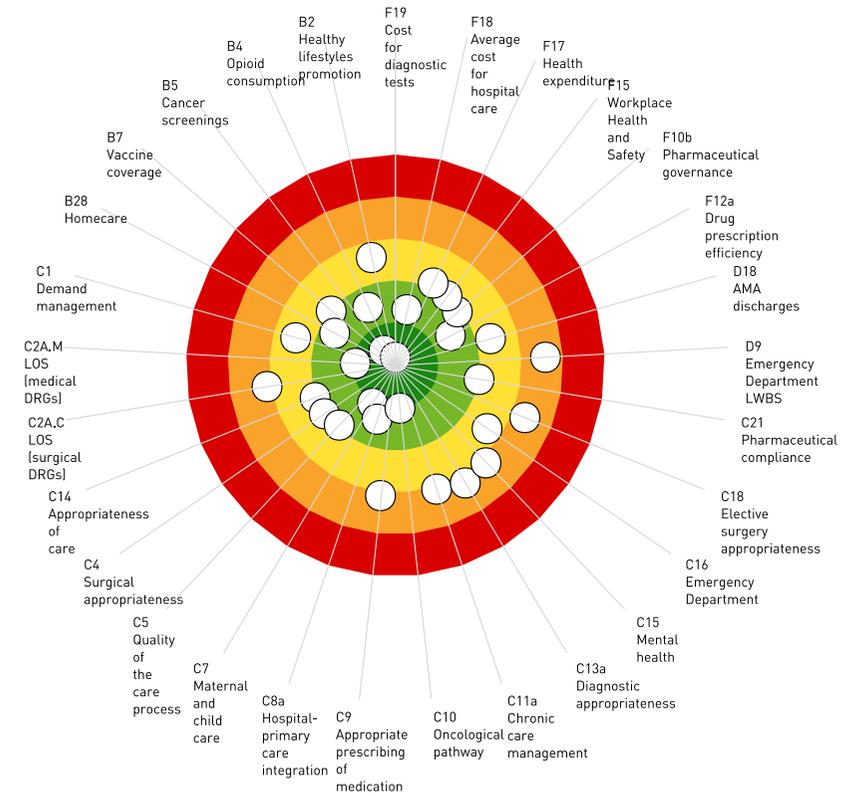
A1 Infant mortality A4 Suicide mortality A3 Circulatory disease mortality A10 Lifestyles A2 Cancer mortality



# AUSL Modena

Population's health - 2010-2012

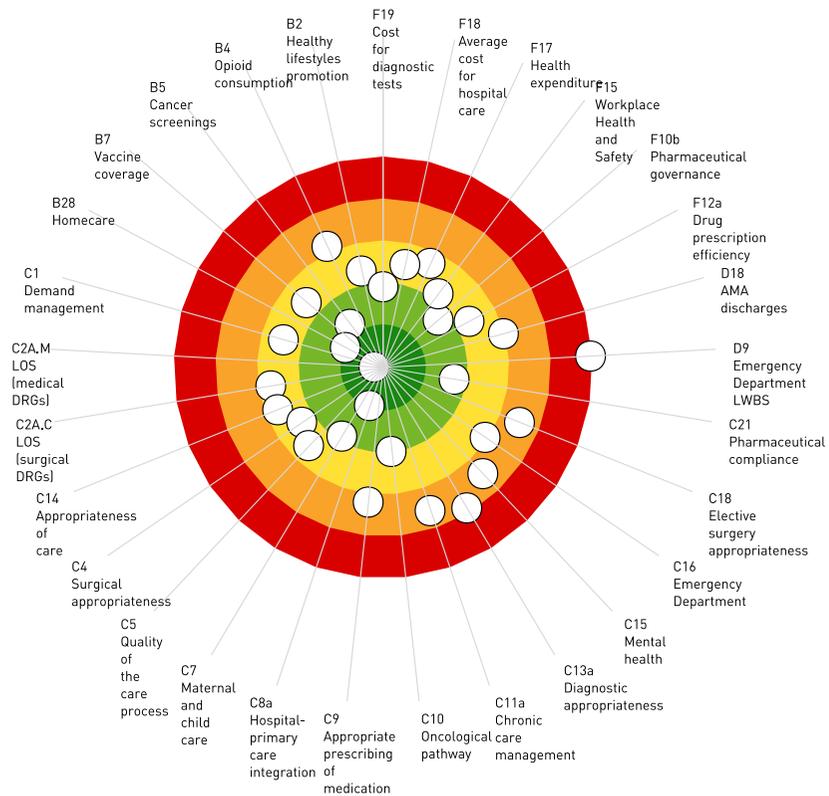
A1 Infant mortality A4 Suicide mortality A10 Lifestyles A2 Cancer mortality A3 Circulatory disease mortality



# AUSL Bologna

## Population's health - 2010-2012

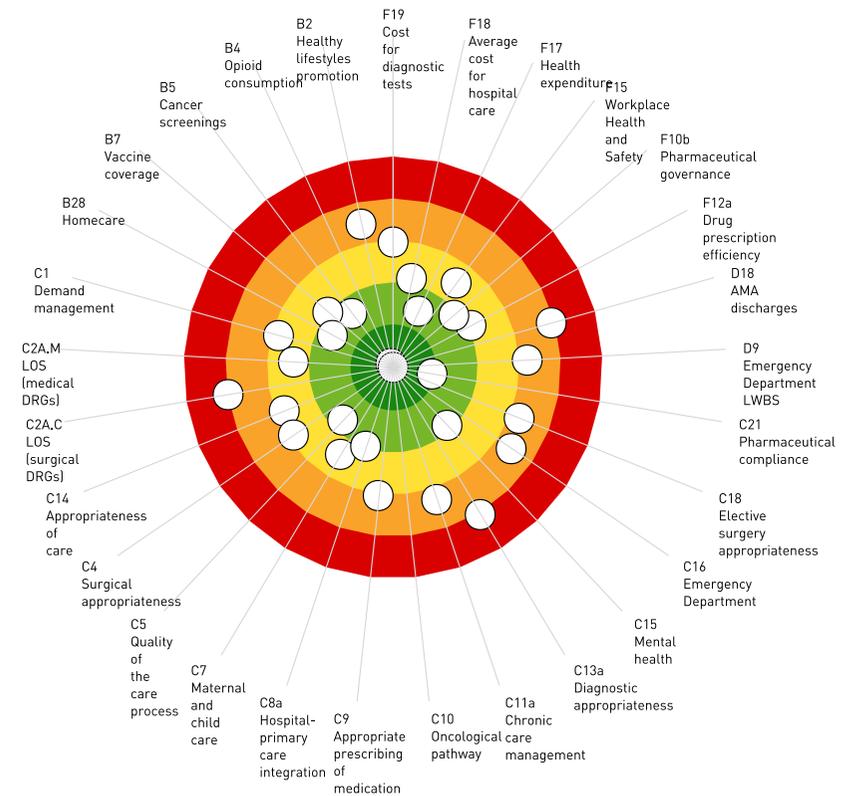
A4 Suicide mortality A10 Lifestyles A2 Cancer mortality A1 Infant mortality A3 Circulatory disease mortality



# AUSL Imola

## Population's health - 2010-2012

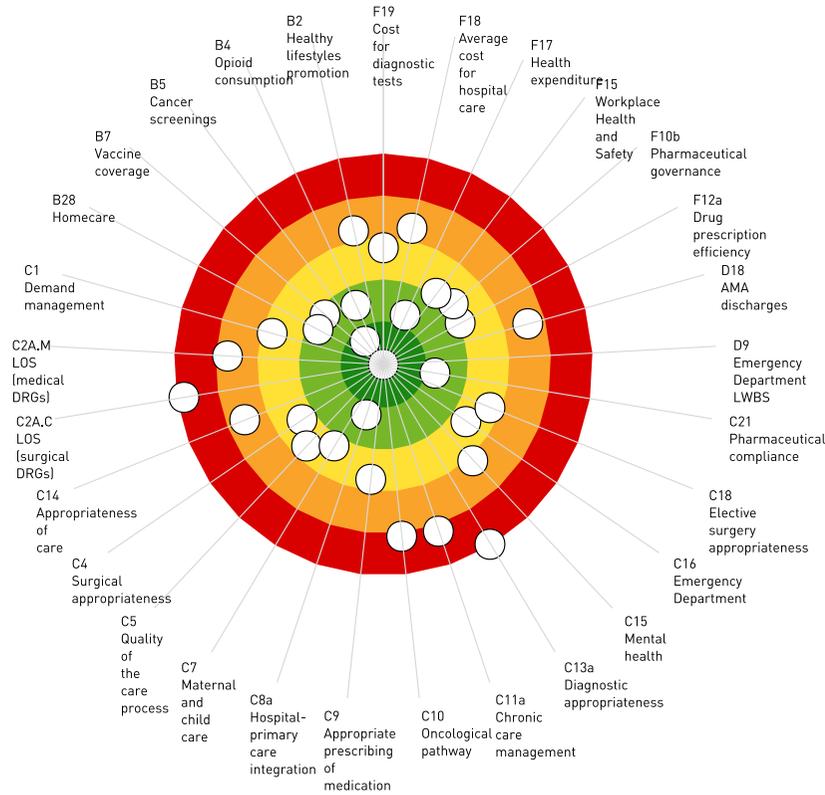
A4 Suicide mortality A10 Lifestyles A2 Cancer mortality A1 Infant mortality A3 Circulatory disease mortality



## AUSL Ferrara

### Population's health - 2010-2012

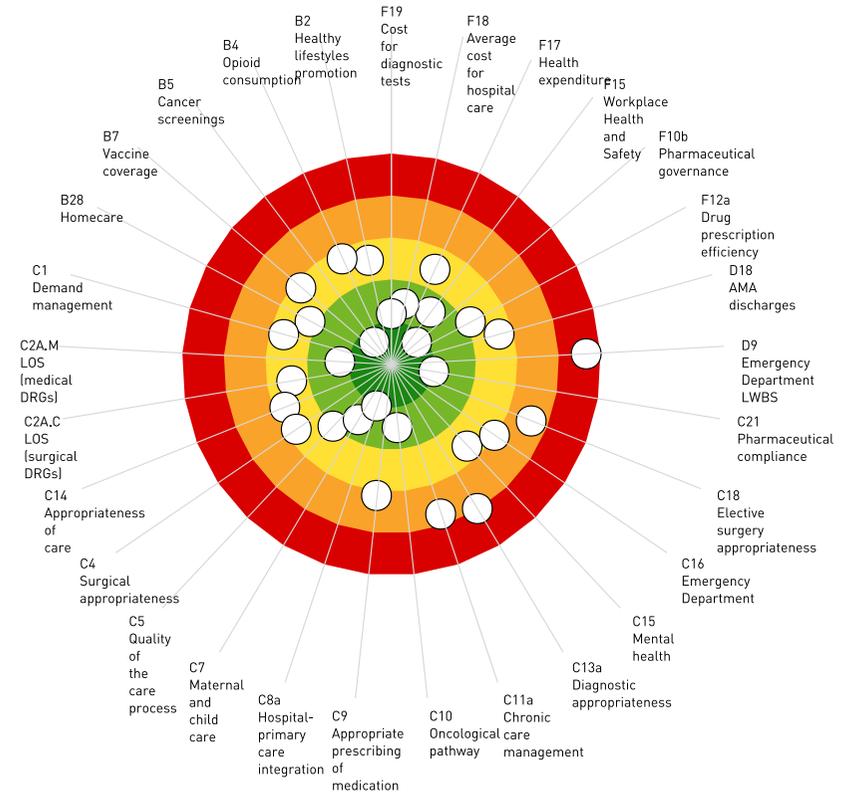
A3 Circulatory disease mortality A4 Suicide mortality A2 Cancer mortality A1 Infant mortality A10 Lifestyles



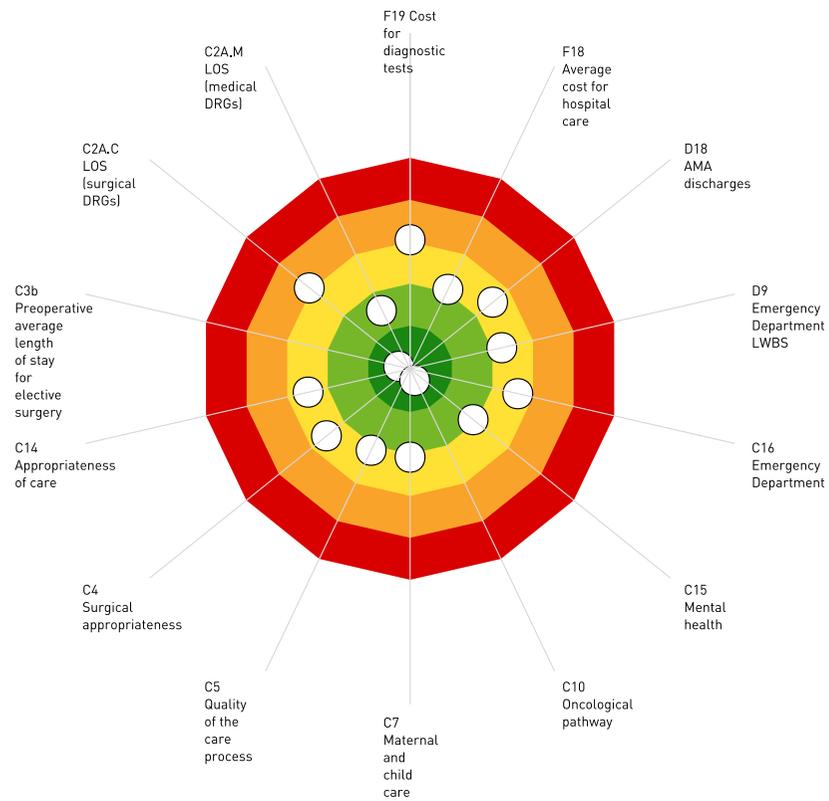
## AUSL Romagna

### Population's health - 2010-2012

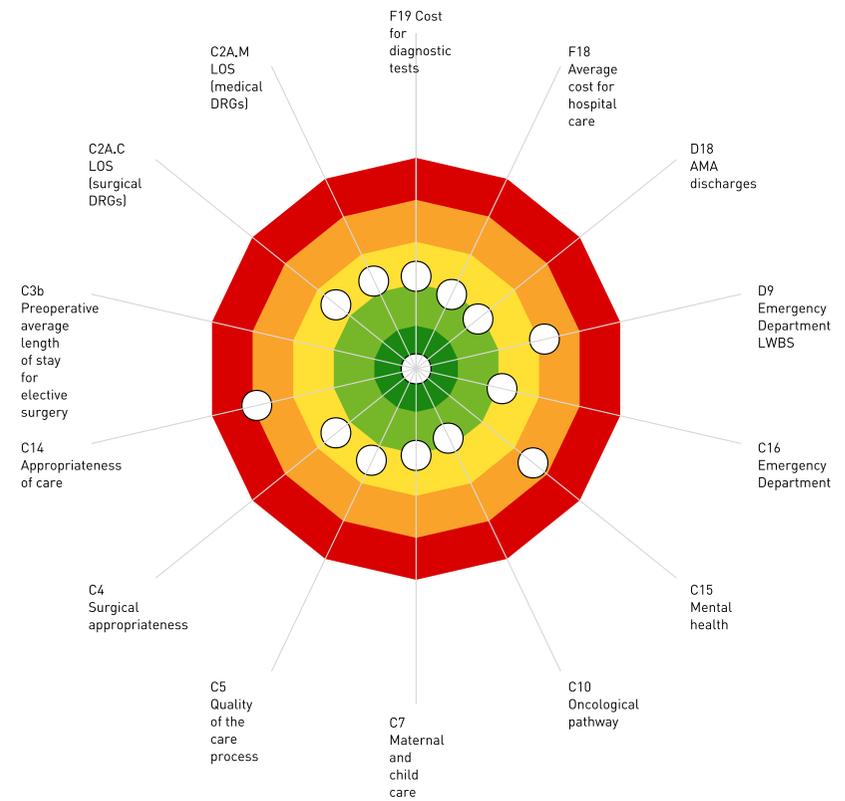
A4 Suicide mortality A10 Lifestyles A1 Infant mortality A2 Cancer mortality A3 Circulatory disease mortality



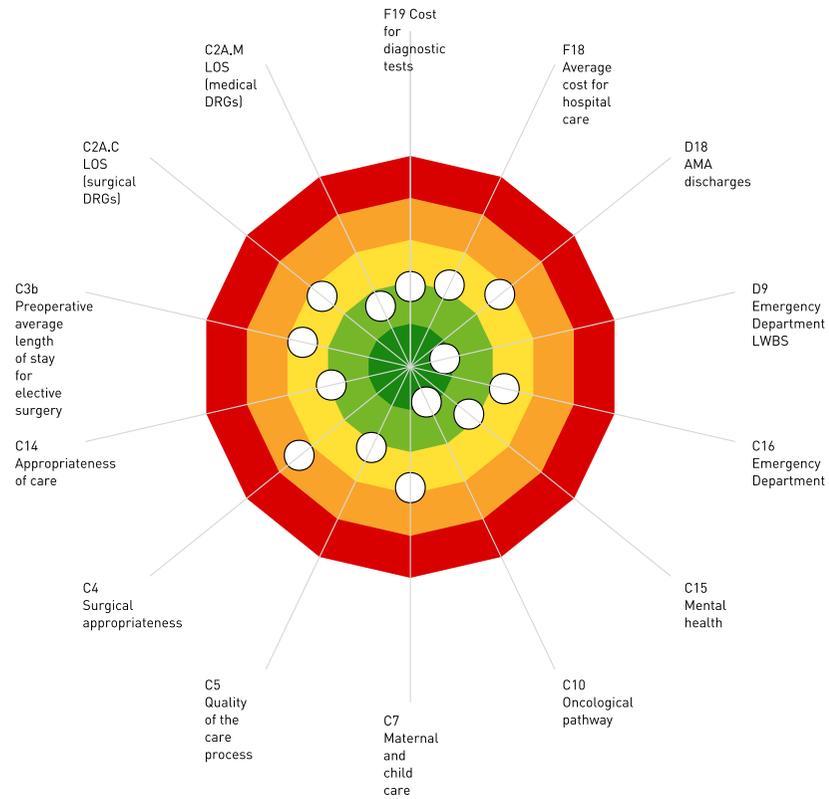
## AOU Parma



## AOU Modena



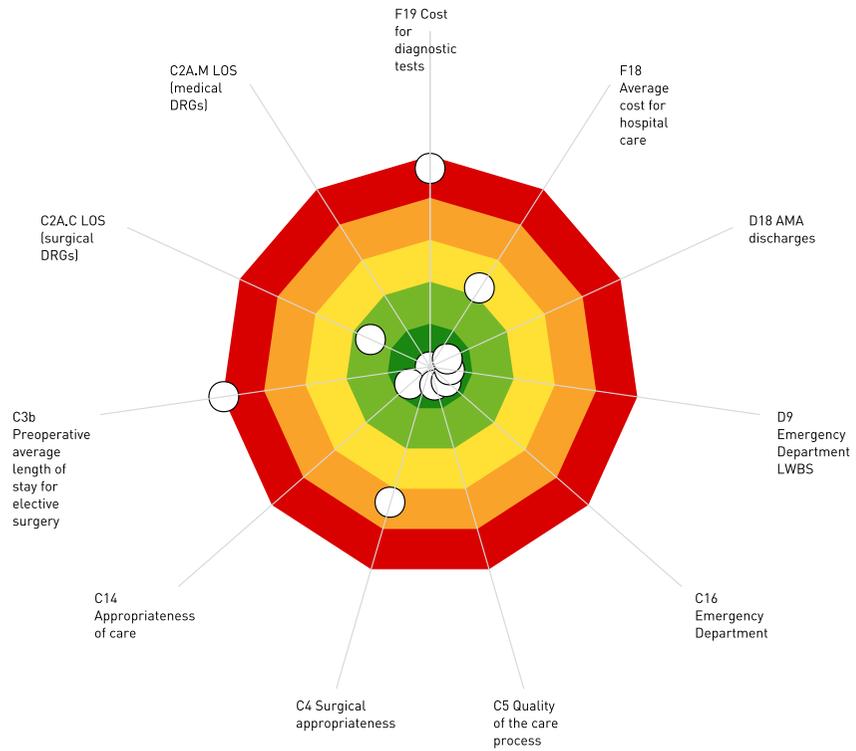
## AOU Bologna



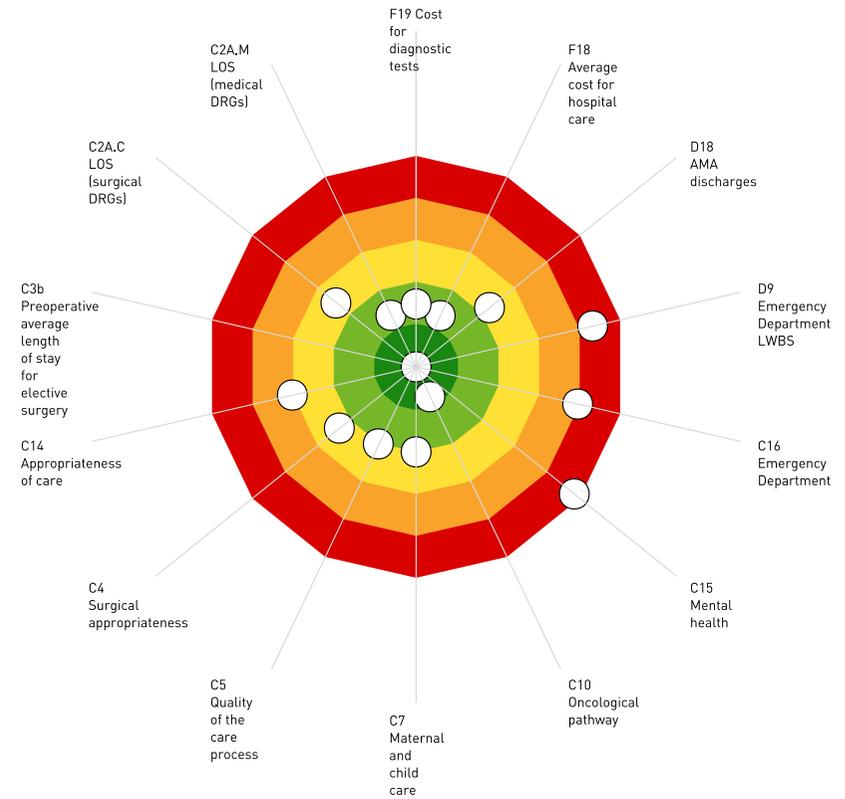
## AOU Ferrara



## IRCCS Rizzoli



## AO Reggio Emilia





## The Performance of Friuli Venezia Giulia Region in 2014

Improving its population's health is the goal of every healthcare system. The population of Friuli Venezia Giulia presents low cardiovascular mortality but higher than network average cancer and suicide mortality. The national "PASSI" survey showed that greater focus must be given to population lifestyles, in particular obesity and alcohol consumption. General practitioners must therefore be encouraged to promote healthy lifestyles.

In terms of implementing specific health policies, the level of vaccination coverage was seen to have fallen, critical areas being the flu vaccine among the elderly and Papilloma virus coverage. On the other hand, focus on pain management, measured through opioids consumption, was high. Cancer screening programmes showed satisfactory performance overall.

The Region's moderate hospitalization rate reflected good demand management capability. However, recourse to hospital care for medical cases still showed some elements of inappropriateness: the high day hospital rate for diagnostic procedures and the high percentage of over the threshold medical admissions of patients over 65 signal possible difficulty in redirecting certain activities to outpatient and primary care settings. Home care was seen to be below average compared to the rest of the network. The ability to appropriately use surgical care, on the other hand, proved excellent, with the only exception of one-day laparoscopic cholecystectomies.

Between 2013 and 2014, length of stay - for both medical and surgical cases - fell, with values now in line with the network average.

The organization of hospital processes proved generally in line with the other Regions. Although readmissions are still high, there has nonetheless been a clear improvement in the percentage of femur fractures operated within 2 days.

The Emergency Departments showed slightly lower performance in green code management and the number of patients leaving without being seen increased. Low voluntary hospital discharges - a proxy of patient satisfaction - are a best practice among the Regions of the network.

Maternal and child pathway management remained fairly good. While recourse to caesarean delivery was the lowest observed, induced and operative deliveries were high. The oncological pathway showed good results, both in terms of outputs and case concentration. The mental healthcare indicators confirmed the Region's extremely good performance.

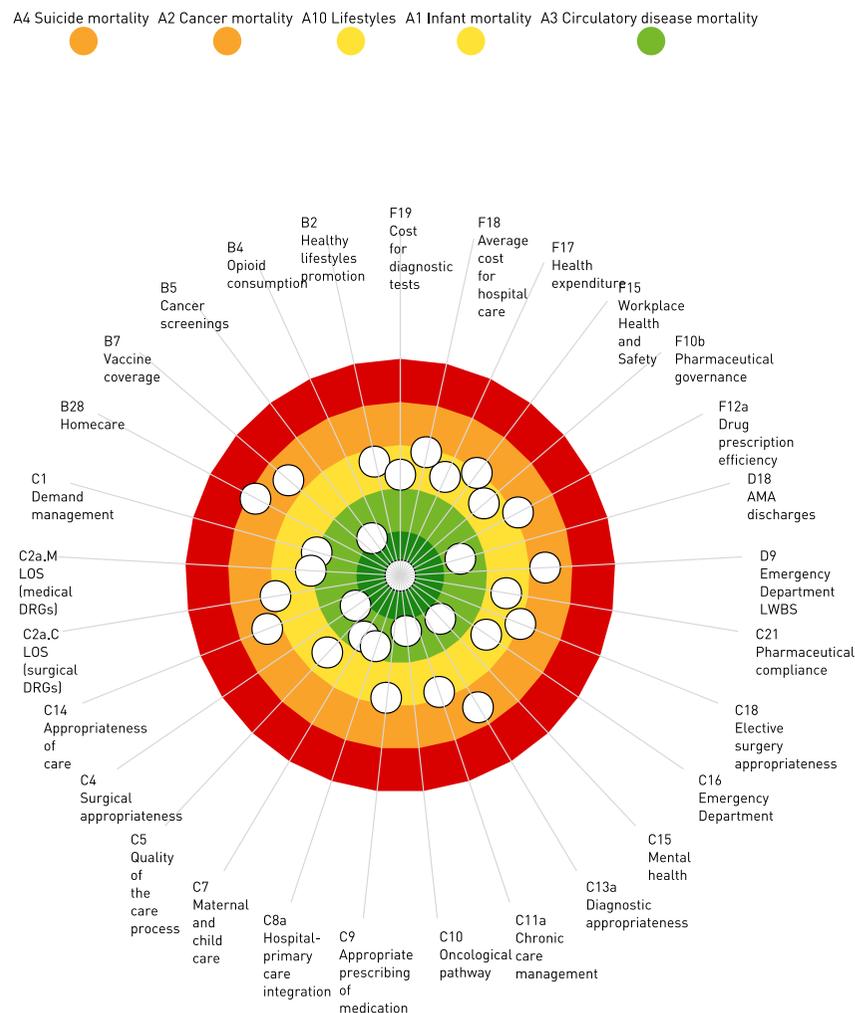
In terms of potentially inappropriate surgery, vein-stripping procedures were still frequently observed. As to appropriate diagnostic procedure prescription, the Performance Evaluation System shows Friuli Venezia Giulia as still making excessive use of musculoskeletal MRIs among the elderly, a procedure considered at high risk of inappropriateness. In fact, the number of procedures increased compared to 2013.

Chronic disease management improved, as shown by the fall in the hospitalization rates for all major diseases. The indicators showing the integration between hospitals and primary care were also generally good.

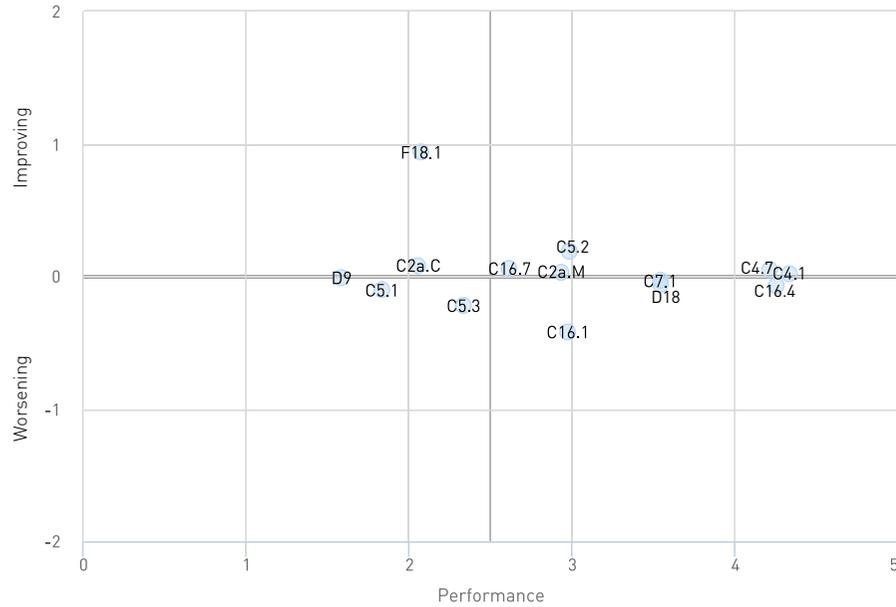
Pharmaceutical expenditure was in line with the other Regions, as were prescription appropriateness and compliance. Prescription efficiency - i.e. prescription of off-patent drugs - should, however, be more carefully monitored.

Overall healthcare costs and diagnostic procedure costs were in line with the average of the other Regions, while the cost for hospital care, although high, showed a significant fall between 2012 and 2013.

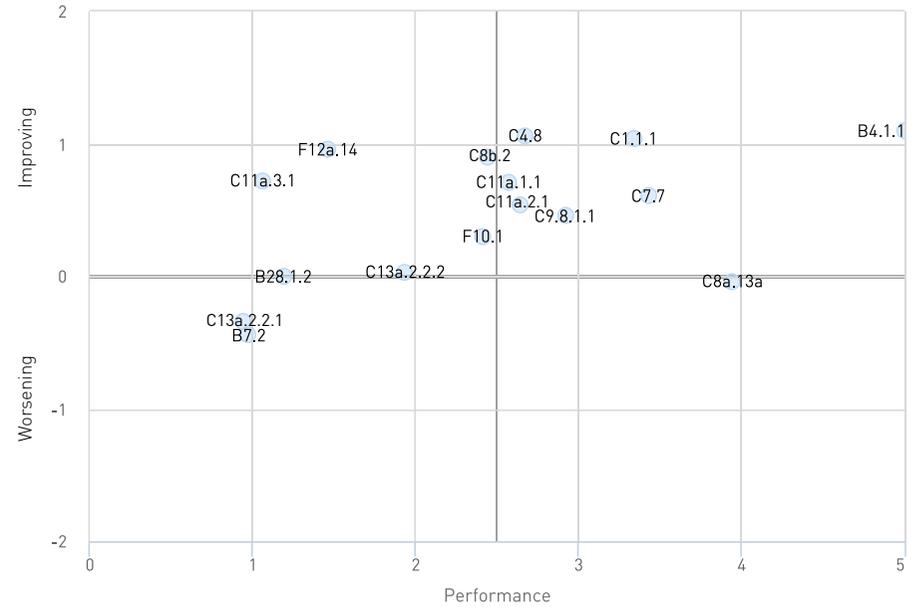
## Population's health - 2010-2012



HOSPITAL SERVICES PERFORMANCE MAP



PRIMARY CARE PERFORMANCE MAP



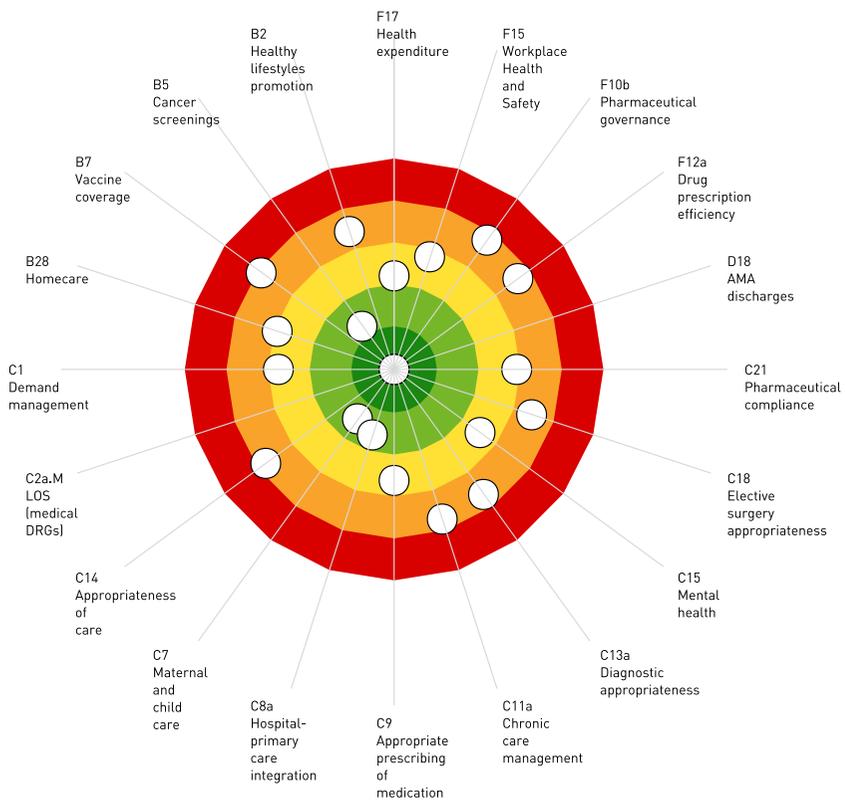
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C4.7	Percentage of Day Surgery admissions for "ELC surgical DRGs"
C5.1	Percentage of readmissions within 30 days
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C5.3	Percentage of transurethral prostatectomies
C16.7	Percentage of surgical admissions from Emergency Department (ED) with surgical DRG on discharge
C7.1	Percentage of C-section deliveries (NTSV)
C16.1	Percentage of yellow code patients visited within 30 minutes
D9	Patients leaving the Emergency Department without being seen (LWBS)
D18	Percentage of hospitalized patients leaving against medical advice
C16.4	Percentage of patients referred to hospital with a length of stay <=8h
F18.1	Average hospital cost per weighted case

B4.1.1	Opioid consumption
B7.2	Flu vaccine coverage for the elderly
B28.1.2	Percentage of elderly provided with homecare, with assessment
C1.1.1	Standardized hospitalization rate of acute inpatients
C4.8	Medical ELC DRGs: standardized hospitalization rate
C7.7	Paediatric hospitalization rate (0-14 years)
C8b.2	Hospital admission rate with length of stay of over 30 days
C8a.13a	Percentage of psychiatric patient readmissions 8 - 30 days following discharge
C9.8.1.1	Consumption of antibiotics
C11a.1.1	Heart failure hospitalization rate (50-74 years)
C11a.2.1	Diabetes hospitalization rate (35-74 years)
C11a.3.1	COPD hospitalization rate (50-74 years)
C13a.2.2.1	Musculoskeletal MRI scan rate (> 65 years)
C13a.2.2.2	Percentage of patients repeating lumbar MRI scan within 12 months
F10.1	Local per capita pharmaceutical expenditure   
F12a.14	Prescription of off-patent drugs

## ASS1 Triestina

Population's health - 2010-2012

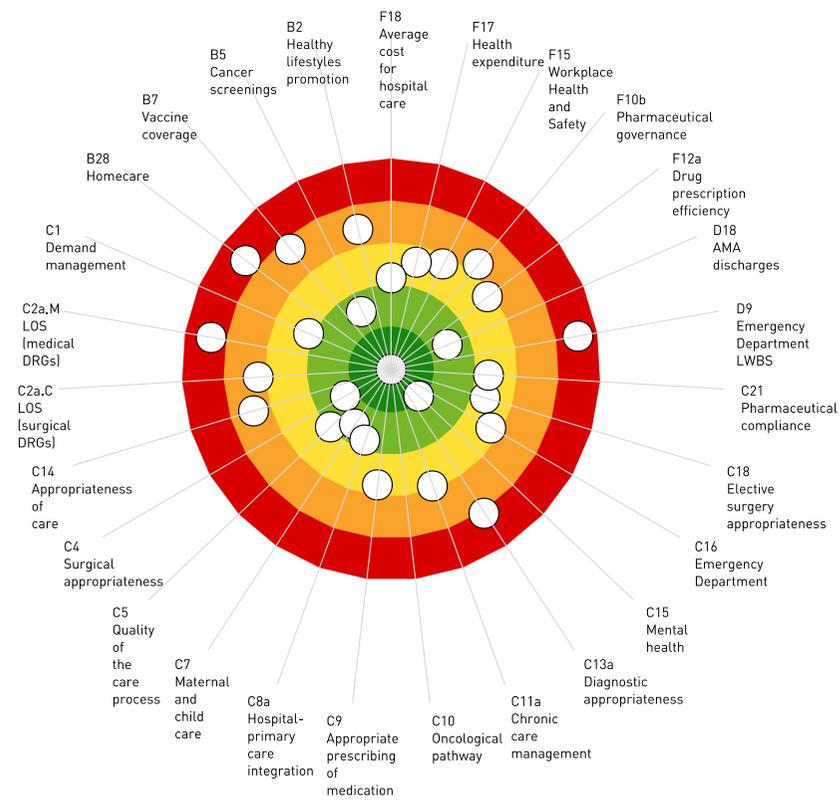
A10 Lifestyles A4 Suicide mortality A2 Cancer mortality A3 Circulatory disease mortality A1 Infant mortality



## ASS2 Isontina

Population's health - 2010-2012

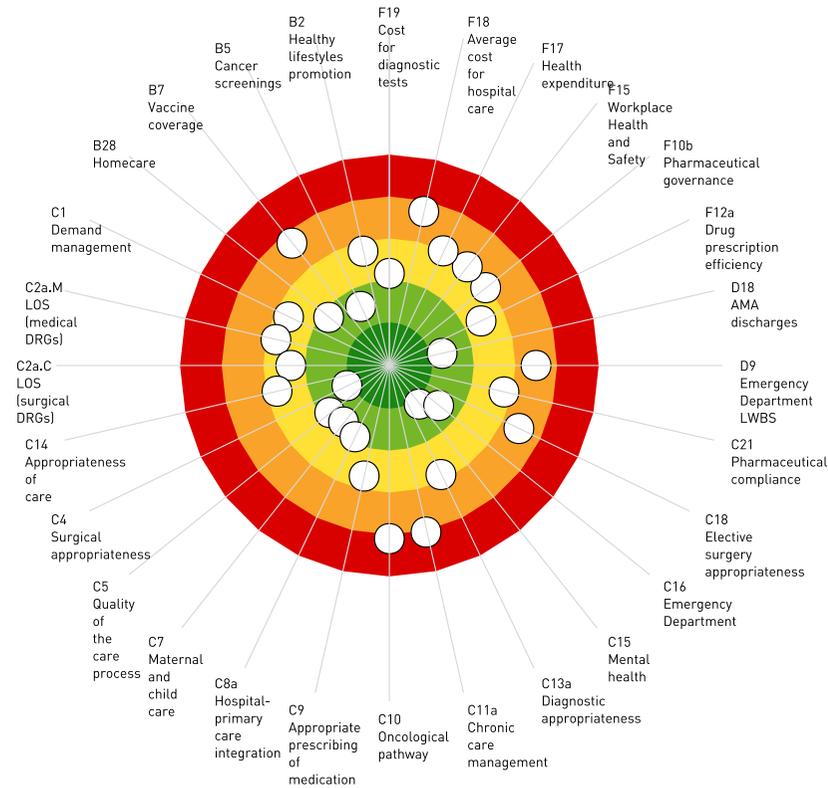
A4 Suicide mortality A2 Cancer mortality A10 Lifestyles A3 Circulatory disease mortality A1 Infant mortality



## ASS3 Alto Friuli

Population's health - 2010-2012

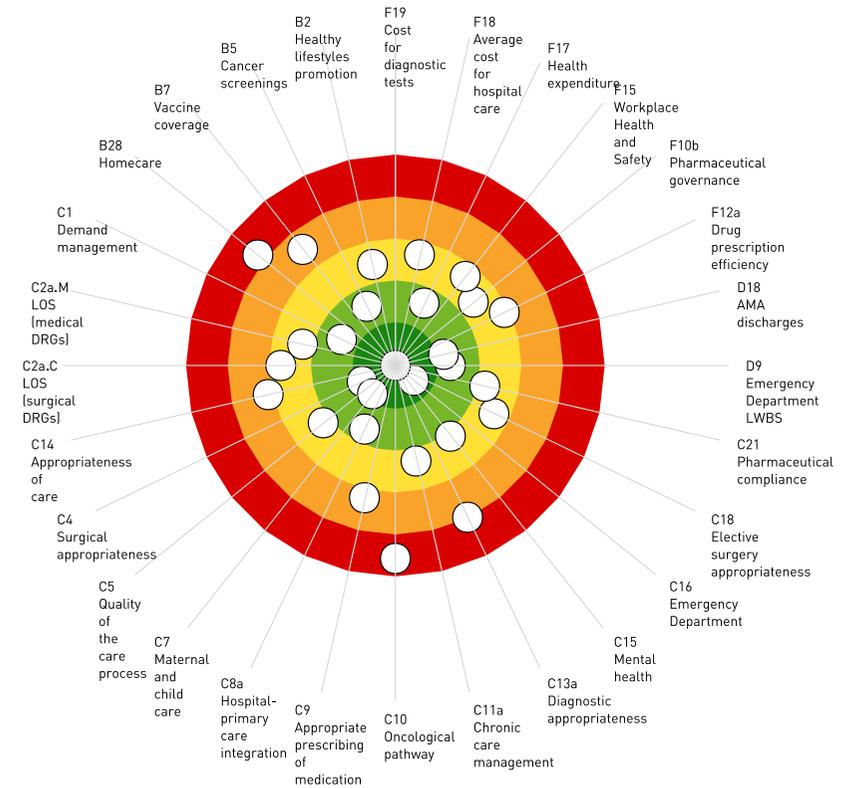
A4 Suicide mortality A2 Cancer mortality A1 Infant mortality A3 Circulatory disease mortality A10 Lifestyles



## ASS4 Medio Friuli

Population's health - 2010-2012

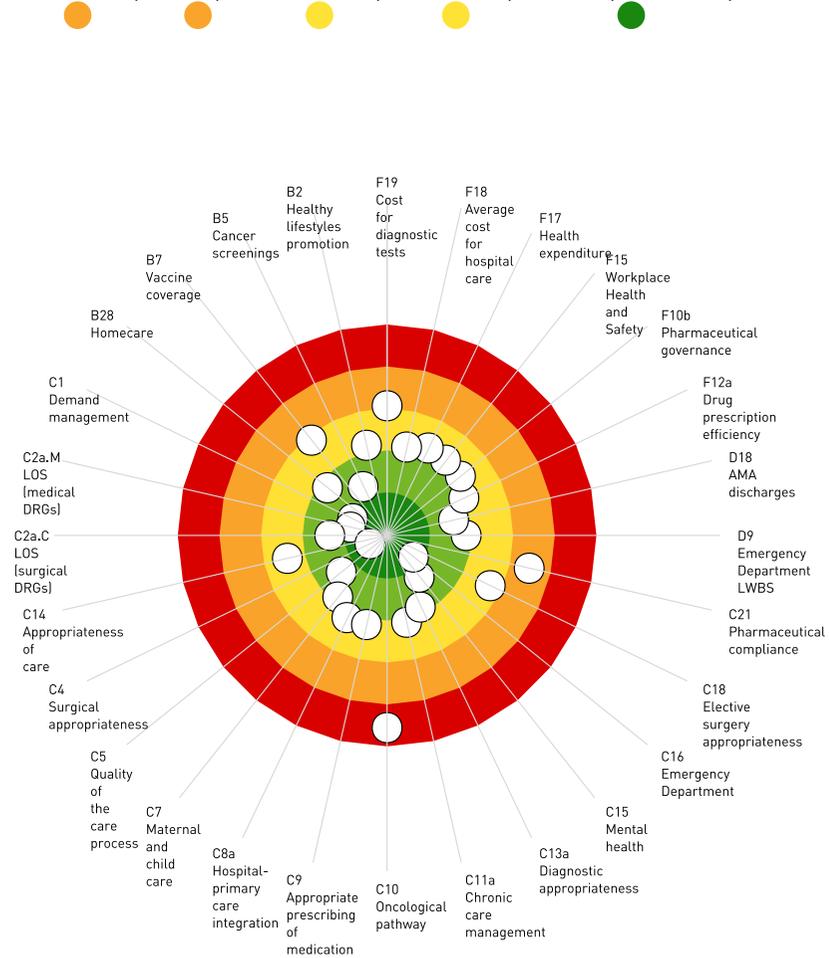
A2 Cancer mortality A10 Lifestyles A4 Suicide mortality A1 Infant mortality A3 Circulatory disease mortality



## ASS5 Bassa Friulana

Population's health - 2010-2012

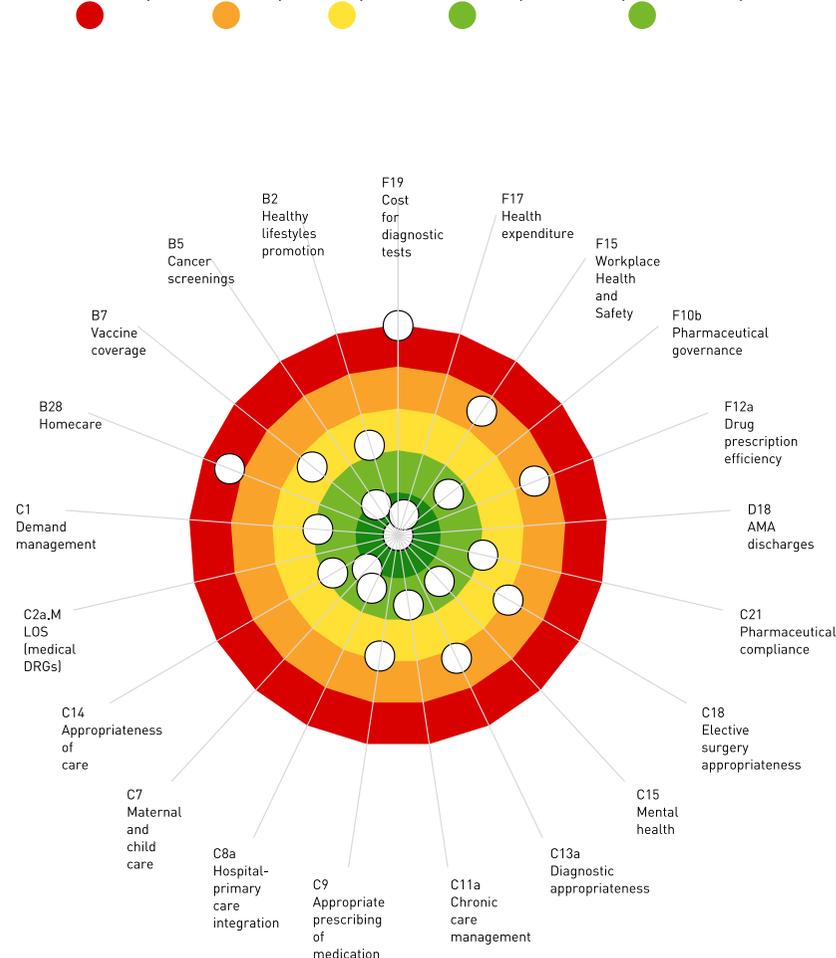
A2 Cancer mortality A10 Lifestyles A4 Suicide mortality A1 Infant mortality A3 Circulatory disease mortality



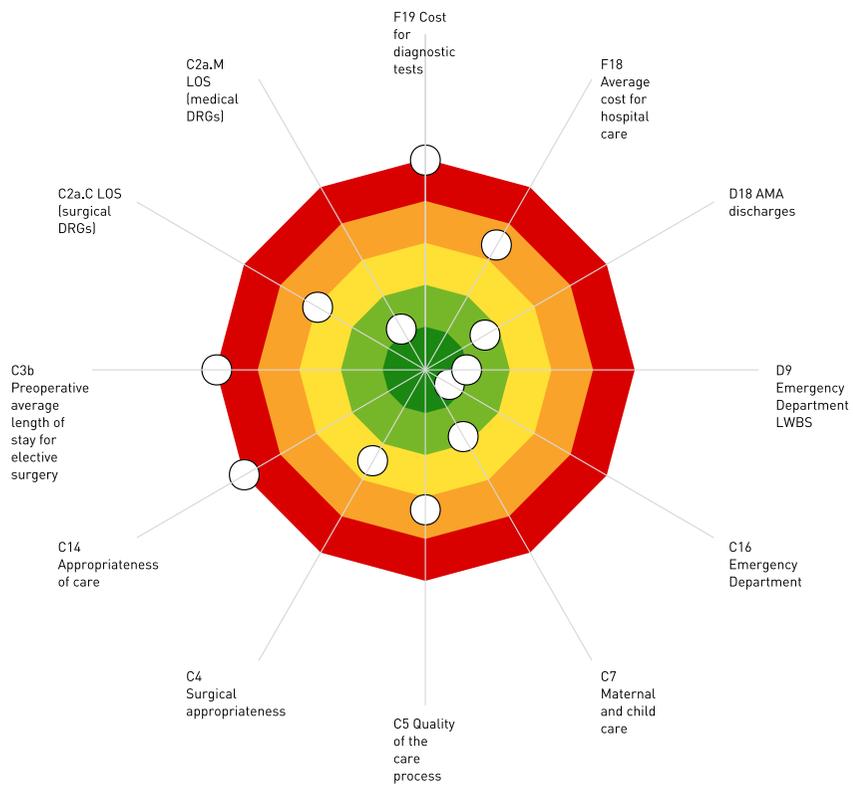
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Population's health - 2010-2012

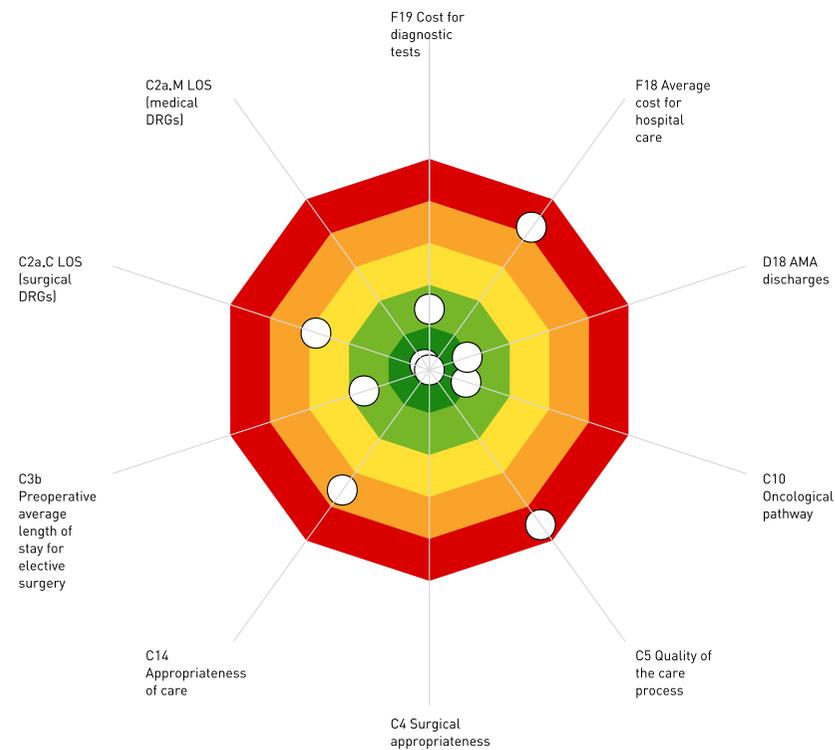
A4 Suicide mortality A1 Infant mortality A10 Lifestyles A2 Cancer mortality A3 Circulatory disease mortality



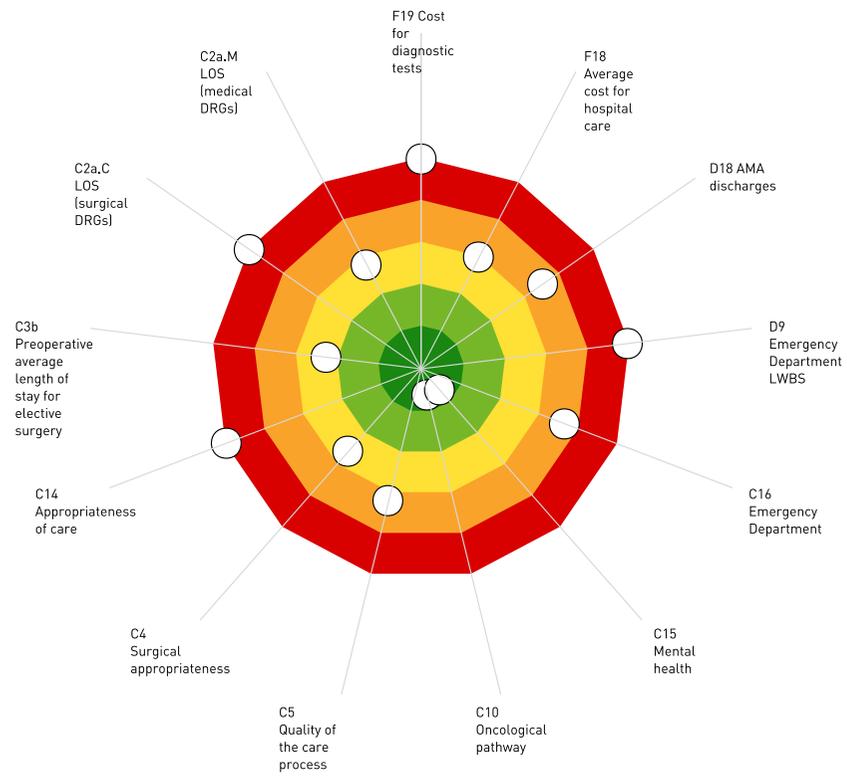
## IRCCS Burlo Gar.



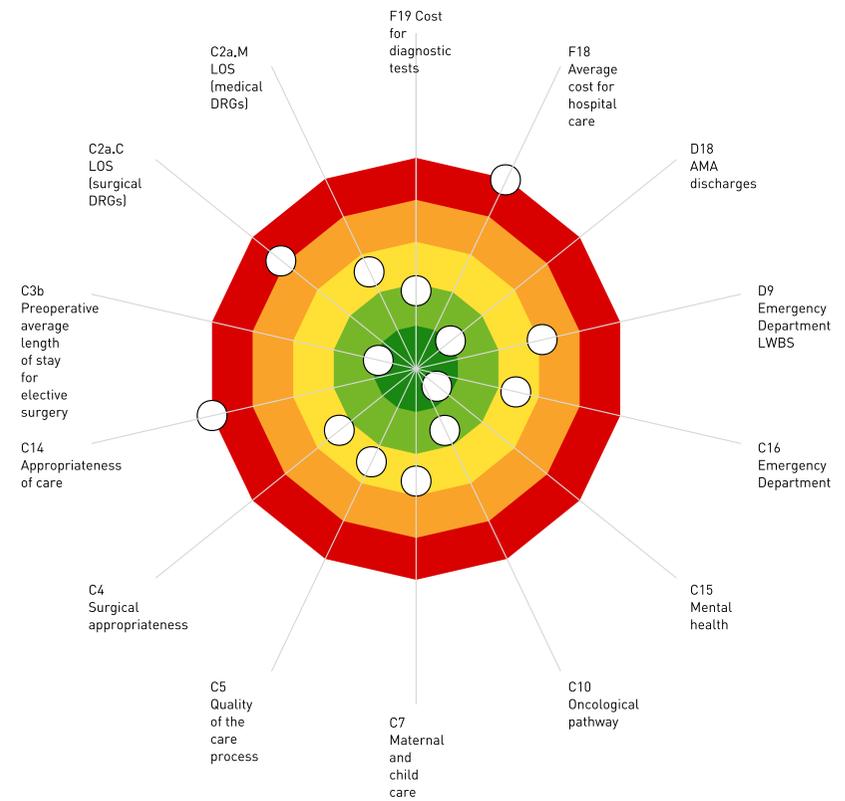
## IRCCS Centro Rif. Oncol.



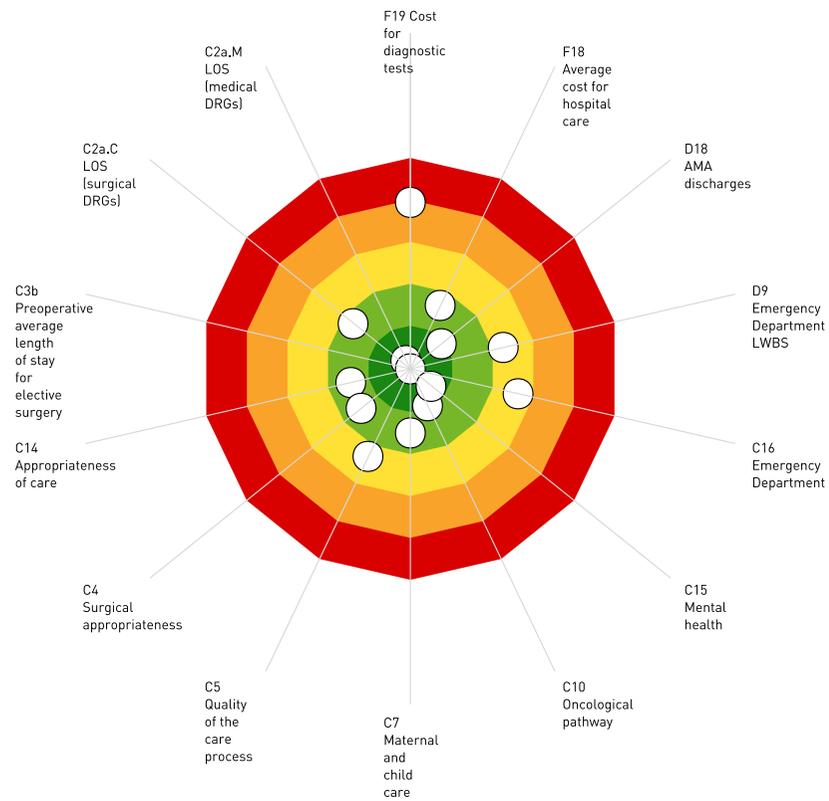
## AOU Trieste



## AOU Udine



# A0 Pordenone



## The Performance of Liguria Region in 2014

Improving its population's health is the goal of every healthcare system. Liguria's cancer and cardiovascular mortality rates were seen to be in line with the network. Infant mortality was, however, higher than the network, while suicides were fewer. The national "PASSI" survey showed the adoption of healthy lifestyles in Liguria to be in line with the other Regions. However, general practitioners should be more committed to promoting physical activity.

In terms of implementing specific health policies, vaccination coverage – especially for the flu and Papilloma viruses – showed this as an area for improvement. Pain management proved good, but cancer screening programmes, especially for cervical cancer, require improving. On the other hand, mammography screening showed better results than 2013, attaining good overall performance levels. Although lower than the previous year, Liguria's hospitalization rate was found to be still high. There remains much room for improvement in medical admissions appropriateness, particularly in day-hospital admissions for diagnostic purposes and over the threshold medical hospitalizations. Surgical appropriateness was seen to be generally good, with a steady increase in one-day laparoscopic cholecystectomies. Reinforcing home care should contribute to reducing hospitalizations. Length of stay differed between medical and surgical admissions. Medical admissions performed well while surgery length of stay remained above average, although improving. Unsatisfactory hospital process organization was still recorded, with femur fracture surgery timeframes and transurethral prostatectomies still presenting critical, albeit improved, results.

Waiting times in the Emergency Departments were generally in line with the other Regions. Although marked by intra-regional variation, the high voluntary dropout rate from Emergency Departments and voluntary discharges from hospitals indicate suboptimal satisfaction levels. The maternal and child pathway showed frequent recourse to caesarean delivery, despite a fall in the number of episiotomies performed. The high paediatric hospitalization rate signals the need for more effective cooperation between primary care paediatricians and hospital specialists.

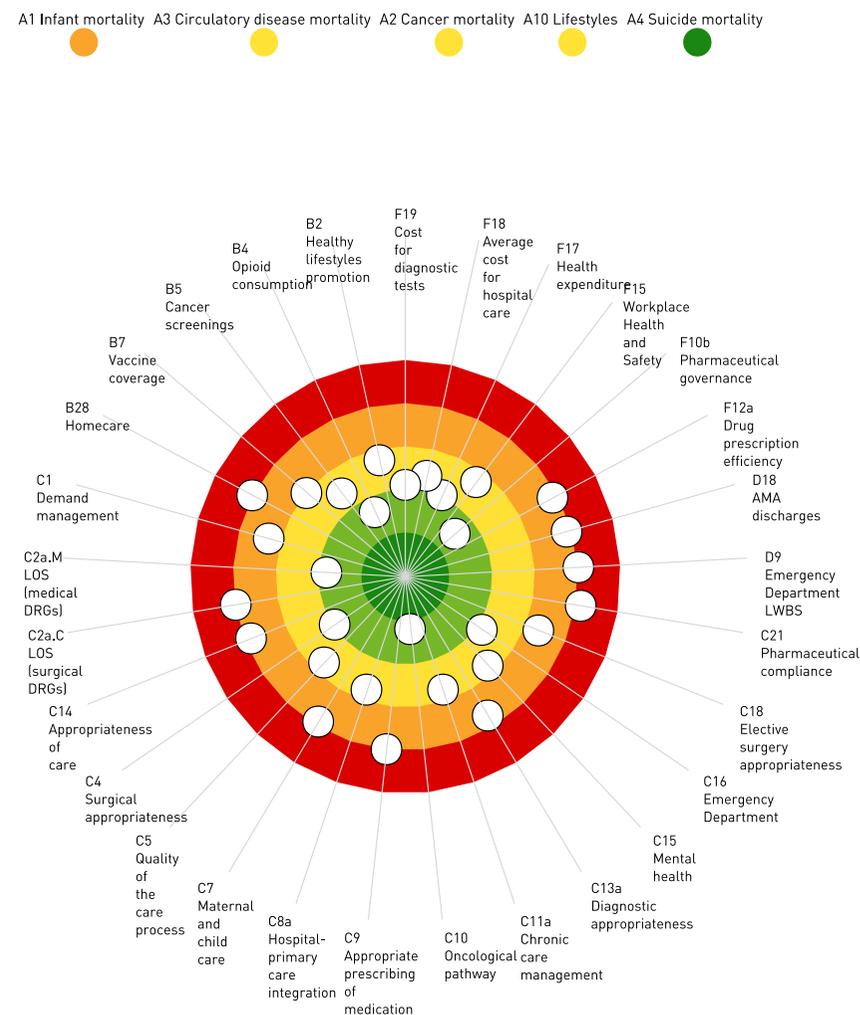
The oncological pathway achieved good results, both in terms of outputs and case concentration. The mental healthcare indicators were not significantly different from those of other Regions.

In terms of potentially inappropriate surgery, high recourse to tonsillectomy was reported. With regard to diagnostic services, there is still the need to monitor musculoskeletal MRIs for elderly patients, given the potential inappropriateness of this examination. Overall, Liguria's chronic care performance was not seen to differ from the other Regions; hospital and primary care integration indicators proved on average and stable.

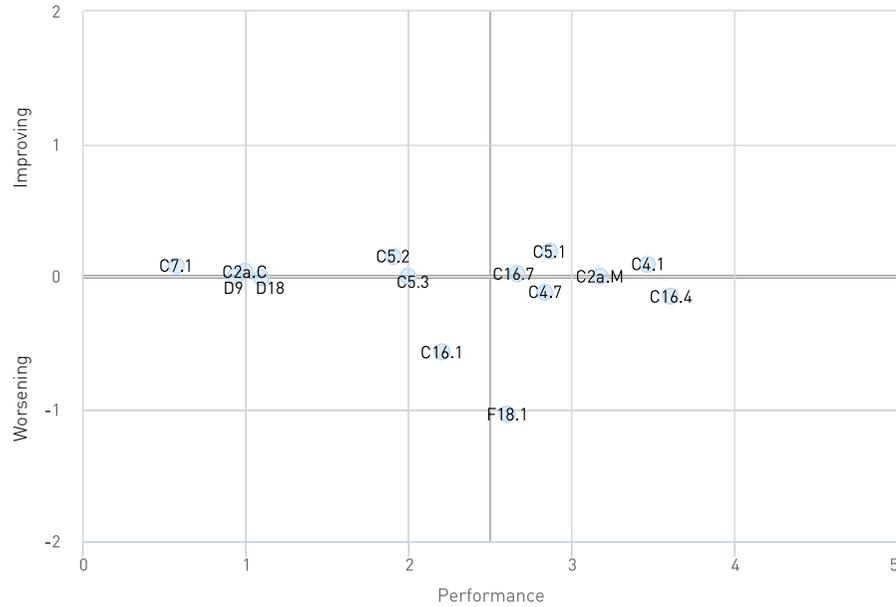
Despite lower than network per capita drug expenditure, both prescription appropriateness and prescriber tendency towards off-patent drugs proved critical issues.

Overall, total healthcare costs and hospital care costs were within the average range for the Regions; significant cost reductions were achieved by diagnostic services.

## Population's health - 2010-2012

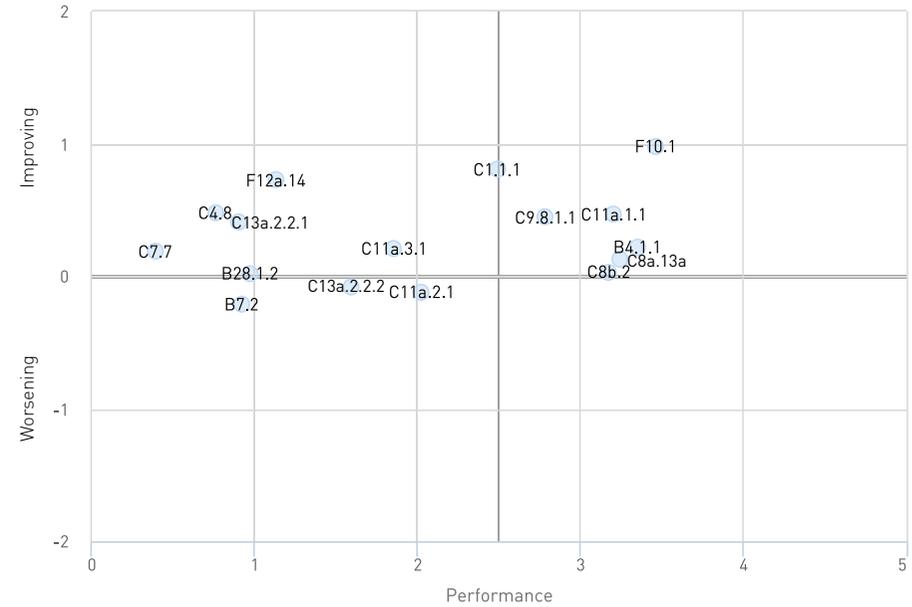


## HOSPITAL SERVICES PERFORMANCE MAP



C2a.M	Performance index for average hospital length of stay of acute medical DRGs
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F18.1	Average hospital cost per weighted case

## PRIMARY CARE PERFORMANCE MAP

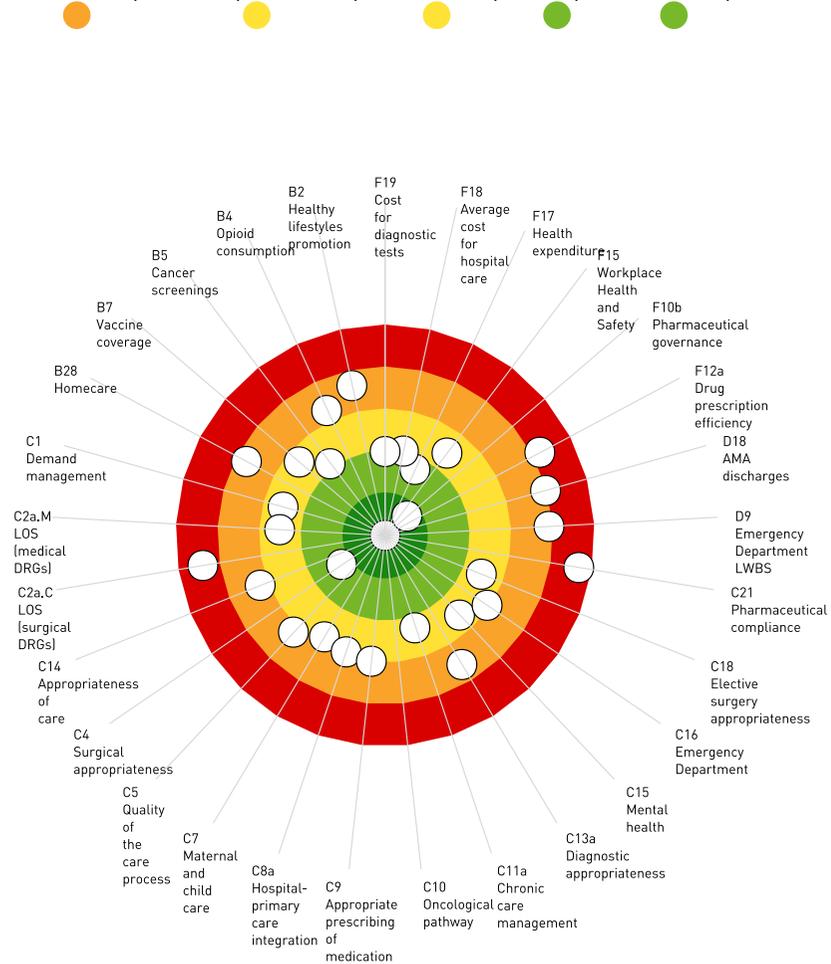


B4.1.1	Opioid consumption
B7.2	Flu vaccine coverage for the elderly
B28.1.2	Percentage of elderly provided with homecare, with assessment
C1.1.1	Standardized hospitalization rate of acute inpatients
C4.8	Medical ELC DRGs: standardized hospitalization rate
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C13a.2.2.1	Musculoskeletal MRI scan rate (>= 65 years)
C13a.2.2.2	Percentage of patients repeating lumbar MRI scan within 12 months
F10.1	Local per capita pharmaceutical expenditure   
F12a.14	Prescription of off-patent drugs

# AUSL 1 Imperiese

Population's health - 2010-2012

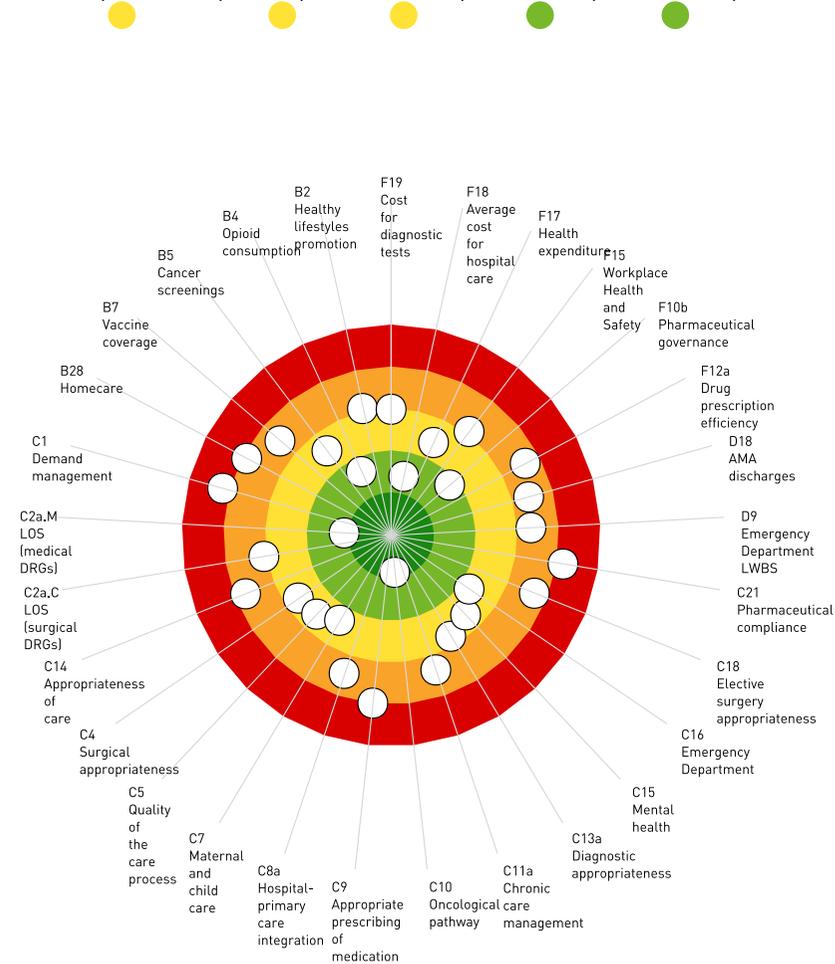
A4 Suicide mortality A3 Circulatory disease mortality A2 Cancer mortality A10 Lifestyles A1 Infant mortality



# AUSL 2 Savonese

Population's health - 2010-2012

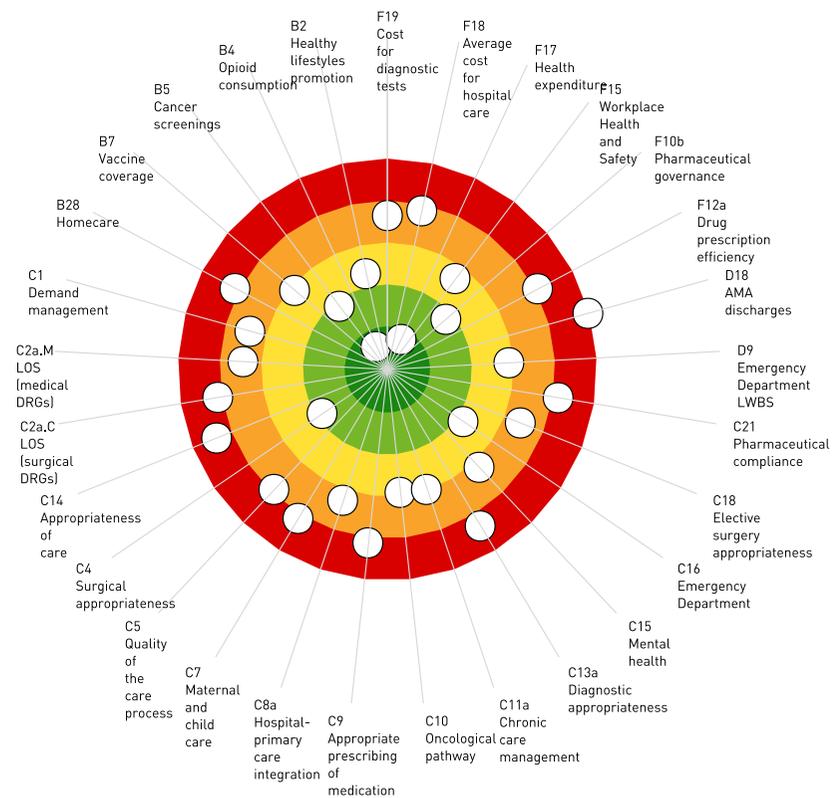
A3 Circulatory disease mortality A10 Lifestyles A4 Suicide mortality A1 Infant mortality A2 Cancer mortality



## AUSL 3 Genovese

Population's health - 2010-2012

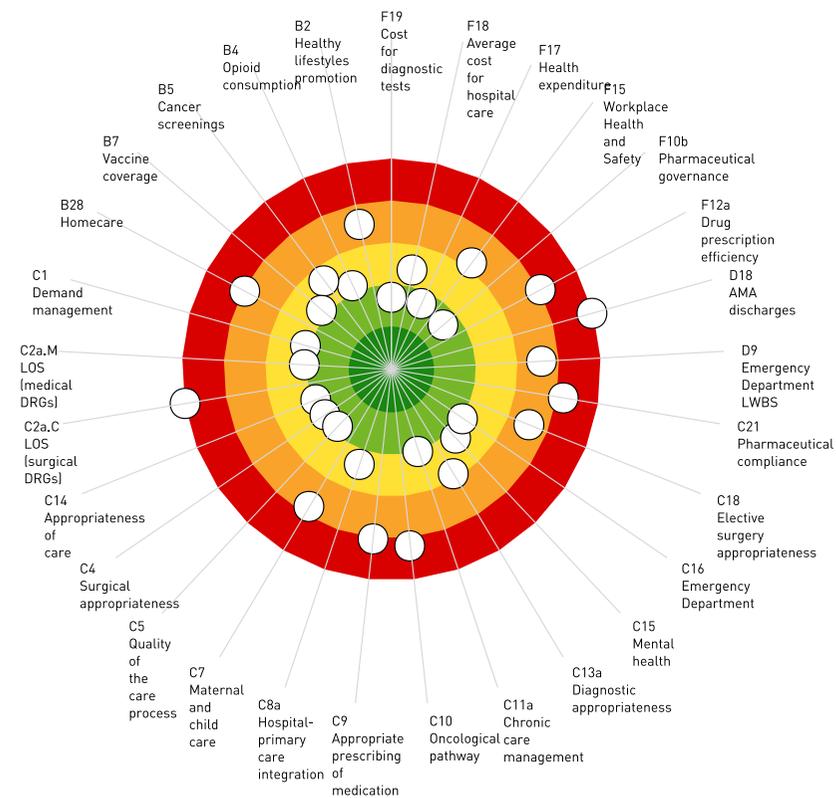
A1 Infant mortality A2 Cancer mortality A3 Circulatory disease mortality A10 Lifestyles A4 Suicide mortality



## AUSL 4 Chiavarese

Population's health - 2010-2012

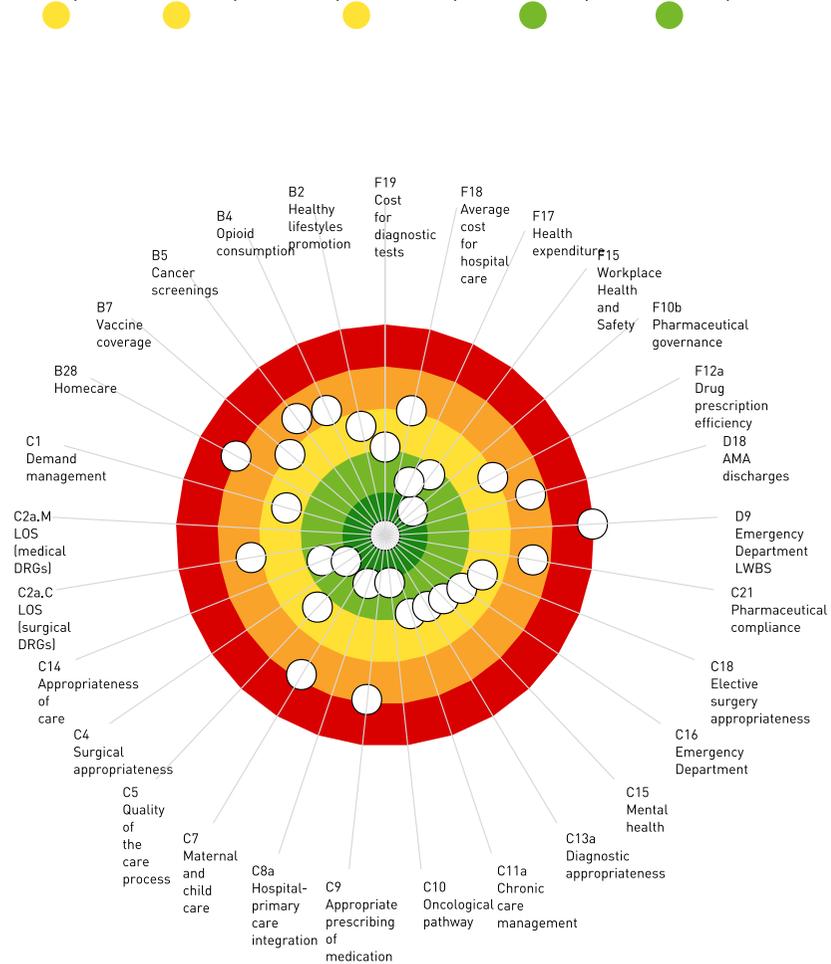
A1 Infant mortality A2 Cancer mortality A10 Lifestyles A3 Circulatory disease mortality A4 Suicide mortality



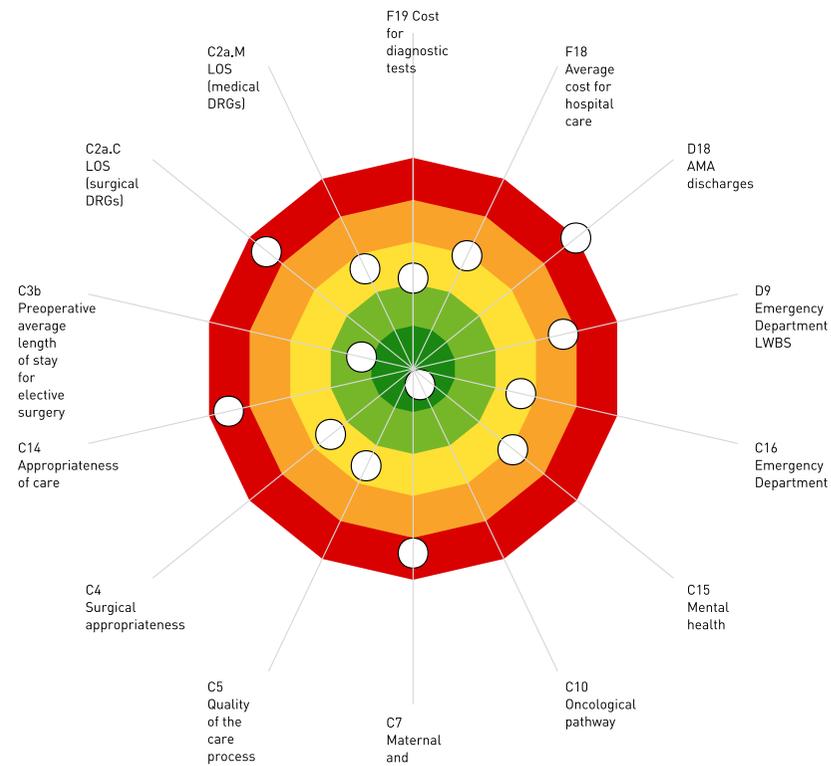
# AUSL 5 Spezzino

## Population's health - 2010-2012

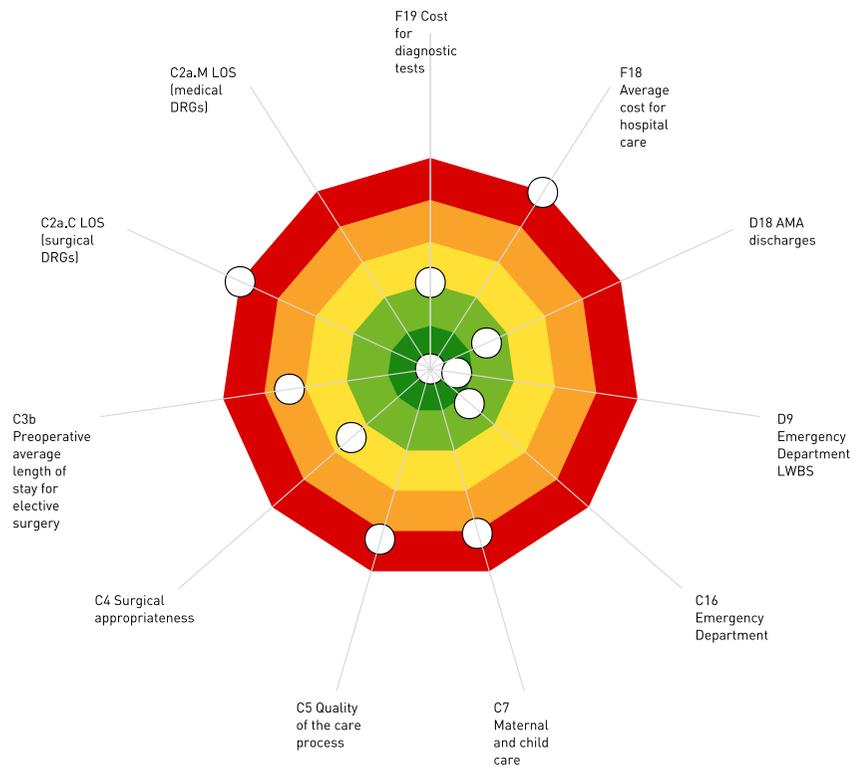
A10 Lifestyles A2 Cancer mortality A3 Circulatory disease mortality A1 Infant mortality A4 Suicide mortality



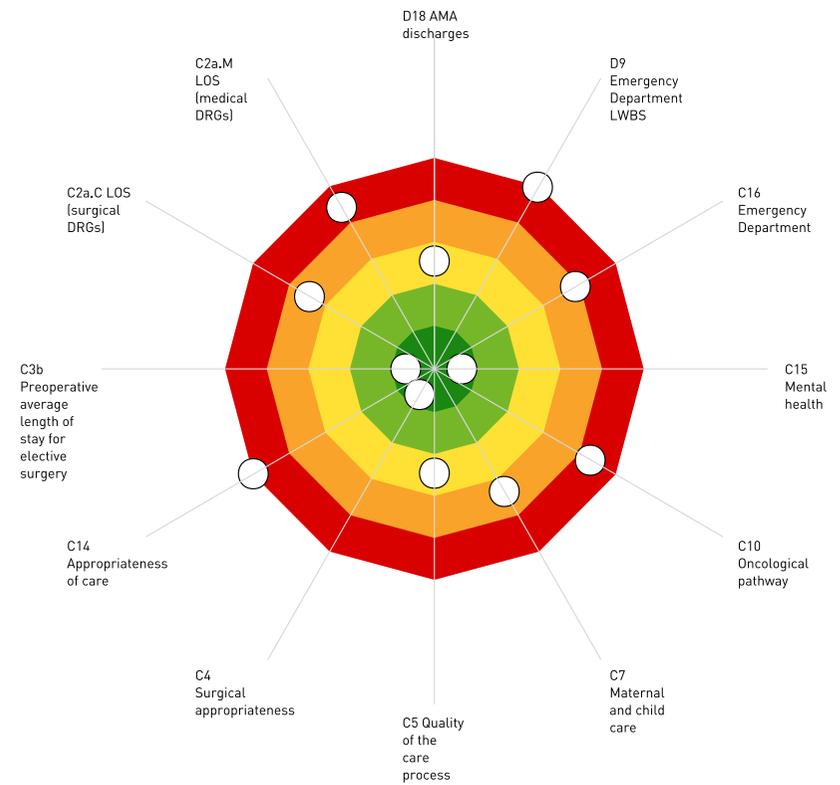
# IRCCS S. Martino



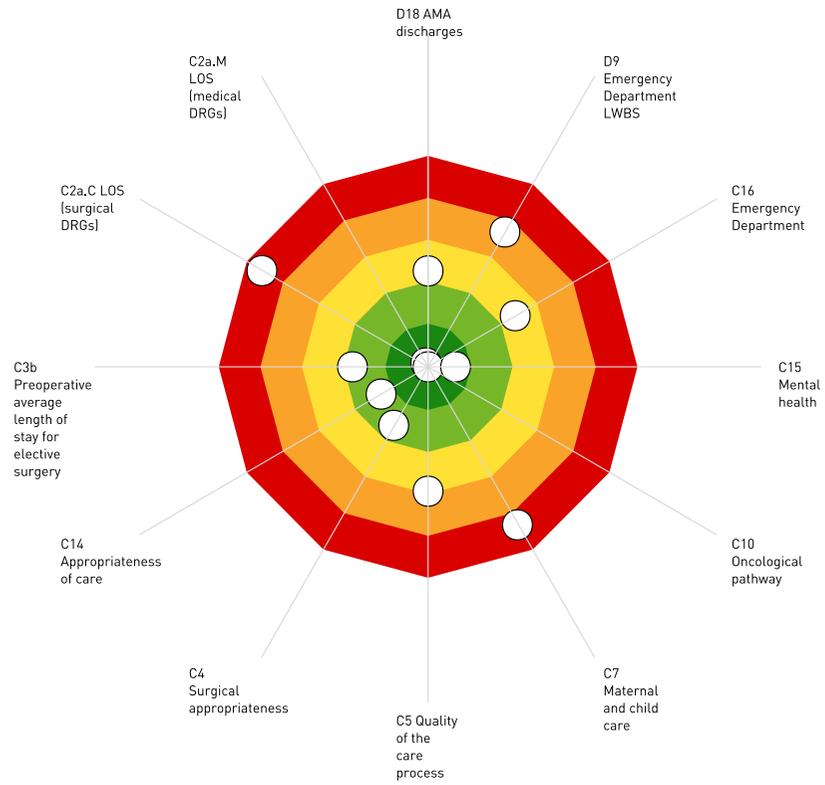
## Ist. Gaslini



## Osp. Galliera



# Osp. Evangelico





## The performance of Marche Region in 2014

Improving its population's health is the goal of every healthcare system. The inhabitants of Marche are, overall, in good health, in terms of infant mortality, cancer, cardiovascular disease and suicide rates. The national "PASSI" survey to assess the adoption of healthy lifestyles found the percentage of obese and overweight people in Marche to be higher than the average, and not offset by adequate general practitioner focus on the need to adopt healthy lifestyles.

As regards the ability to implement specific health policies, vaccination coverage aligned with the average, but was lower than 2013, showing a generally poor performance. The Region also needs to focus more on pain management, as measured by opioid consumption, since performance in this area was well below the other Regions.

The use of hospital resources in response to health needs – shown by the hospitalization rate – did not differ from the other Regions in the network. Average length of stay fell between 2013 and 2014, especially for medical hospitalizations, with results now in line with the other Regions. Appropriateness of medical care proved still critical, while surgical care settings were seen to be appropriate.

The organization of hospital processes proved in line with the other Regions. As already observed in 2013, there is room for further improvement in recourse to transurethral prostatectomies. Maternal and child care pathway management remained critical with high recourse to caesarean and operative deliveries, even if the number of episiotomies fell during the period. The oncological pathway showed good results, even though attention should be paid to the centralization of some procedures, particularly as regards prostate cancer. Mental healthcare performance was within the average for the other Regions.

Marche's chronic disease management, especially of diabetes and COPD, proved effective, with all indicators showing improvements. Major amputation rates in diabetes remained still high, however. The large number of hospital stays of over 30 days signals integration issues between hospital and primary care that must be addressed especially at the local level.

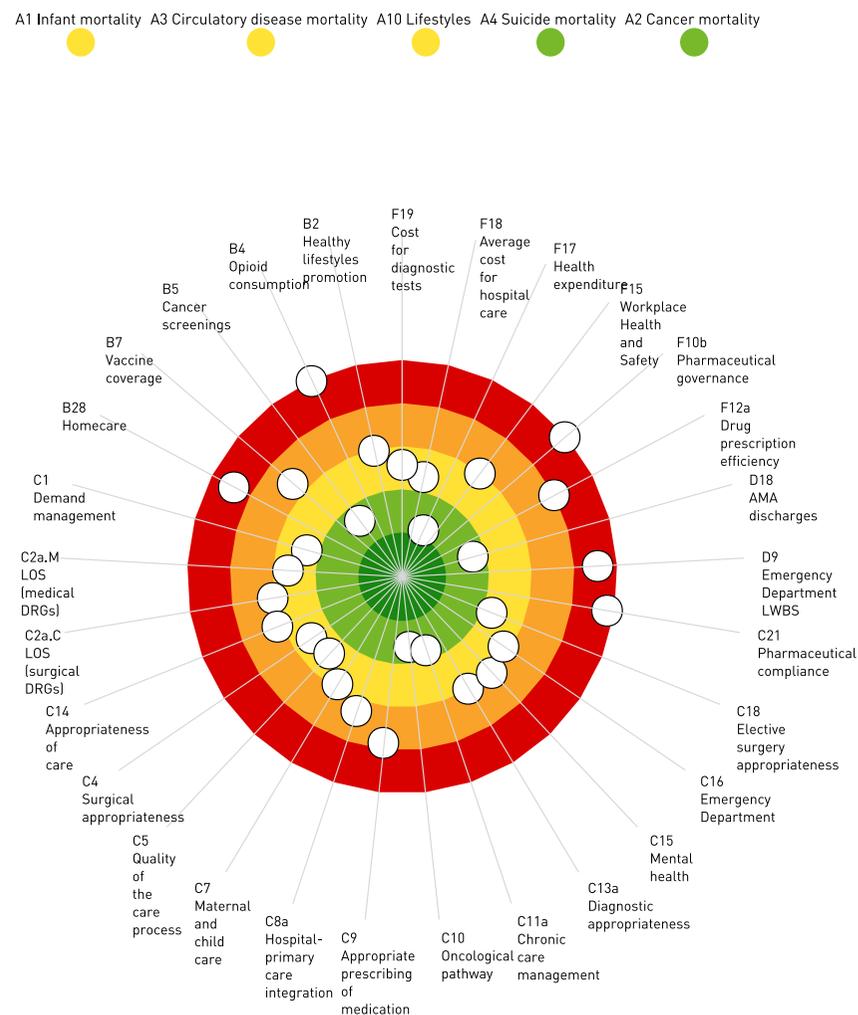
The high diagnostic procedure prescription rate shows the need for closer surveillance: the high number of potentially inappropriate lumbar MRIs repeated within a year signals the need for closer monitoring.

Waiting times in the Emergency Departments were seen to be within the average. However, some problems emerged with regard to response times of green and yellow codes; the percentage of people leaving without being seen was high, even higher than 2013. In contrast, the Region had few discharges against medical advice, suggesting patient satisfaction with hospital services.

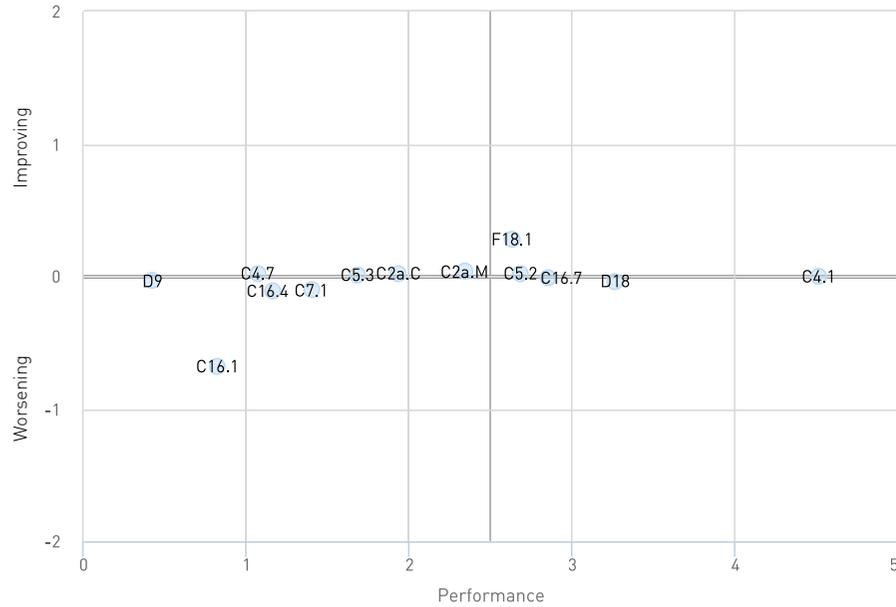
Marche has the highest pharmaceutical expenditure rate in the network, indicating the need to monitor appropriate drug prescription more strictly and encourage greater use of off-patent drugs.

Overall, however, the Region was seen to have the lowest per-capita healthcare cost, even though hospital and diagnostic care costs were in line with the other Regions of the network.

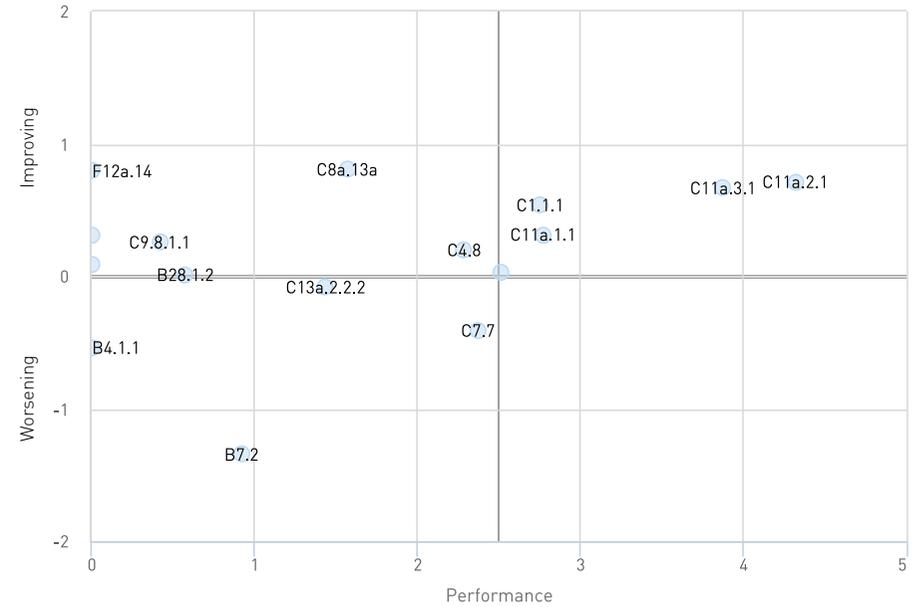
## Population's health - 2010-2012



## HOSPITAL SERVICES PERFORMANCE MAP



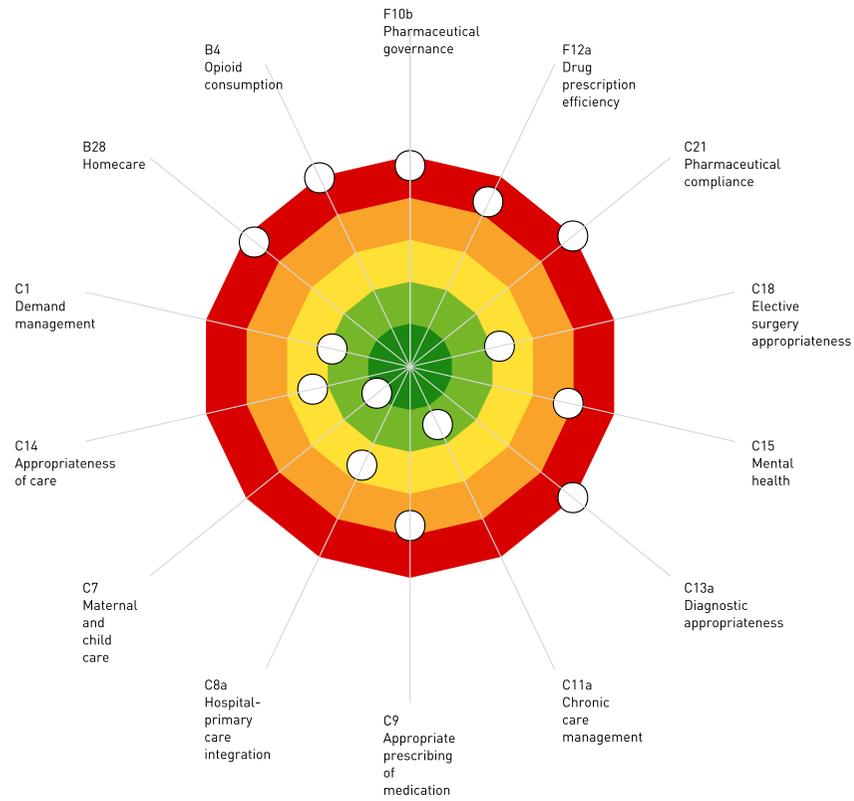
## PRIMARY CARE PERFORMANCE MAP



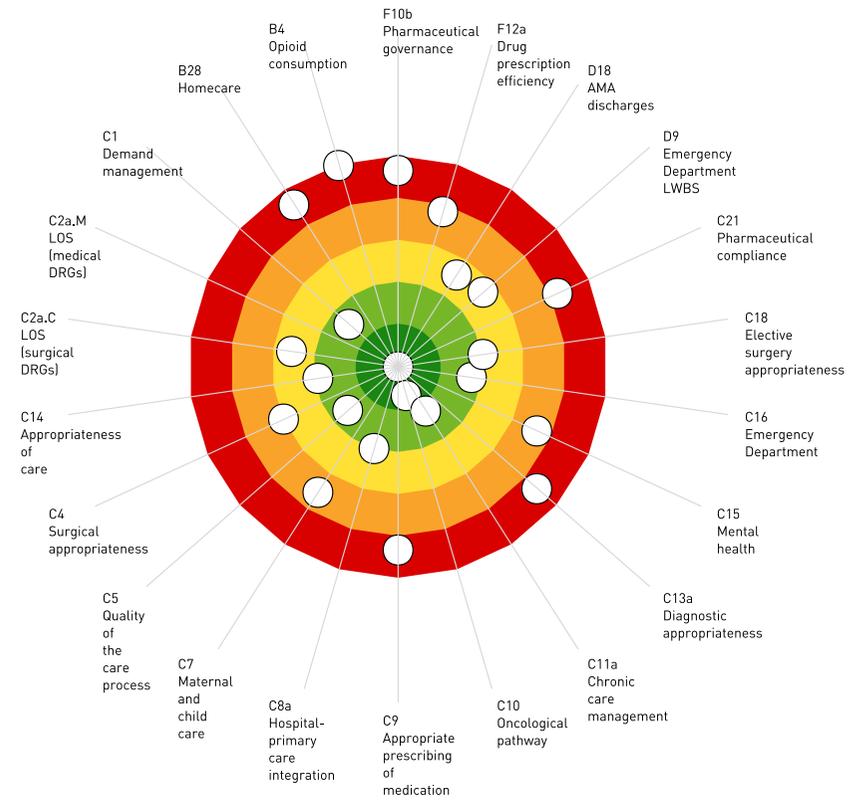
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F10.1	Local per capita pharmaceutical expenditure   
F12a.14	Prescription of off-patent drugs

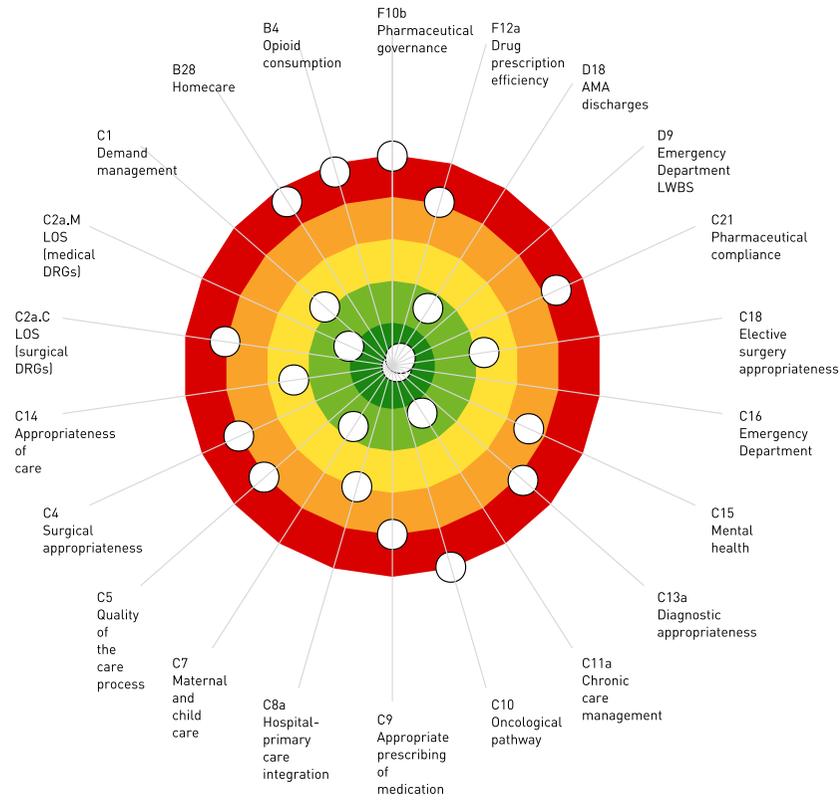
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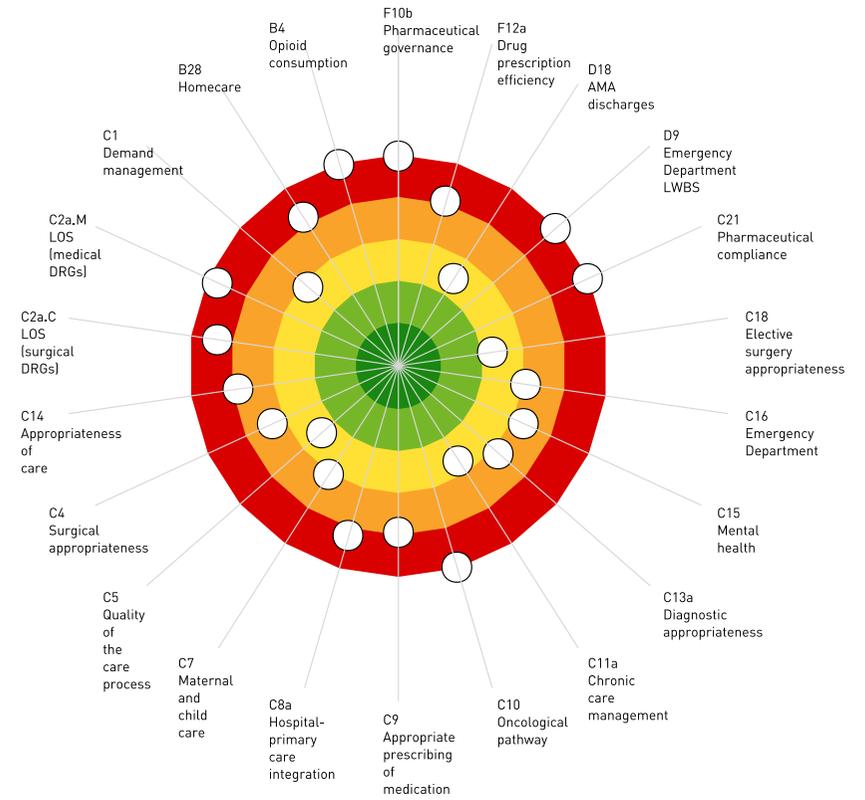
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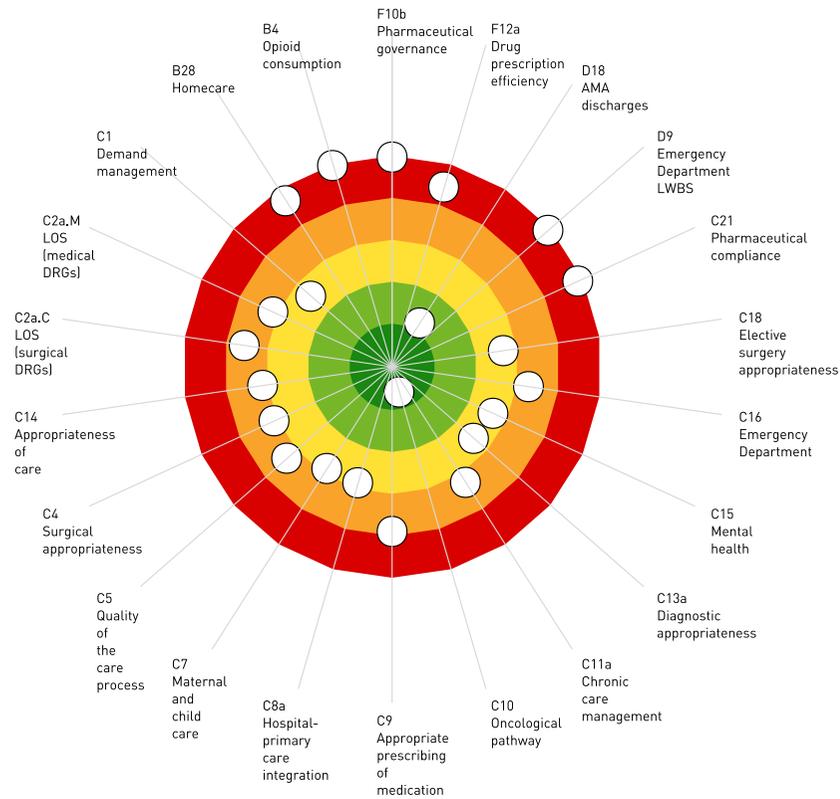
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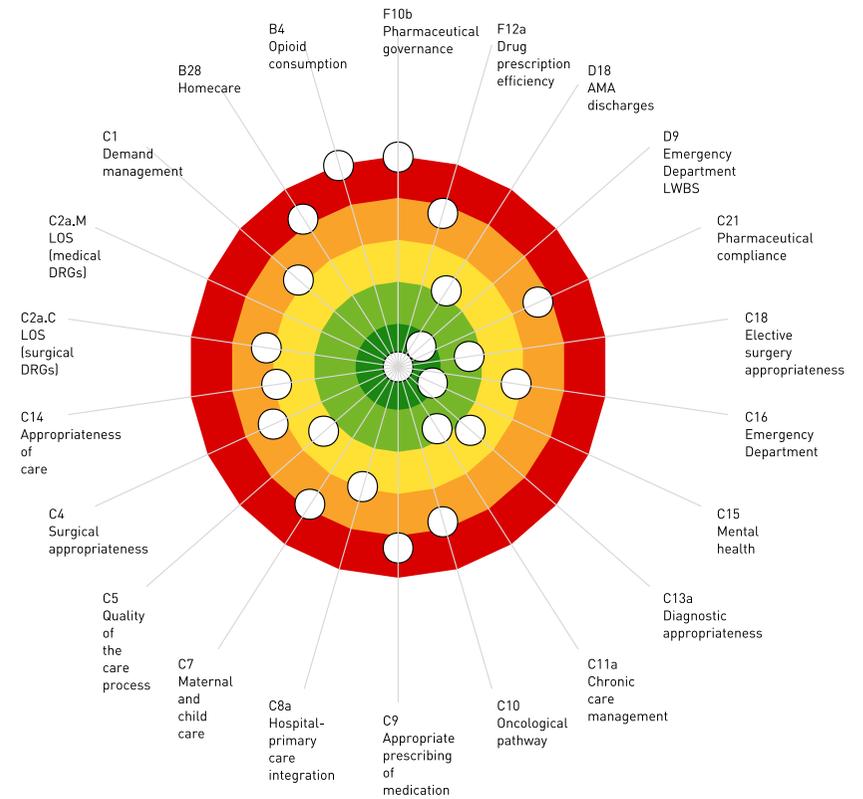
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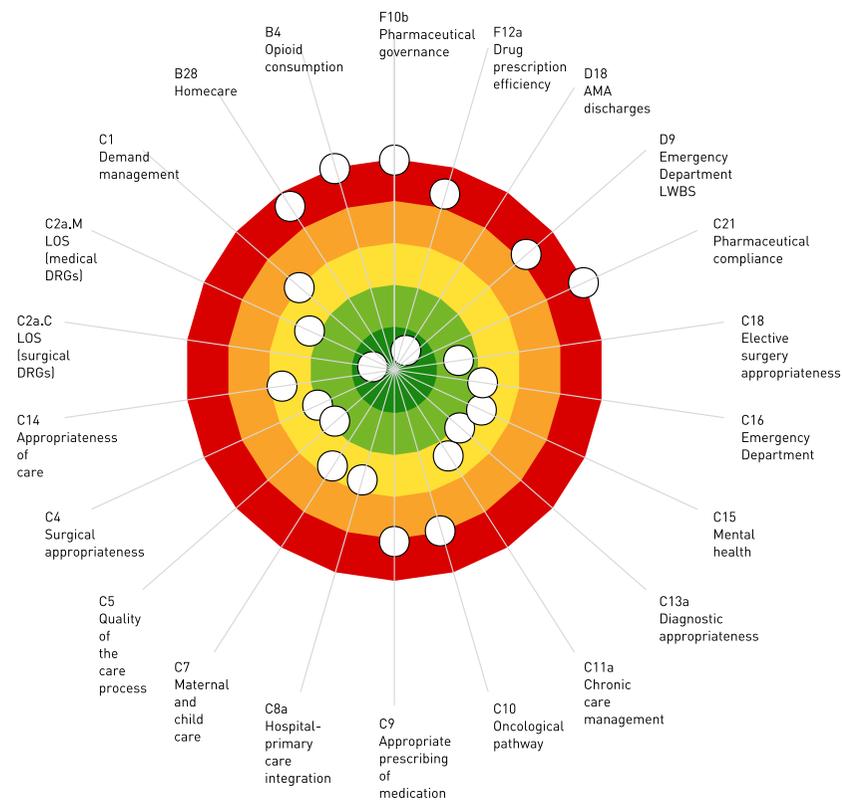
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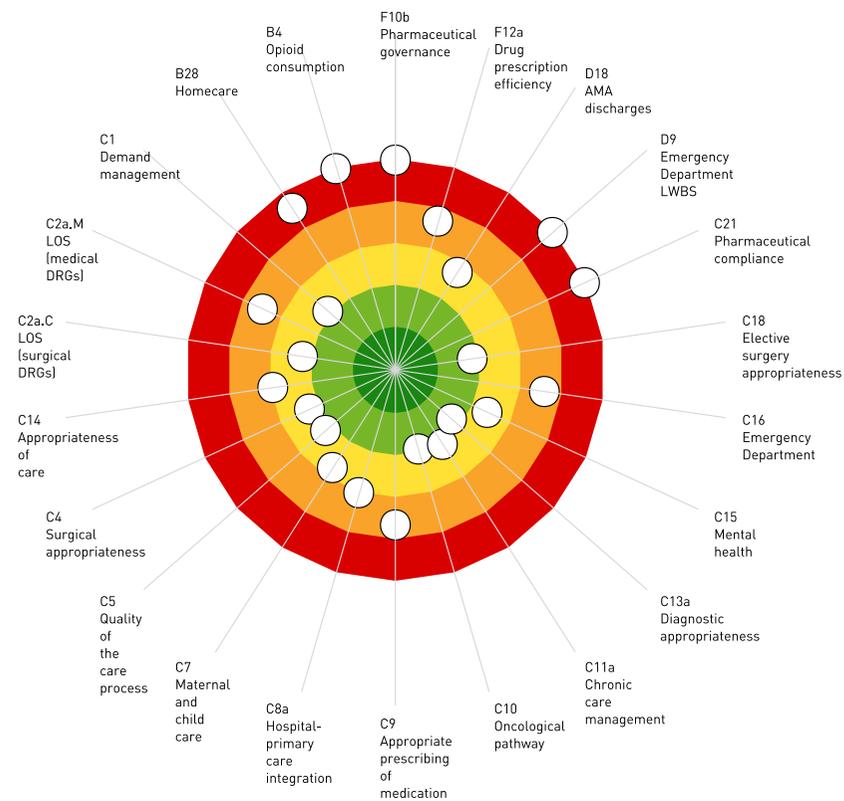
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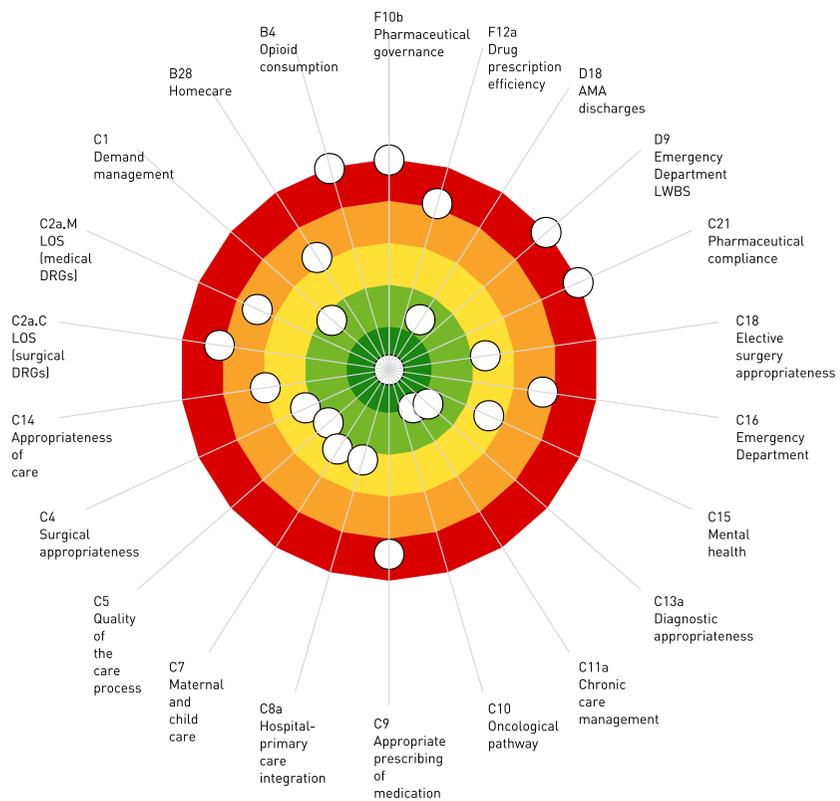
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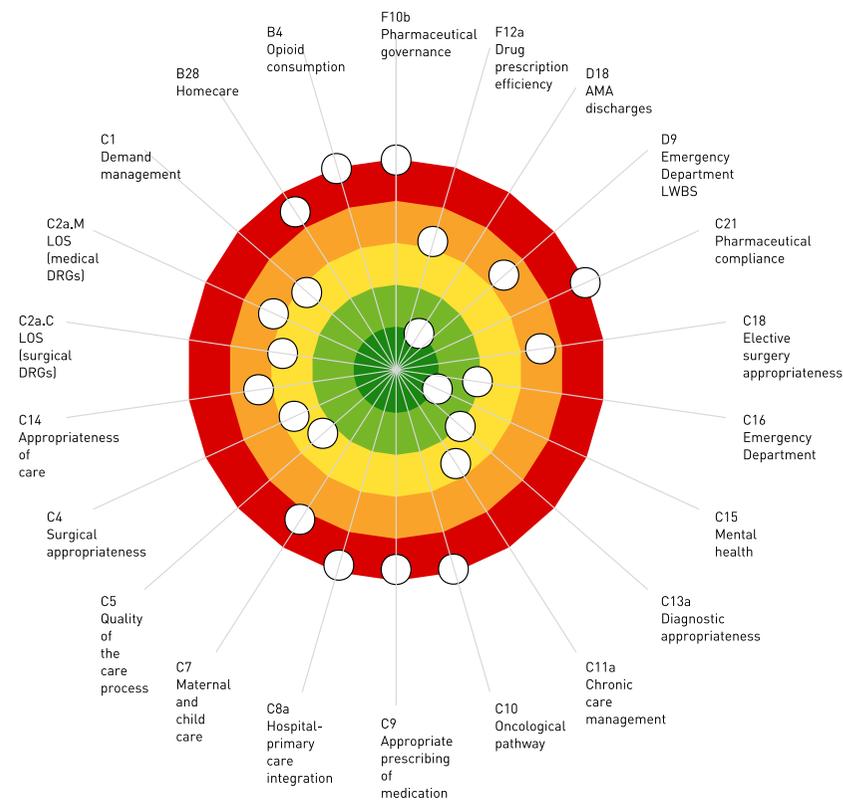
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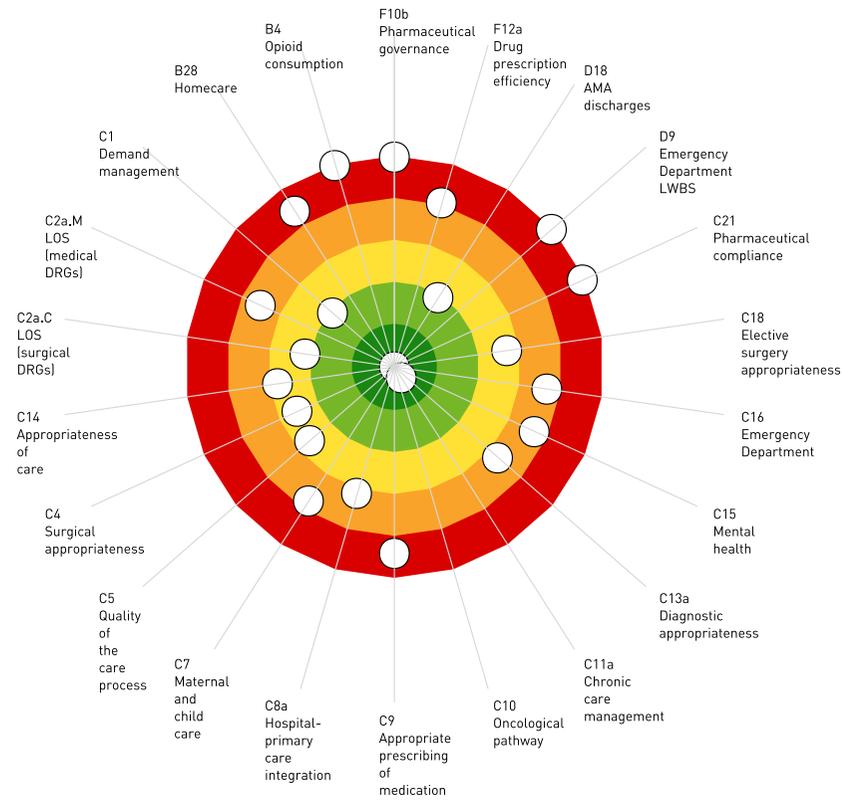
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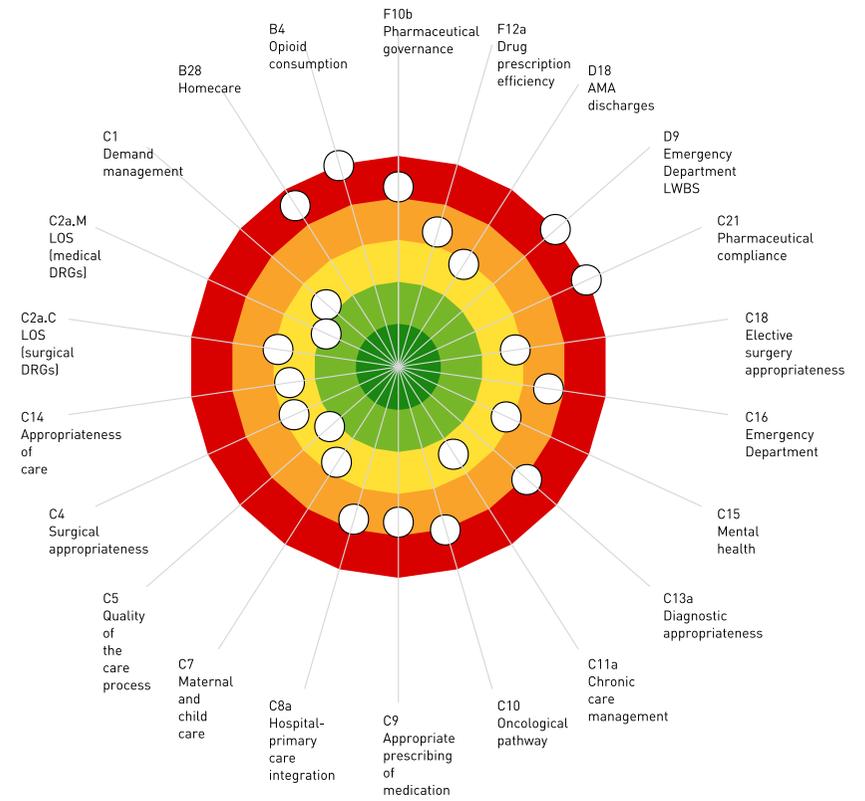
## Camerino S. Severino



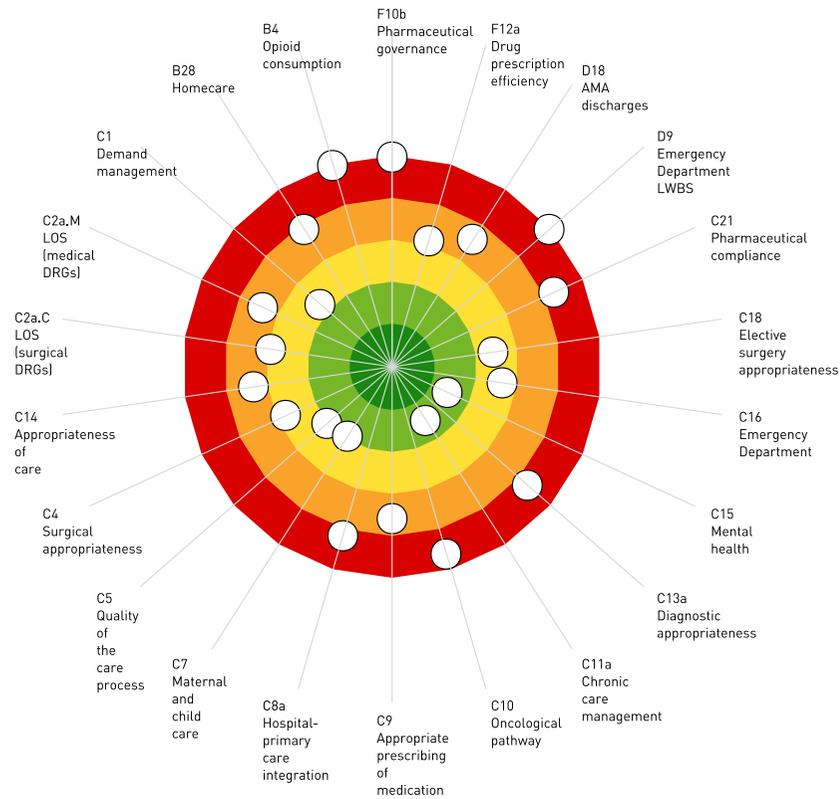
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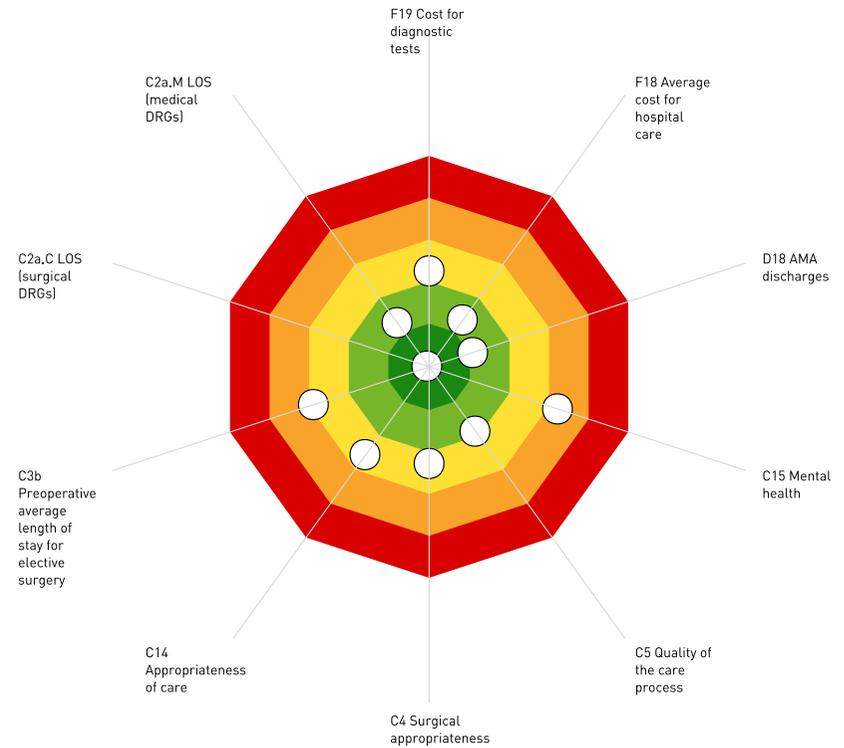
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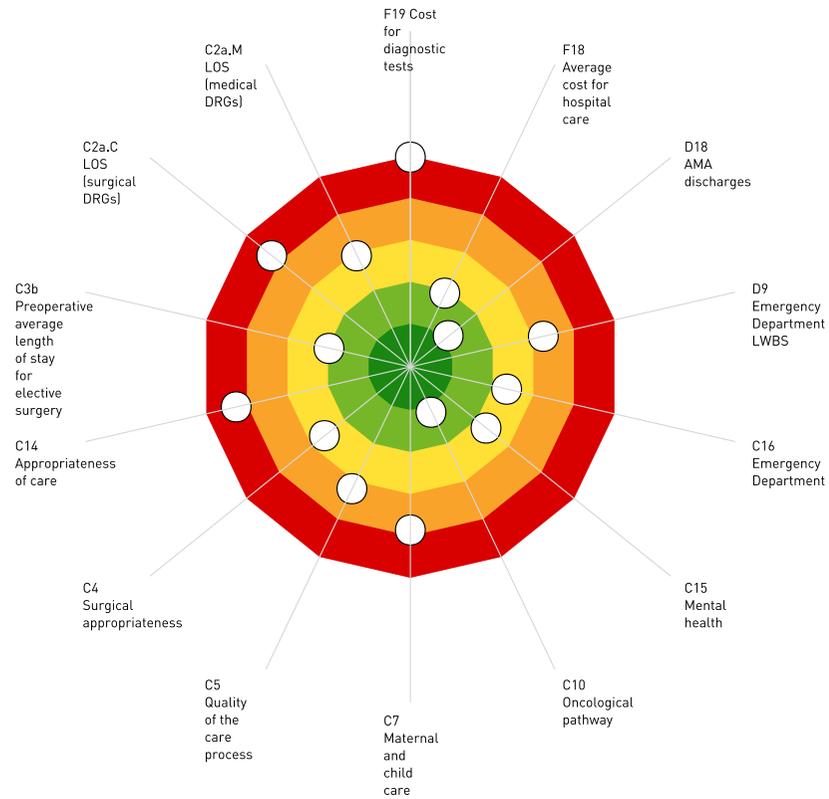
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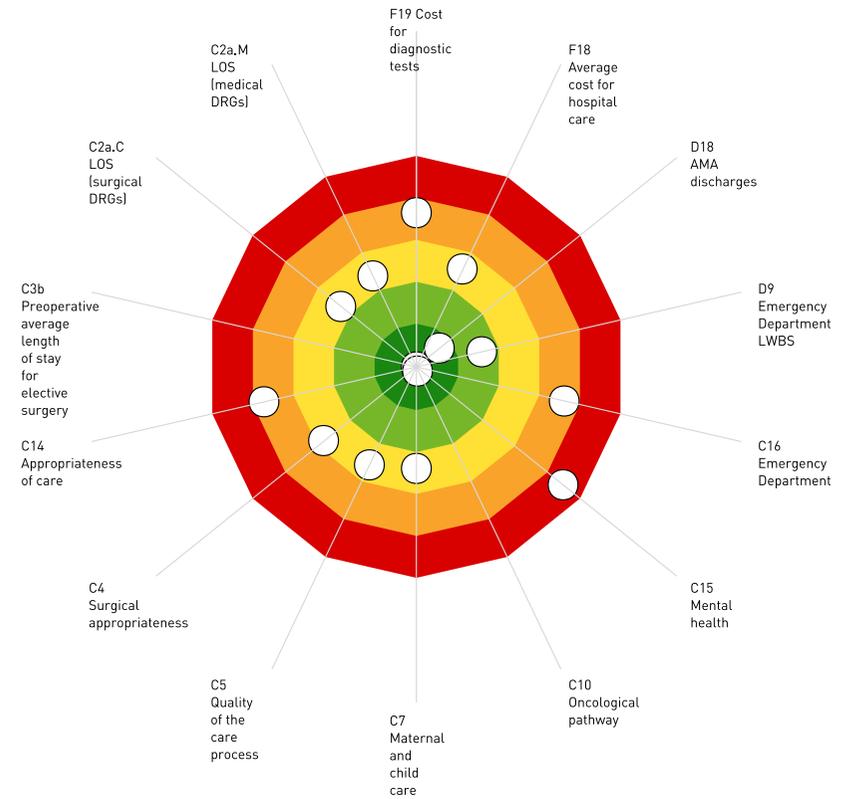
## INRCA



## AOU Osp. Riun. Ancona



## AO Osp. Riun. Marche Nord



## The Performance of the Autonomous Province of Bolzano in 2014

Improving its population's health is the goal of every healthcare system. The population of the Autonomous Province of Bolzano is, by and large, in good health when considered in terms of infant, cancer and cardiovascular mortality. Suicides, more frequent than in other Italian Regions, are still critical. The national "PASSI" survey assessing the extent to which populations are adopting healthy lifestyles, showed Bolzano to be well placed, except for high alcohol consumption.

In terms of implementing specific health policies, Bolzano does not differ from other Italian Regions for pain management as measured by opioid consumption. However, wide-reach screening campaigns by the Local Health Authority were not matched by adequate user take-up. In addition, vaccination coverage was seen to be still low.

With the highest hospitalisation rate in the network, the Province's healthcare system is strongly oriented towards secondary care. As a result, although length of stay in both medical and surgery units proved lower than in the other Regions, there is still room for improvement in terms of hospital treatment appropriateness. The excellent organization of hospital processes was confirmed, although Emergency Departments' capability to direct cases to the correct wards showed the need for improvement. Maternal and child pathway management was good, with moderate recourse to caesarean deliveries and episiotomies, even though deliveries are spread over many birth hospitals. The oncological pathway also returned good results. Waiting times in the Emergency Departments were limited, and this translates into a low dropout rate.

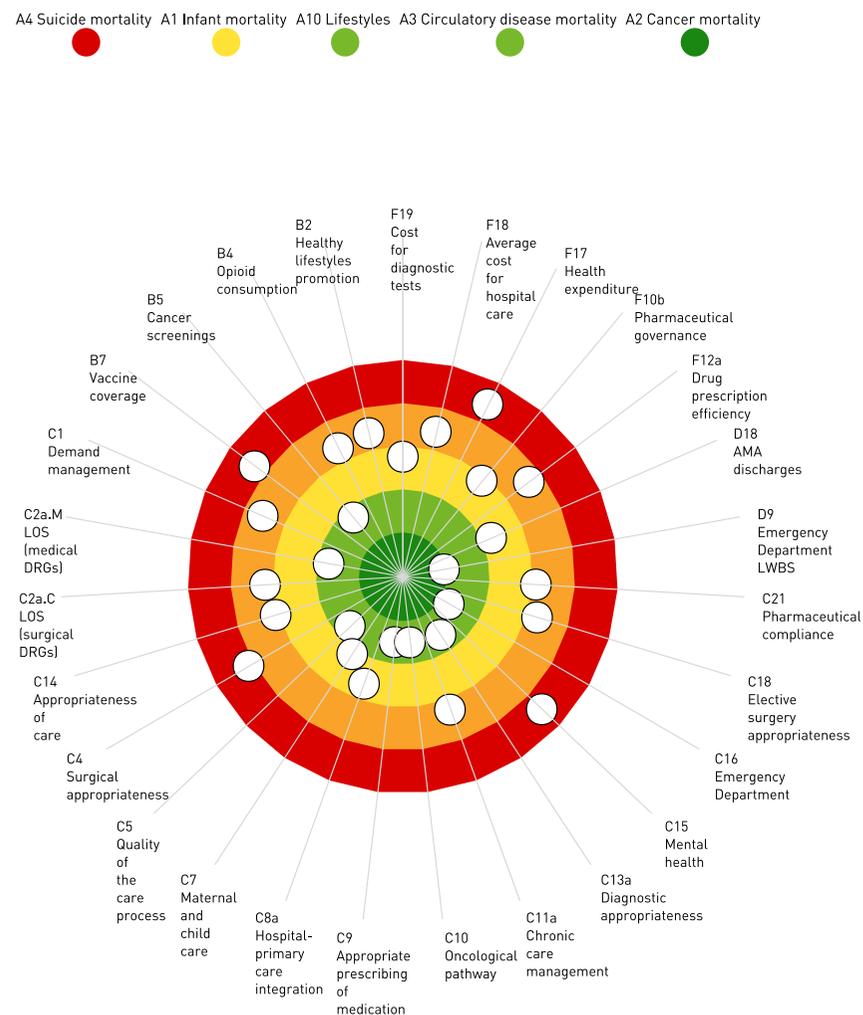
The gate-keeping function of primary care to ensure appropriate use of hospital resources certainly requires improvement, as shown by high admission rates for paediatric gastroenteritis and, above all, for chronic diseases such as diabetes and COPD.

Recourse to potentially inappropriate diagnostic prescriptions proved satisfyingly moderate, and the Autonomous Province boasts one of the lowest musculoskeletal magnetic resonance rates for the elderly.

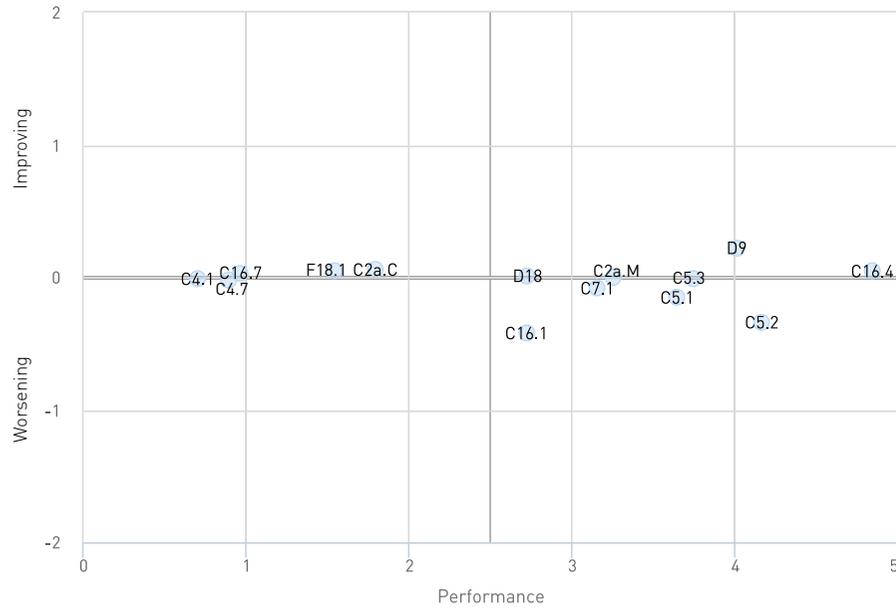
As regards pharmaceuticals, Bolzano's per capita expenditure is in line with the other Regions of the network. This is the result of excellent containment of potentially inappropriate prescriptions, despite the tendency to prescribe patented, and hence more expensive, drugs.

The overall costs, including hospital healthcare and diagnostic procedures, incurred by the Autonomous Province of Bolzano were shown to be substantially higher than those of the other Regions.

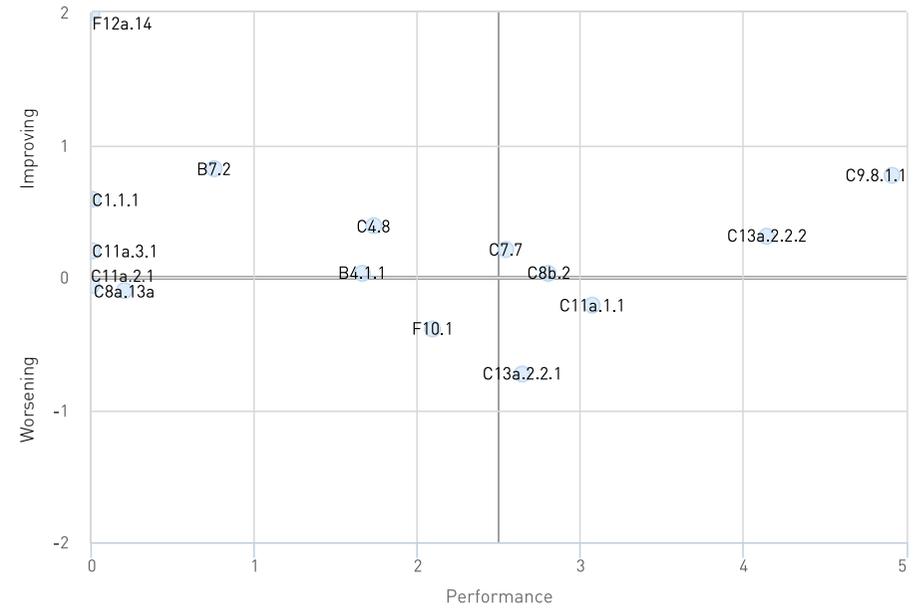
## Population's health - 2010-2012



## HOSPITAL SERVICES PERFORMANCE MAP



## PRIMARY CARE PERFORMANCE MAP



C2a.M	Performance index for average hospital length of stay of acute medical DRGs
C2a.C	Performance index for average hospital length of stay of acute surgical DRGs
C3.4	Preoperative average hospital length of stay for elective surgery of more than 1 day (teaching/research/autonomous general hospitals)
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C4.7	Percentage of Day Surgery admissions for "ELC surgical DRGs"
C5.1	Percentage of readmissions within 30 days
C5.2	Percentage of femoral neck fractures operated within 2 days of admission
C5.3	Percentage of transurethral prostatectomies
C16.7	Percentage of surgical admissions from Emergency Department (ED) with surgical DRG on discharge
C7.1	Percentage of C-section deliveries (NTSV)
C16.1	Percentage of yellow code patients visited within 30 minutes
D9	Patients leaving the Emergency Department without being seen (LWBS)
D18	Percentage of hospitalized patients leaving against medical advice
C16.4	Percentage of patients referred to hospital with a length of stay <=8h
F18.1	Average hospital cost per weighted case

B4.1.1	Opioid consumption
B7.2	Flu vaccine coverage for the elderly
B28.1.2	Percentage of elderly provided with homecare, with assessment
C1.1.1	Standardized hospitalization rate of acute inpatients
C4.8	Medical ELC DRGs: standardized hospitalization rate
C7.7	Paediatric hospitalization rate (0-14 years)
C8b.2	Hospital admission rate with length of stay of over 30 days
C8a.13a	Percentage of psychiatric patient readmissions 8 - 30 days following discharge
C9.8.1.1	Consumption of antibiotics
C11a.1.1	Heart failure hospitalization rate (50-74 years)
C11a.2.1	Diabetes hospitalization rate (35-74 years)
C11a.3.1	COPD hospitalization rate (50-74 years)
C13a.2.2.1	Musculoskeletal MRI scan rate (>= 65 years)
C13a.2.2.2	Percentage of patients repeating lumbar MRI scan within 12 months
F10.1	Local per capita pharmaceutical expenditure   
F12a.14	Prescription of off-patent drugs

## The Performance of the Autonomous Province of Trento in 2014

Improving its population's health is the goal of every healthcare system. The population of the Autonomous Province of Trento enjoys general good health, with low cancer, suicide and cardiovascular mortality, albeit a slight increase in infant mortality. The national "PASSI" survey showed widespread adoption of healthy lifestyles by Trento inhabitants, despite the Province's high alcohol consumption. It follows that greater general practitioner emphasis should be placed on promoting healthy lifestyles. As regards the ability to implement specific health policies, an increase in opioid prescriptions (pain management) was observed, along with extremely high cancer screening coverage, both in terms of invitation rates and uptake by the targeted population. The level of vaccination coverage, however, showed the need for improvement.

The Trento healthcare system is strongly oriented towards hospital care, with the second highest hospitalization rate observed in the network. The appropriateness of recourse to the medical setting proved generally in line with the other Regions, despite an excessive hospitalization of patients older than 65. Surgical appropriateness was very good, especially as regards day-surgery. However, a high number of potentially inappropriate elective interventions, such as tonsillectomies and vein stripping was also observed. Average length of stay - both for surgery and medical admissions - did not differ substantially from the other Regions.

Trento showed excellent hospital process organization, the one critical factor being the ability of Emergency Departments to direct cases to the correct wards. Waiting times in the Emergency Departments were limited, although voluntary dropouts were still high, as in previous years. Voluntary discharges - a proxy of patient satisfaction with hospital services - were, in contrast, few.

The maternal and child pathway performed well despite wide delivery distribution among several birth hospitals not achieving the threshold of 500 cases per year. The organization of the oncological pathway proved good.

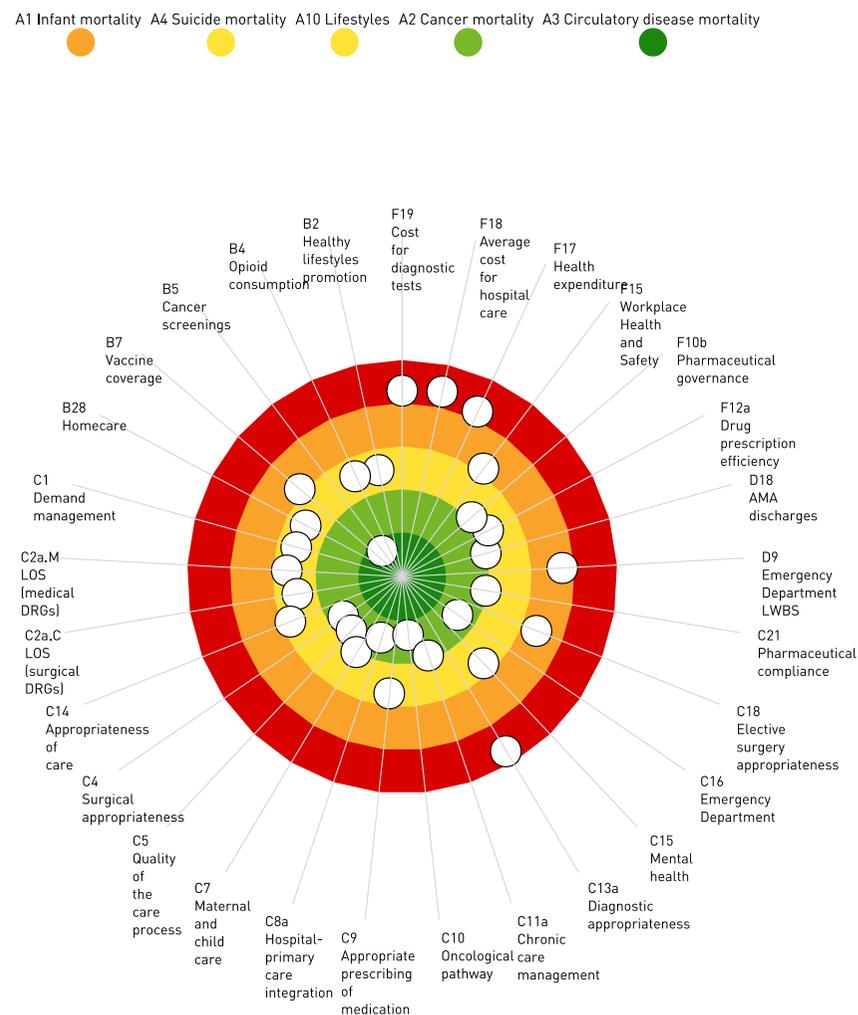
Chronic disease - such as heart failure and COPD - management proved effective, but hospitalization rates for diabetes and major amputations were still high. Hospital-primary care integration performed well, especially with reference to paediatric cases. There remains the issue of high potentially inappropriate diagnostic consumption and the attendant cost, where Trento has higher rates than the other Regions of the network.

Pharmaceutical prescription appropriateness and efficiency, i.e. off-patent drug prescription, presented average results. Patient compliance as monitored by the Performance Evaluation System was good. Per capita pharmaceutical expenditure was within the inter-regional average.

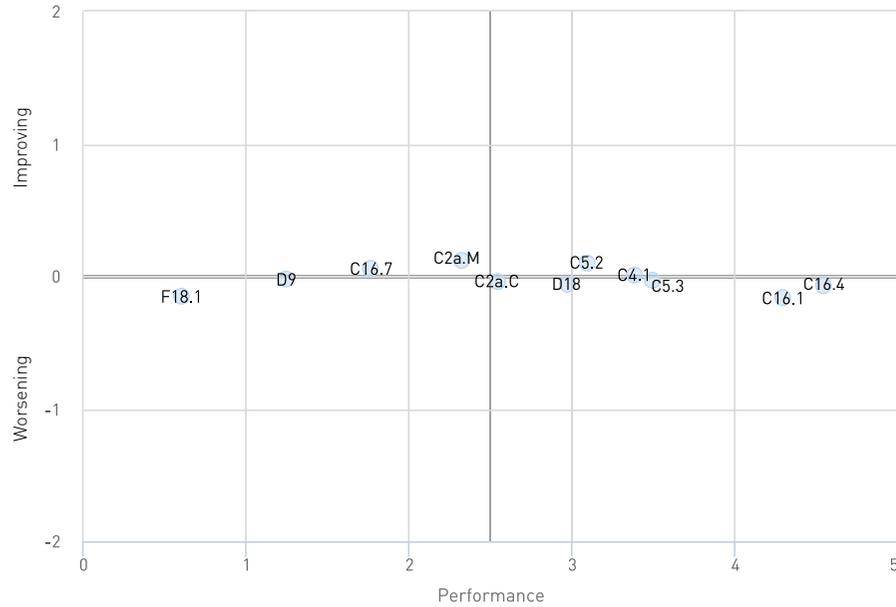
Health and safety at the workplace still presents some problems, both as concerns territorial coverage and efficiency.

Overall and hospital care costs were seen to be substantially higher than those of the other Regions in the network.

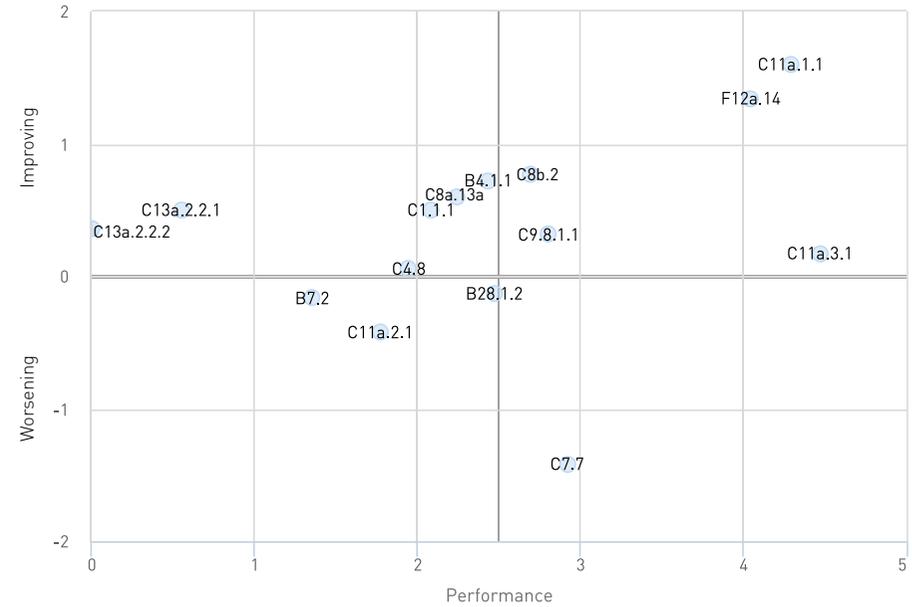
## Population's health - 2010-2012



## HOSPITAL SERVICES PERFORMANCE MAP



## PRIMARY CARE PERFORMANCE MAP



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F18.1	Average hospital cost per weighted case

B4.1.1	Opioid consumption
B7.2	Flu vaccine coverage for the elderly
B28.1.2	Percentage of elderly provided with homecare, with assessment
C1.1.1	Standardized hospitalization rate of acute inpatients
C4.8	Medical ELC DRGs: standardized hospitalization rate
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C11a.2.1	Diabetes hospitalization rate (35-74 years)
C11a.3.1	COPD hospitalization rate (50-74 years)
C13a.2.2.1	Musculoskeletal MRI scan rate (> 65 years)
C13a.2.2.2	Percentage of patients repeating lumbar MRI scan within 12 months
F10.1	Local per capita pharmaceutical expenditure   
F12a.14	Prescription of off-patent drugs

## The Performance of Tuscany Region in 2014

Improving its population's health is the goal of every healthcare system. Tuscany returned good indicators for infant, cancer, cardiovascular disease and suicide mortality rates. The national "PASSI" survey assessing the adoption of healthy lifestyles showed the Region to be in line with the network both as regards the dissemination of healthy lifestyles and the emphasis given by general practitioners. As regards the ability to implement specific health policies, vaccination coverage was seen to be widespread for all types of vaccinations, especially Papilloma virus and hexavalent immunization.

Attention towards pain management, measured by opioid consumption, aligned with the other Regions and was observed to have improved against the 2013 results. Oncological screening programmes showed good coverage ratios, both in terms of the target population invited and uptake. Colorectal screening remains an area for improvement.

Tuscany proved to have good hospital care governance, with a low hospitalization rate that had further fallen compared to 2013. Hospitals showed an appropriate use of surgical settings. Inappropriate medical hospitalizations were further reduced, and the Region sets the best practice for over the threshold admissions of patients over 65. Between 2013 and 2014, length of stay continued to fall – for both medical and for surgical admissions – confirming the efficient use of hospital resources.

Indicators monitoring the organization of hospital processes were generally positive, although the recourse to transurethral procedure in prostatectomies should be further encouraged.

The high percentage of surgical admissions referred from the Emergency Department with surgical DRG at discharge documents the excellent ability of Tuscany's Emergency Departments to direct patients to the correct hospital wards. Waiting times in the Emergency Departments proved generally in line with the other Regions.

The maternal and child pathway proved very good, even though the paediatric hospitalization rate was higher than the network average, especially in some Local Health Authorities. The oncological pathway obtained excellent results. Mental health indicators show the need to pay more attention to hospital readmissions, both within a week and 8 - 30 days from discharge.

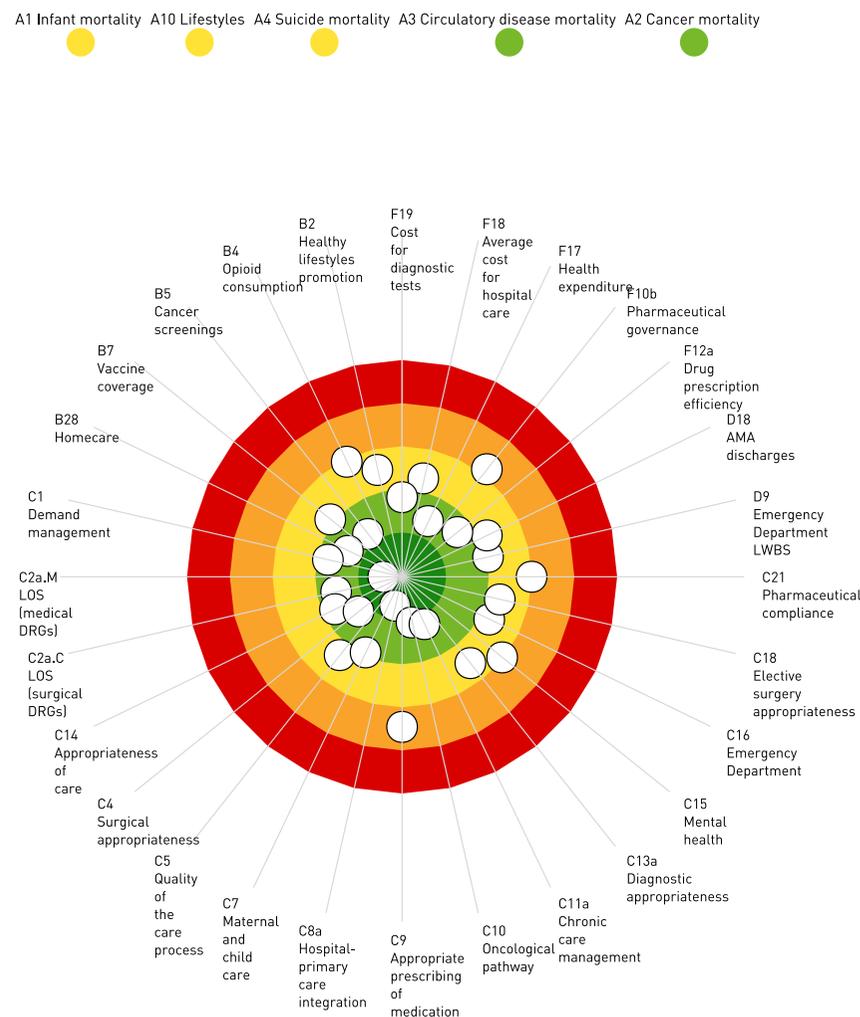
Potentially inappropriate surgery rates did not differ from the other Regions. In terms of diagnostic procedure appropriateness, clinicians should be encouraged to reduce lumbar MRI prescribed for patients already undergoing this procedure in the previous 12 months.

Tuscany was seen to have excellent integration of its hospital and primary care, as well as effective chronic disease management, as shown by low hospitalization rates for heart failure, diabetes and COPD.

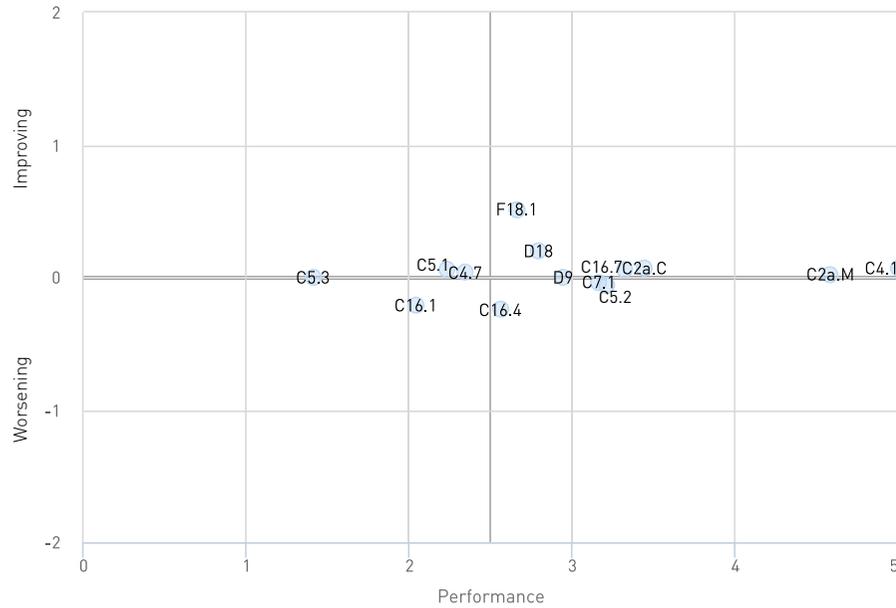
The Region also showed good prescription efficiency (i.e. high off-patent prescription levels). However there is room for improvement in the area of per capita pharmaceutical expenditure, which requires addressing inappropriate drug prescription, especially of sartans, antibiotics and antidepressants.

Both the overall, diagnostic and hospital care expenditure were seen to be moderate.

## Population's health - 2010-2012

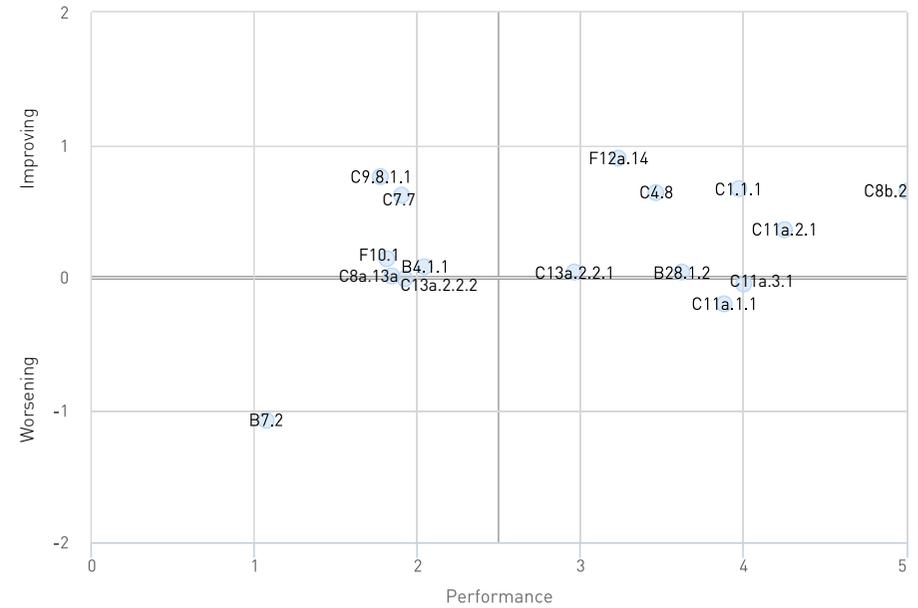


## HOSPITAL SERVICES PERFORMANCE MAP



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## PRIMARY CARE PERFORMANCE MAP

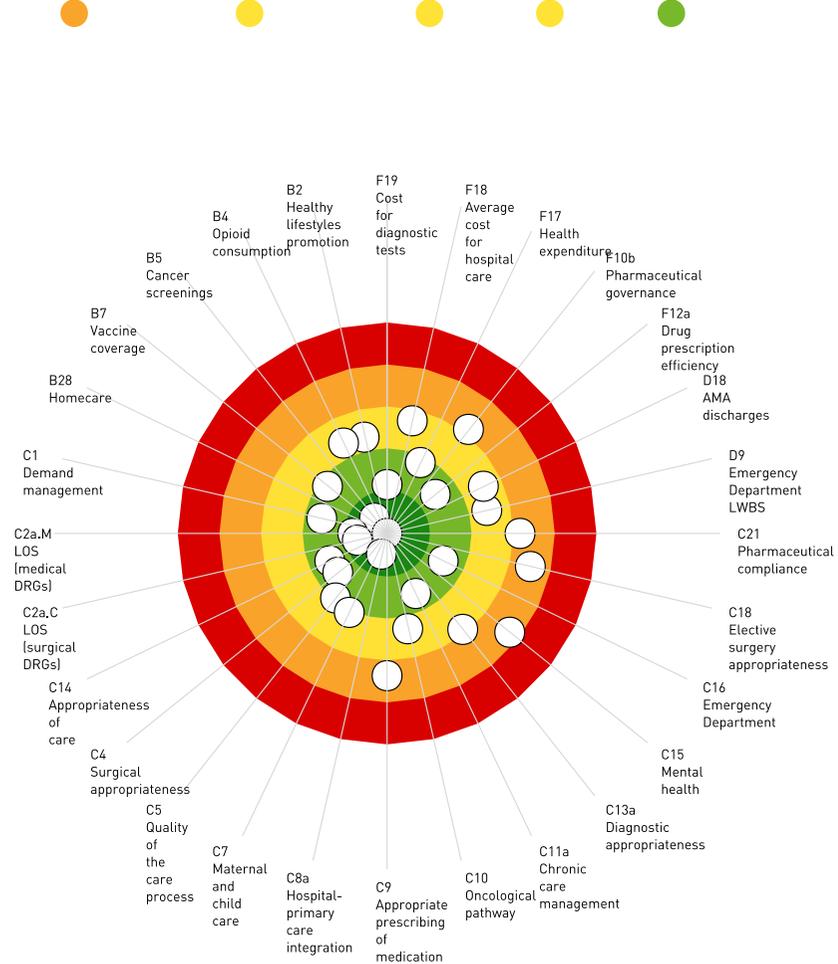


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B7.2	Flu vaccine coverage for the elderly
B28.1.2	Percentage of elderly provided with homecare, with assessment
C1.1.1	Standardized hospitalization rate of acute inpatients
C4.8	Medical ELC DRGs: standardized hospitalization rate
C7.7	Paediatric hospitalization rate (0-14 years)
C8b.2	Hospital admission rate with length of stay of over 30 days
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C13a.2.2.1	Musculoskeletal MRI scan rate (> 65 years)
C13a.2.2.2	Percentage of patients repeating lumbar MRI scan within 12 months
F10.1	Local per capita pharmaceutical expenditure   
F12a.14	Prescription of off-patent drugs

# AUSL 1 Massa

## Population's health - 2010-2012

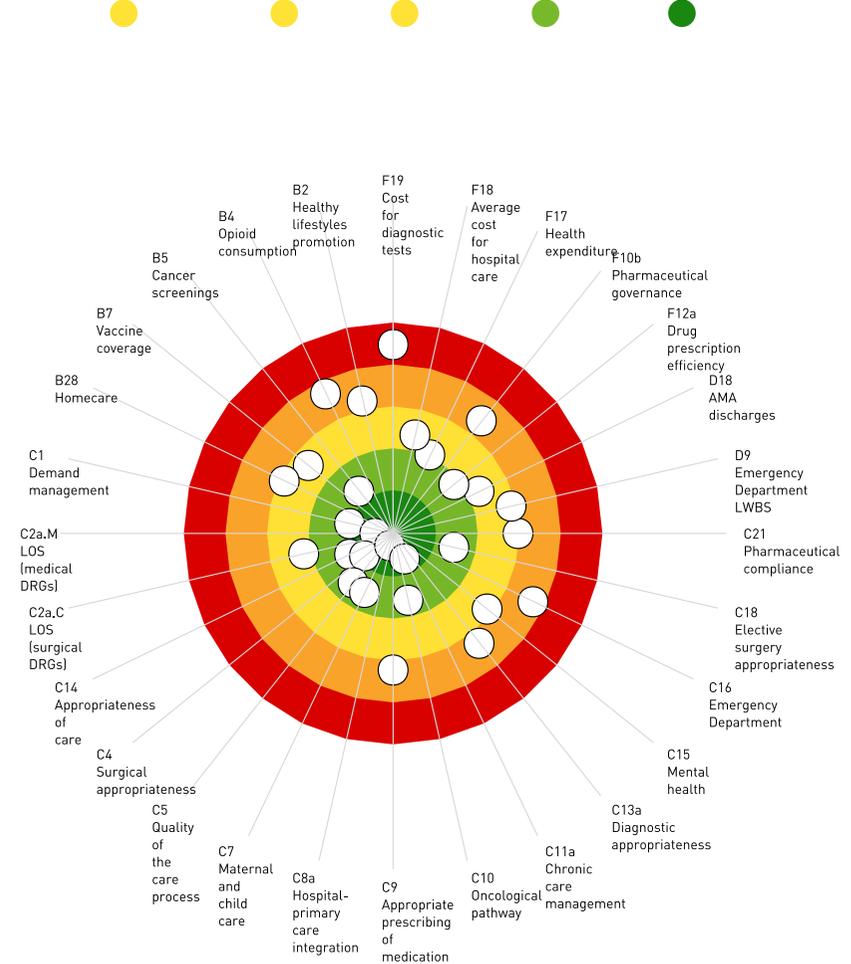
A1 Infant mortality A3 Circulatory disease mortality A2 Cancer mortality A10 Lifestyles A4 Suicide mortality



# AUSL 2 Lucca

## Population's health - 2010-2012

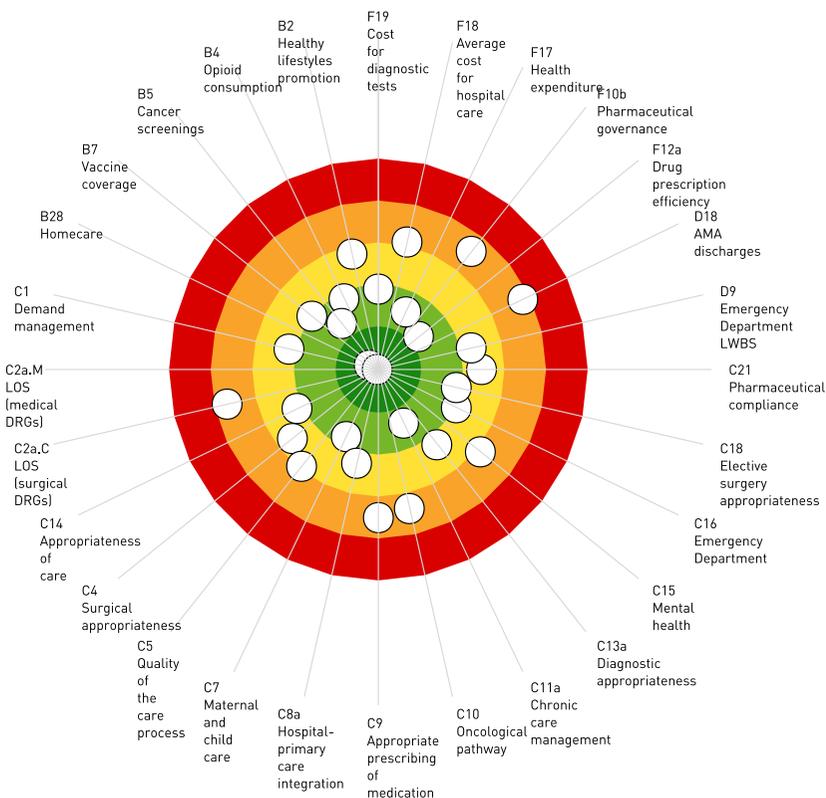
A3 Circulatory disease mortality A10 Lifestyles A2 Cancer mortality A4 Suicide mortality A1 Infant mortality



## AUSL 3 Pistoia

Population's health - 2010-2012

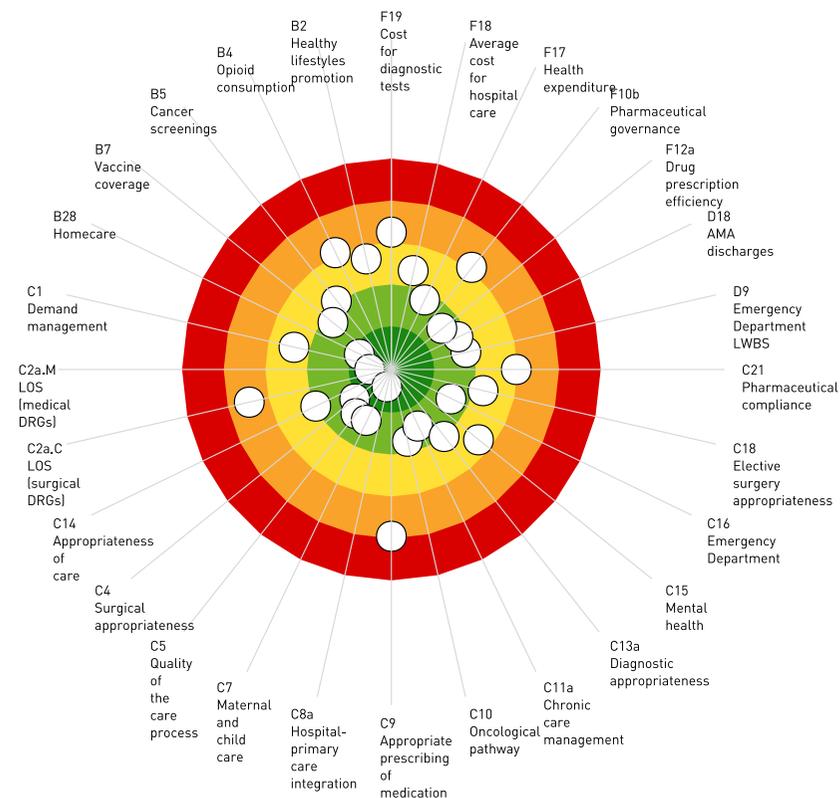
A1 Infant mortality A3 Circulatory disease mortality A10 Lifestyles A2 Cancer mortality A4 Suicide mortality



## AUSL 4 Prato

Population's health - 2010-2012

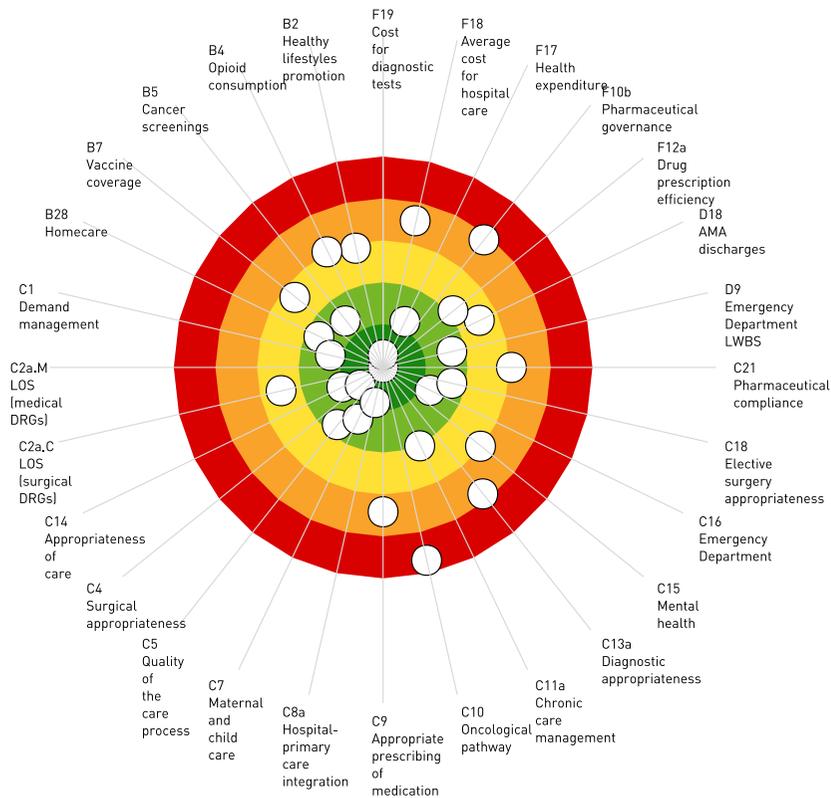
A10 Lifestyles A4 Suicide mortality A3 Circulatory disease mortality A2 Cancer mortality A1 Infant mortality



## AUSL 5 Pisa

### Population's health - 2010-2012

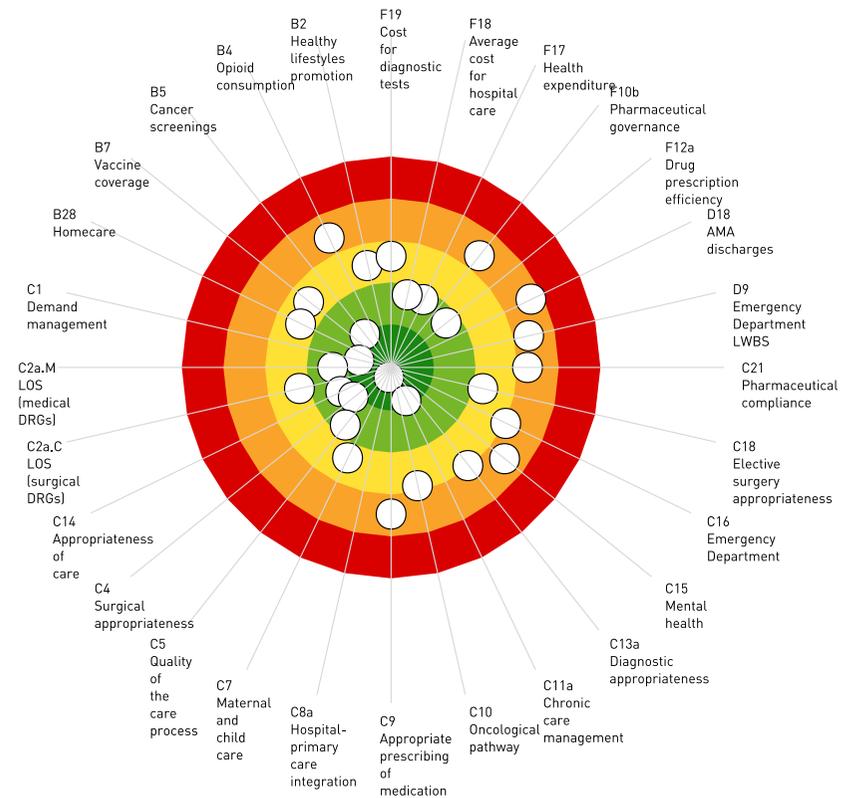
A1 Infant mortality A10 Lifestyles A3 Circulatory disease mortality A4 Suicide mortality A2 Cancer mortality



## AUSL 6 Livorno

### Population's health - 2010-2012

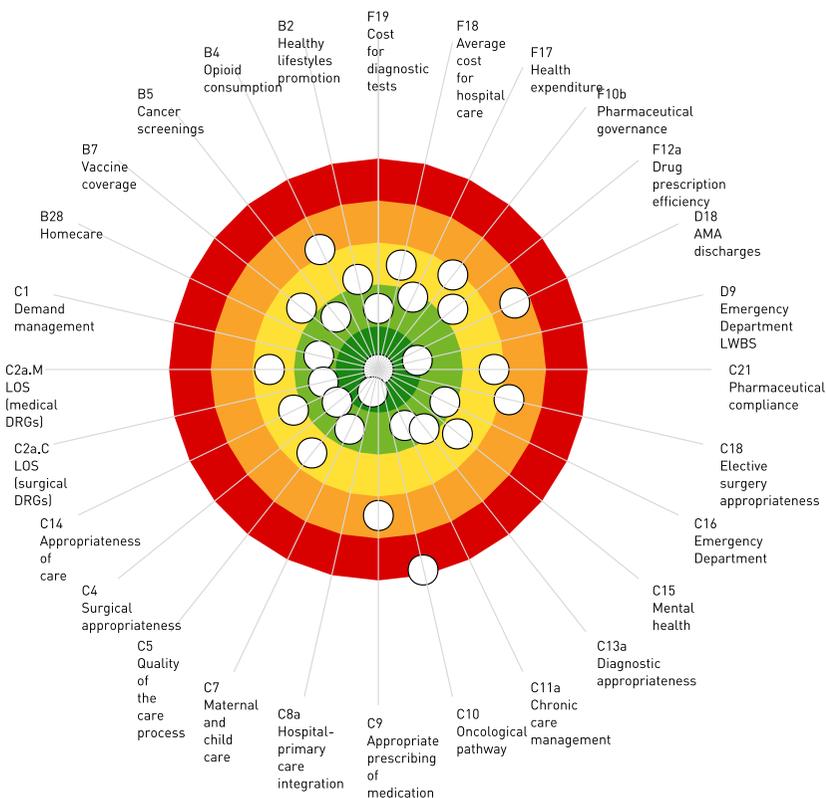
A1 Infant mortality A3 Circulatory disease mortality A4 Suicide mortality A10 Lifestyles A2 Cancer mortality



## AUSL 7 Siena

Population's health - 2010-2012

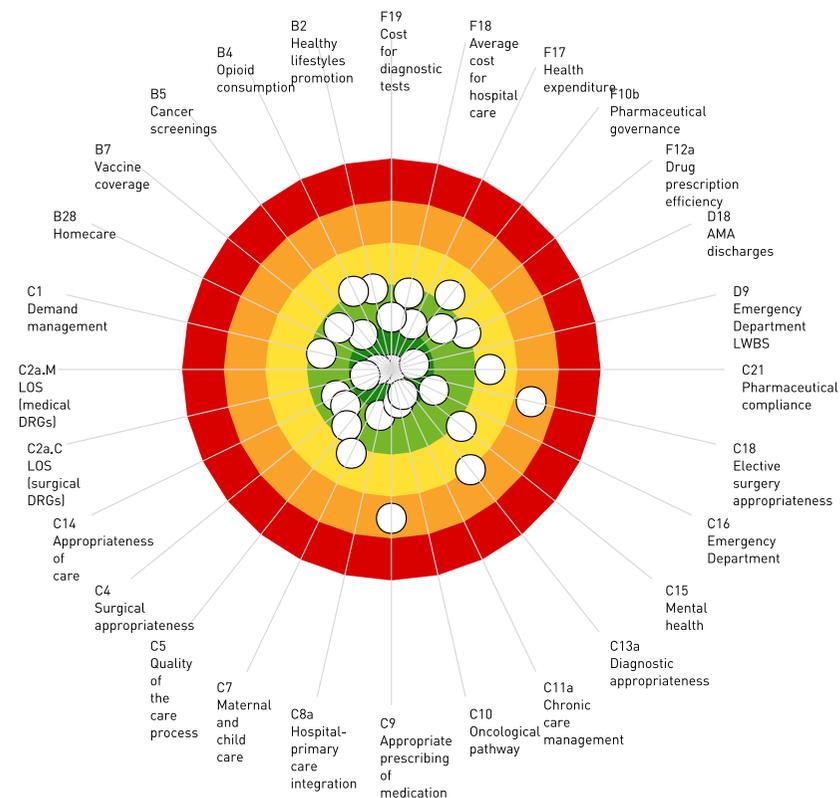
A4 Suicide mortality A1 Infant mortality A10 Lifestyles A3 Circulatory disease mortality A2 Cancer mortality



## AUSL 8 Arezzo

Population's health - 2010-2012

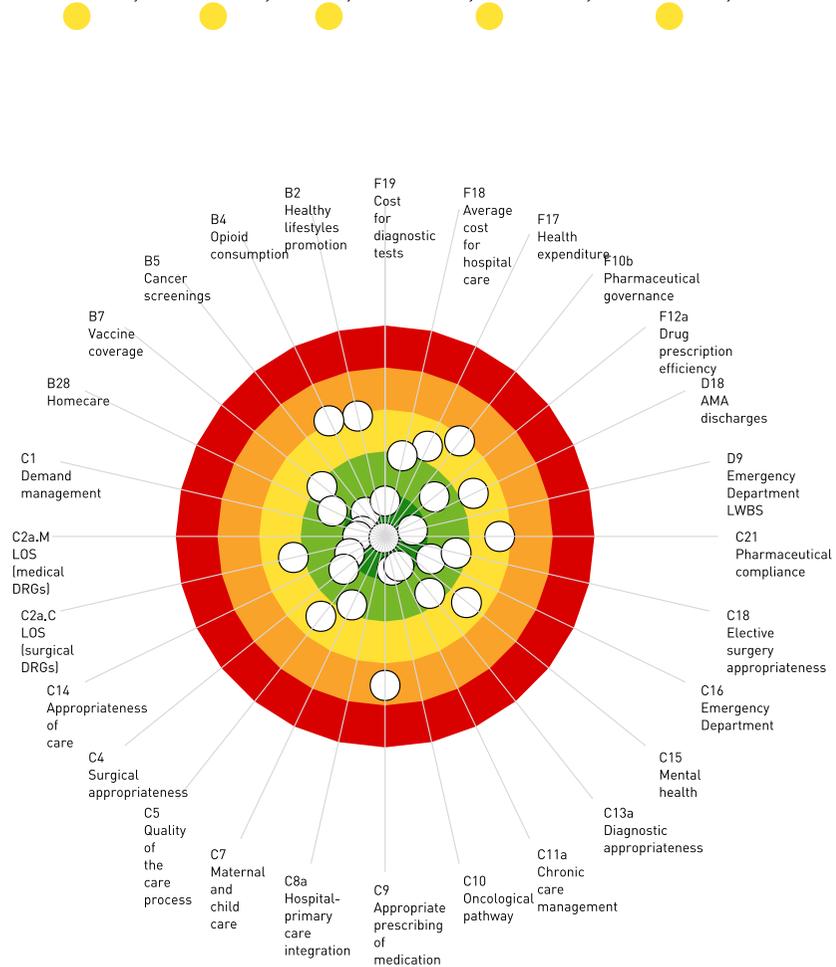
A10 Lifestyles A3 Circulatory disease mortality A4 Suicide mortality A2 Cancer mortality A1 Infant mortality



## AUSL 9 Grosseto

Population's health - 2010-2012

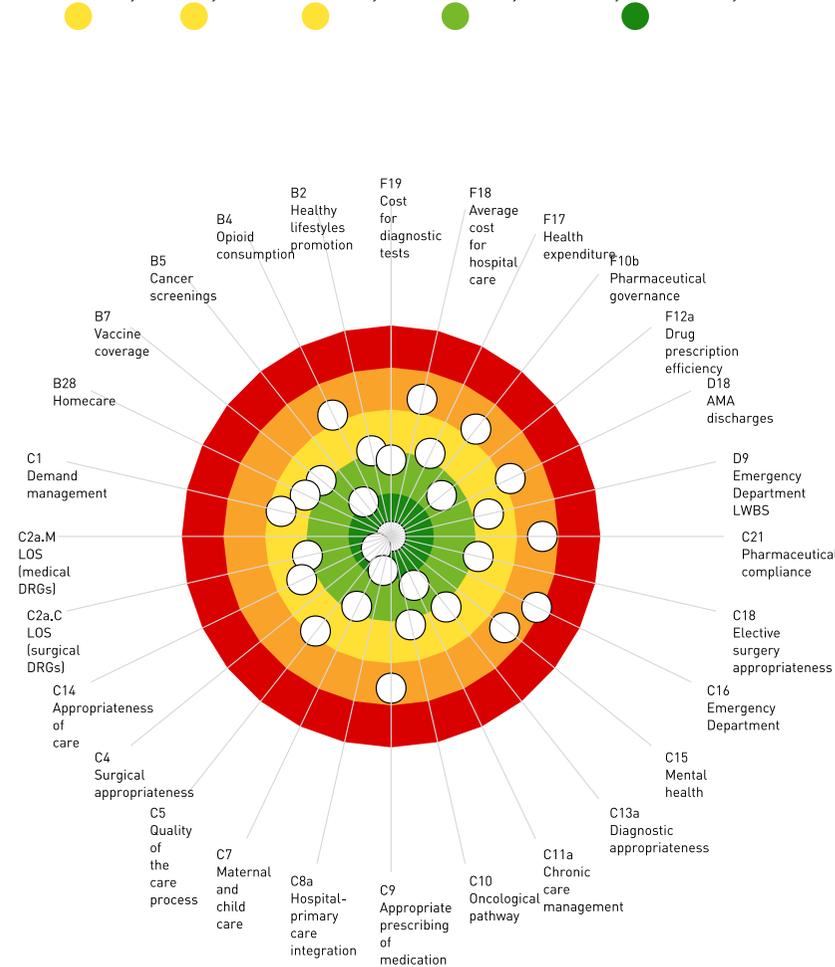
A4 Suicide mortality A1 Infant mortality A10 Lifestyles A3 Circulatory disease mortality A2 Cancer mortality



## AUSL 10 Firenze

Population's health - 2010-2012

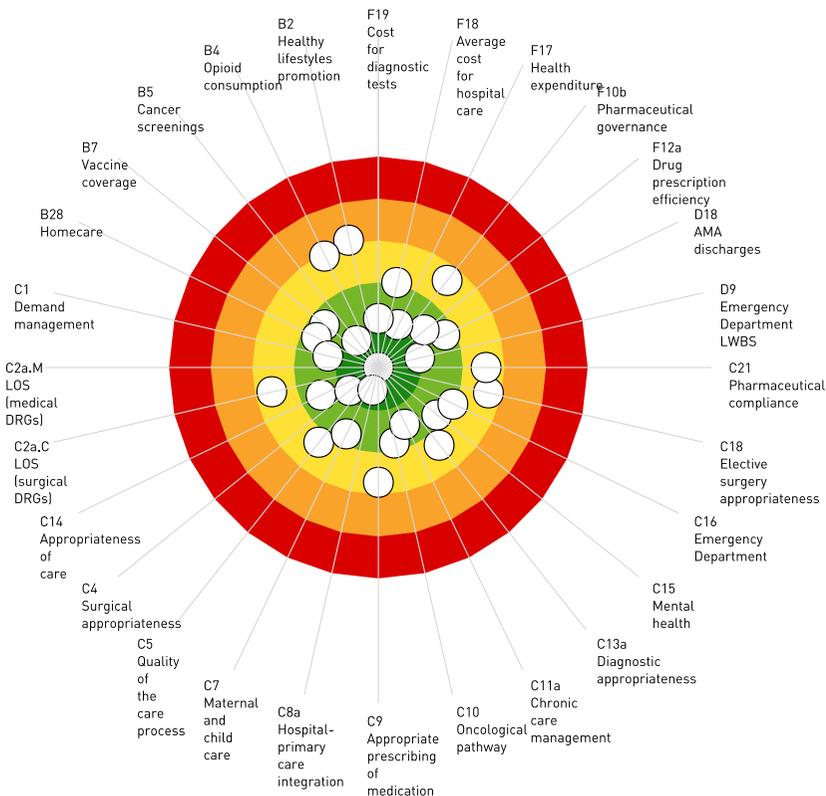
A1 Infant mortality A10 Lifestyles A4 Suicide mortality A2 Cancer mortality A3 Circulatory disease mortality



# AUSL 11 Empoli

Population's health - 2010-2012

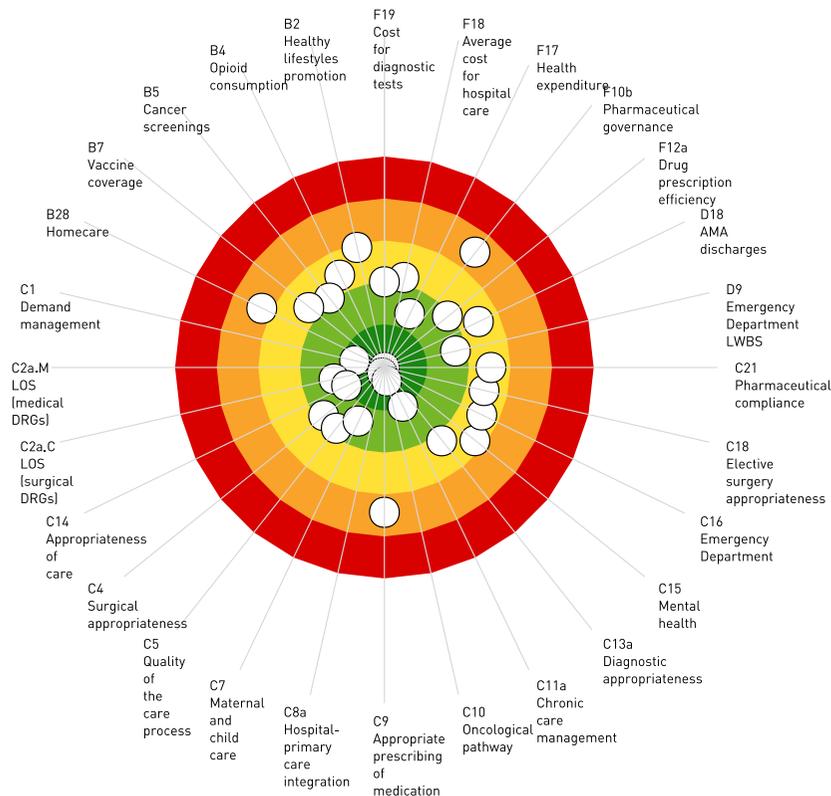
A3 Circulatory disease mortality A10 Lifestyles A2 Cancer mortality A1 Infant mortality A4 Suicide mortality



# AUSL 12 Viareggio

Population's health - 2010-2012

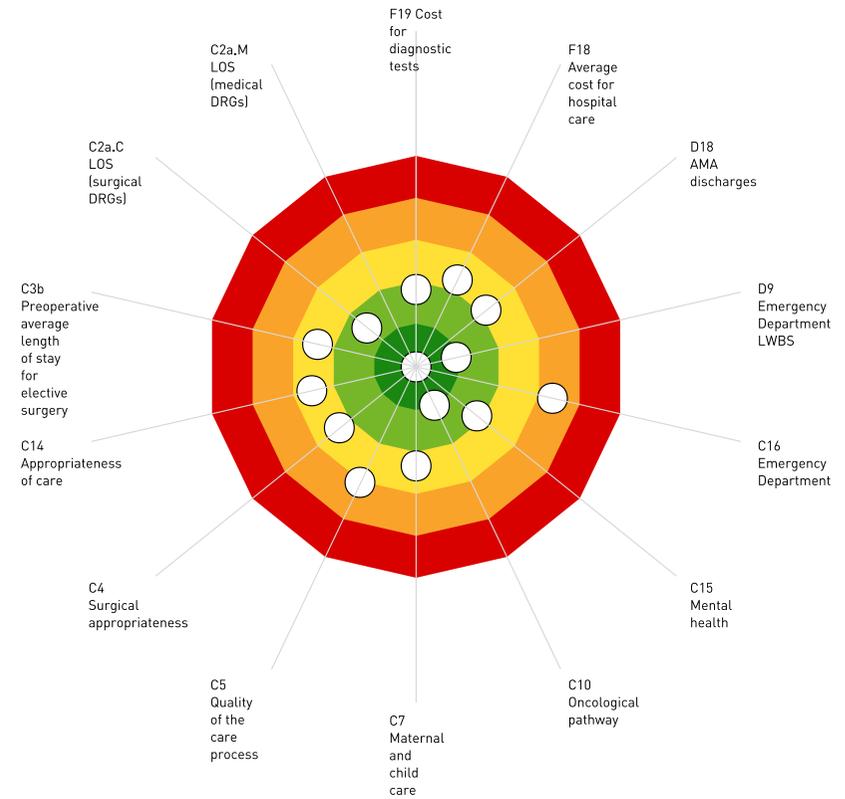
A1 Infant mortality A2 Cancer mortality A3 Circulatory disease mortality A4 Suicide mortality A10 Lifestyles



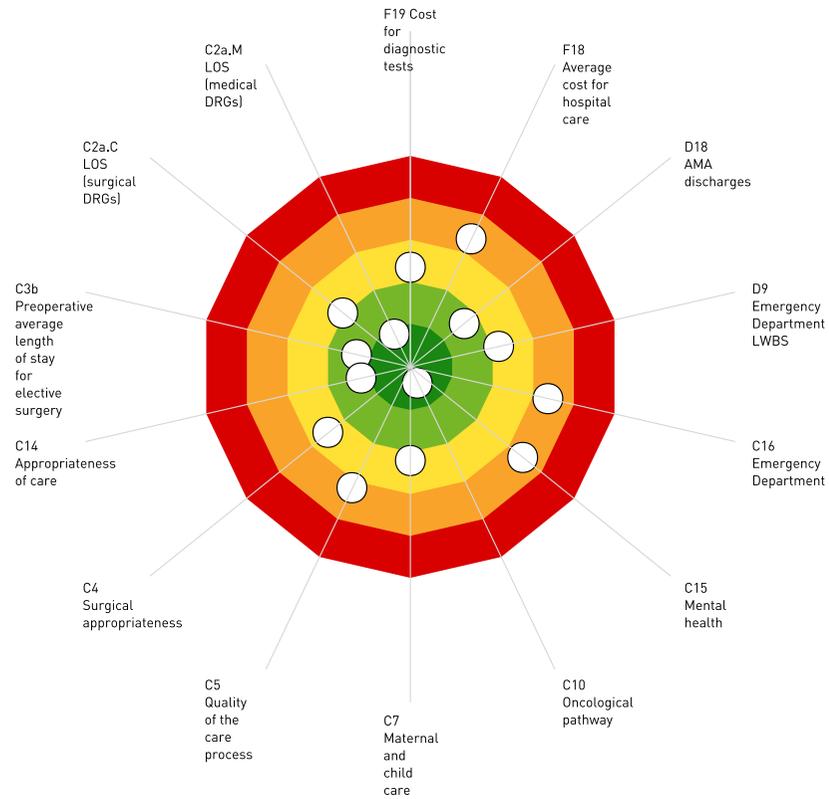
## AOU Pisana



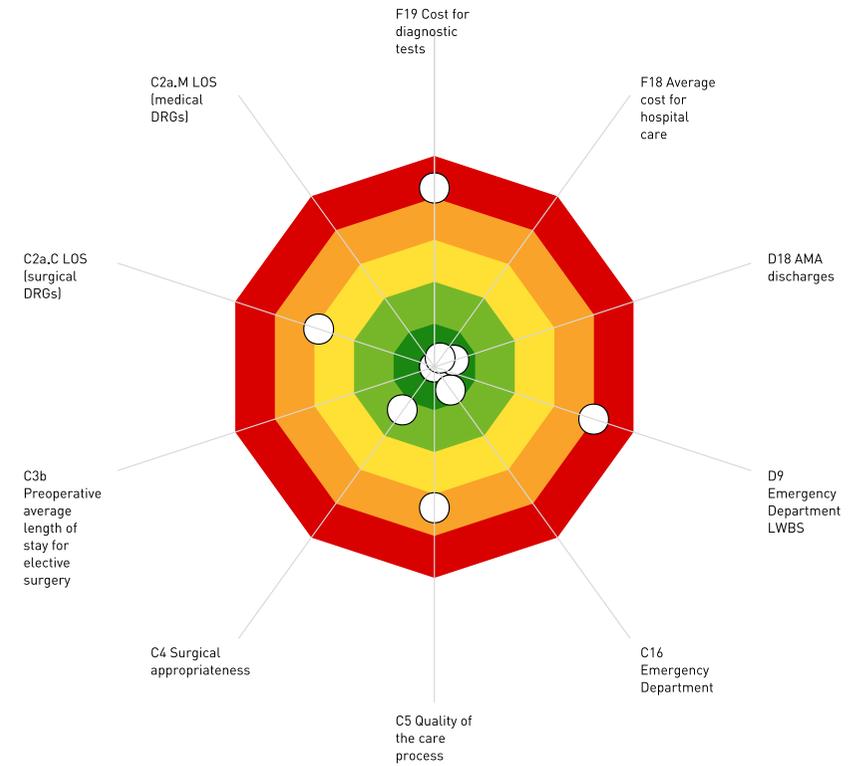
## AOU Senese



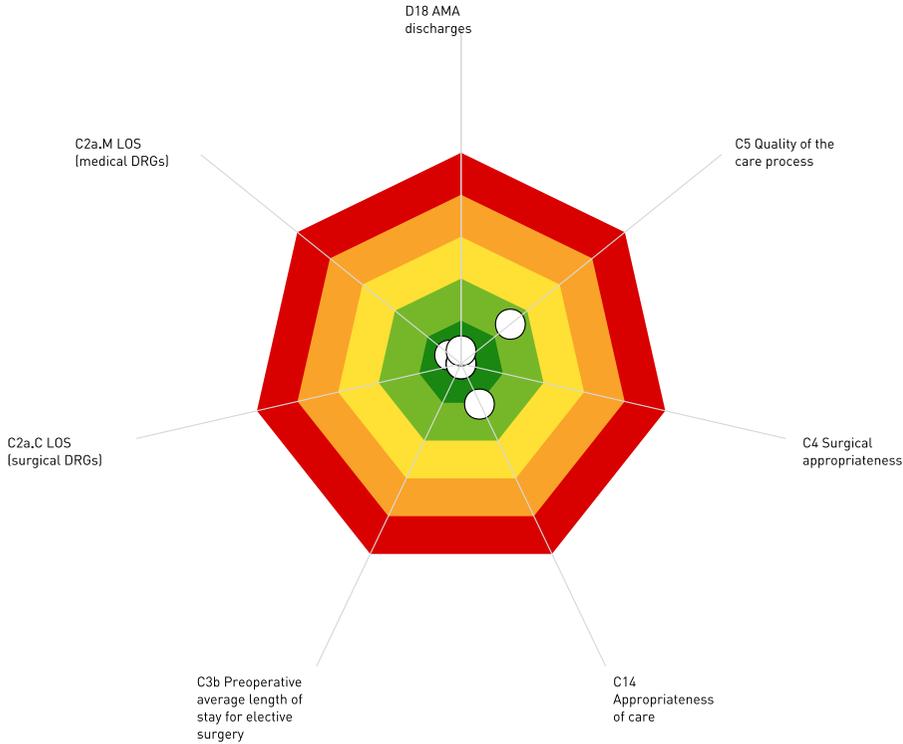
## AOU Careggi



## Meyer



# Fond. Monasterio





## The Performance of Umbria Region in 2014

Improving its population's health is the goal of every healthcare system. The population of Umbria presented low infant and cancer mortality, but higher suicide mortality than the other Regions.

As regards the ability to implement specific health policies, vaccination coverage proved generally good, the only critical factor being flu vaccination coverage of health professionals. The results showed that more attention should be paid to pain management as measured by opioid consumption. Cancer screening programmes enjoy good coverage with high invitation rates.

Umbria's recourse to hospital care showed the need to improve demand management capability, particularly as regards day hospital and short-term medical inpatient admissions. Improvements in surgical appropriateness are also needed, by placing greater emphasis on widespread recourse to day surgery. Length of hospital stay for surgical procedures proved in line with the other Regions, while medical hospitalizations were shorter than the average.

Hospital process organization indicators identified two main critical areas: femur fractures operated within two days of admission (even if results showed an improvement on 2013) and the ability of Emergency Departments to redirect cases to the appropriate hospital wards. Waiting times in the Emergency Departments were observed as moderate. However, the percentage of voluntary dropouts was higher than the average and higher than the Region's 2013 performance. Similarly, the high percentage of hospitalised patients leaving against medical advice may be a sign of user dissatisfaction.

Maternal and child pathway management remained critical, as seen by the frequent recourse to caesarean delivery and episiotomy. From an organizational point of view, deliveries are scattered across many birth hospitals with less than 500 deliveries per year. The oncological pathway returned excellent results in terms of outputs, even if malignant prostate cancer procedures are distributed over facilities carrying out less than 50 interventions per year. Mental health indicators showed generally good results.

In terms of potentially inappropriate surgical services, the overall situation was not seen to differ from the other Regions, although the hospitalization rate for tonsillectomy reported was higher than the average.

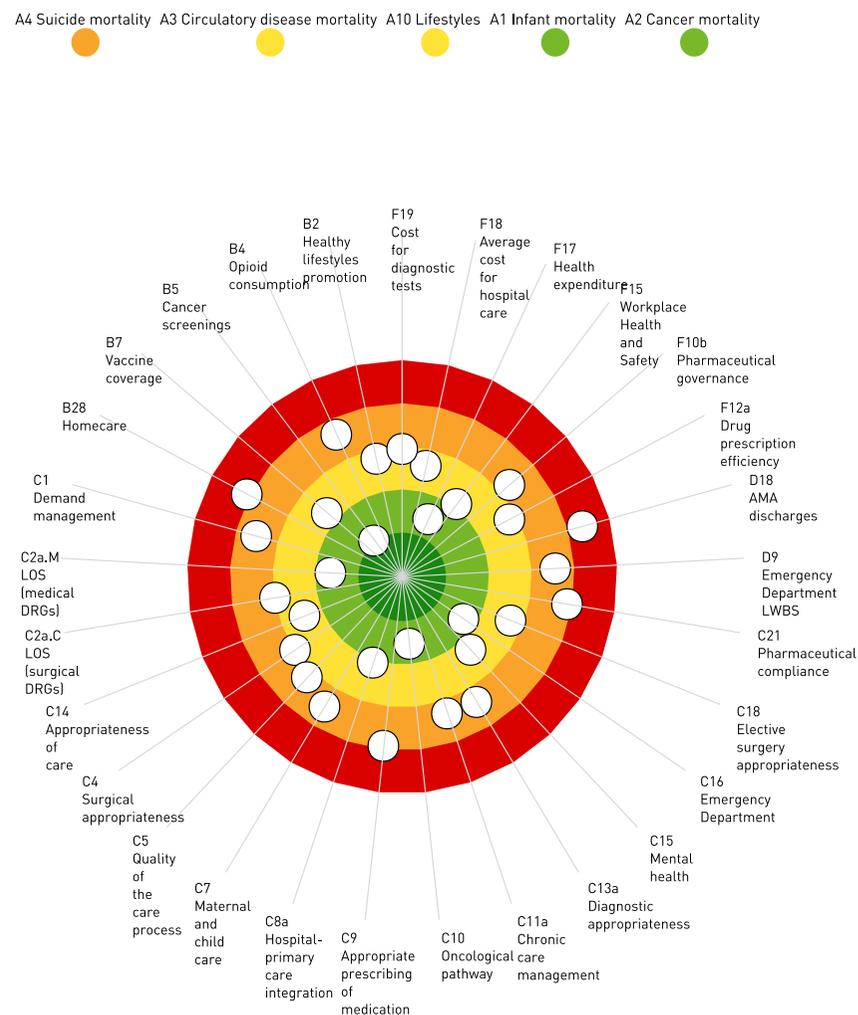
As regards appropriateness of diagnostics procedures, more attention must be given to the prescription of both musculoskeletal MRI for patients over 65, and repeated MRI prescription within 12 months, both indications of service inappropriateness.

Despite improvements on 2013, Umbria still faces issues in its chronic disease management, as reflected by its higher heart failure, diabetes and COPD hospitalization rates compared to the other Regions. Hospital and primary care integration indicators proved generally good, although paediatric admissions for gastroenteritis were still frequent.

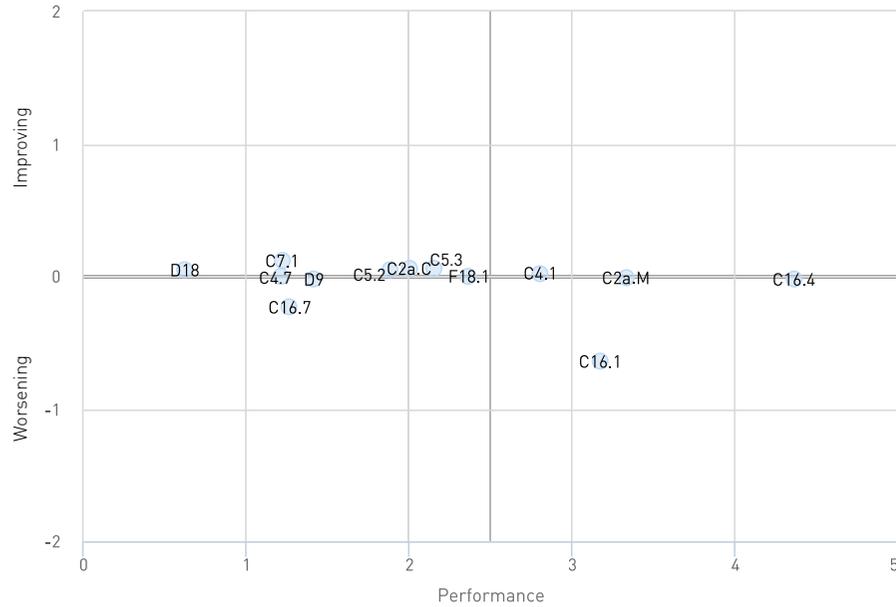
Umbria's drug expenditure is higher than the other Regions, albeit lower than 2013. Greater attention must be given to proton pump inhibitor, antidepressant and antibiotic prescription in order to contain Regional pharmaceutical spending.

Finally, Umbria was seen to have slightly lower per capita healthcare costs than the network average, average hospital care costs, and slightly higher than average diagnostic procedure expenditure.

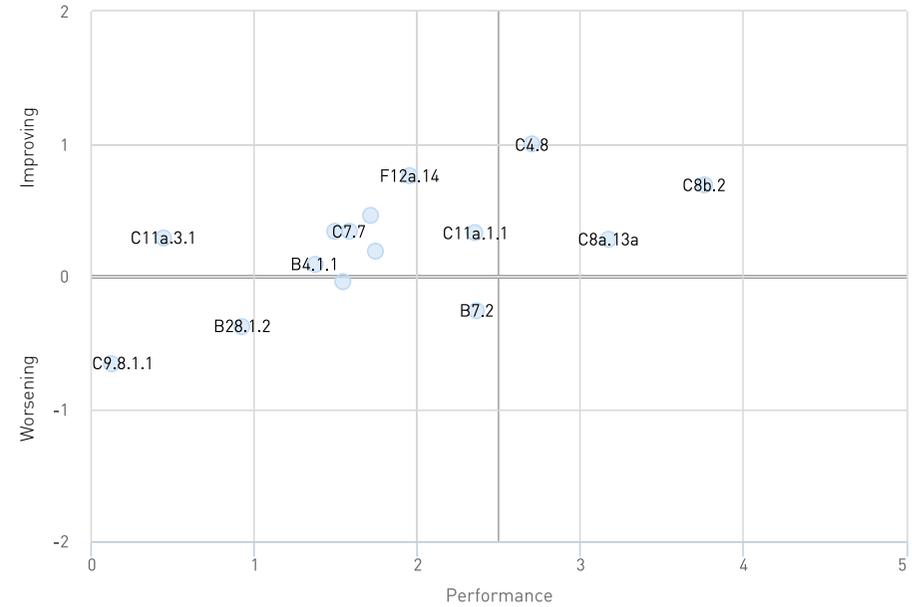
## Population's health - 2010-2012



## HOSPITAL SERVICES PERFORMANCE MAP



## PRIMARY CARE PERFORMANCE MAP



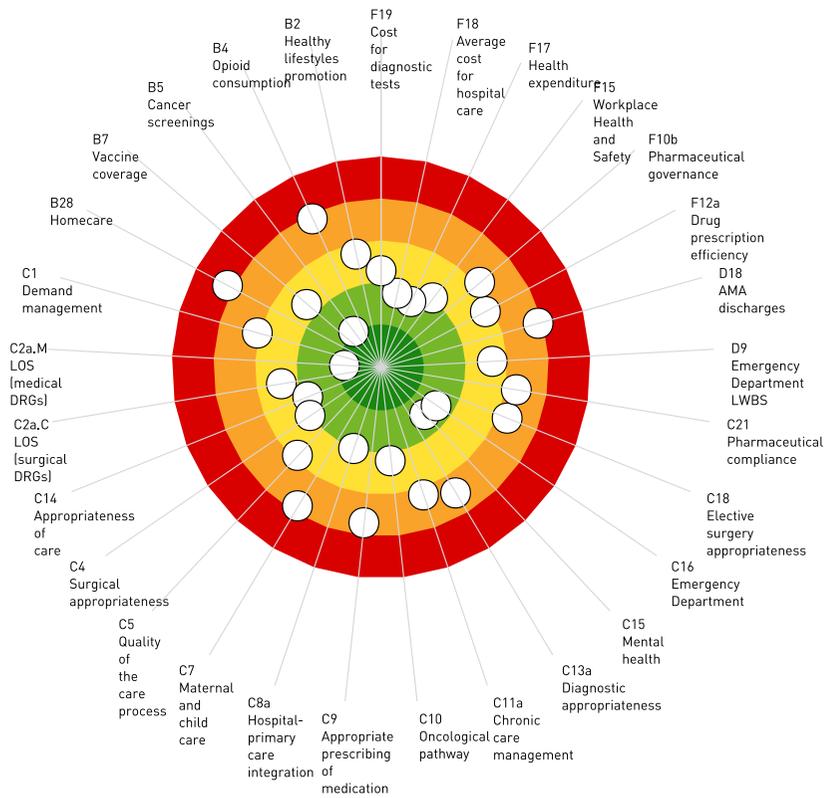
C2a.M	Performance index for average hospital length of stay of acute medical DRGs
C2a.C	Performance index for average hospital length of stay of acute surgical DRGs
C3.4	Preoperative average hospital length of stay for elective surgery of more than 1 day (teaching/research/autonomous general hospitals)
C4.1	Percentage of medical DRGs discharged from surgical wards
C4.7	Percentage of Day Surgery admissions for "ELC surgical DRGs"
C5.1	Percentage of readmissions within 30 days
C5.2	Percentage of femoral neck fractures operated within 2 days of admission
C5.3	Percentage of transurethral prostatectomies
C16.7	Percentage of surgical admissions from Emergency Department (ED) with surgical DRG on discharge
C7.1	Percentage of C-section deliveries (NTSV)
C16.1	Percentage of yellow code patients visited within 30 minutes
D9	Patients leaving the Emergency Department without being seen (LWBS)
D18	Percentage of hospitalized patients leaving against medical advice
C16.4	Percentage of patients referred to hospital with a length of stay <=8h
F18.1	Average hospital cost per weighted case

B4.1.1	Opioid consumption
B7.2	Flu vaccine coverage for the elderly
B28.1.2	Percentage of elderly provided with homecare, with assessment
C1.1.1	Standardized hospitalization rate of acute inpatients
C4.8	Medical ELC DRGs: standardized hospitalization rate
C7.7	Paediatric hospitalization rate (0-14 years)
C8b.2	Hospital admission rate with length of stay of over 30 days
C8a.13a	Percentage of psychiatric patient readmissions 8 - 30 days following discharge
C9.8.1.1	Consumption of antibiotics
C11a.1.1	Heart failure hospitalization rate (50-74 years)
C11a.2.1	Diabetes hospitalization rate (35-74 years)
C11a.3.1	COPD hospitalization rate (50-74 years)
C13a.2.2.1	Musculoskeletal MRI scan rate (> 65 years)
C13a.2.2.2	Percentage of patients repeating lumbar MRI scan within 12 months
F10.1	Local per capita pharmaceutical expenditure   
F12a.14	Prescription of off-patent drugs

# USL Umbria 1

## Population's health - 2010-2012

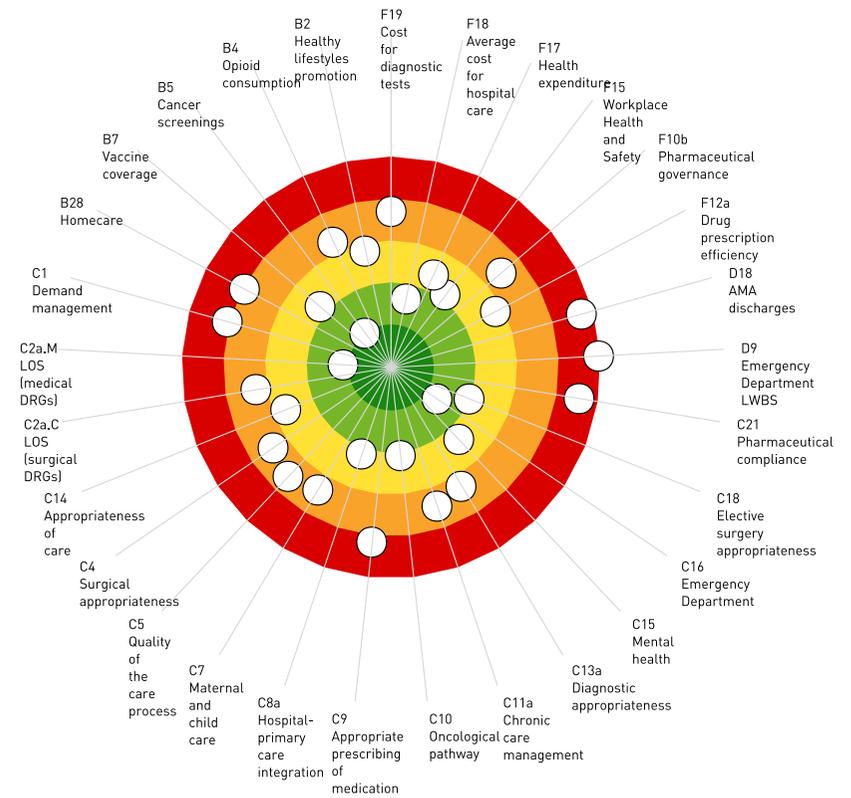
A4 Suicide mortality A10 Lifestyles A3 Circulatory disease mortality A1 Infant mortality A2 Cancer mortality



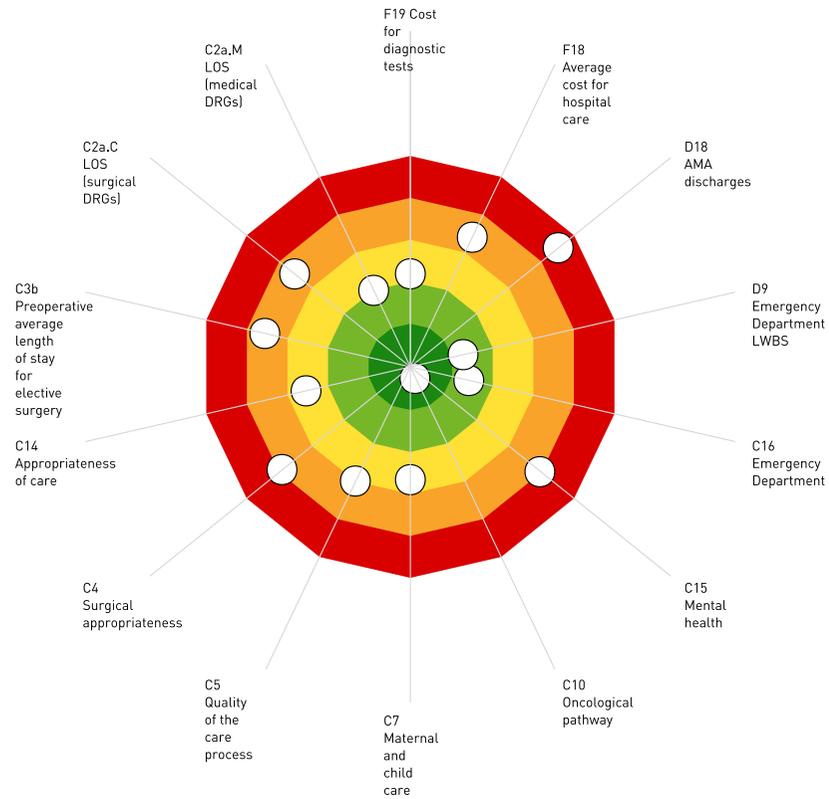
# USL Umbria 2

## Population's health - 2010-2012

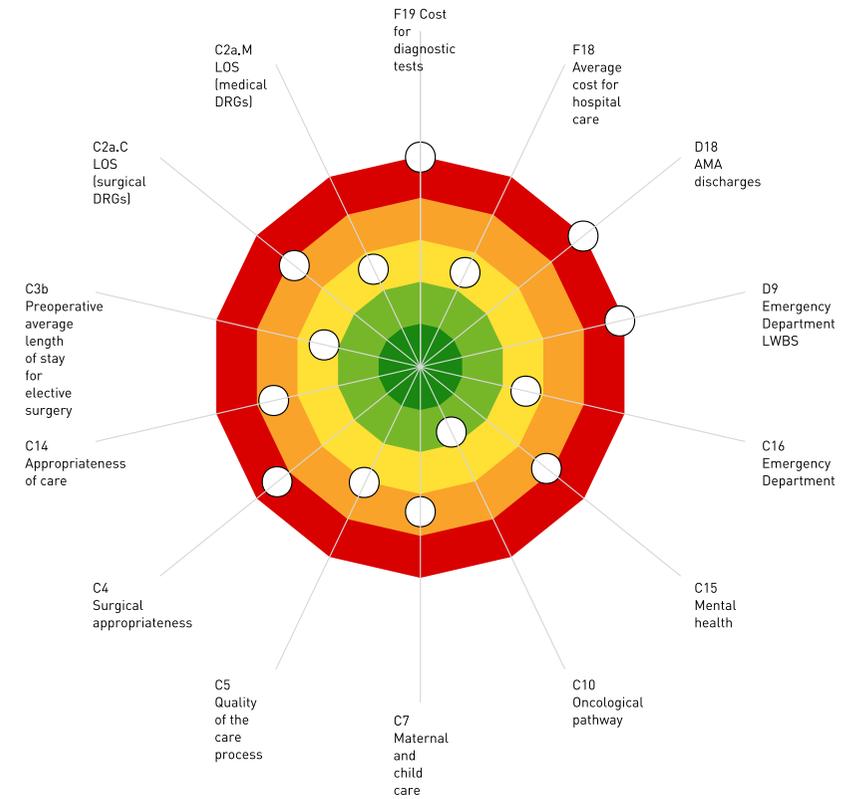
A4 Suicide mortality A3 Circulatory disease mortality A10 Lifestyles A1 Infant mortality A2 Cancer mortality



## A0 Perugia



## A0 Terni



## The Performance of Veneto Region in 2014

Improving its population's health is the goal of every healthcare system. The population of Veneto presented infant, cancer, cardiovascular and suicide mortality indicators in line with the network average. The national "PASSI" survey assessing the adoption of healthy lifestyles showed the Region to be once again in line with the network. Despite significant intra-regional variation, the emphasis placed on healthy lifestyles by Veneto's general practitioners proved among the highest in the network. As regards the ability to implement specific health policies, vaccination coverage was seen to be good, the only area of difficulty being administration of the Papilloma virus vaccine. Pain management, measured by the use of opioids, showed average consumption levels. Oncological screening enjoys very high coverage, both in terms of the target population invited and uptake.

Veneto's hospital care governance proved good, with one of the lowest hospitalization rates in the network. Medical and surgical procedure appropriateness was also good, even if some critical areas were evidenced, such as one-day laparoscopic cholecystectomies.

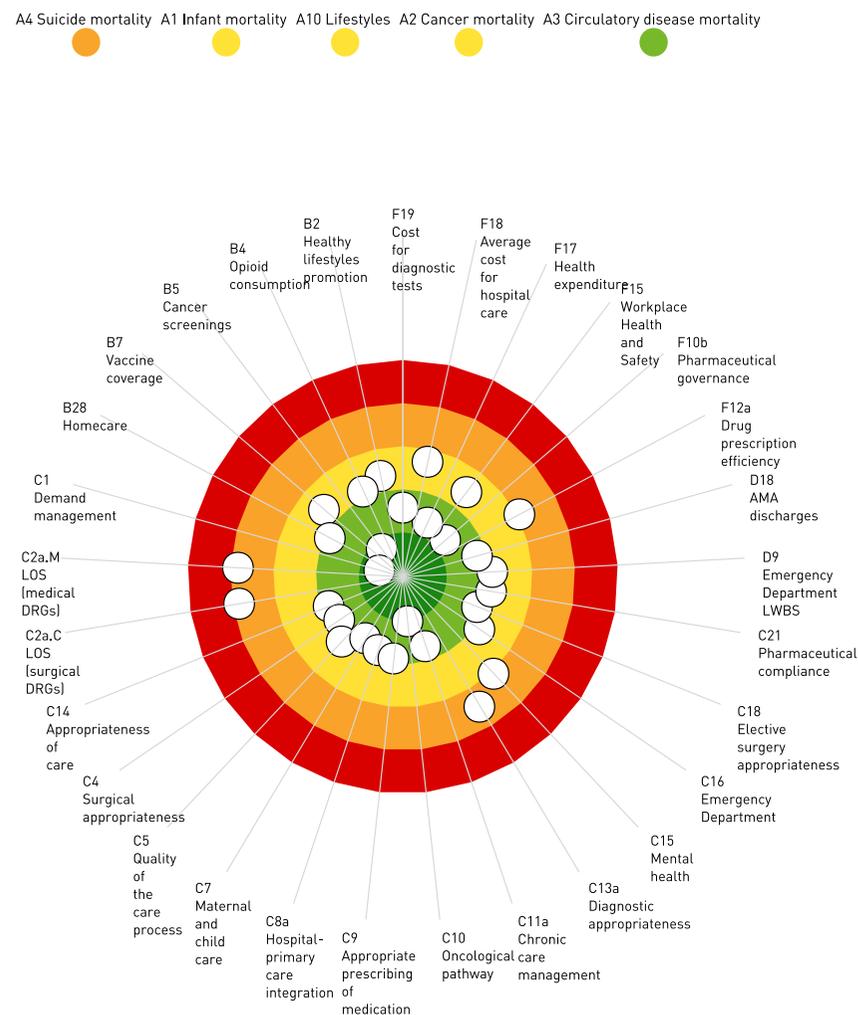
Length of hospital stay fell between 2013 and 2014, but medical hospitalizations remained longer than in the other Regions. This performance rating must, however, be interpreted against the finding of a generally low rate of hospitalization, stemming from policies promoting the use of lower resource-consuming care settings. Hospital processes proved well organized, with an increase of femur fracture operated within 48 hours of admission. An area where improvements are in order, however, is the diagnostic capacity of Emergency Departments and referrals to the most appropriate hospital wards. Waiting times in Emergency Departments were in line with the other Regions, with a low percentage of people leaving without being seen. The Region also had few voluntary discharges, a proxy of patient satisfaction with hospital services.

The maternal and child pathway was found to be generally very good. The oncological pathway achieved excellent results, both in terms of outputs and concentration of cases. Mental health management indicators did not significantly differ from those of the other Regions. In terms of potentially inappropriate surgery, the rate of hospitalization for vein stripping was low, although some Local Health Authorities did show significantly higher tonsillectomy procedures than the Network average. As to diagnostic activities, it was seen that attention must still be paid to the use of musculoskeletal MRI scans for patients over 65, given the potential inappropriateness of this examination in this age bracket. Veneto confirmed its effective chronic disease management capability. Indicators for the integration between hospital and primary care were very good, in particular for paediatrics.

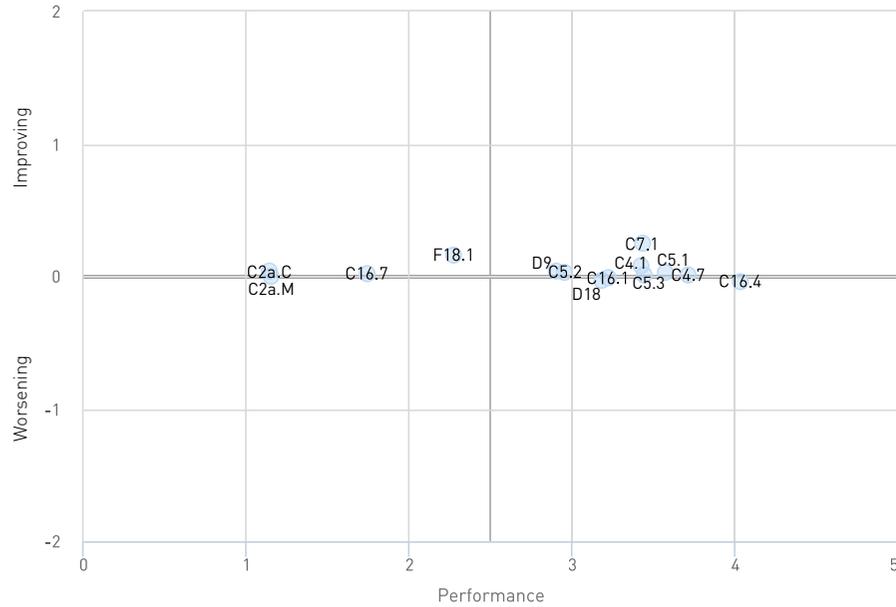
Veneto proved to have low pharmaceutical expenditure, with spending further reduced compared to 2013. This good performance is the result of the Region's prescription appropriateness, which could be further improved if more emphasis were placed on higher use of off-patent drugs.

In conclusion, hospital expenditure was seen to be in line with the average for the other Regions, diagnostic procedure spending was low and per-capita overall health expenditure was very moderate, a signal of the Region's efficient use of resources.

## Population's health - 2010-2012

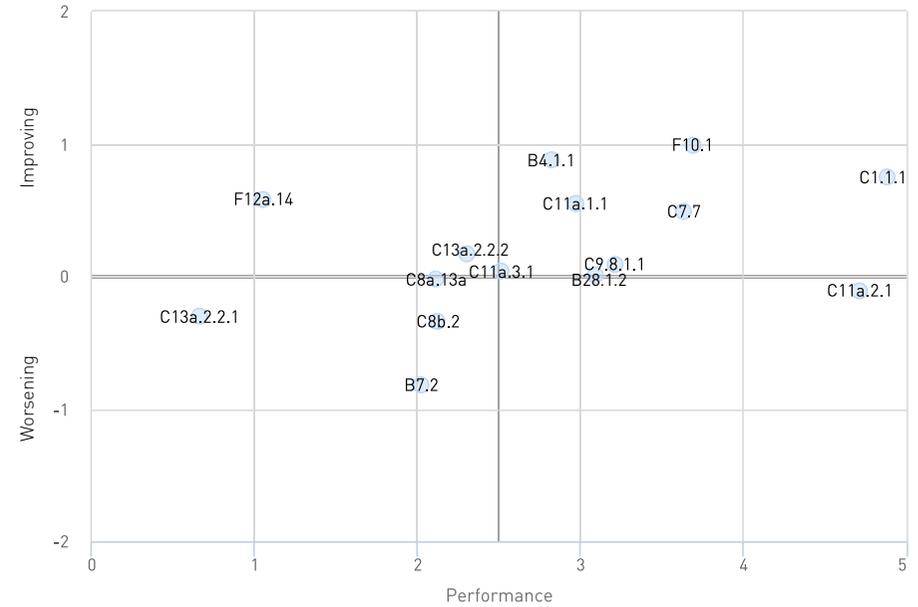


## HOSPITAL SERVICES PERFORMANCE MAP



C2a.M	Performance index for average hospital length of stay of acute medical DRGs
C2a.C	Performance index for average hospital length of stay of acute surgical DRGs
C3.4	Preoperative average hospital length of stay for elective surgery of more than 1 day (teaching/research/autonomous general hospitals)
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F18.1	Average hospital cost per weighted case

## PRIMARY CARE PERFORMANCE MAP

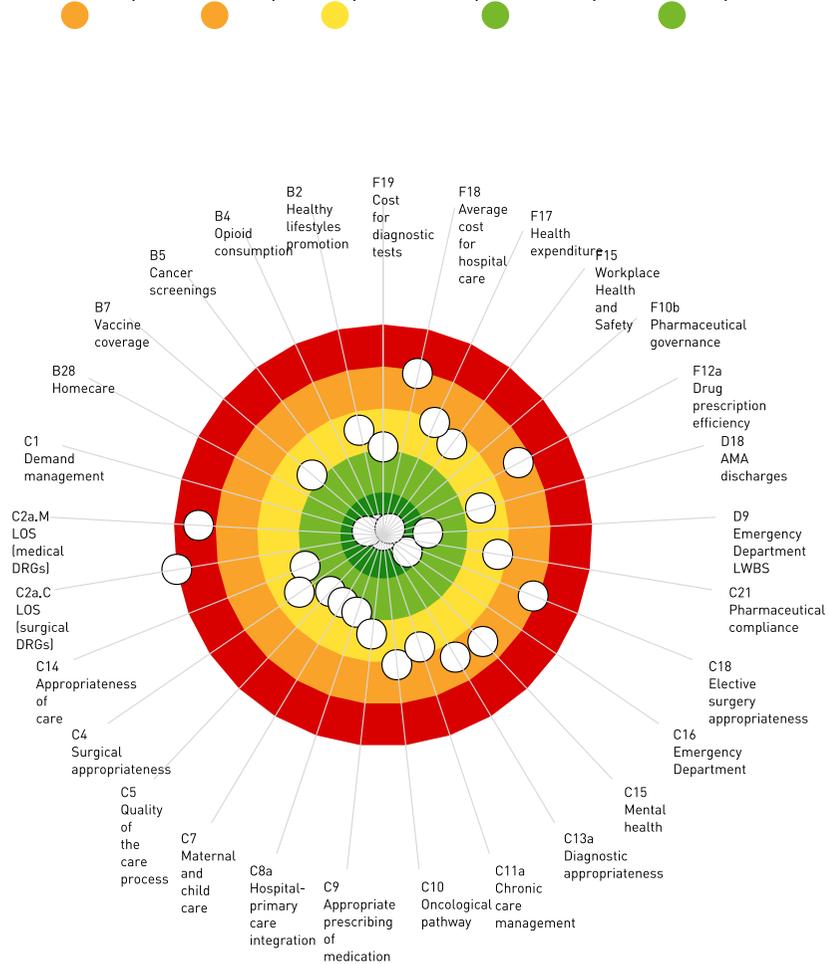


B4.1.1	Opioid consumption
B7.2	Flu vaccine coverage for the elderly
B28.1.2	Percentage of elderly provided with homecare, with assessment
C1.1.1	Standardized hospitalization rate of acute inpatients
C4.8	Medical ELC DRGs: standardized hospitalization rate
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C11a.3.1	COPD hospitalization rate (50-74 years)
C13a.2.2.1	Musculoskeletal MRI scan rate (>= 65 years)
C13a.2.2.2	Percentage of patients repeating lumbar MRI scan within 12 months
F10.1	Local per capita pharmaceutical expenditure   
F12a.14	Prescription of off-patent drugs

## AULSS 1 Belluno

Population's health - 2010-2012

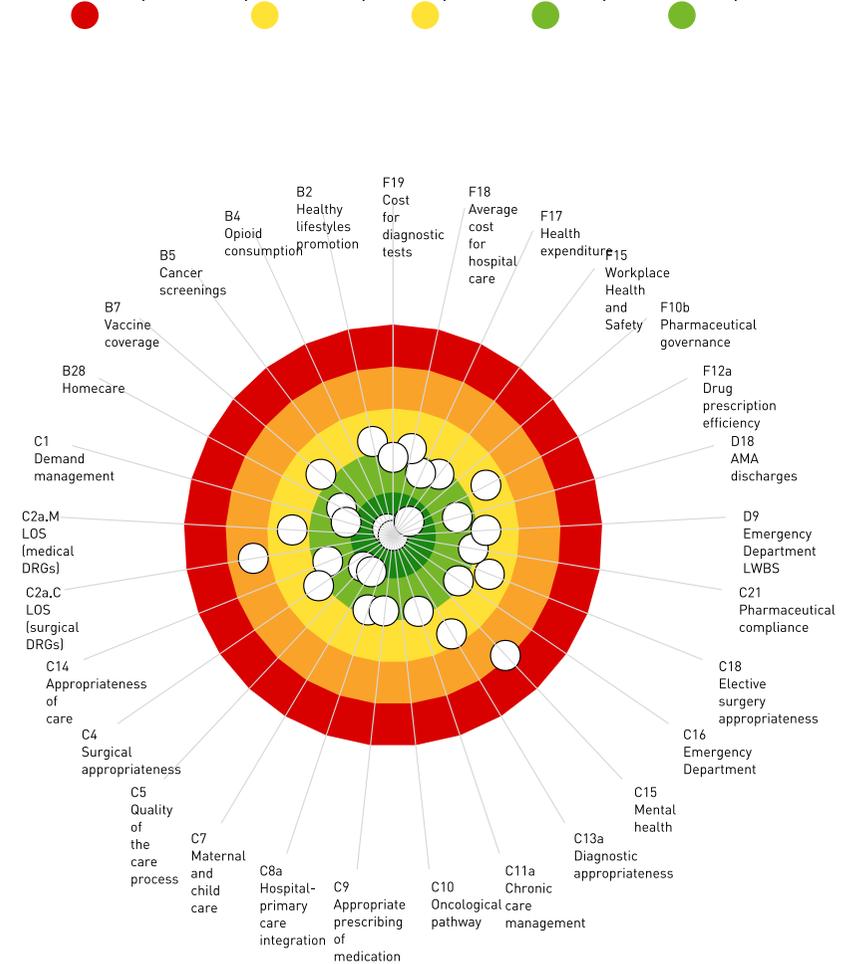
A4 Suicide mortality A2 Cancer mortality A10 Lifestyles A3 Circulatory disease mortality A1 Infant mortality



## AULSS 2 Feltre

Population's health - 2010-2012

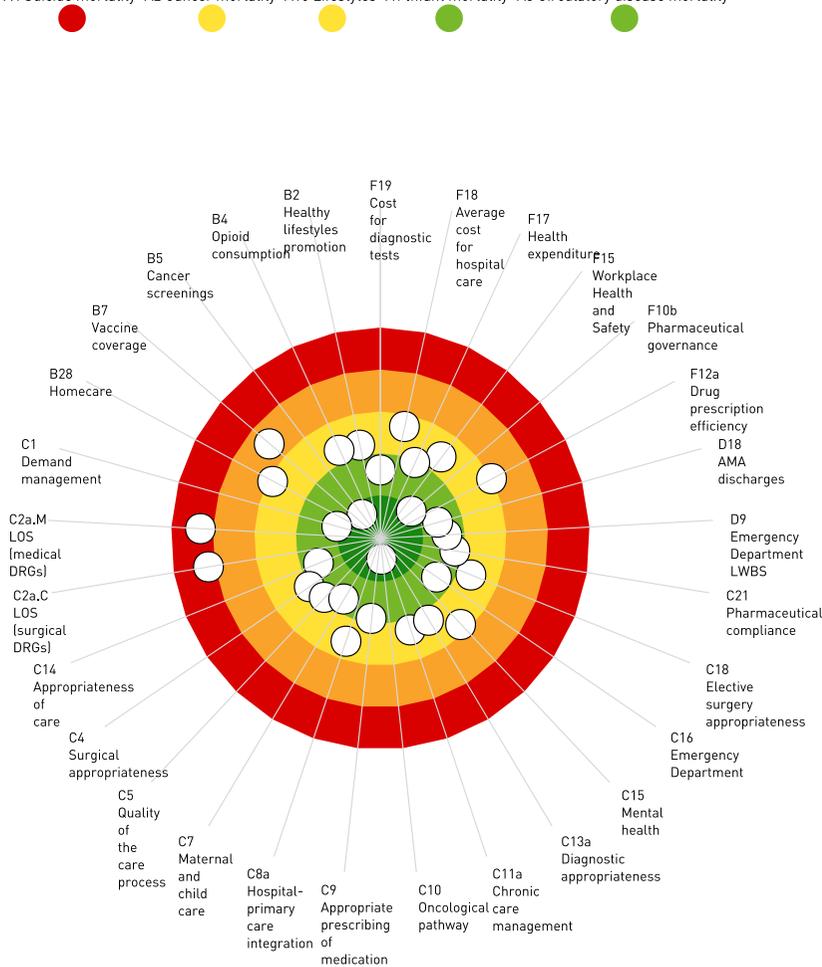
A4 Suicide mortality A3 Circulatory disease mortality A10 Lifestyles A2 Cancer mortality A1 Infant mortality



# AULSS 3 Bass. del Grappa

Population's health - 2010-2012

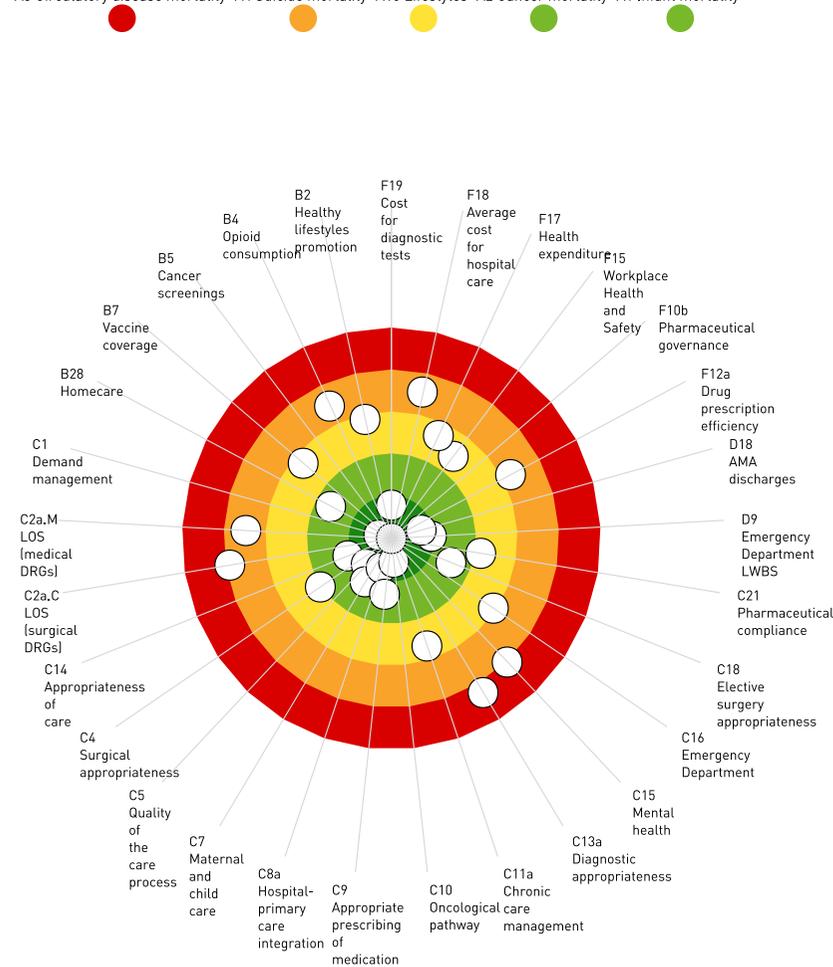
A4 Suicide mortality A2 Cancer mortality A10 Lifestyles A1 Infant mortality A3 Circulatory disease mortality



# AULSS 4 Alto Vicentino

Population's health - 2010-2012

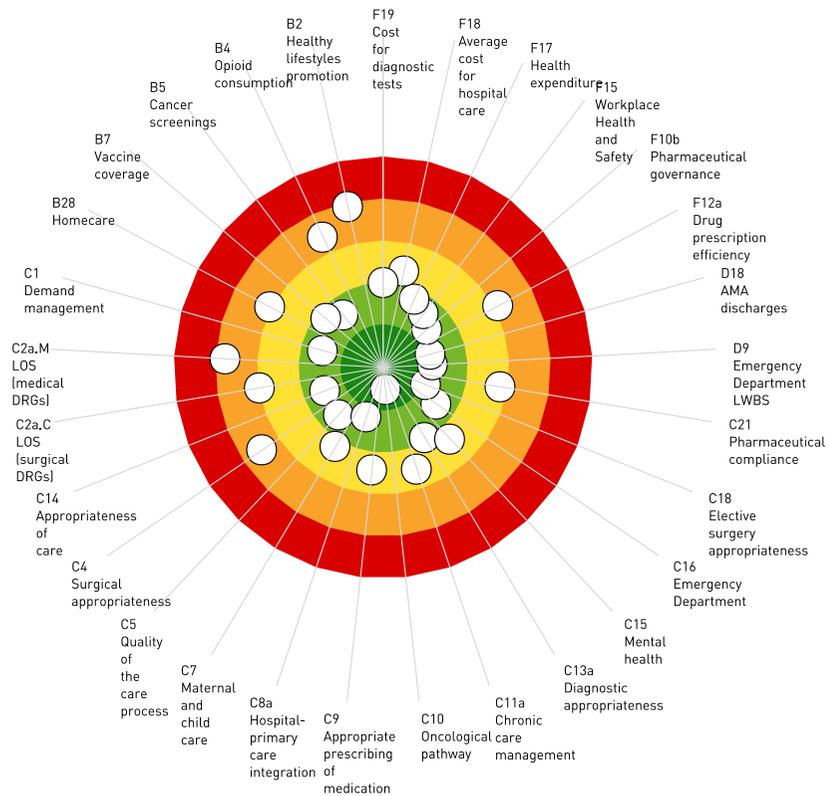
A3 Circulatory disease mortality A4 Suicide mortality A10 Lifestyles A2 Cancer mortality A1 Infant mortality



## AULSS 5 Ovest Vicentino

Population's health - 2010-2012

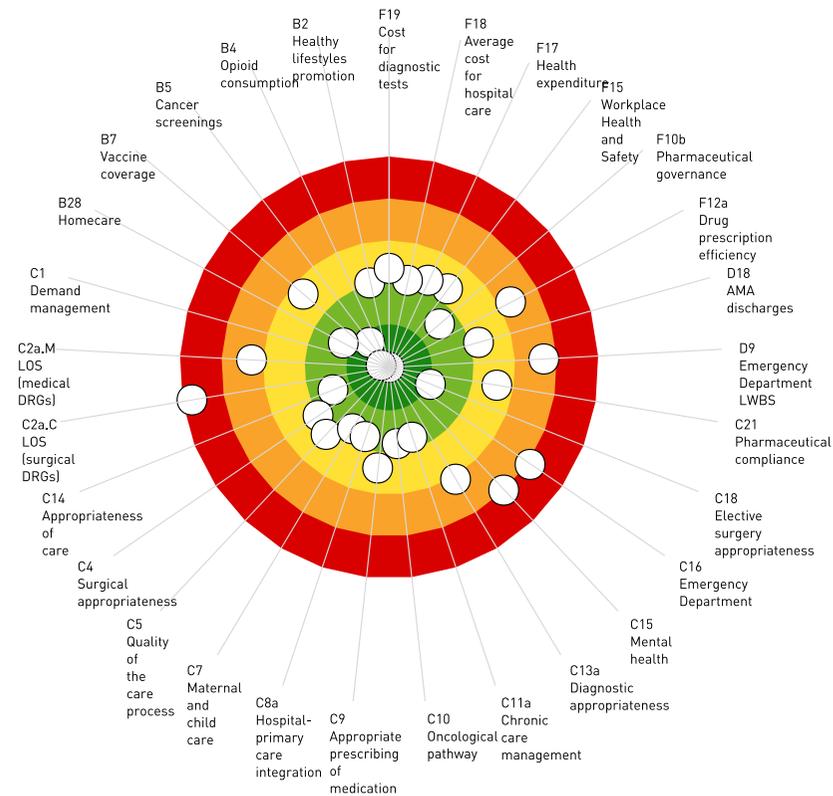
A3 Circulatory disease mortality A4 Suicide mortality A1 Infant mortality A10 Lifestyles A2 Cancer mortality



## AULSS 6 Vicenza

Population's health - 2010-2012

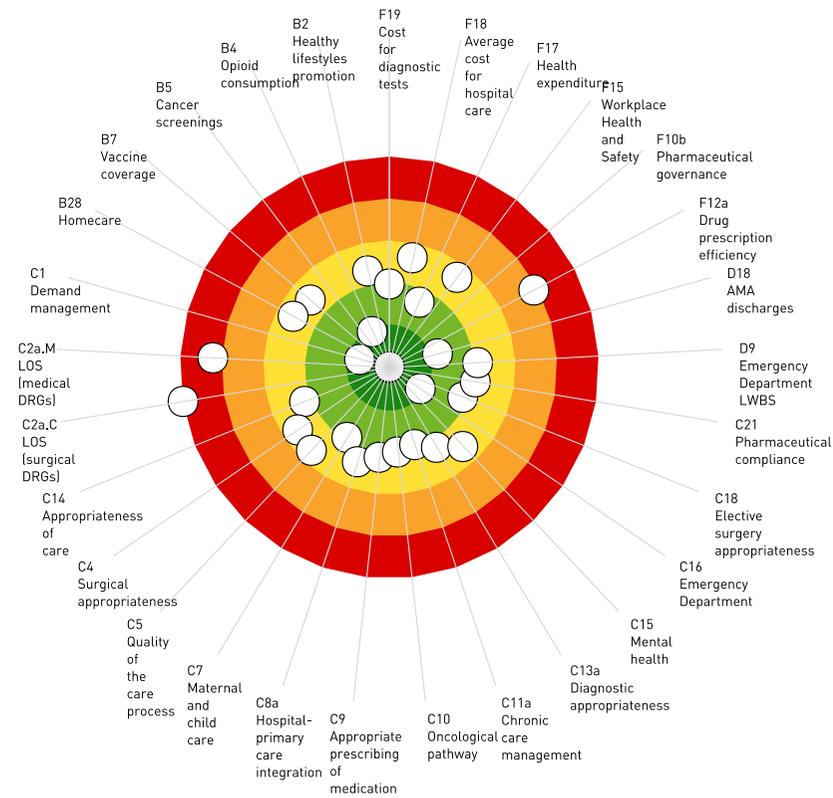
A4 Suicide mortality A1 Infant mortality A3 Circulatory disease mortality A10 Lifestyles A2 Cancer mortality



## AULSS 7 Pieve di Soligo

Population's health - 2010-2012

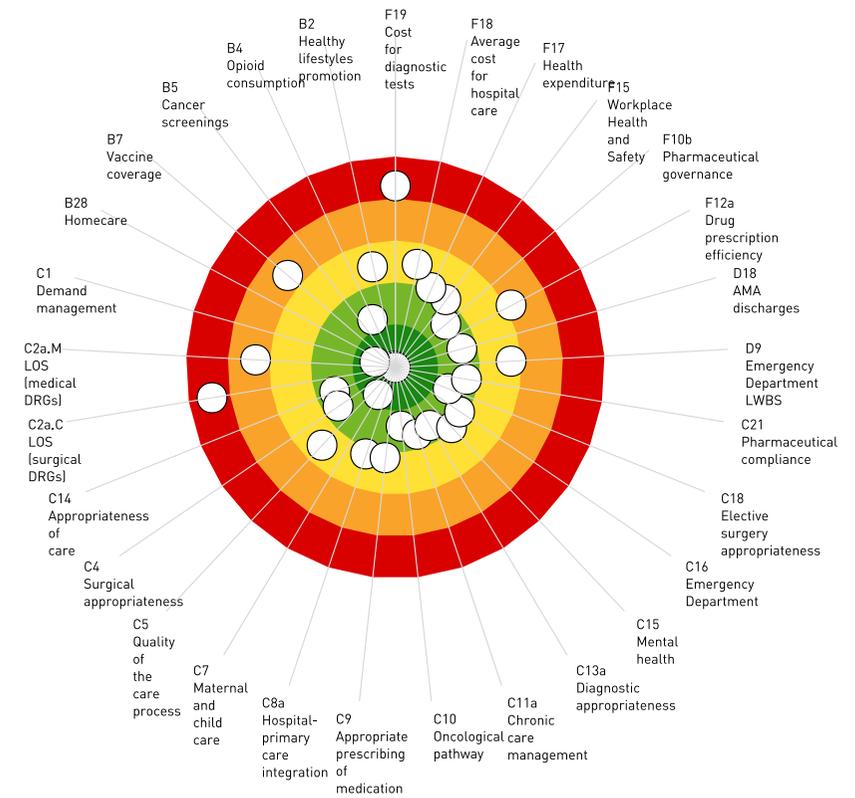
A4 Suicide mortality A10 Lifestyles A3 Circulatory disease mortality A2 Cancer mortality A1 Infant mortality



## AULSS 8 Asolo

Population's health - 2010-2012

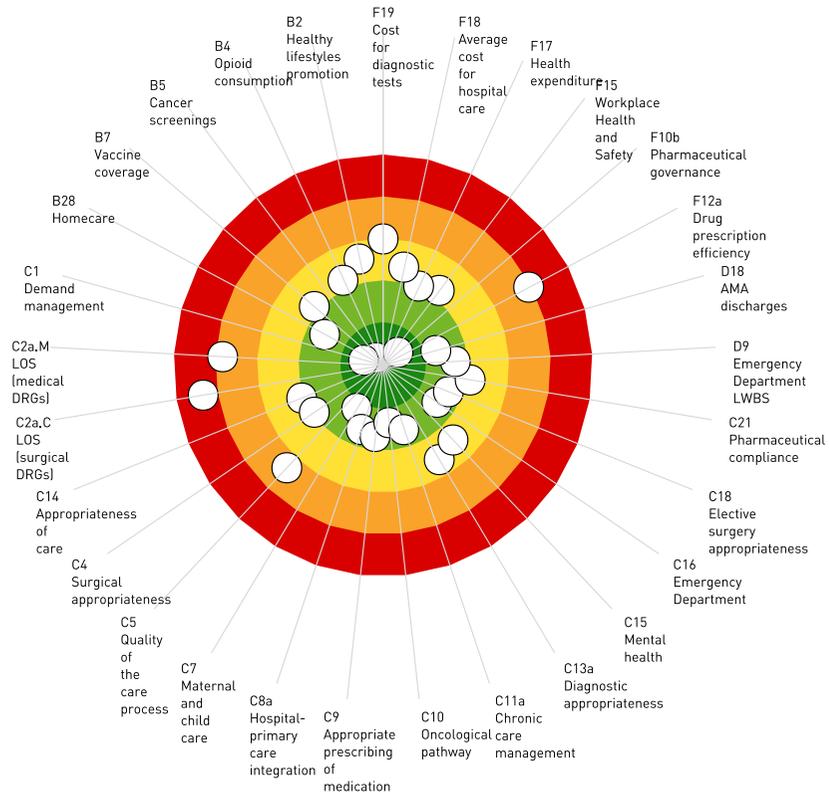
A4 Suicide mortality A1 Infant mortality A10 Lifestyles A2 Cancer mortality A3 Circulatory disease mortality



## AULSS 9 Treviso

Population's health - 2010-2012

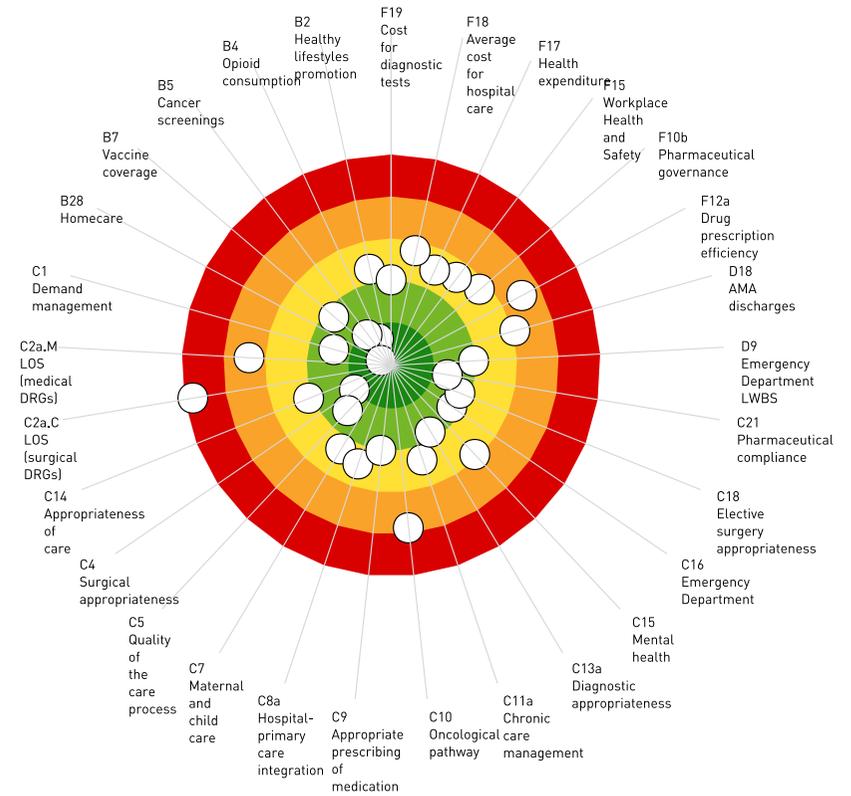
A4 Suicide mortality A1 Infant mortality A10 Lifestyles A2 Cancer mortality A3 Circulatory disease mortality



## AULSS 10 Veneto Or.

Population's health - 2010-2012

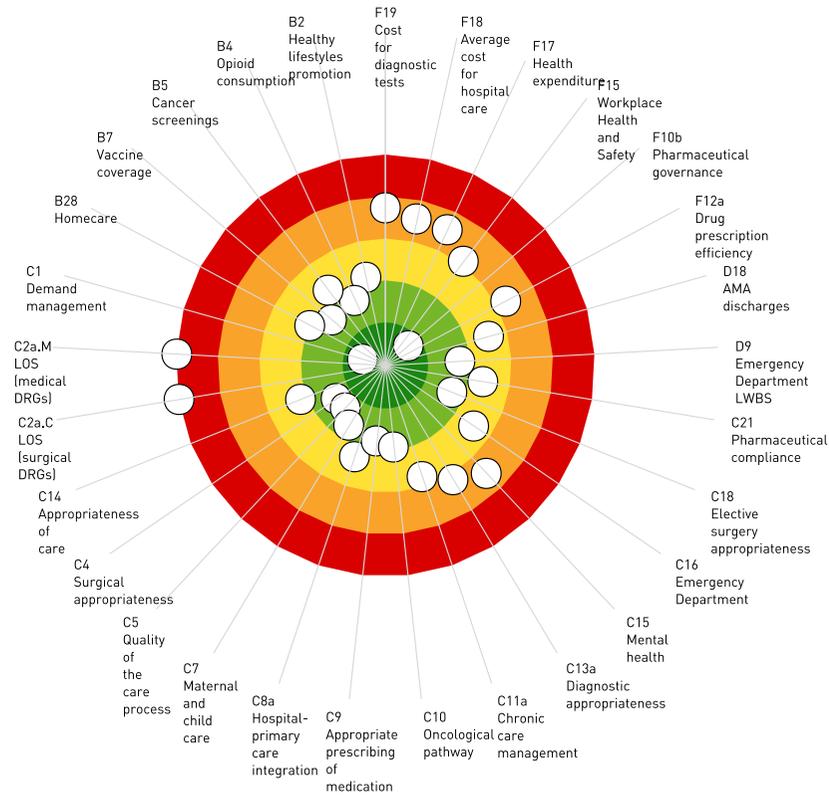
A4 Suicide mortality A2 Cancer mortality A10 Lifestyles A3 Circulatory disease mortality A1 Infant mortality



## AULSS 12 Veneziana

Population's health - 2010-2012

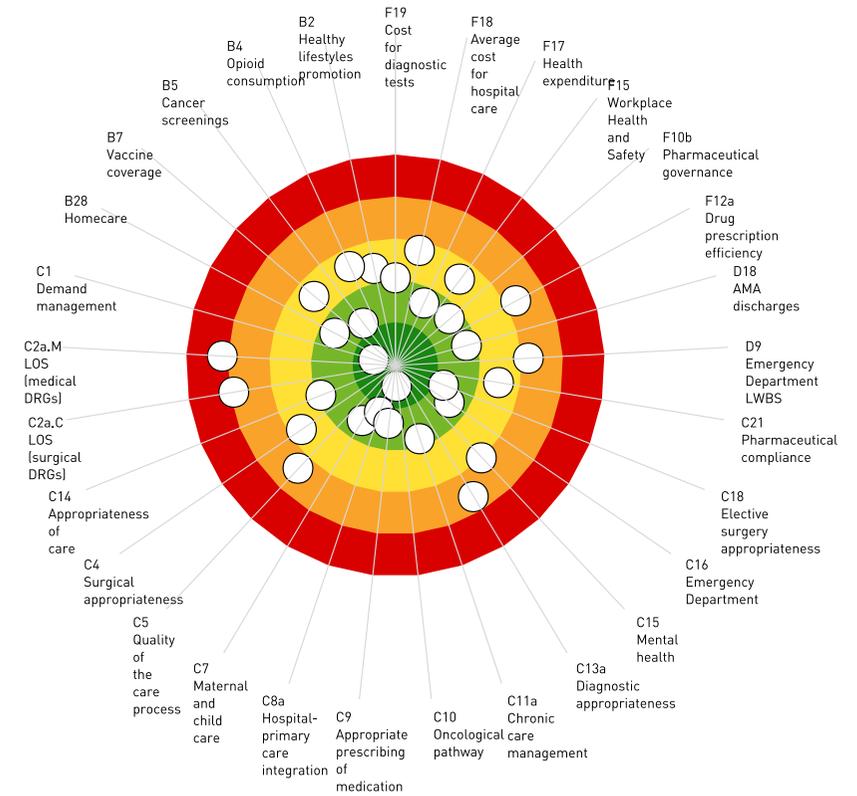
A2 Cancer mortality A3 Circulatory disease mortality A10 Lifestyles A4 Suicide mortality A1 Infant mortality



## AULSS 13 Mirano

Population's health - 2010-2012

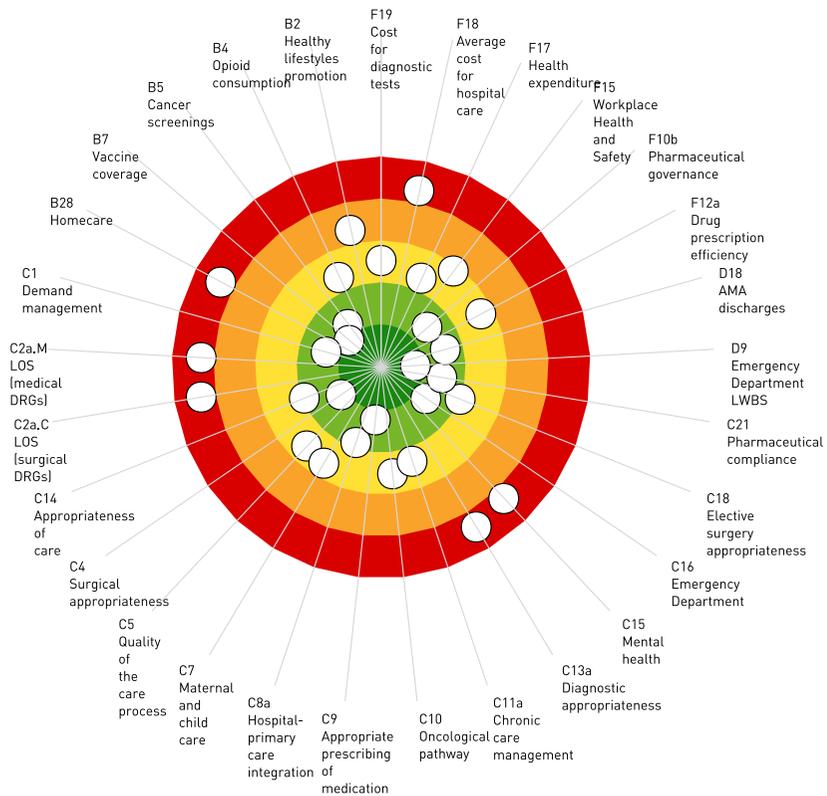
A4 Suicide mortality A10 Lifestyles A2 Cancer mortality A1 Infant mortality A3 Circulatory disease mortality



# AULSS 14 Chioggia

Population's health - 2010-2012

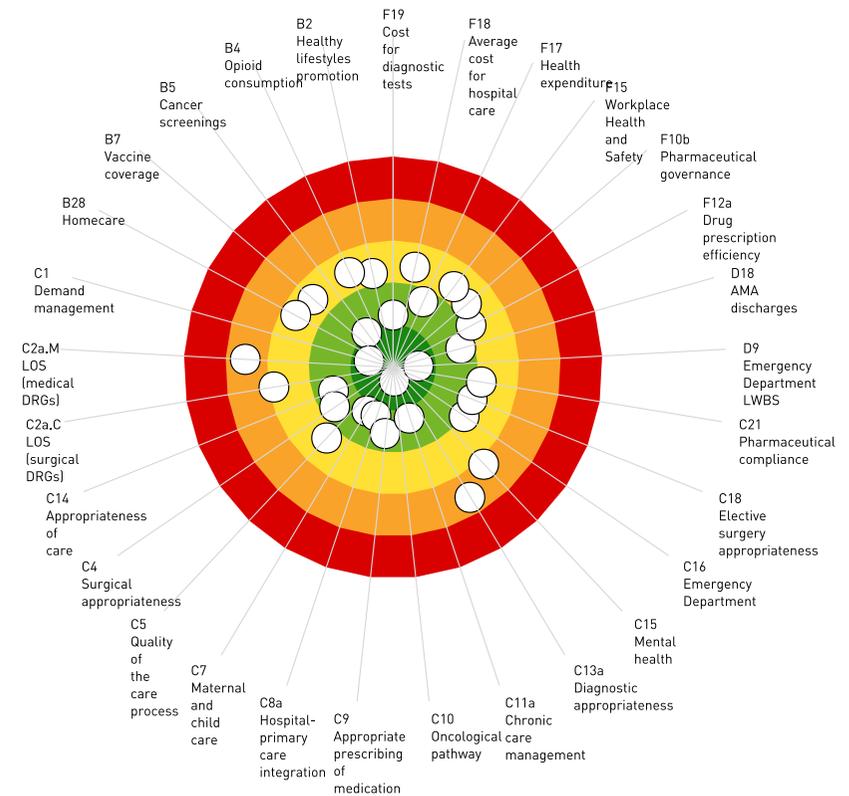
A2 Cancer mortality A1 Infant mortality A10 Lifestyles A3 Circulatory disease mortality A4 Suicide mortality



# AULSS 15 A. Padovana

Population's health - 2010-2012

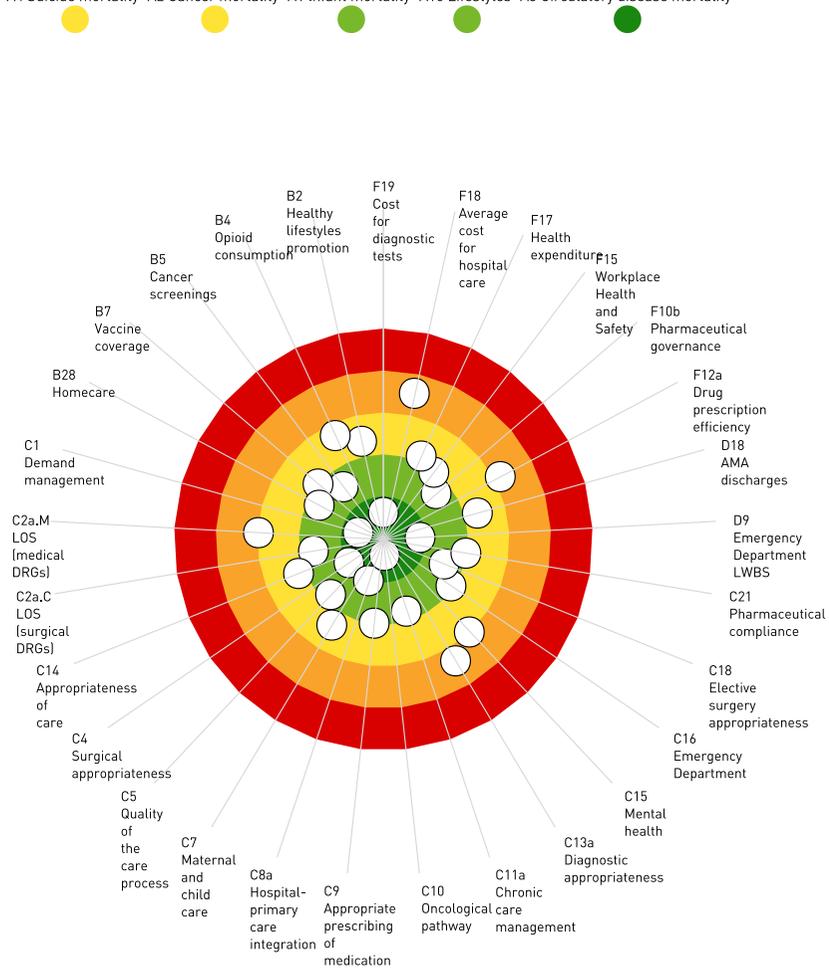
A10 Lifestyles A1 Infant mortality A2 Cancer mortality A4 Suicide mortality A3 Circulatory disease mortality



# AULSS 16 Padova

Population's health - 2010-2012

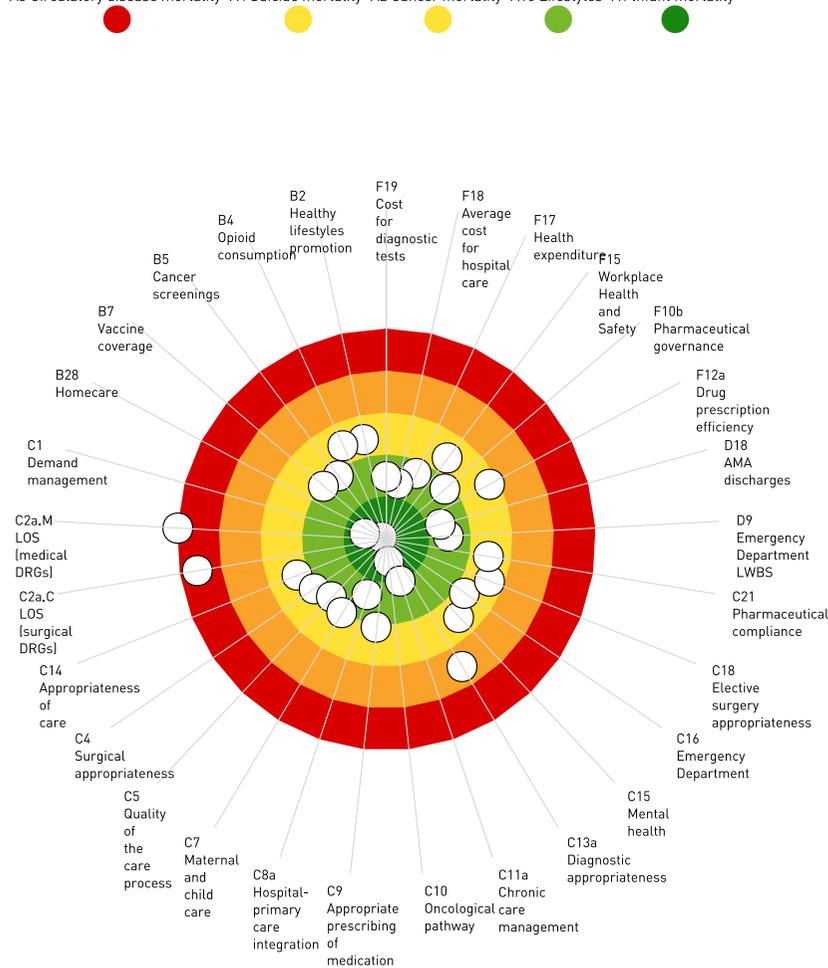
A4 Suicide mortality A2 Cancer mortality A1 Infant mortality A10 Lifestyles A3 Circulatory disease mortality



# AULSS 17 Este

Population's health - 2010-2012

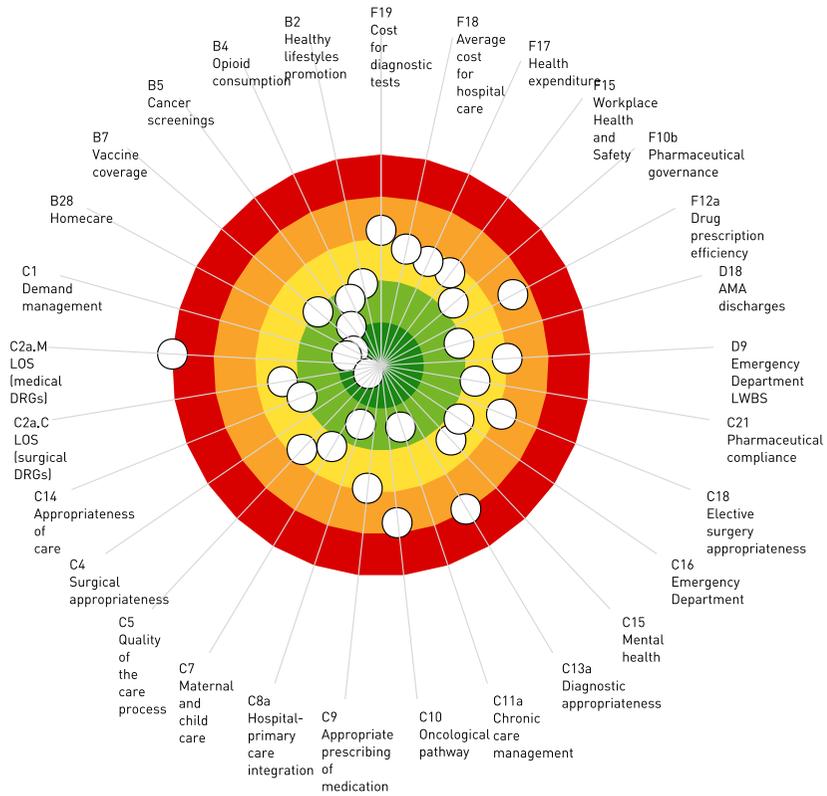
A3 Circulatory disease mortality A4 Suicide mortality A2 Cancer mortality A10 Lifestyles A1 Infant mortality



# AULSS 18 Rovigo

Population's health - 2010-2012

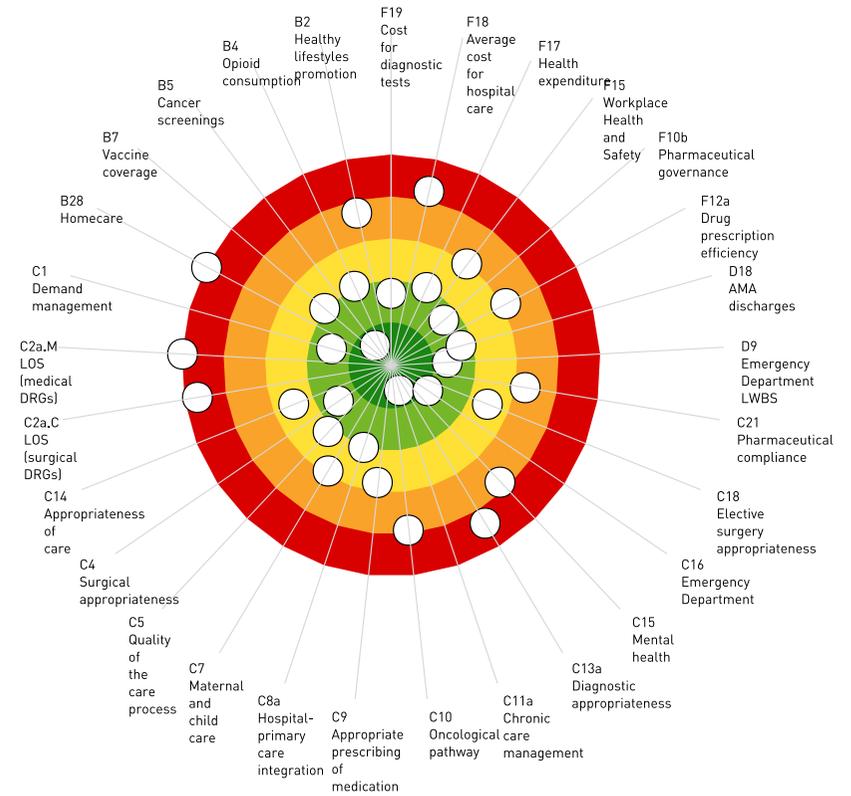
A3 Circulatory disease mortality A4 Suicide mortality A10 Lifestyles A2 Cancer mortality A1 Infant mortality



# AULSS 19 Adria

Population's health - 2010-2012

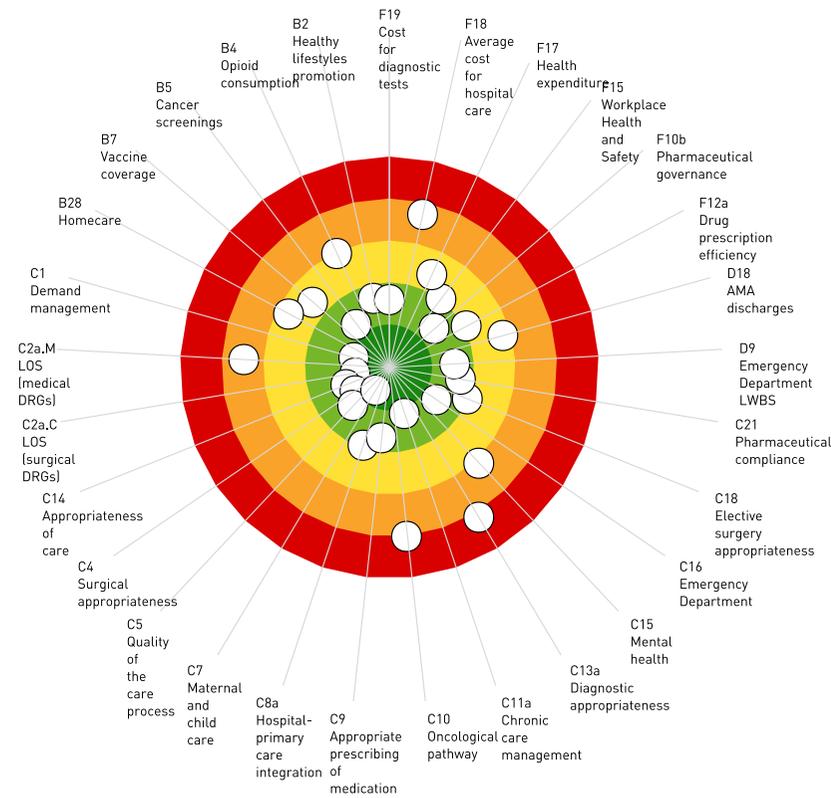
A1 Infant mortality A4 Suicide mortality A3 Circulatory disease mortality A2 Cancer mortality A10 Lifestyles



# AULSS 20 Verona

Population's health - 2010-2012

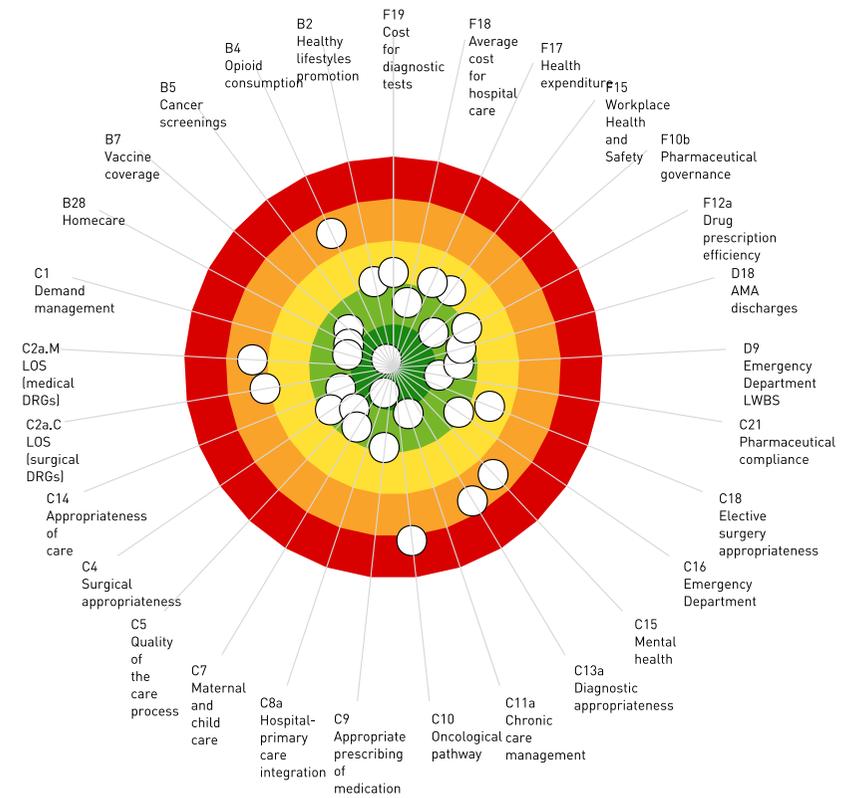
A1 Infant mortality A4 Suicide mortality A10 Lifestyles A2 Cancer mortality A3 Circulatory disease mortality



# AULSS 21 Legnago

Population's health - 2010-2012

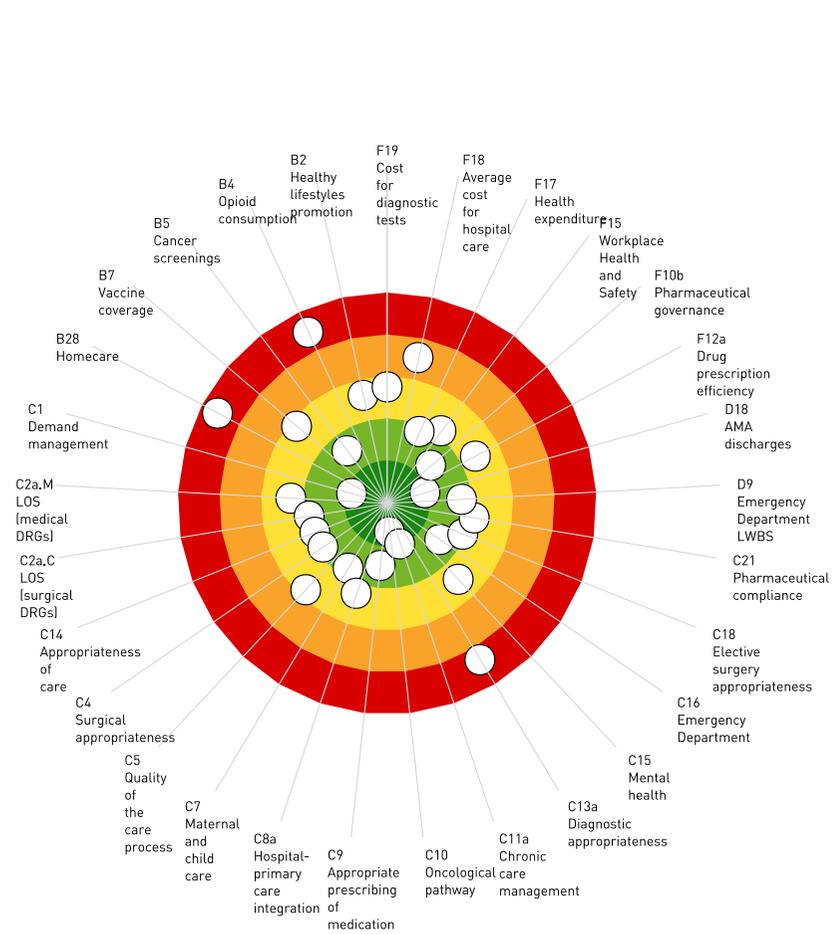
A1 Infant mortality A4 Suicide mortality A10 Lifestyles A3 Circulatory disease mortality A2 Cancer mortality



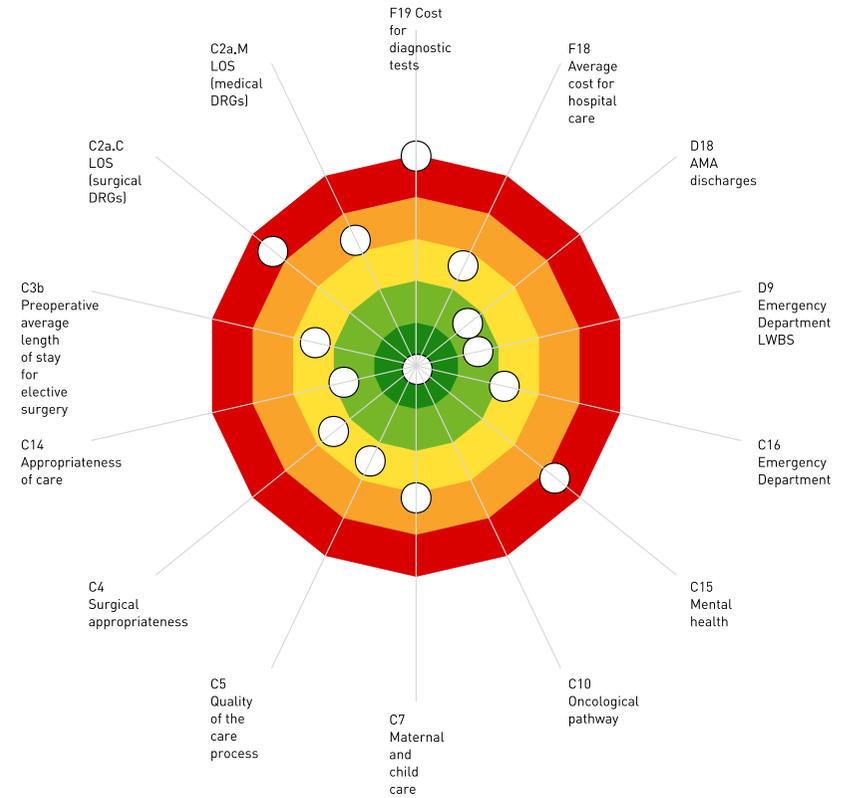
# AULSS 22 Bussolengo

Population's health - 2010-2012

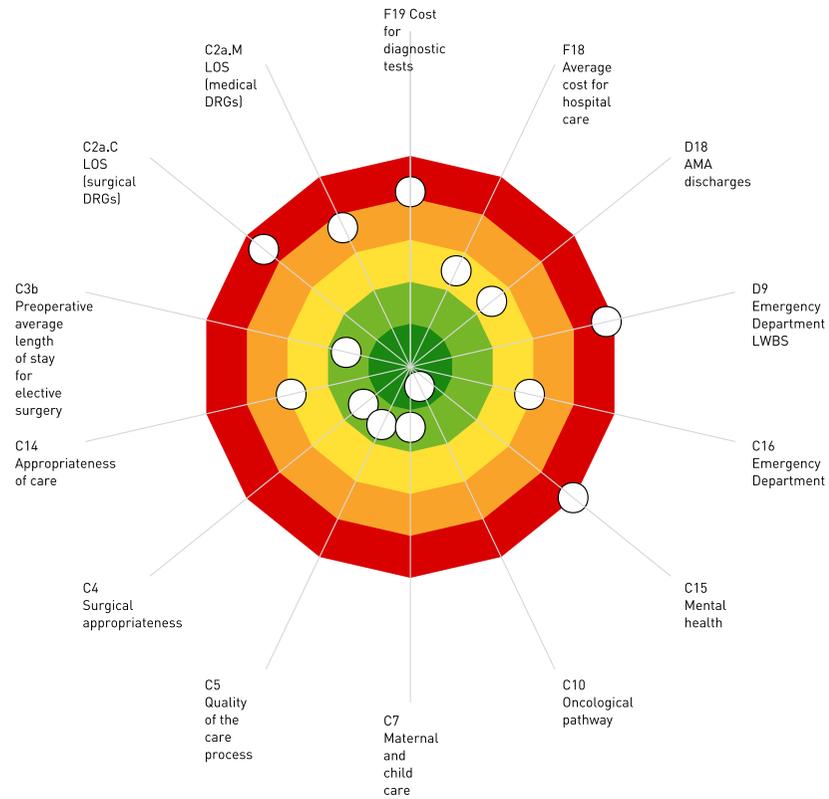
A10 Lifestyles A4 Suicide mortality A1 Infant mortality A3 Circulatory disease mortality A2 Cancer mortality



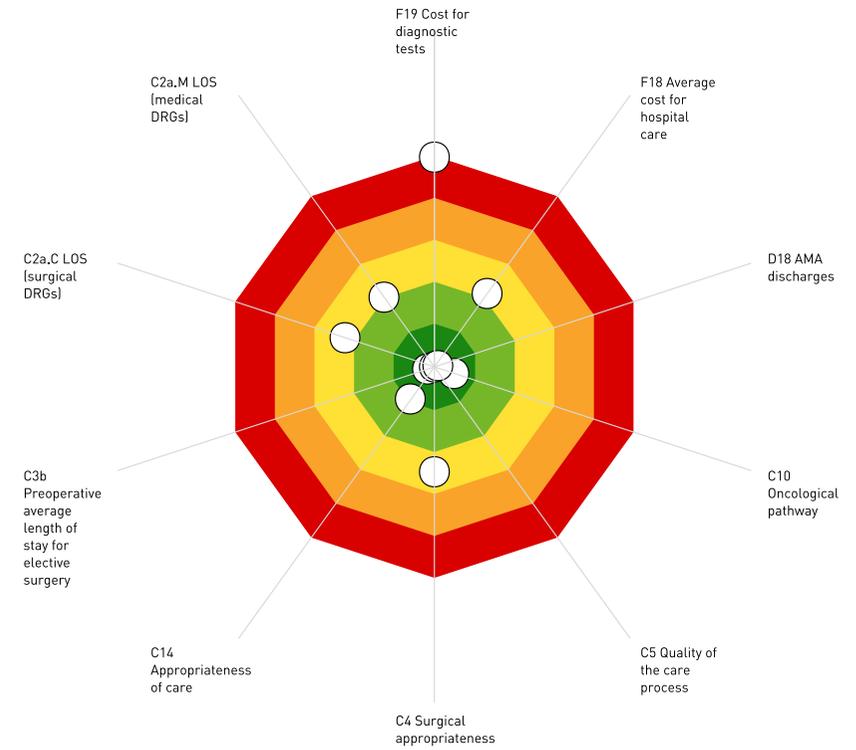
# A0 Padova



## AOU Verona



## Ist. Onc. Veneto (IOV)







POPULATION HEALTH



## A1 Infant mortality

Infant mortality is considered a significant indicator to monitor a population's wellbeing, reflecting not only the health of newborns (and by that token, the mother's health and the quality of maternal-infant care), but also the general level of socio-economic wellbeing and development of a country.

This is because many factors affect infant mortality rates, not all of them falling within the healthcare sector. Infant wellbeing depends not only on post-natal care but also on biological factors such as the mother's age, her medical history, and birth order, and social, cultural, and economic factors, such as the urbanization level of the birthplace, housing conditions, parents' employment and income.

For these reasons, the score assigned to this indicator is not an assessment of Local Health Authority initiatives, but rather aims to describe the overall socio-economic context with a view to orienting strategic planning.

Infant mortality is sub-divided into three indicators that reflect the variation of the risk of infant death during the first year of life. All three present considerable trend variations, due especially to their rarity.

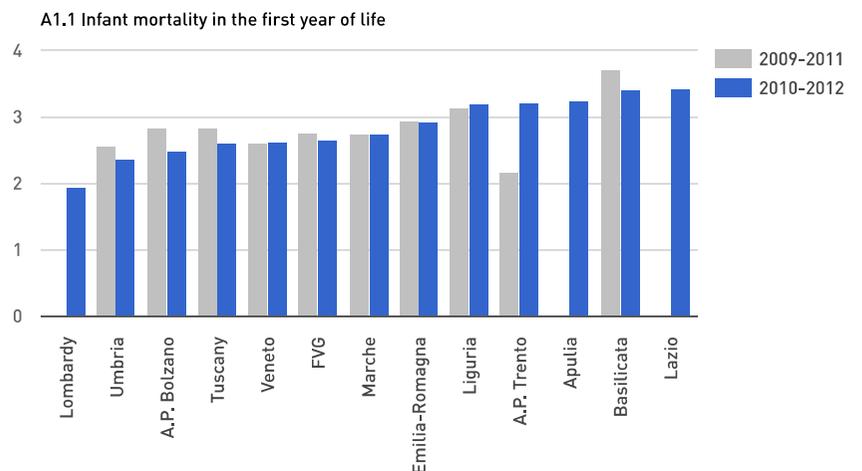
The score attributed to the composite indicator (A1) is that of indicator A1.1.

- **A1 Infant mortality** [evaluated]
  - A1.1 Infant mortality in the first year of life [evaluated]
  - A1.2 Early neonatal mortality (in the first 6 days of life) [observational]
  - A1.3 Neonatal mortality (in the first 28 days of life) [observational]

### A1.1 Infant mortality in the first year of life

The crucial elements affecting infant mortality in the first year of life are the availability and quality of healthcare services and the incidence of background factors such as trauma and infectious disease transmission, which in turn are linked to the mother's living conditions and lifestyles.

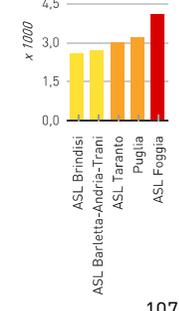
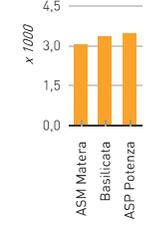
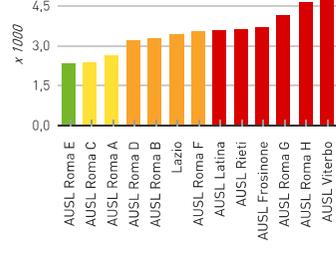
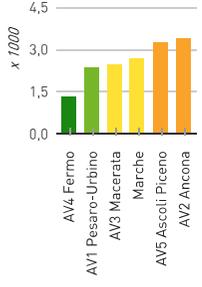
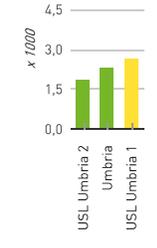
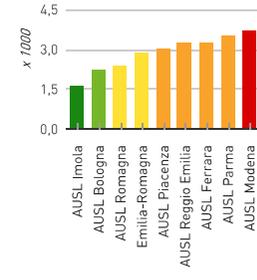
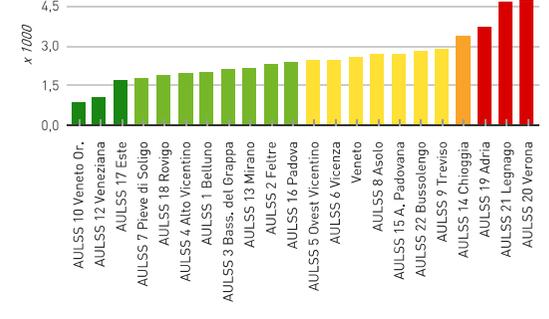
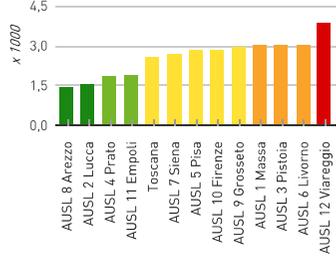
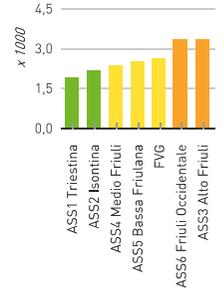
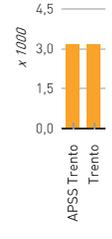
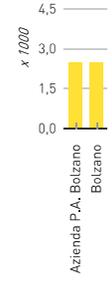
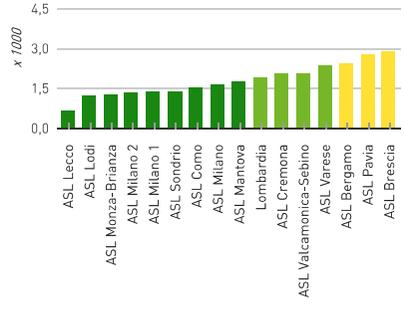
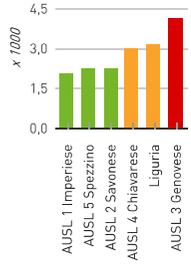
Since data for the years 2010-2012 were unavailable for the Marche Region, calculations were based on the preceding three years.



<b>Definition</b>	Infant mortality per 1,000 live births
<b>Numerator</b>	Number of deaths in the first year of life per 1,000 live births
<b>Denominator</b>	Number of resident live births

**Notes**

**Source** Umbria: ReNCaM; A.P. Bolzano and A.P. Trento: provincial mortality registry; Tuscany: regional mortality registry - Operational Unit of Environmental and Occupational Epidemiology, ISPO; Liguria: mortality registry; Basilicata: Local Health Authority mortality registries; Veneto: SER; Emilia Romagna: hospital discharge records, CEDAP and REM; Friuli Venezia Giulia: mortality registry, CEDAP



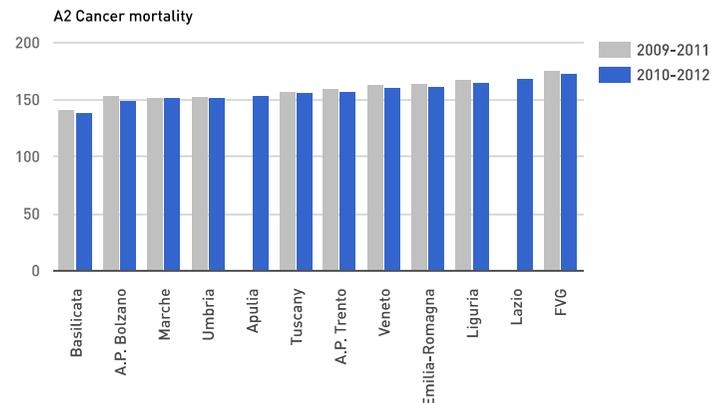


## A2 Cancer mortality

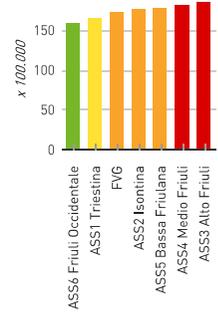
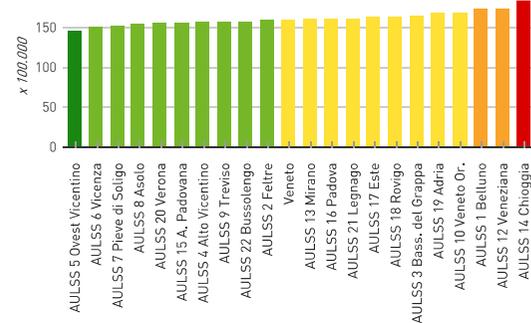
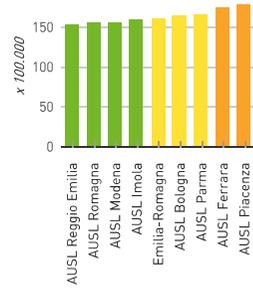
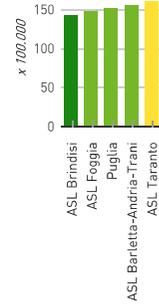
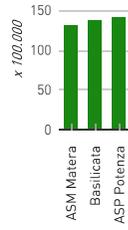
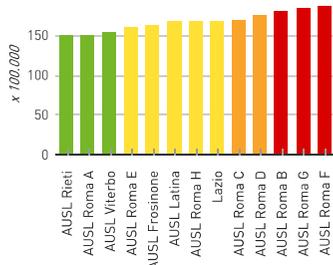
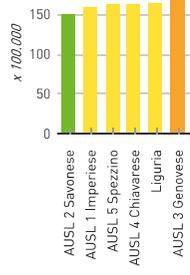
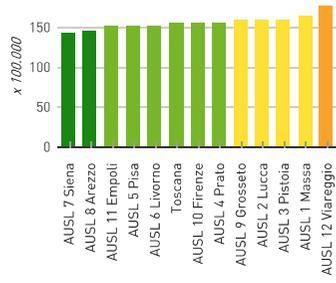
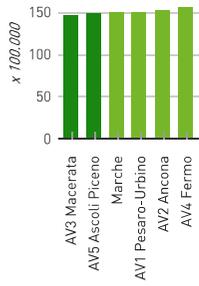
Oncologic diseases have become a relevant factor for the overall health status and wellbeing of modern societies. Cancer deaths are in fact the second cause of death (30% of all deaths), following death from cardiovascular causes (38%) [Osservasalute Report 2012].

In 2014, approximately 2 million 9 hundred thousand Italians were diagnosed with cancer ("Cancer Figures in Italy 2014", AIOM-AIRTUM). Cancer mortality rates have fallen in all areas of the country in recent years, more significantly in Central and Northern Italy compared to the South. The period 1996-2014 saw a fall in cancer mortality of 18% among men and 10% among women. This is mainly due to more effective treatment and more timely diagnosis, thanks to widespread screening programmes (www.epicentro.iss.it).

This indicator is now included in the evaluation system with the aim of assessing population health, whose improvement is of course the ultimate goal of all health institutions. Since data for the years 2010-2012 were unavailable for the Marche Region and the A.P. of Bolzano, calculations were based on the preceding three years.



<b>Definition</b>	Cancer mortality rate
<b>Numerator</b>	Number of cancer deaths per 100,000 residents
<b>Denominator</b>	Total number of residents
<b>Notes</b>	Code ICD-9 CM: 140 - 239. Age-standardised rate (European standard population)
<b>Source</b>	Umbria: ReNCaM; A.P. Bolzano and A.P. Trento: provincial mortality registry; Tuscany: regional mortality registry - Operational Unit of Environmental and Occupational Epidemiology, ISPO; Liguria: mortality registry; Basilicata: Local Health Authority mortality registries; Veneto: SER; Emilia Romagna: REM; Friuli Venezia Giulia: mortality registry, register office





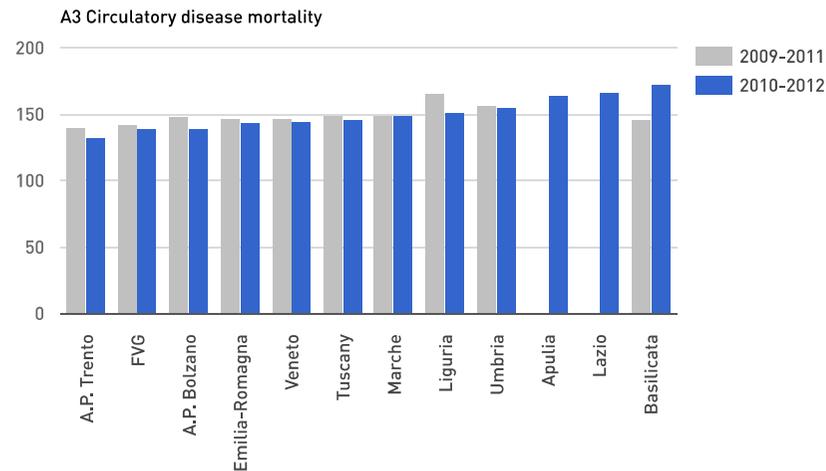
### A3 Circulatory disease mortality

At present, cardiovascular diseases are the major cause of death in Italy (39% of all deaths each year). More specifically, they account for 24% of overall mortality.

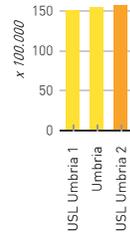
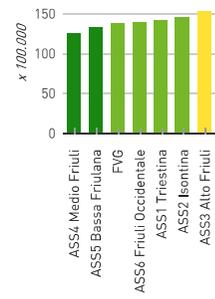
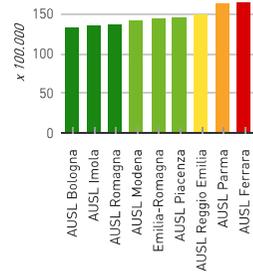
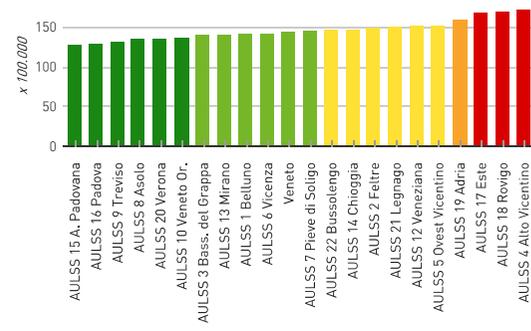
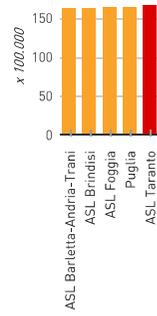
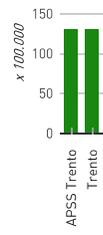
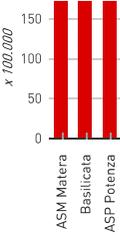
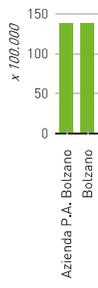
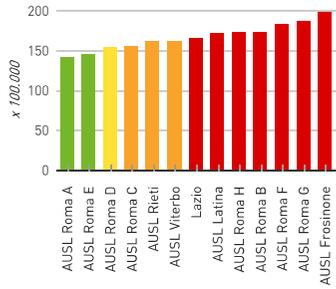
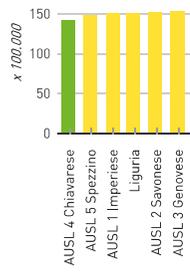
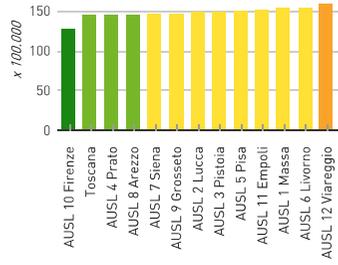
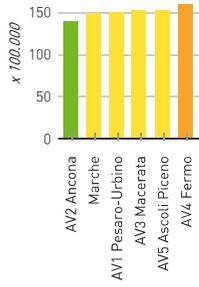
The World Health Organization (WHO) has defined cardiovascular diseases as a priority, given their increase, irrespective of wealth, in the different population groups (Osservasalute Report 2010). As a result, programmes monitoring the incidence of cardiovascular disease and mortality have been activated. WHO has also provided guidance on promoting programmes for the prevention of the main cardiovascular risk factors, such as arterial hypertension, hypercholesterolemia, high levels of blood glucose, smoking, physical inactivity and obesity (Osservasalute Report 2010).

Like other population-health indicators, the cardiovascular mortality indicator is not intended to evaluate the effectiveness of Local Health Authorities - which is only one of many determinants - but rather provide useful information on local epidemiology and health needs, with a view to reviewing and fine-tuning prevention and healthcare programmes.

Since 2010-2012 data were not available for the A.P. of Bolzano, and Marche Region, their assessment was based on the preceding three-year period.



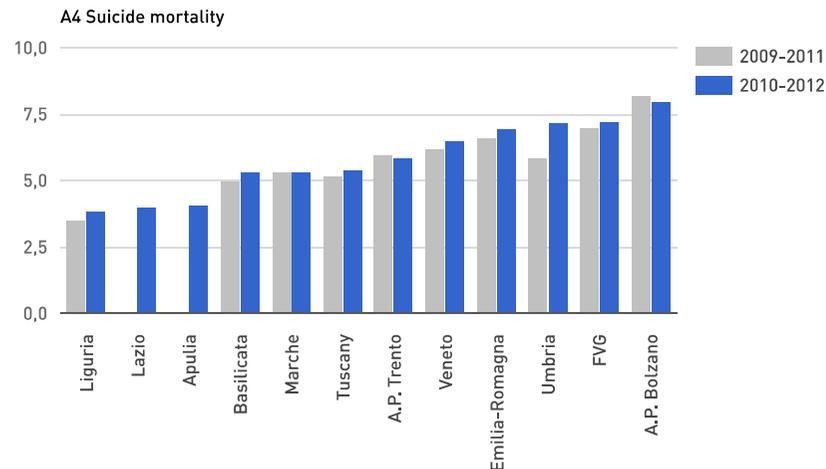
<b>Definition</b>	Mortality rate related to circulatory diseases
<b>Numerator</b>	Number of deaths due to circulatory diseases per 100,000 residents
<b>Denominator</b>	Total number of residents
<b>Notes</b>	Code ICD - 9 CM: 390 - 459. Age-standardised rate (European standard population)
<b>Source</b>	Umbria: ReNCaM; A.P. Bolzano and A.P. Trento: provincial mortality registry; Tuscany: regional mortality registry - Operational Unit of Environmental and Occupational Epidemiology, ISPO; Liguria: mortality registry; Basilicata: Local Health Authority mortality registries; Veneto: SER; Emilia Romagna: REM; Friuli Venezia Giulia: mortality registry, register office



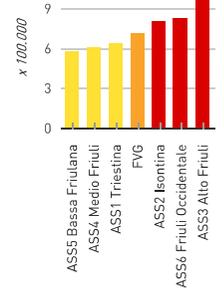
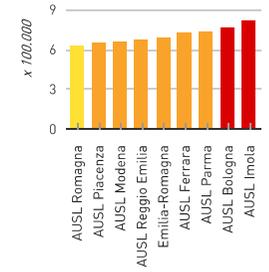
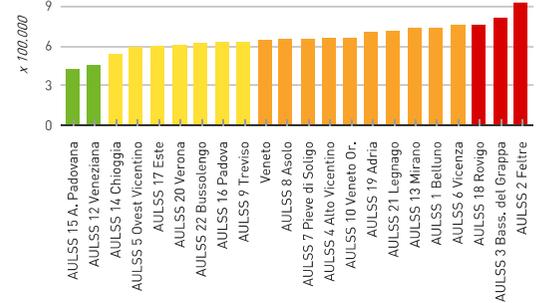
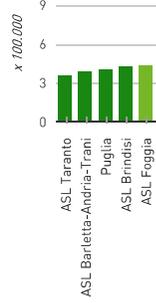
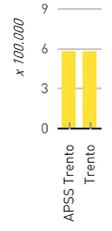
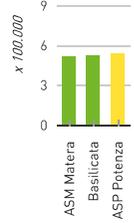
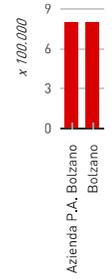
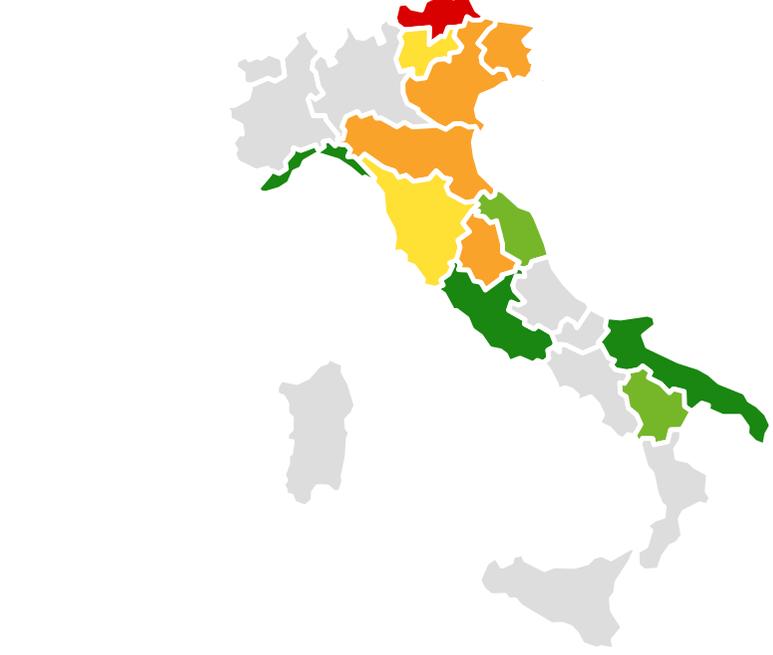
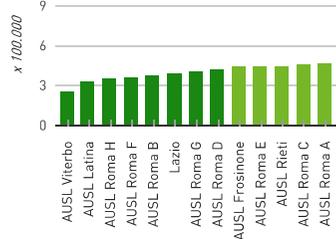
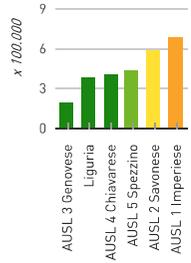
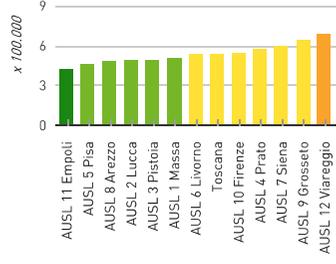
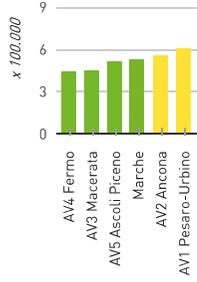


## A4 Suicide mortality

In many countries, suicide mortality is still not regarded as a public health issue, despite data suggesting the opposite. According to the first world Report on suicide prevention, published in September 2014 by the World Health Organization (WHO), every year 800 thousand people take their own lives. Approximately 75% of all suicides occur in low- and middle-income countries. However, high-income countries, where the incidence among men is three times higher than among women, are also affected. Suicide is the second cause of death in the 15 – 29 age group. Subsequently, the likelihood of people taking their own lives increases once more among the over 70s. Suicide rates in the different geographical areas are highly variable, depending on cultural and social factors. In 2012, Italy registered 3,908 suicides (www.who.int), with percentages of the total that increase with advancing age. Like the other population-health indicators, although suicide mortality rates do not express the effectiveness of Local Health Authorities, they do provide descriptive elements to support priority setting. Since 2010-2012 data were not available for the A.P. of Bolzano, and Marche, their assessment was based on the preceding three-year period.



<b>Definition</b>	Suicide mortality rate
<b>Numerator</b>	Number of suicides per 100,000 residents
<b>Denominator</b>	Total number of residents
<b>Notes</b>	Code ICD-9 CM: E950 - E959. Age-standardised rate (European standard population)
<b>Source</b>	Umbria: ReNCaM; A.P. Bolzano and A.P. Trento: provincial mortality registry; Tuscany: regional mortality registry - Operational Unit of Environmental and Occupational Epidemiology, ISPO; Liguria: mortality registry; Basilicata: Local Health Authority mortality registries; Veneto: SER; Emilia Romagna: REM; Friuli Venezia Giulia: mortality registry, register office

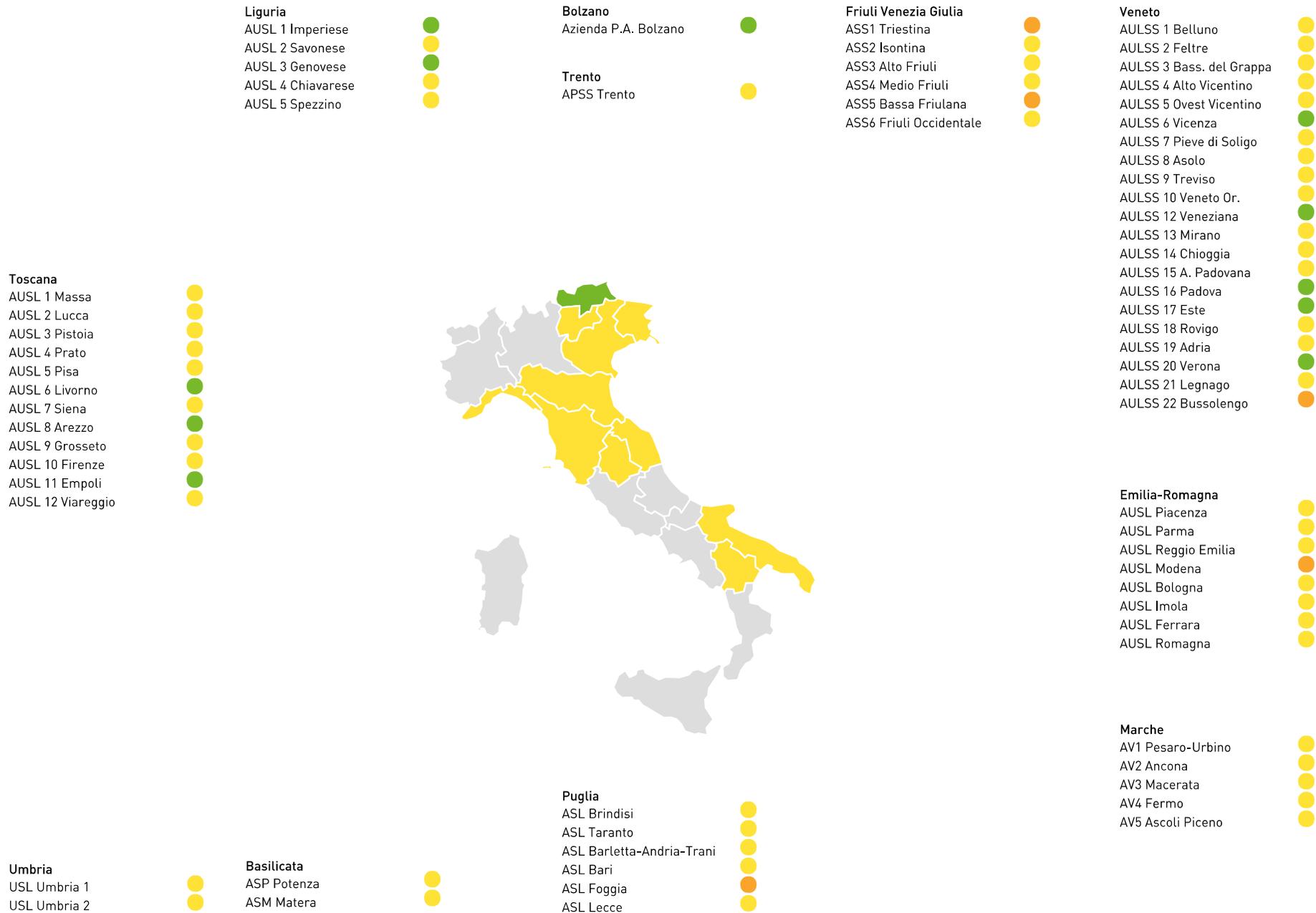




## A10 Lifestyles

Focus on population lifestyles by Local Health Authorities has led to a quantum leap in their evaluation and programming processes. The 4 major risk factors for chronic diseases (smoking, alcohol, improper diet, and physical inactivity) examined by the "PASSI" monitoring system (Progress of the Local Authorities for Health in Italy) are largely modifiable. It is well known that failure to address these public health issues leads to an increase in premature deaths and avoidable diseases. The need for constant awareness raising and monitoring of risky lifestyles and habits is a key point of the European programme "Gaining health". Italy has joined the programme and plays an active role. An intensive, targeted awareness-raising campaign was launched to discourage smoking, encourage fruit and vegetable consumption rather than calorie-rich food and drink, reduced alcohol intake and more physical activity. Since 2012, indicators have been calculated on the previous three-years in order to increase statistical robustness. Since 2014, population lifestyle data from the "PASSI" survey have contributed to two different indicators: the first (A10) monitors lifestyles among population; the second (B2) evaluates how doctors and other healthcare professionals promote healthy lifestyles. The score attributed to the indicator is the average of sub-indicators A6.1.1, A6.2.1, A6.3.1 and A6.4.1.

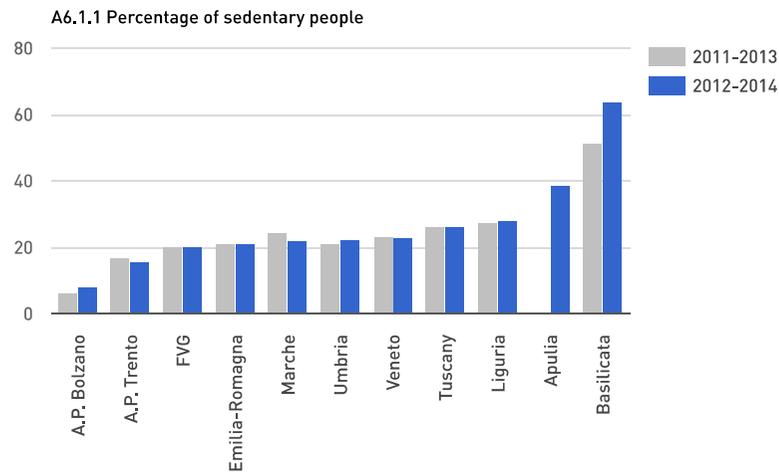
- **A10 Lifestyles** [evaluated]
  - A6.1.1 Percentage of sedentary people [evaluated]
  - A6.2.1 Percentage of overweight or obese people [evaluated]
  - A6.3.1 Percentage of high-risk alcohol consumers [evaluated]
  - A6.4.1 Percentage of smokers [evaluated]



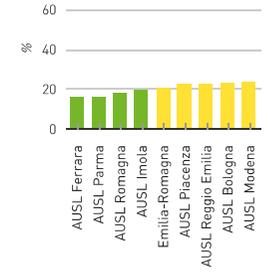
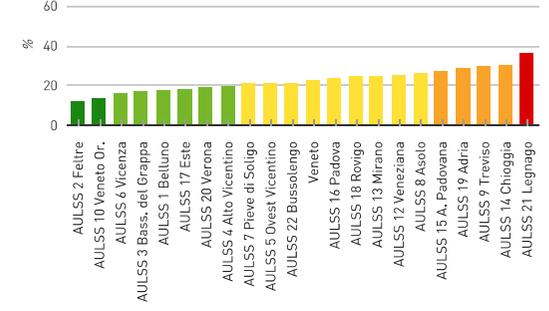
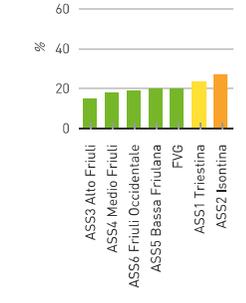
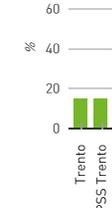
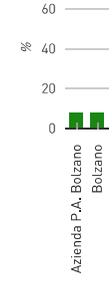
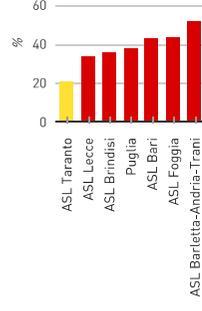
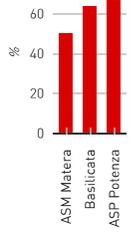
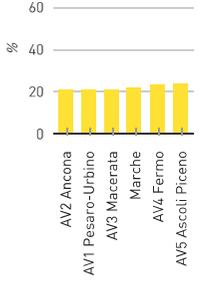
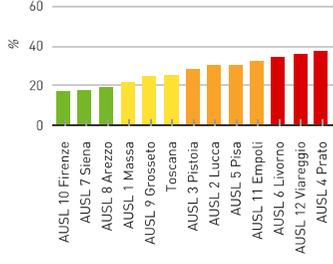
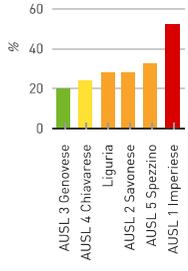


### A6.1.1 Percentage of sedentary people

Sedentary lifestyles are increasing in all developed countries and represent a major risk factor for chronic diseases such as diabetes, cardiovascular diseases, osteoporosis and depression. Moreover, insufficient physical activity, combined with a poor diet, contributes to the rising obesity rate. A sedentary person is defined as one whose profession does not involve manual labour and who does not engage in leisure-time physical activity.



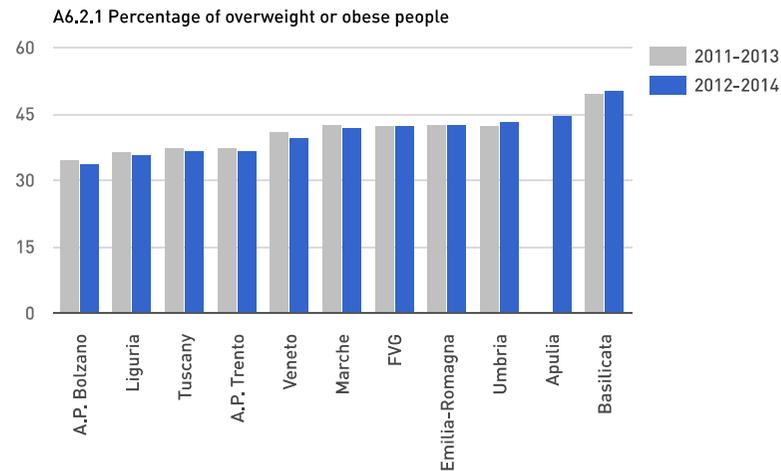
<b>Definition</b>	Percentage of sedentary people
<b>Numerator</b>	Number of sedentary people (years 2012, 2013, 2014)
<b>Denominator</b>	Number of sedentary and non-sedentary people interviewed in the 3 year period examined
<b>Notes</b>	Definition of the sedentary physical activity level: people with no heavy work and no leisure-time physical activity
<b>Source</b>	PASSI survey (Progress of the Local Authorities for Health in Italy)



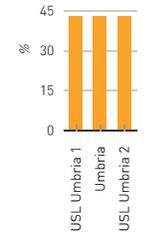
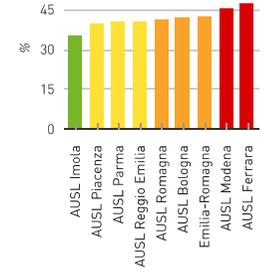
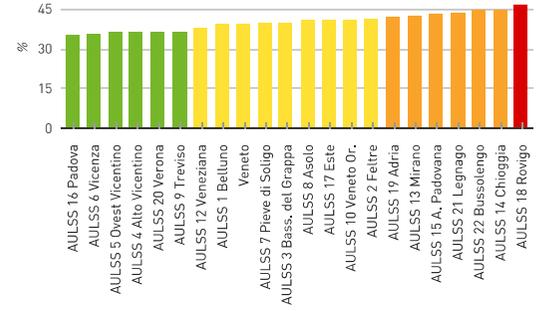
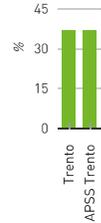
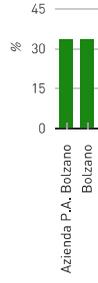
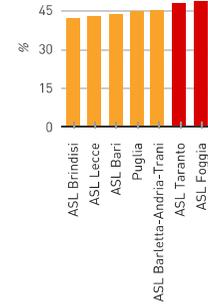
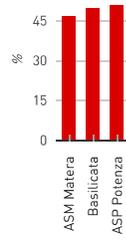
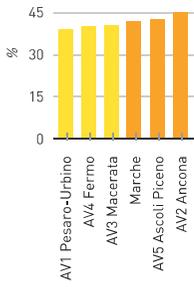
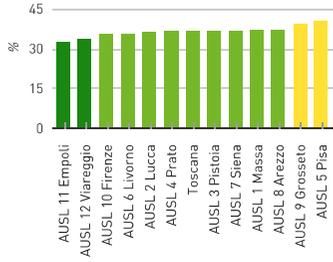
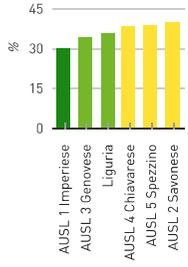


### A6.2.1 Percentage of overweight or obese people

Obesity is a major global public health issue. Obesity is defined as excess body fat compared to lean body mass, both in absolute terms and as regards fat distribution in certain body areas. Weight is evaluated in relation to the Body Mass Index (BMI), which is defined as the weight in kilograms divided by the square of the height in metres (kg/m<sup>2</sup>). BMI is divided into four categories: underweight (BMI <18.5), normal weight (BMI 18.5 to 24.9), overweight (BMI 25 to 29.9), obese (BMI >= 30). Since 2013, the indicator has been calculated considering both the obese and overweight.



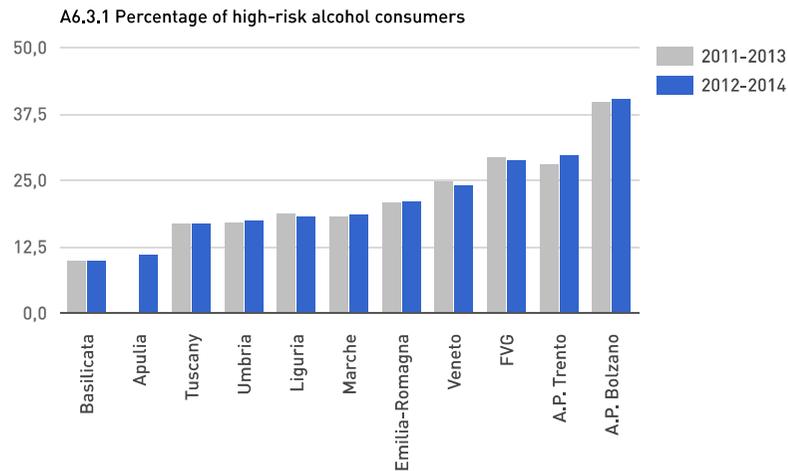
<b>Definition</b>	Percentage of overweight or obese people
<b>Numerator</b>	Number of overweight or obese people (years 2012, 2013, 2014)
<b>Denominator</b>	Total number of obese, overweight, normal weight and underweight people in the 3 year period examined
<b>Notes</b>	Weight characteristics are set in relation to the BMI value, defined as the weight in kilograms divided by the square of height in meters. BMI is divided into four categories: underweight (BMI<18.5); normal weight (BMI 18.5-24.9); overweight (BMI 25-29.9); obese (BMI>=30)
<b>Source</b>	PASSI survey (Progress of the Local Authorities for Health in Italy)



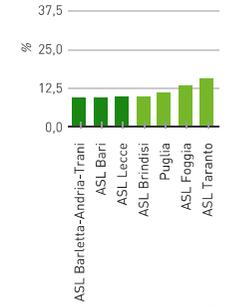
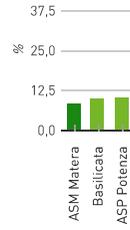
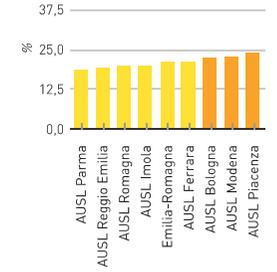
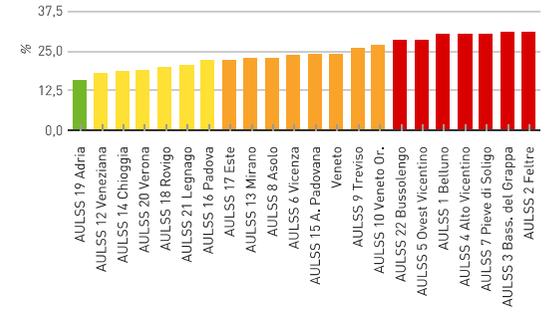
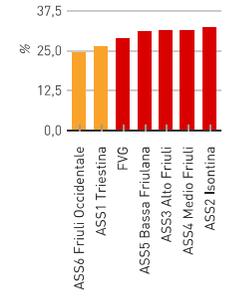
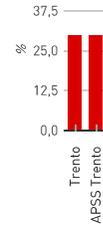
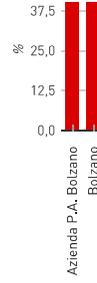
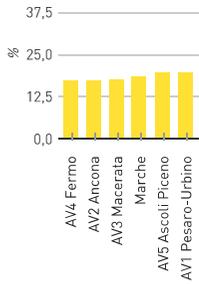
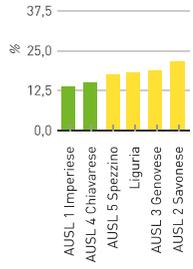


### A6.3.1 Percentage of high-risk alcohol consumers

While alcohol consumption is fairly widespread, it is the different consumption modalities that impact health. The indicator shows alcohol consumption in the surveyed population, monitoring high habitual alcohol intake, heavy episodic consumption, and alcohol consumption between meals. The indicator gives the prevalence among respondents of those who, in the last 30 days, report habitual alcohol intake (> 2 alcohol units per day for men; > 1 alcohol unit for women) or at least one binge drinking episode (> 4 alcohol units for men; 3 alcohol units for women) or alcohol consumption (only or mainly) between meals.



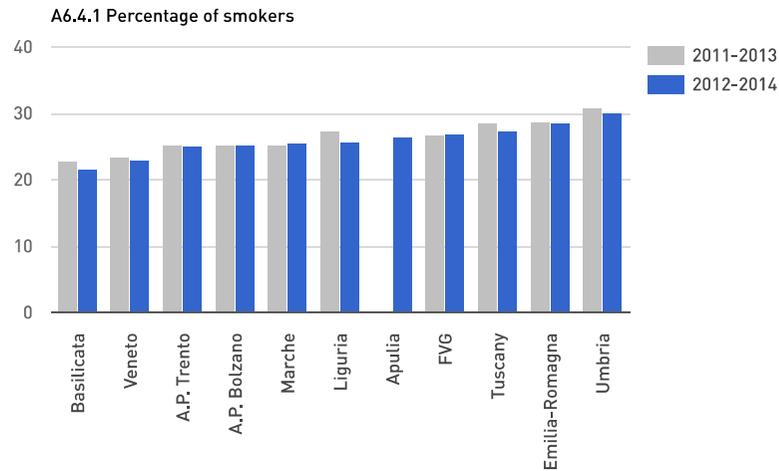
<b>Definition</b>	Percentage of high-risk alcohol consumers
<b>Numerator</b>	Number of high-risk alcohol consumers (years 2012, 2013, 2014)
<b>Denominator</b>	Total number of high-risk alcohol consumers and people who have not drunk in the 3 year period examined
<b>Notes</b>	Alcohol consumers at greater risk: drinkers between meals or binge drinkers (consumption of at least 4 alcohol units for men, 3 alcohol units for women at least once in the last 30 days - WHO definition) or heavy drinkers (men drinking more than 2 alcohol units a day and women drinking more than 1 alcohol unit a day). One alcohol unit corresponds to approximately 12 grams of ethanol, the amount contained in a small glass of wine (125 ml) of medium alcohol strength, or in a can of beer (330 ml) of low alcohol percentage, or in spirits as served in bars (40 ml). Alcohol has 7 kcals per gram, as defined by the INRAN (the National Research Institute for Food and Nutrition). A person can belong to more than one of the above-mentioned risk categories; the percentage of high-risk alcohol consumers is not represented by the sum of single behaviours
<b>Source</b>	PASSI survey (Progress of the Local Authorities for Health in Italy)



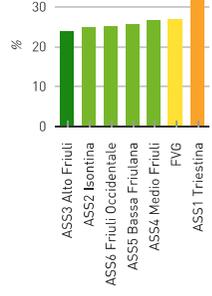
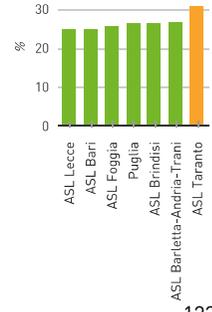
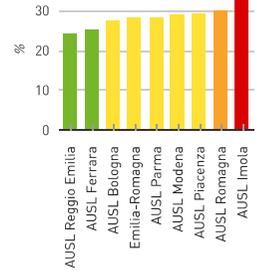
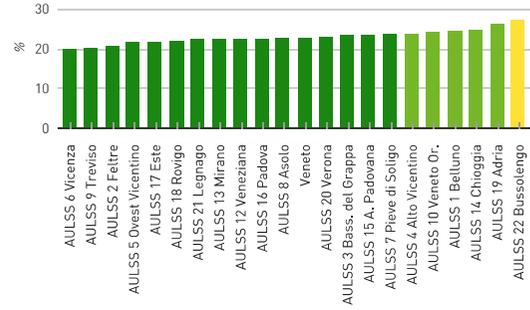
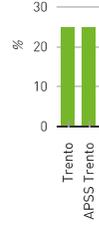
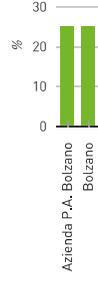
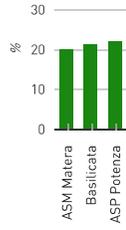
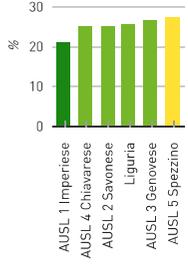
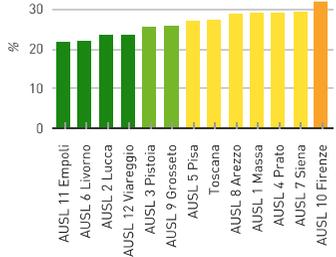
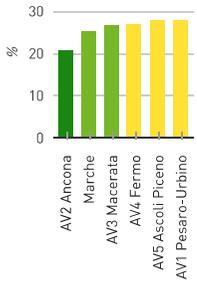


### A6.4.1 Percentage of smokers

The adverse effects of smoking affect not only smokers themselves but also those exposed to second-hand smoke. The WHO defines a “smoker” as a person who has smoked more than 100 cigarettes in his/her lifetime, smokes either daily or occasionally, or who quit smoking less than 6 months earlier.



<b>Definition</b>	Percentage of smokers
<b>Numerator</b>	Number of smokers (years 2012, 2013, 2014)
<b>Denominator</b>	Total number of smokers and non-smokers in the 3 year period examined
<b>Notes</b>	A smoker is defined as someone who has smoked more than 100 cigarettes in his/her lifetime, smokes either daily or occasionally, or who quit smoking less than 6 months earlier
<b>Source</b>	PASSI survey (Progress of the Local Authorities for Health in Italy)







REGIONAL STRATEGY COMPLIANCE



## B2 Promotion of healthy lifestyles

Focus on population lifestyles by Local Health Authorities has led to a quantum leap in their evaluation and programming processes. The 4 major risk factors for chronic diseases (smoking, alcohol, improper diet, and physical inactivity) examined by the "PASSI" monitoring system (Progress of the Local Authorities for Health in Italy) are largely modifiable. It is well known that failure to address these public health issues leads to an increase in premature deaths and avoidable diseases. The need for constant awareness raising and monitoring of risky lifestyles and habits is a key point of the European programme "Gaining health". Italy has joined the programme and plays an active role. An intensive, targeted awareness-raising campaign was launched to discourage smoking, encourage fruit and vegetable consumption rather than calorie-rich food and drink, reduced alcohol intake and more physical activity. Since 2012, indicators have been calculated on the previous three-years in order to increase statistical robustness. Since 2014, population lifestyle data from the "PASSI" survey have contributed to two different indicators: the first (A10) monitors lifestyles among the population; the second (B2) evaluates how doctors and other healthcare professionals promote healthy lifestyles. The score attributed to the indicator is the average of sub-indicators A6.1.2, A6.2.2, A6.2.3, A6.3.2 and A6.4.2.

### B2 Promotion of healthy lifestyles [evaluated]

- A6.1.2 Percentage of sedentary people advised by their doctor or by other healthcare professionals to exercise [evaluated]
- A6.2.2 Percentage of overweight or obese people advised by their doctor or by other healthcare professionals to lose or maintain weight [evaluated]
- A6.2.3 Percentage of overweight or obese people advised by their doctor or by other healthcare professionals to exercise [evaluated]
- A6.3.2 Percentage of alcohol consumers at higher risk advised by their doctor or by other healthcare professionals to reduce alcohol consumption [evaluated]
- A6.4.2 Percentage of smokers advised by their doctor or by other healthcare professionals to quit smoking [evaluated]

**Liguria**  
 AUSL 1 Imperiese  
 AUSL 2 Savonese  
 AUSL 3 Genovese  
 AUSL 4 Chiavarese  
 AUSL 5 Spezzino



**Bolzano**  
 Azienda P.A. Bolzano

**Trento**  
 APSS Trento



**Friuli Venezia Giulia**  
 ASS1 Triestina  
 ASS2 Isoncina  
 ASS3 Alto Friuli  
 ASS4 Medio Friuli  
 ASS5 Bassa Friulana  
 ASS6 Friuli Occidentale



**Veneto**  
 AULSS 1 Belluno  
 AULSS 2 Feltre  
 AULSS 3 Bass. del Grappa  
 AULSS 4 Alto Vicentino  
 AULSS 5 Ovest Vicentino  
 AULSS 6 Vicenza  
 AULSS 7 Pieve di Soligo  
 AULSS 8 Asolo  
 AULSS 9 Treviso  
 AULSS 10 Veneto Or.  
 AULSS 12 Veneziana  
 AULSS 13 Mirano  
 AULSS 14 Chioggia  
 AULSS 15 A. Padovana  
 AULSS 16 Padova  
 AULSS 17 Este  
 AULSS 18 Rovigo  
 AULSS 19 Adria  
 AULSS 20 Verona  
 AULSS 21 Legnago  
 AULSS 22 Bussolengo



**Toscana**  
 AUSL 1 Massa  
 AUSL 2 Lucca  
 AUSL 3 Pistoia  
 AUSL 4 Prato  
 AUSL 5 Pisa  
 AUSL 6 Livorno  
 AUSL 7 Siena  
 AUSL 8 Arezzo  
 AUSL 9 Grosseto  
 AUSL 10 Firenze  
 AUSL 11 Empoli  
 AUSL 12 Viareggio



**Emilia-Romagna**  
 AUSL Piacenza  
 AUSL Parma  
 AUSL Reggio Emilia  
 AUSL Modena  
 AUSL Bologna  
 AUSL Imola  
 AUSL Ferrara  
 AUSL Romagna



**Marche**  
 AV1 Pesaro-Urbino  
 AV2 Ancona  
 AV3 Macerata  
 AV4 Fermo  
 AV5 Ascoli Piceno



**Umbria**  
 USL Umbria 1  
 USL Umbria 2



**Basilicata**  
 ASP Potenza  
 ASM Matera



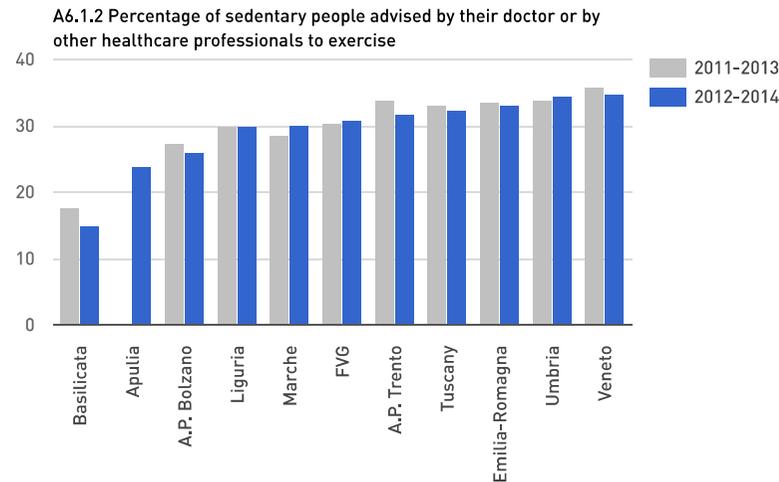
**Puglia**  
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 ASL Taranto  
 ASL Barletta-Andria-Trani  
 ASL Bari  
 ASL Foggia  
 ASL Lecce



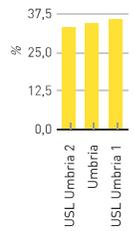
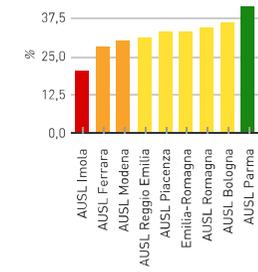
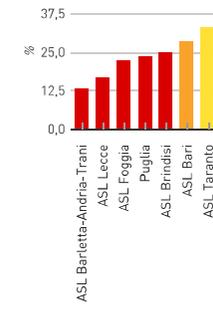
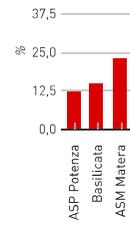
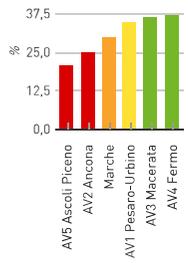
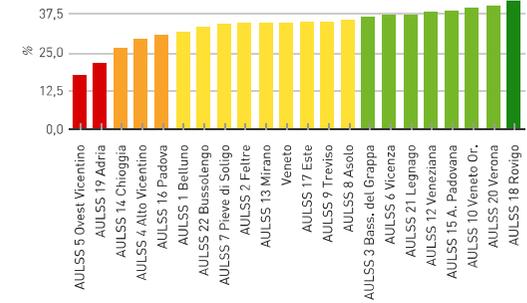
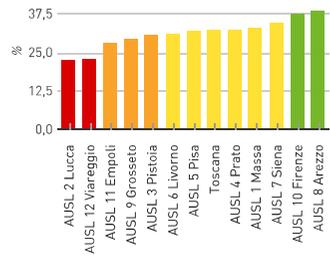
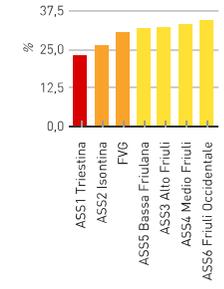
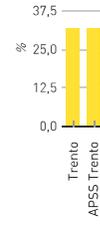
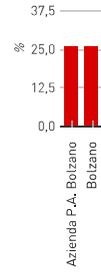
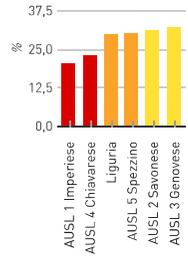


### A6.1.2 Percentage of sedentary people advised by their doctor or by other healthcare professionals to exercise

Regular physical activity promotes a healthy lifestyle and - according to experts - helps reduce overall mortality risk by 10%. Physical activity helps protect against the onset of many diseases and supports the treatment of many conditions. It is important that healthcare professionals encourage patients to engage in appropriate physical activity. Their advice, combined with other interventions, may help increase regular exercise among both the general population and groups at risk of chronic diseases.



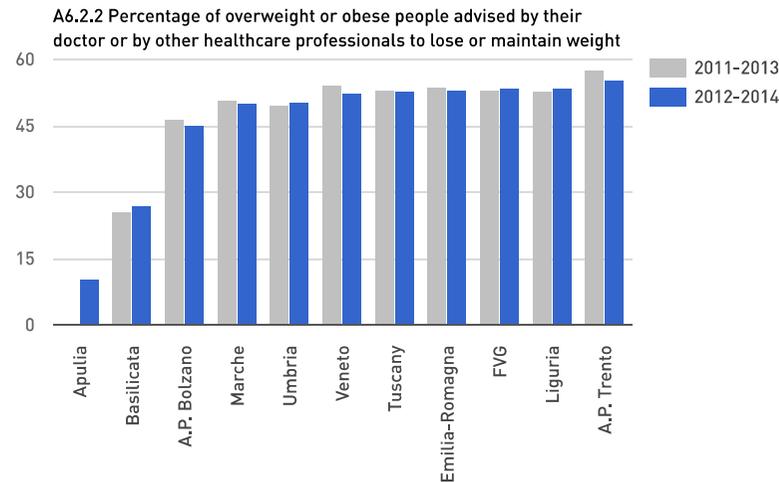
<b>Definition</b>	Percentage of sedentary people advised by their doctor or by other healthcare professionals to exercise
<b>Numerator</b>	Number of people interviewed who were advised by their doctor or by other healthcare professionals to exercise (2012, 2013, 2014)
<b>Denominator</b>	Total number of people interviewed in the 3 year period examined advised or not advised by their doctor or by other healthcare professionals to exercise
<b>Notes</b>	Only interviewees claiming to have visited a doctor in the last 12 months for every year of data collection (2012, 2013, 2014) have been considered
<b>Source</b>	PASSI survey (Progress of the Local Authorities for Health in Italy)



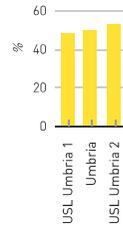
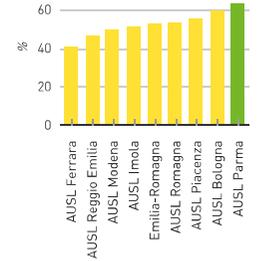
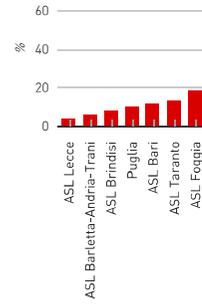
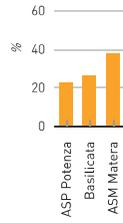
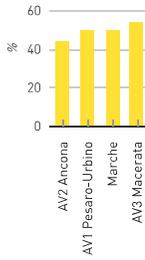
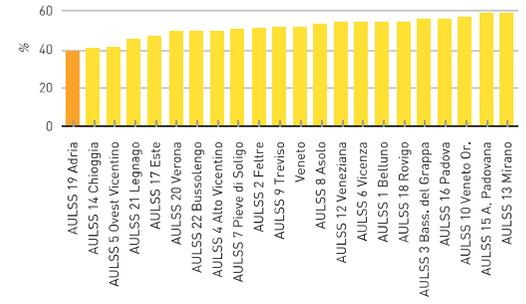
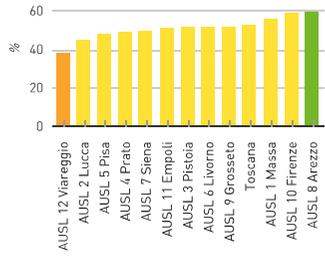
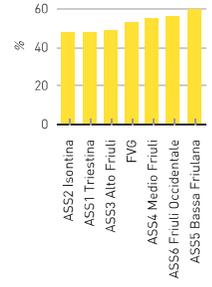
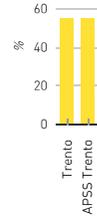
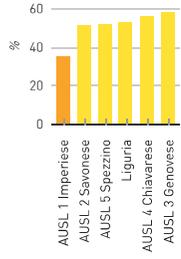


### A6.2.2 Percentage of overweight or obese people advised by their doctor or by other healthcare professionals to lose or maintain weight

Nutrition is a crucial determinant of population health. Weight excess may induce or exacerbate conditions such as hypertension, diabetes, cardiovascular diseases, strokes or some cancers, such as endometrial, colorectal, gallbladder and breast cancer. Weight excess (overweight/obesity) is one of the major risk factors to be considered when designing population-health improvement programmes. Healthcare professionals must give appropriate attention to this aspect.



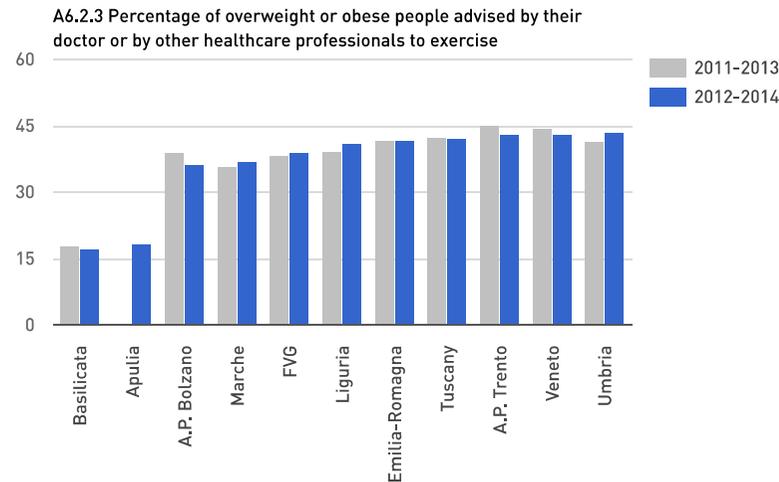
<b>Definition</b>	Percentage of overweight or obese people advised by their doctor or by other healthcare professionals to lose or maintain weight
<b>Numerator</b>	Number of overweight or obese people advised by their doctor or by other healthcare professionals to lose or maintain weight in 2012 + Number of overweight or obese people advised in 2013 + Number of overweight or obese people advised in 2014
<b>Denominator</b>	Total number of overweight or obese people advised or not advised by their doctor to lose or maintain weight in the 3 year period examined
<b>Notes</b>	Weight is defined on a BMI base, by dividing the weight (Kg) for the squared height (metres). Four categories may be recognized: underweight (BMI<18.5); normal weight (BMI 18.5-24.9); overweight (BMI 25-29.9); obese (BMI>=30). Only interviewees claiming to have visited a doctor in the last 12 months for every year of data collection (2012, 2013, 2014) were considered
<b>Source</b>	PASSI survey (Progress of the Local Authorities for Health in Italy)



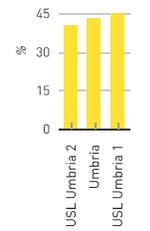
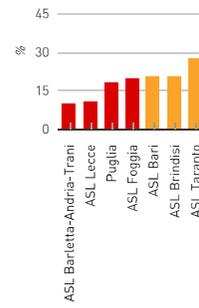
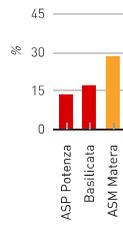
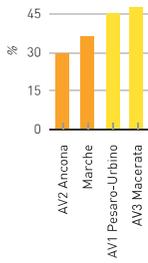
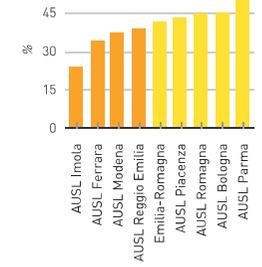
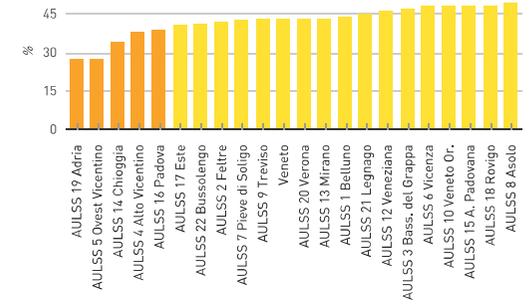
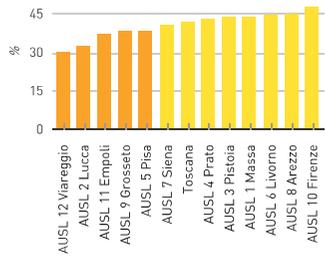
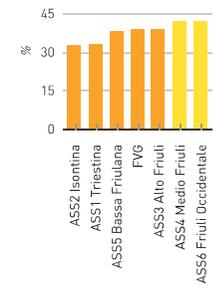
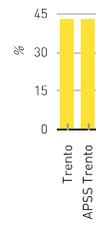
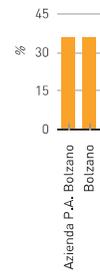
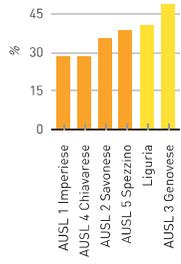


### A6.2.3 Percentage of overweight or obese people advised by their doctor or by other healthcare professionals to exercise

Promoting physical activity is a public health priority, often included in healthcare planning and programmes worldwide. There is increasing evidence that a sedentary lifestyle, often associated with unhealthy nutrition (both in terms of quantity and quality), is becoming a relevant public health issue, with a high burden of disease and related social costs. It is therefore indispensable that, besides promoting healthy nutrition, physicians and healthcare professionals also encourage people to exercise.



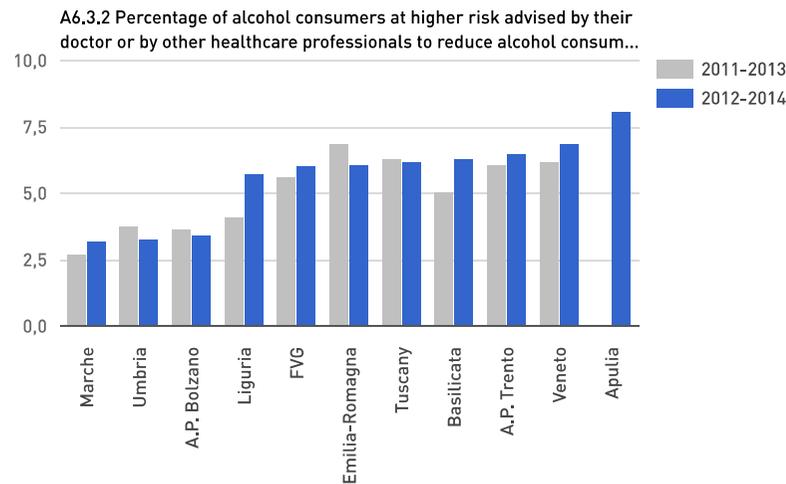
<b>Definition</b>	Percentage of overweight or obese people advised by their doctor or by other healthcare professionals to exercise
<b>Numerator</b>	Number of overweight or obese people advised by their doctor or by other healthcare professionals to exercise (2012, 2013, 2014)
<b>Denominator</b>	Total number of overweight or obese people advised or not advised by their doctor or by other healthcare professionals to exercise in the 3 year period examined
<b>Notes</b>	Weight is defined on a BMI base, by dividing the weight (Kg) for the squared height (meters). Four categories may be recognized: underweight (BMI<18,5); normal weight (BMI 18,5-24,9); overweight (BMI 25-29,9); obese (BMI>=30). Only interviewees claiming to have visited a doctor in the last 12 months for every year of data collection (2012, 2013, 2014) were considered
<b>Source</b>	PASSI survey (Progress of the Local Authorities for Health in Italy)



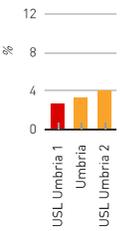
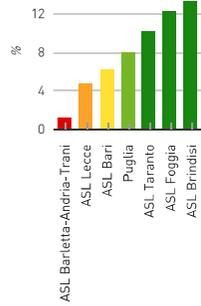
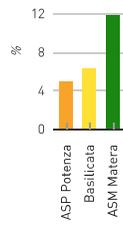
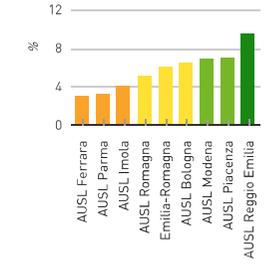
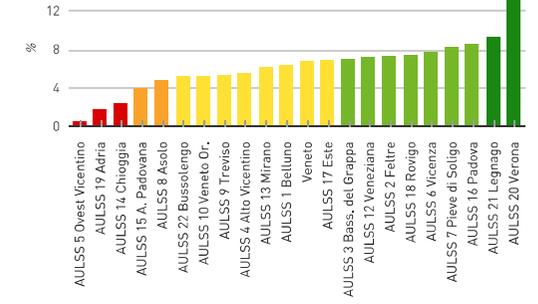
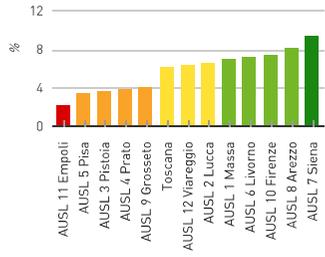
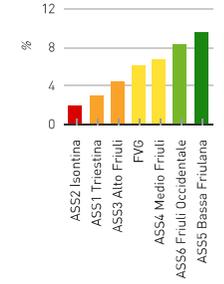
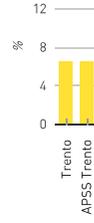
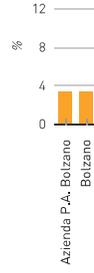
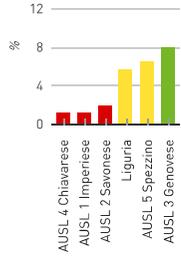


### A6.3.2 Percentage of alcohol consumers at higher risk advised by their doctor or by other healthcare professionals to reduce alcohol consumption

Given the adverse effects of excessive alcohol intake, monitoring and orienting alcohol consumption has become increasingly important when promoting healthy lifestyles. Alcohol-induced damage is not limited to the imbiber, but adversely affects families and the whole community. It is estimated that 9% of public healthcare costs are linked to the use/abuse of alcohol. Physicians and other healthcare professionals can play an important role in the prevention of alcohol abuse by publicizing its adverse effects.



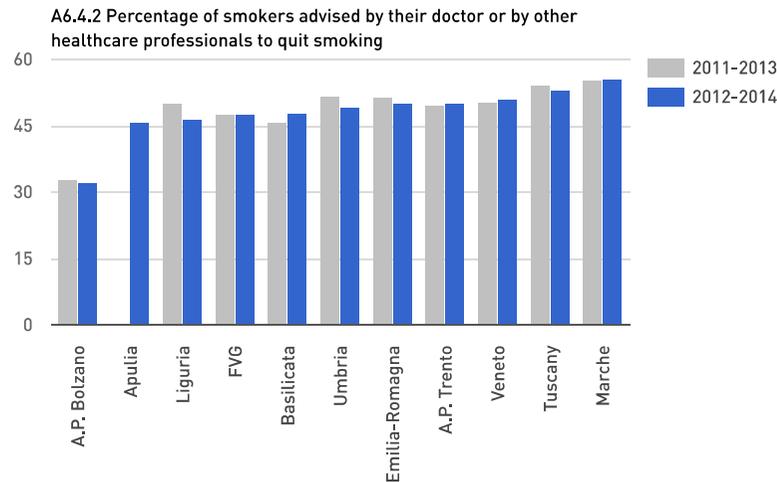
<b>Definition</b>	Percentage of alcohol consumers at higher risk, advised by their doctor or by other healthcare professionals to reduce alcohol consumption
<b>Numerator</b>	Number of high-risk alcohol consumers advised by their doctor or by other healthcare professionals to drink less (2012, 2013, 2014)
<b>Denominator</b>	Number of high-risk alcohol consumers (2012, 2013, 2014)
<b>Notes</b>	Total number of high-risk alcohol consumers in the in the 3 year period examined
<b>Source</b>	PASSI survey (Progress of the Local Authorities for Health in Italy)



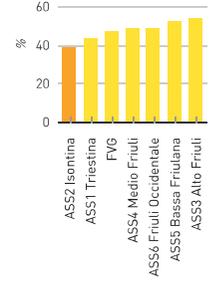
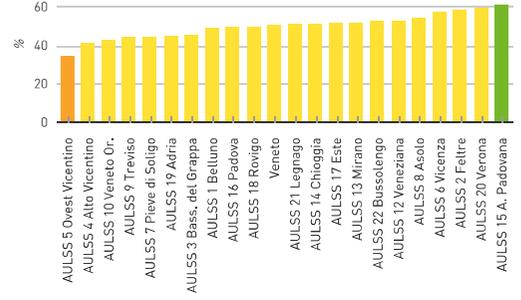
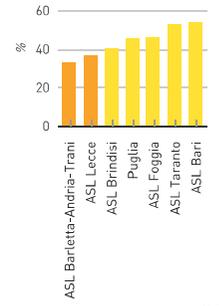
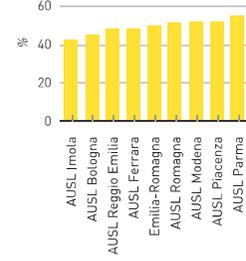
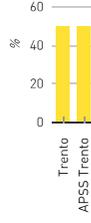
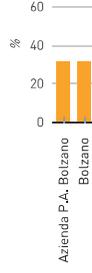
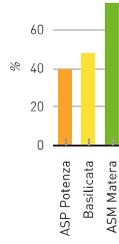
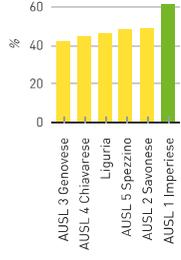
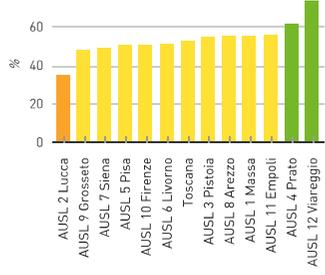


### A6.4.2 Percentage of smokers advised by their doctor or by other healthcare professionals to quit smoking

Smoking is a major cause of many chronic degenerative diseases affecting especially the respiratory and cardiovascular system. Smoking is also a major avoidable risk factor for early mortality. Experts calculate at 12% the number of healthy life years lost due to smoking-related premature death or disability. Scientific evidence shows that quitting smoking cuts the risk of myocardial infarction by half, after one non-smoker year. After 15 non-smoker years, risk equates with that of a non-smoker.



<b>Definition</b>	Percentage of smokers advised by their doctor or by other healthcare professionals to quit smoking
<b>Numerator</b>	Number of smokers advised by their doctor or by other healthcare professionals to quit smoking (2012, 2013, 2014)
<b>Denominator</b>	Total number of smokers advised or not advised by their doctor or by other healthcare professionals to quit smoking in the 3 year period examined
<b>Notes</b>	A smoker is defined as someone who has smoked more than 100 cigarettes in his/her lifetime, smokes either daily or occasionally, or who quit smoking less than 6 months before. Only interviewees claiming to have visited a doctor in the last 12 months for every year of data collection (2012, 2013, 2014) have been considered
<b>Source</b>	PASSI survey (Progress of the Local Authorities for Health in Italy)



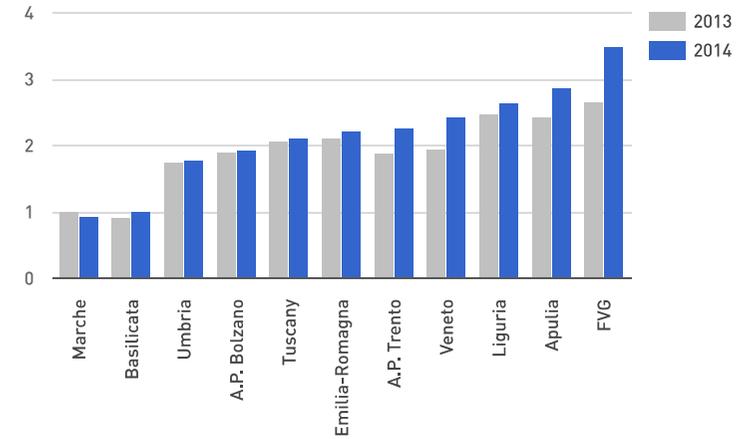


## B4 Opioid consumption

The consumption of opioids is a proxy for patient pain management. The indicator monitors the effectiveness of the Regions' pain management strategies. The score attributed the composite indicator is the same as that of sub-indicator B4.1.1.

- B4 Opioid consumption [evaluated]
  - B4.1.1 Opioid consumption [evaluated]

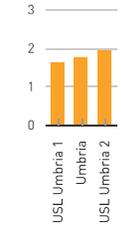
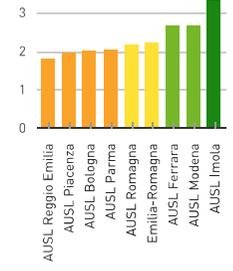
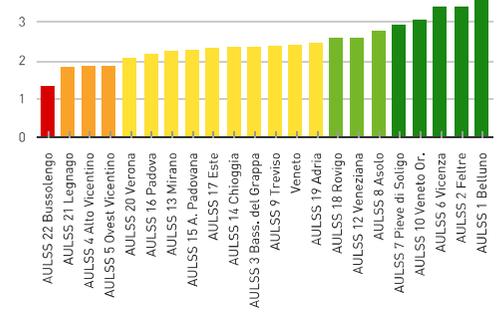
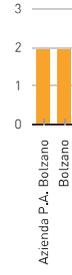
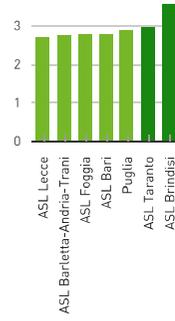
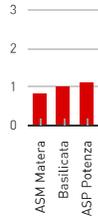
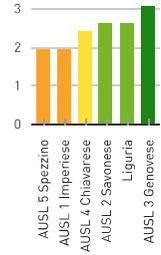
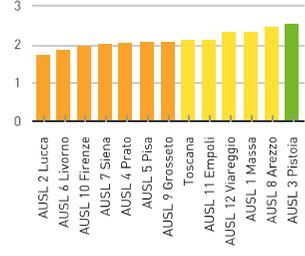
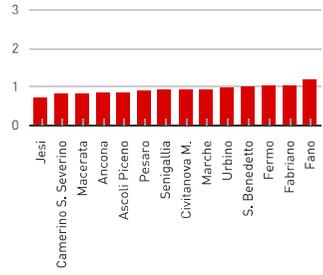
B4.1.1 Opioid consumption



### B4.1.1 Opioid consumption

The consumption of opioids is a proxy for patient pain management. The indicator measures the consumption of strong opioids, i.e. taken for severe pain relief, supplied by local pharmacies and directly or indirectly distributed by the Health Authorities.

<b>Definition</b>	Daily consumption of major opioids (Class A), provided by the National Health System, through local pharmacies, or directly and indirectly distributed
<b>Numerator</b>	DDD (Defined Daily Doses) of major opioids supplied each year, per 1,000
<b>Denominator</b>	Number of residents, per 365
<b>Notes</b>	Opioids are ATC (Anatomical-Therapeutic Classification) N02A drugs. Only major opioids, recommended for severe pain treatment (WHO pain scale) are included in the calculation of the indicator: Morphine (ATC N02AA01), Morphine and antispasmodics (N02AG01), Buprenorphine (ATC N02AE01), Fentanyl (ATC N02AB03), Oxycodone (ATC N02AA05), Oxycodone hydrochloride/paracetamol (N02AA55), Hydromorphone (ATC N02AA03). Since 2013, Tapentadol (ATC N02AX06) has also been included. Drug consumption is measured in Defined Daily Doses (DDD), which is the daily maintenance dose for adults generally indicated for the substance in question. This allows comparison of different medications containing the same substance in different dosages. The indicator allows comparisons of different dosages in different populations at different periods
<b>Source</b>	Regional pharmaceutical flows





## B5 Invitation and uptake rates of cancer screening programmes

In recent years, Italian Regions have shown a strong commitment to fully implementing cancer-screening programmes. While extensive reach is achieved with the sort of service delivery that facilitates access by all clients, certain unmanageable factors nonetheless affect participation, or uptake, levels. Invitation rates under 80% of the target population (over a period of 2 years for the mammogram and colorectal programme, and 3 years for the cervical screening) should be considered critical. Patient uptake targets are 70% for mammography, 65% for colorectal screening and 60% for cervical screening.

The invitation and uptake rates of screening campaigns are calculated against the corrective criteria issued by the National Screening Observatory (NSO). The nominator used to calculate the invitation rate did not include undelivered invitations, while the denominator did not include all those excluded before issuing the invitation. The denominator for the uptake indicators did not include undelivered invitations and those excluded after invitation.

- **B5 Invitation and uptake rates of cancer screening programmes** [evaluated]
  - B5.1 Mammography screening [evaluated]
    - B5.1.1 Adjusted invitation rate for mammographic screening [evaluated]
    - B5.1.2 Adjusted uptake of mammographic screening [evaluated]
  - B5.2 Cervical screening [evaluated]
    - B5.2.1 Adjusted invitation rate to cervical screening [evaluated]
    - B5.2.2 Adjusted uptake of cervical screening [evaluated]
  - B5.3 Colorectal screening [evaluated]
    - B5.3.1 Adjusted invitation rate for colorectal screening [evaluated]
    - B5.3.2 Adjusted uptake of colorectal screening [evaluated]

- Lombardia**
- ASL Bergamo ●
  - ASL Brescia ●
  - ASL Como ●
  - ASL Cremona ●
  - ASL Lecco ●
  - ASL Lodi ●
  - ASL Mantova ●
  - ASL Milano ●
  - ASL Milano 1 ●
  - ASL Milano 2 ●
  - ASL Monza-Brianza ●
  - ASL Pavia ●
  - ASL Sondrio ●
  - ASL Varese ●
  - ASL Valcamonica-Sebino ●

- Liguria**
- AUSL 1 Imperiese ●
  - AUSL 2 Savonese ●
  - AUSL 3 Genovese ●
  - AUSL 4 Chiavarese ●
  - AUSL 5 Spezzino ●

- Toscana**
- AUSL 1 Massa ●
  - AUSL 2 Lucca ●
  - AUSL 3 Pistoia ●
  - AUSL 4 Prato ●
  - AUSL 5 Pisa ●
  - AUSL 6 Livorno ●
  - AUSL 7 Siena ●
  - AUSL 8 Arezzo ●
  - AUSL 9 Grosseto ●
  - AUSL 10 Firenze ●
  - AUSL 11 Empoli ●
  - AUSL 12 Viareggio ●

- Lazio**
- AUSL Roma A ●
  - AUSL Roma B ●
  - AUSL Roma C ●
  - AUSL Roma D ●
  - AUSL Roma E ●
  - AUSL Roma F ●
  - AUSL Roma G ●
  - AUSL Roma H ●
  - AUSL Viterbo ●
  - AUSL Rieti ●
  - AUSL Latina ●
  - AUSL Frosinone ●

- Bolzano**
- Azienda P.A. Bolzano ●
- Trento**
- APSS Trento ●

- Friuli Venezia Giulia**
- ASS1 Triestina ●
  - ASS2 Isontina ●
  - ASS3 Alto Friuli ●
  - ASS4 Medio Friuli ●
  - ASS5 Bassa Friulana ●
  - ASS6 Friuli Occidentale ●

- Veneto**
- AULSS 1 Belluno ●
  - AULSS 2 Feltre ●
  - AULSS 3 Bass. del Grappa ●
  - AULSS 4 Alto Vicentino ●
  - AULSS 5 Ovest Vicentino ●
  - AULSS 6 Vicenza ●
  - AULSS 7 Pieve di Soligo ●
  - AULSS 8 Asolo ●
  - AULSS 9 Treviso ●
  - AULSS 10 Veneto Or. ●
  - AULSS 12 Veneziana ●
  - AULSS 13 Mirano ●
  - AULSS 14 Chioggia ●
  - AULSS 15 A. Padovana ●
  - AULSS 16 Padova ●
  - AULSS 17 Este ●
  - AULSS 18 Rovigo ●
  - AULSS 19 Adria ●
  - AULSS 20 Verona ●
  - AULSS 21 Legnago ●
  - AULSS 22 Bussolengo ●

- Emilia-Romagna**
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  - AUSL Parma ●
  - AUSL Reggio Emilia ●
  - AUSL Modena ●
  - AUSL Bologna ●
  - AUSL Imola ●
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- Umbria**
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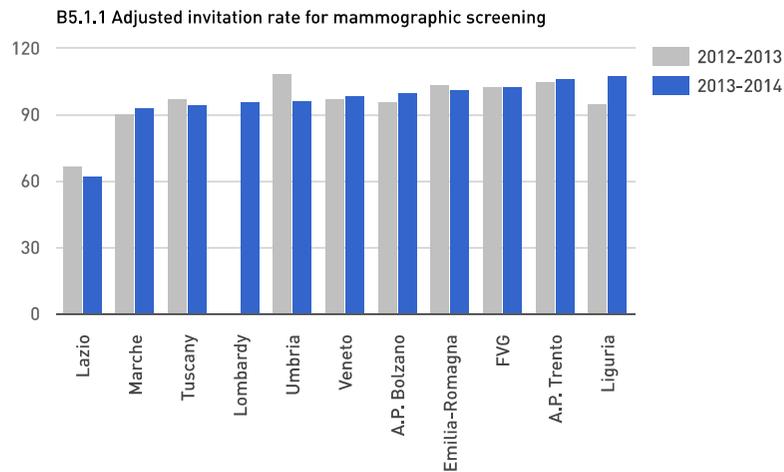
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  - AV4 Fermo ●
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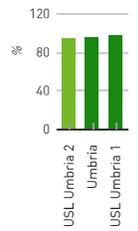
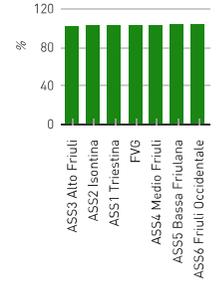
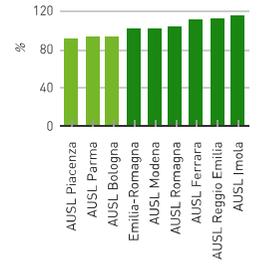
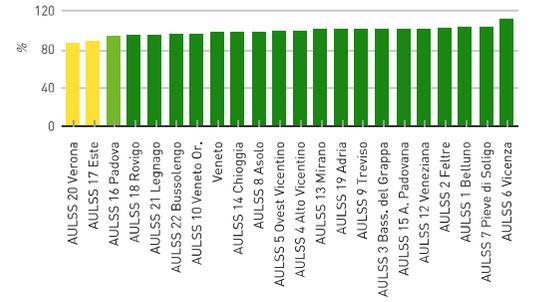
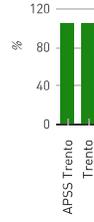
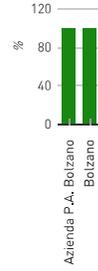
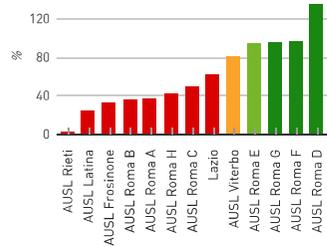
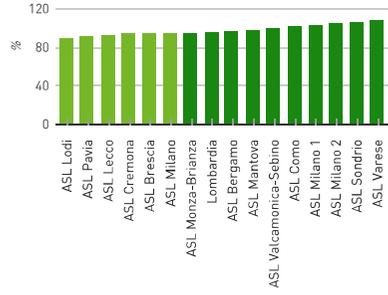
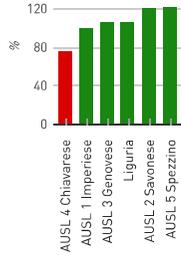
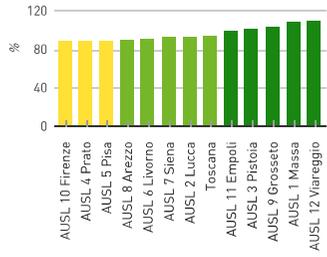
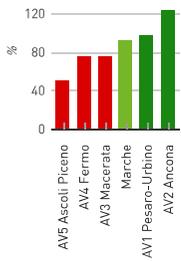


### B5.1.1 Adjusted invitation rate for mammographic screening

Mammography screening targets women aged 50 to 69. Screening campaign invitation rate, or reach, measures the number of women in the target population invited to the screening over the two-year period considered.



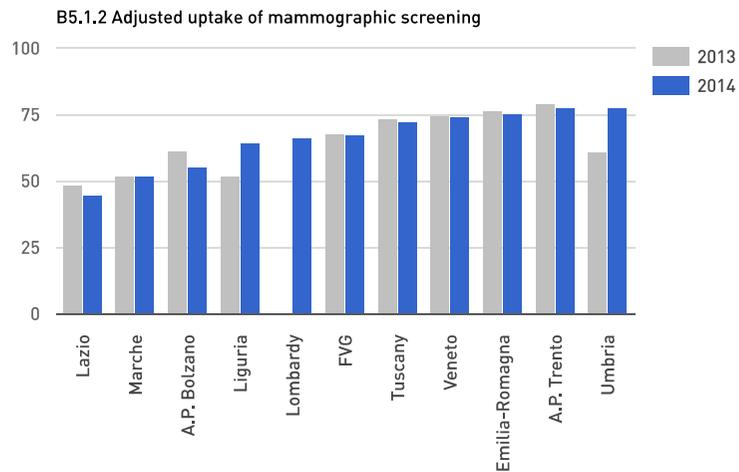
<b>Definition</b>	Percentage of women in the target population invited to a mammography screening (women aged 50 to 69) in the two years examined
<b>Numerator</b>	Number of women invited to a screening in year x + Number of women invited in year x-1 - Number of undelivered invitations in year x-1
<b>Denominator</b>	Target population in year x + Target population in year x-1 - Number of women excluded before being invited in year x - Number of women excluded before being invited in year x-1 *
<b>Notes</b>	The observation period is the two years immediately before the current year. For example, the 2014 Report considers the two-year period 2013-2014. * NSO corrective criteria applied
<b>Source</b>	Veneto: Prevention Department; Tuscany: ISPO; Marche: Regional surveys; Liguria: GISMA; Friuli Venezia Giulia: SISSR; A.P. Bolzano: Alto Adige Cancer Registry; Emilia Romagna: National Screening Observatory; Lombardy: DWH; Lazio: Sipsoweb



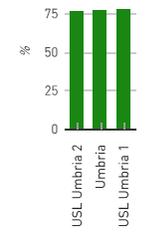
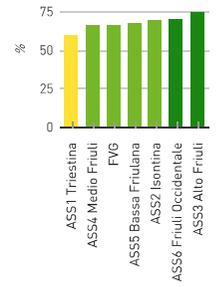
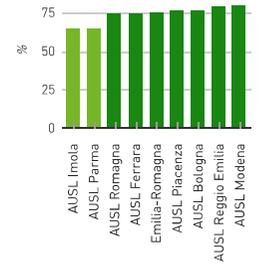
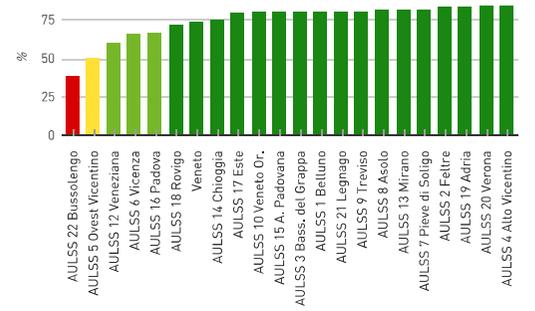
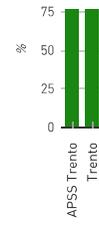
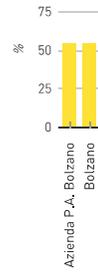
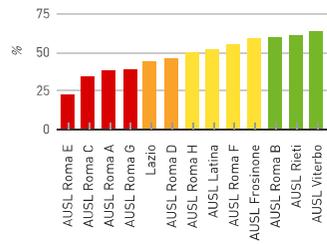
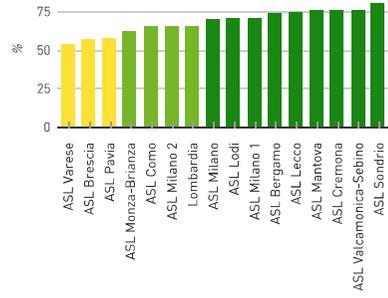
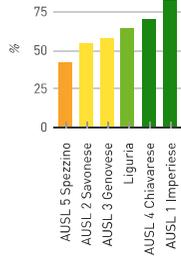
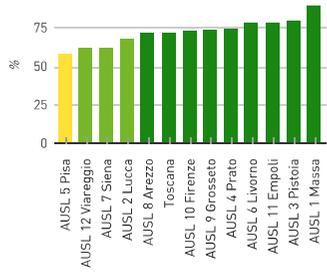
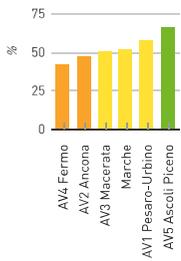


### B5.1.2 Adjusted uptake of mammographic screening

Mammography screening targets women aged 50 to 69. Screening campaign uptake measures the number of women taking up the offer compared to the total number invited.



<b>Definition</b>	Percentage of women who participated in a mammography screening compared to those invited
<b>Numerator</b>	Number of women who participated in a mammography screening on invitation during the year (until April 30th the following year)
<b>Denominator</b>	Number of women invited to a mammography screening - Number of undelivered invitations - Number of women excluded after being invited *
<b>Notes</b>	Annual indicator. * NSO corrective criteria applied
<b>Source</b>	Veneto: Prevention Department; Tuscany: ISPO; Marche: Regional surveys; Liguria: GISMA; Friuli Venezia Giulia: SISSR; A.P. Bolzano: Alto Adige Cancer Registry; Emilia Romagna: National Screening Observatory; Lombardy: DWH; Lazio: Sipsoweb

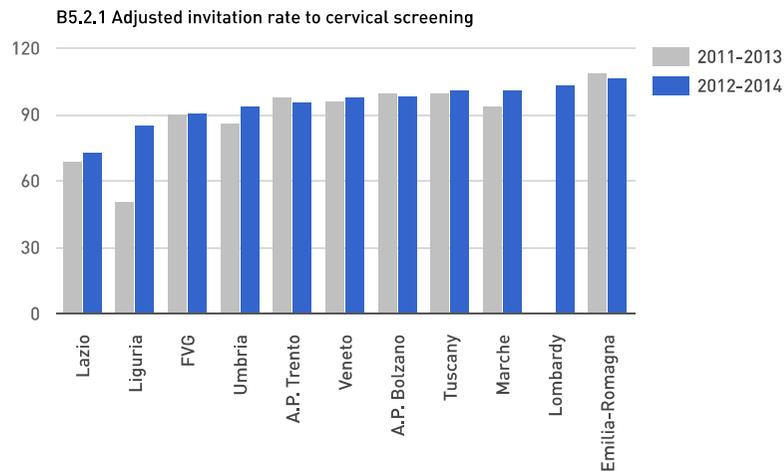




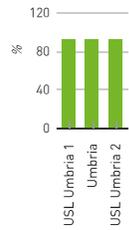
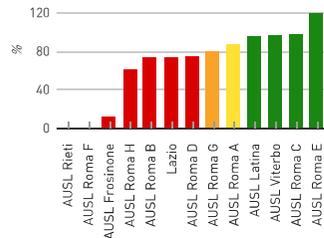
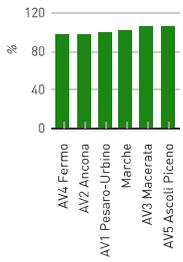
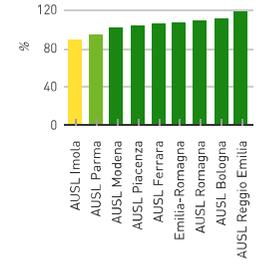
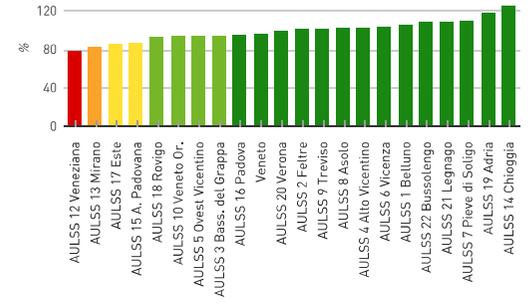
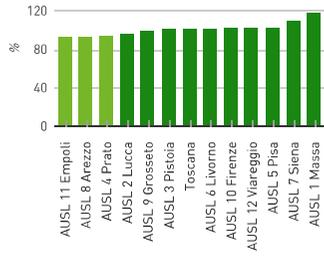
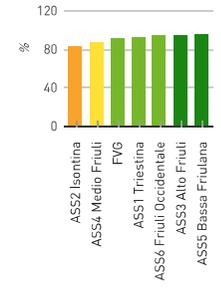
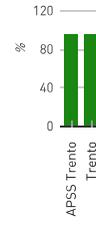
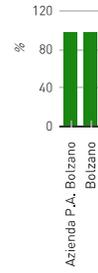
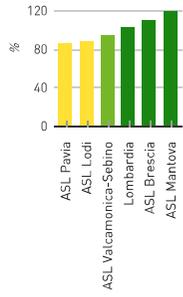
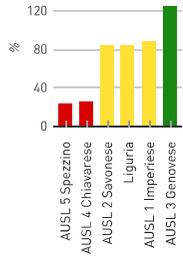
### B5.2.1 Adjusted invitation rate to cervical screening

Cervical screening targets women aged 25 to 64. Cervical screening invitation rate, or reach, measures the number of women taking up the offer compared to the total number invited during the three-year period considered.

Note: graphs report most recent data available for each Region. The reference years for each Region are given in the tables available at <http://www.performance.sssup.it/netval>.



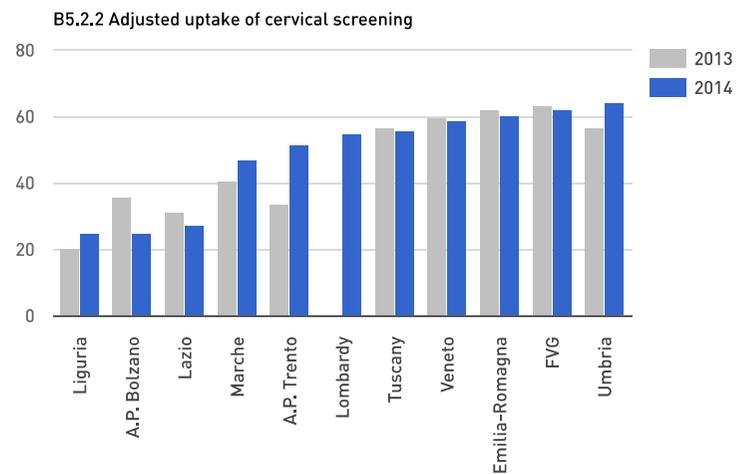
<b>Definition</b>	Percentage of women in the target population invited to a cervical screening (women aged 25 to 64) in the three years examined
<b>Numerator</b>	Number of women invited to a screening in year x + Number of women invited in year x-1 + Number of women invited in year x-2 - Number of undelivered invitations in year x - Number of undelivered invitations x-1 - Number undelivered invitations in year x-2
<b>Denominator</b>	Target population in year + Target population in year x-1 + Target population in year x-2 - Number of women excluded before being invited in year x - Number of women excluded before being invited in year x-1 - Number of women excluded before being invited
<b>Notes</b>	The 2014 Report refers to the 2012-2014 three-year period. * NSO corrective criteria applied
<b>Source</b>	Veneto: Prevention Department; Tuscany: ISPO; Marche: Regional surveys; Liguria: GISMA; Friuli Venezia Giulia: SISSR; A.P. Bolzano: Alto Adige Cancer Registry; Emilia Romagna: National Screening Observatory; Lombardy: DWH; Lazio: Sipsoweb



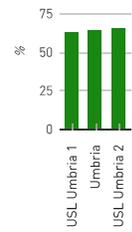
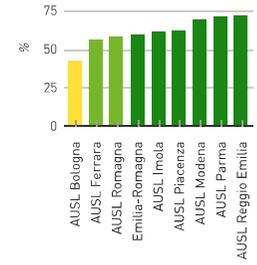
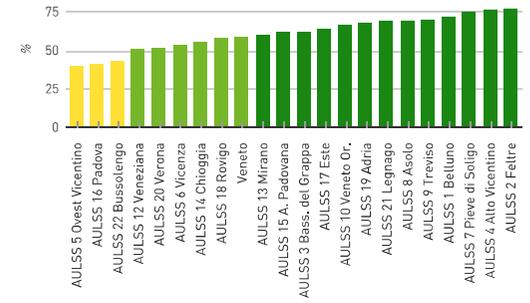
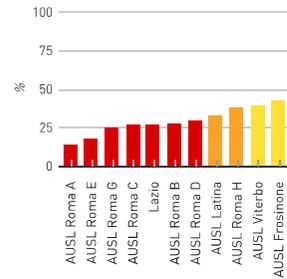
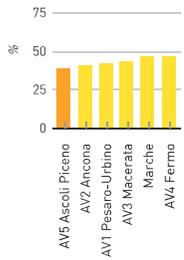
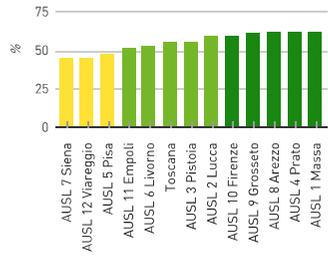
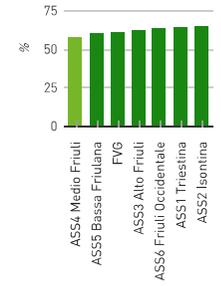
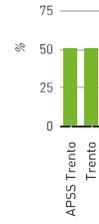
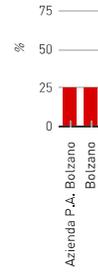
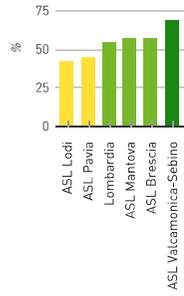
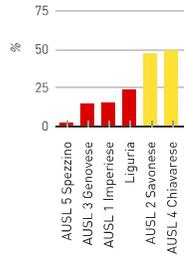


### B5.2.2 Adjusted uptake of cervical screening

Cervical screening targets women aged 25 to 64. User uptake measures the number of women taking up the offer compared to the total number invited.



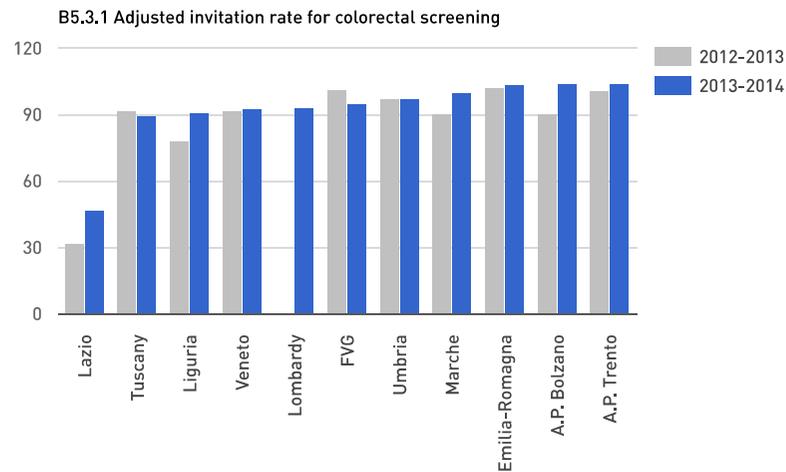
<b>Definition</b>	Percentage of all the women invited who participated in a cervical screening
<b>Numerator</b>	Number of women who participated in a cervical screening on invitation (until April 30th of the following year)
<b>Denominator</b>	Number of women invited to a cervical screening - Number of undelivered invitations - Number of women excluded after being invited
<b>Notes</b>	Annual indicator. * NSO corrective criteria applied
<b>Source</b>	Veneto: Prevention Department; Tuscany: ISPO; Marche: Regional surveys; Liguria: GISMA; Friuli Venezia Giulia: SISSR; A.P. Bolzano: Alto Adige Cancer Registry; Emilia Romagna: National Screening Observatory; Lombardy: DWH; Lazio: Sipsoweb



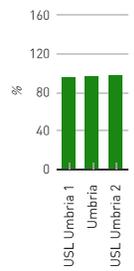
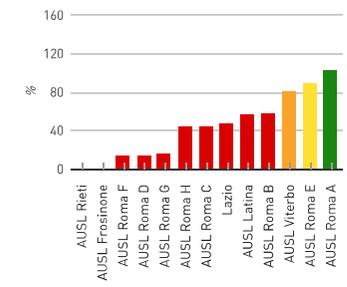
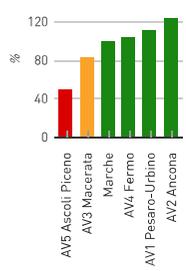
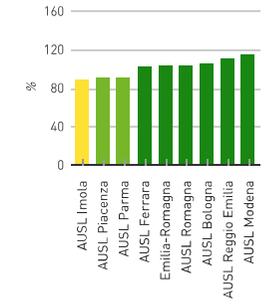
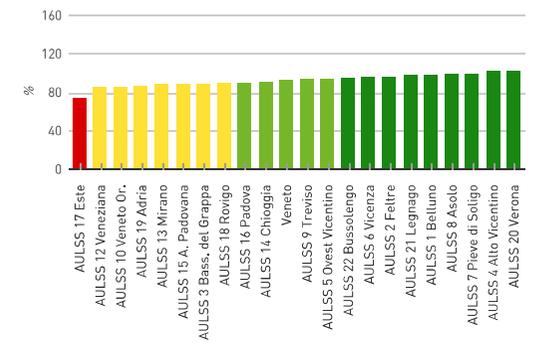
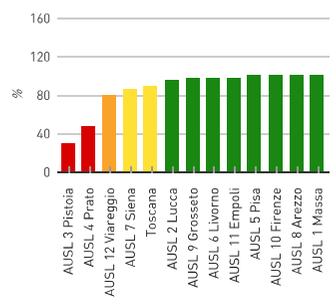
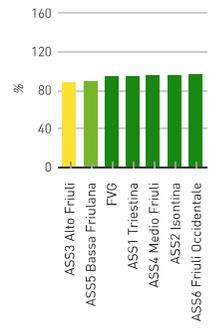
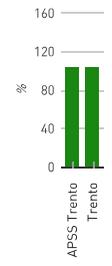
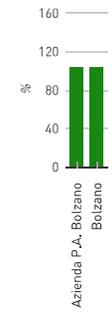
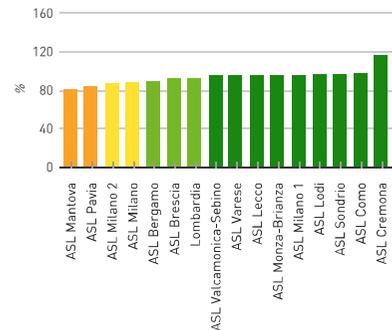
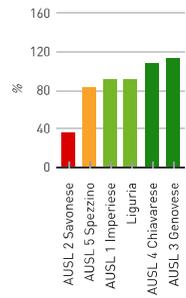


### B5.3.1 Adjusted invitation rate for colorectal screening

Colorectal screening targets people of both sexes aged 50 to 70. Screening campaign invitation rate, or reach, measures the number of people invited of the total target population during the two-year reference period.



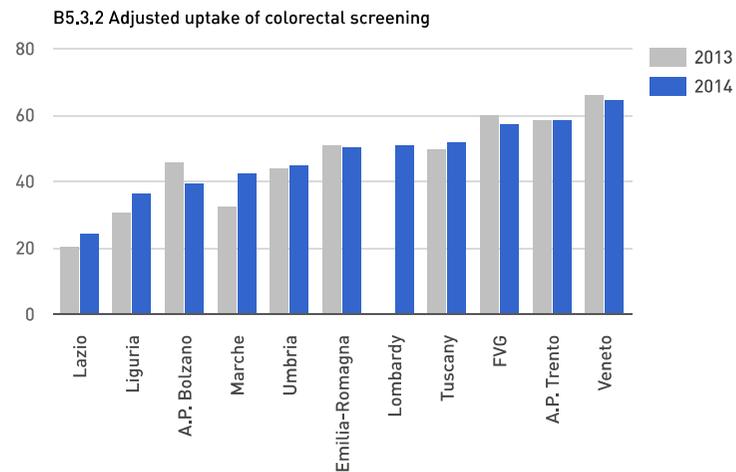
<b>Definition</b>	Percentage of people in the target population (50-70 years) invited to a colorectal screening in the two years examined
<b>Numerator</b>	Number of people invited to a screening in year x + Number of people invited in year x-1 - Number of undelivered invitations in year x - Number of undelivered invitations in year x-1 *
<b>Denominator</b>	Target population in year x + Target population in year x-1 - Number of people excluded before being invited in year x - Number of people excluded before being invited in year x-1 *
<b>Notes</b>	The observation period is the two years immediately before the current year. For example, the 2014 Report considers the two-year period 2013-2014. * NSO corrective criteria applied
<b>Source</b>	Veneto: Prevention Department; Tuscany: ISPO; Marche: Regional surveys; Liguria: GISMA; Friuli Venezia Giulia: SISSR; A.P. Bolzano: Alto Adige Cancer Registry; Emilia Romagna: National Screening Observatory; Lombardy: DWH; Lazio: Sipsoweb



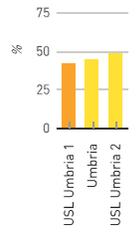
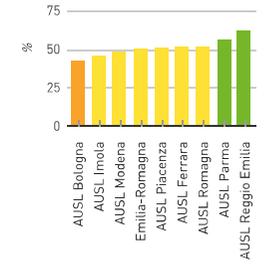
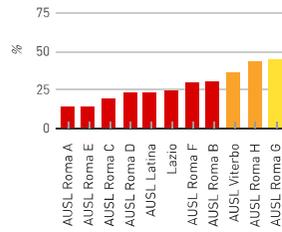
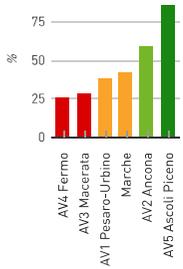
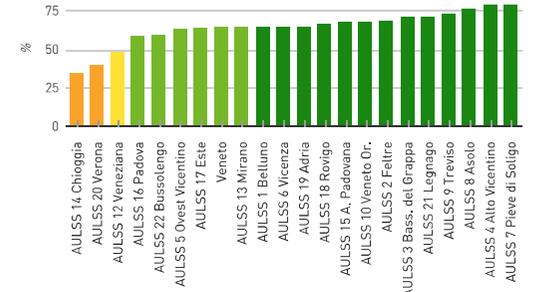
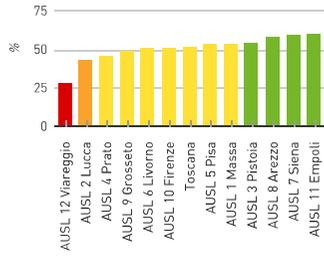
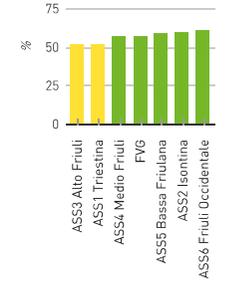
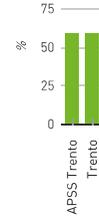
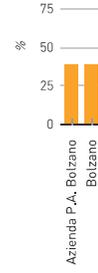
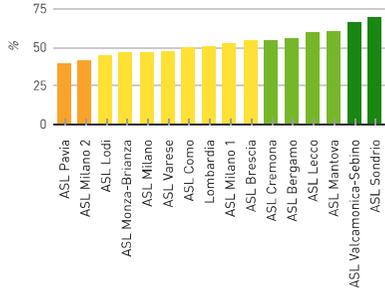
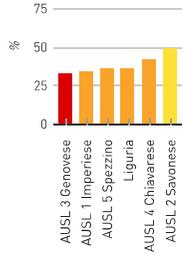


### B5.3.2 Adjusted uptake of colorectal screening

Colorectal screening targets people of both sexes aged 50 to 70. The screening uptake rate measures the number of people invited who present for screening.



<b>Definition</b>	Percentage of people of all those invited undergoing colorectal screening
<b>Numerator</b>	Number of people of those invited who underwent colorectal screening during the year (until April 30th of the following year)
<b>Denominator</b>	Number of people invited to undergo colorectal screening during the year (until April 30th of the following year) - Number of undelivered invitation in the year- Number of people excluded after invitation
<b>Notes</b>	Annual indicator. * NSO corrective criteria applied
<b>Source</b>	Veneto: Prevention Department; Tuscany: ISPO; Marche: Regional surveys; Liguria: GISMA; Friuli Venezia Giulia: SISSR; A.P. Bolzano: Alto Adige Cancer Registry; Emilia Romagna: National Screening Observatory; Lombardy: DWH; Lazio: Sipsoweb





## B7 Vaccine coverage

Vaccination is one of the safest, most effective tools to prevent infectious diseases. Benefits are apparent both in the vaccinated and, indirectly, on those not vaccinated, thanks to induced (i.e. herd) immunity. The vaccine coverage indicator is based on seven sub-indicators.

Two sub-indicators concern the flu vaccination and monitor coverage of the elderly population (B7.2) and healthcare professionals working in public Local Health Authorities (B7.4).

The remaining five indicators monitor coverage of five non-compulsory but recommended paediatric vaccines included in the National Immunization Programme: measles, mumps and rubella (B7.1), Meningococcus (B7.5), Pneumococcal vaccine (B7.6), hexavalent vaccine (B7.7), and Papilloma virus (HPV) vaccine for twelve year old girls (B7.3).

- **B7 Vaccine coverage** [evaluated]
  - B7.1 MMR vaccine coverage [evaluated]
  - B7.2 Flu vaccine coverage for the elderly [evaluated]
  - B7.3 Papillomavirus (HPV) vaccine coverage [evaluated]
  - B7.4 Flu vaccine coverage for workers in the healthcare sector [evaluated]
  - B7.5 Meningococcal vaccine coverage [evaluated]
  - B7.6 Pneumococcal vaccine coverage [evaluated]
  - B7.7 Hexavalent vaccine coverage [evaluated]

**Lombardia**  
 ASL Bergamo  
 ASL Brescia  
 ASL Como  
 ASL Cremona  
 ASL Lecco  
 ASL Lodi  
 ASL Mantova  
 ASL Milano  
 ASL Milano 1  
 ASL Milano 2  
 ASL Monza-Brianza  
 ASL Pavia  
 ASL Sondrio  
 ASL Varese  
 ASL Valcamonica-Sebino



**Liguria**  
 AUSL 1 Imperiese  
 AUSL 2 Savonese  
 AUSL 3 Genovese  
 AUSL 4 Chiavarese  
 AUSL 5 Spezzino



**Toscana**  
 AUSL 1 Massa  
 AUSL 2 Lucca  
 AUSL 3 Pistoia  
 AUSL 4 Prato  
 AUSL 5 Pisa  
 AUSL 6 Livorno  
 AUSL 7 Siena  
 AUSL 8 Arezzo  
 AUSL 9 Grosseto  
 AUSL 10 Firenze  
 AUSL 11 Empoli  
 AUSL 12 Viareggio

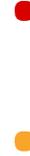


**Lazio**  
 AUSL Roma A  
 AUSL Roma B  
 AUSL Roma C  
 AUSL Roma D  
 AUSL Roma E  
 AUSL Roma F  
 AUSL Roma G  
 AUSL Roma H  
 AUSL Viterbo  
 AUSL Rieti  
 AUSL Latina  
 AUSL Frosinone



**Bolzano**  
 Azienda P.A. Bolzano

**Trento**  
 APSS Trento



**Friuli Venezia Giulia**  
 ASS1 Triestina  
 ASS2 Isontina  
 ASS3 Alto Friuli  
 ASS4 Medio Friuli  
 ASS5 Bassa Friulana  
 ASS6 Friuli Occidentale



**Veneto**  
 AULSS 1 Belluno  
 AULSS 2 Feltre  
 AULSS 3 Bass. del Grappa  
 AULSS 4 Alto Vicentino  
 AULSS 5 Ovest Vicentino  
 AULSS 6 Vicenza  
 AULSS 7 Pieve di Soligo  
 AULSS 8 Asolo  
 AULSS 9 Treviso  
 AULSS 10 Veneto Or.  
 AULSS 12 Veneziana  
 AULSS 13 Mirano  
 AULSS 14 Chioggia  
 AULSS 15 A. Padovana  
 AULSS 16 Padova  
 AULSS 17 Este  
 AULSS 18 Rovigo  
 AULSS 19 Adria  
 AULSS 20 Verona  
 AULSS 21 Legnago  
 AULSS 22 Bussolengo



**Emilia-Romagna**  
 AUSL Piacenza  
 AUSL Parma  
 AUSL Reggio Emilia  
 AUSL Modena  
 AUSL Bologna  
 AUSL Imola  
 AUSL Ferrara  
 AUSL Romagna



**Puglia**  
 ASL Brindisi  
 ASL Taranto  
 ASL Barletta-Andria-Trani  
 ASL Bari  
 ASL Foggia  
 ASL Lecce



**Basilicata**  
 ASP Potenza  
 ASM Matera



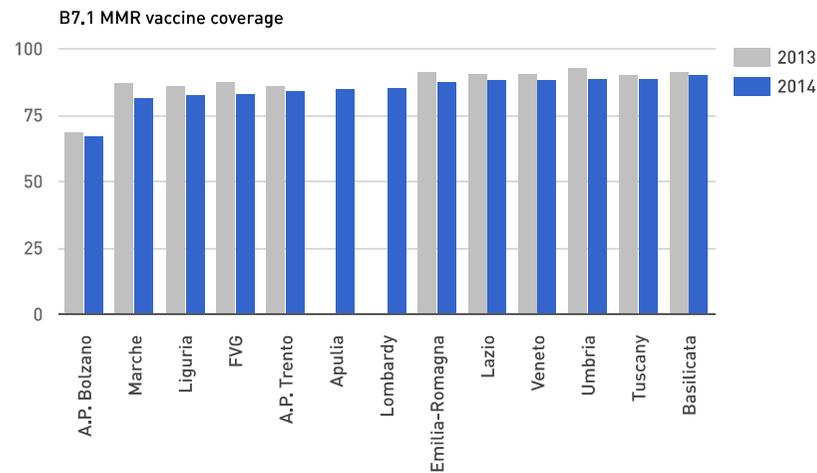
**Umbria**  
 USL Umbria 1  
 USL Umbria 2





### B7.1 MMR vaccine coverage

The MMR vaccine is a single vaccine preventing the onset of measles, mumps and rubella. The calculation of vaccine coverage for MMR is the ratio between the percentage of vaccination cycles completed by 31st December each year, and the number of children eligible for vaccination. The goal is 95% coverage of the target population.



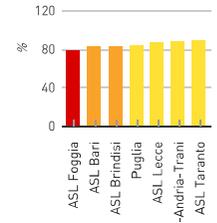
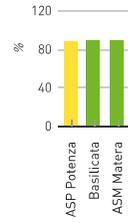
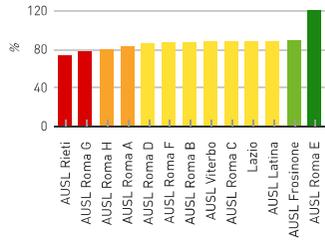
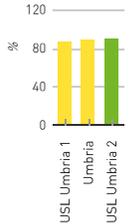
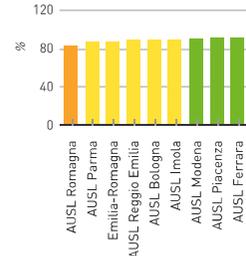
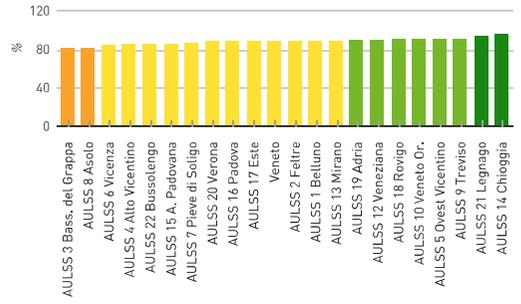
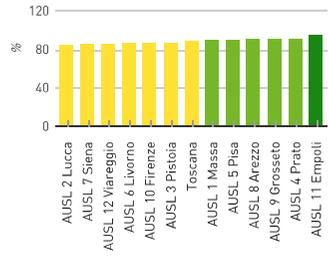
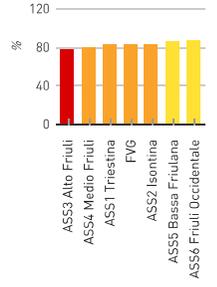
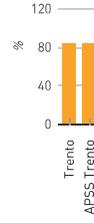
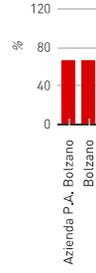
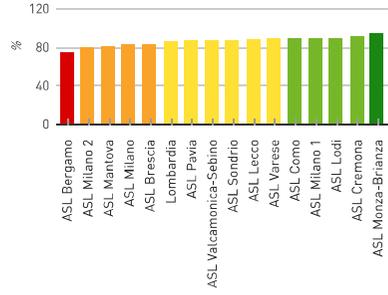
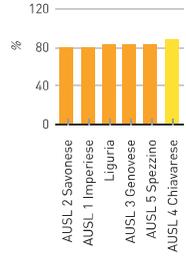
**Definition** MMR vaccine coverage (measles, mumps, rubella) for locally resident children who turn 24 months during the year

**Numerator** MMR vaccine cycles completed by December 31st (full basic cycle 1 dose)

**Denominator** Number of children turning 24 months during the year

**Notes** The cohort of children born in 2012 is used for year 2014. The vaccine cycles of this cohort completed during the year were added to the numerator

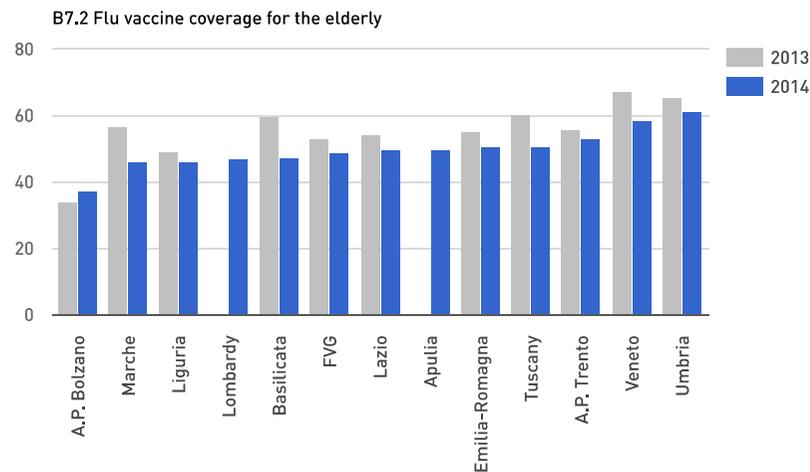
**Source** Source varies across Regions



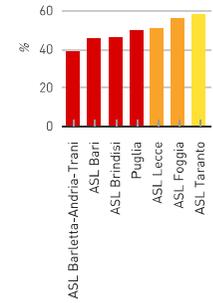
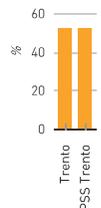
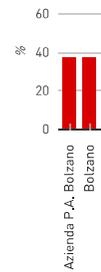
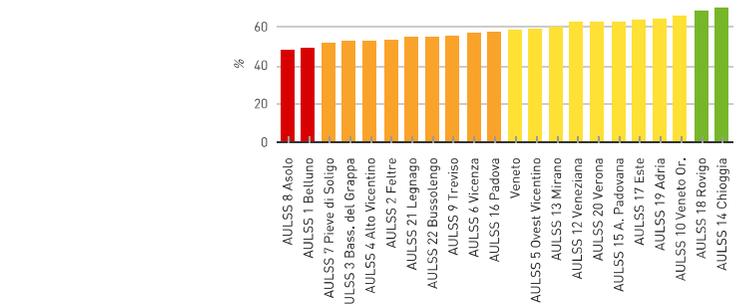
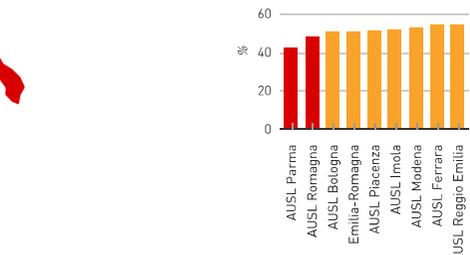
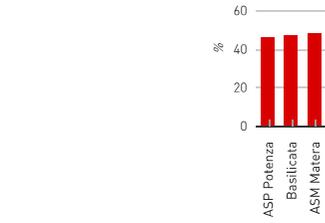
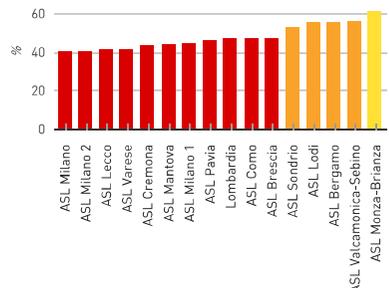
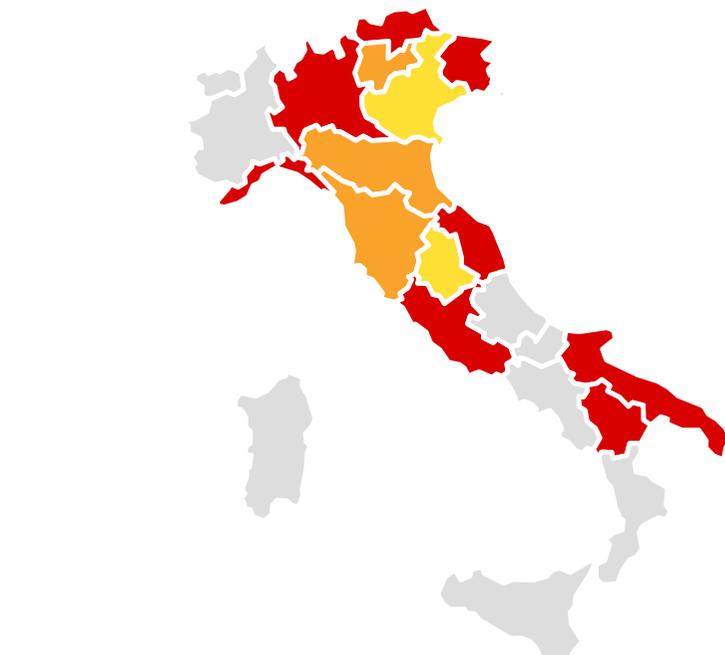
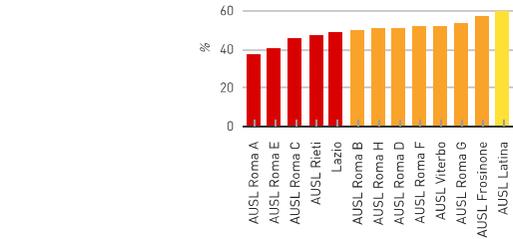
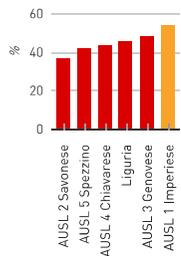
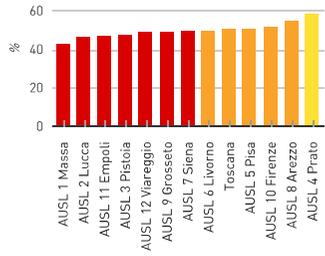
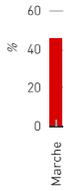


## B7.2 Flu vaccine coverage for the elderly

The flu vaccine is the most effective means of preventing the flu infection. The flu vaccine is administered by the family physician or the Local Health Authority vaccine centre and is recommended during the winter for individuals at risk, i.e. the elderly, chronically sick, family members of high-risk individuals, professionals at risk, etc. As the 65 plus age bracket is the priority target for vaccination, the indicator is calculated as the ratio between the percentage of vaccinations administered to subjects aged 65 or more, and the total resident population of this age group.



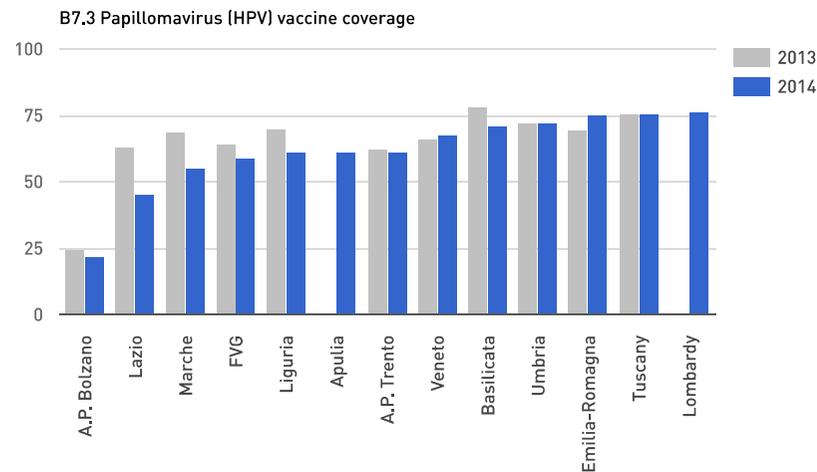
<b>Definition</b>	Flu vaccine coverage in the target population
<b>Numerator</b>	Vaccinations administered to people aged 65 years and over
<b>Denominator</b>	Resident population aged 65 years and over
<b>Notes</b>	The last winter vaccination campaign was considered (e.g., 2012-2013 for the 2014 evaluation)
<b>Source</b>	Source varies across Regions



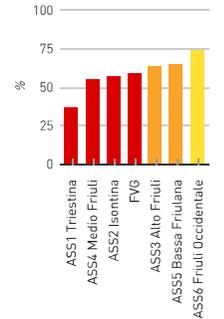
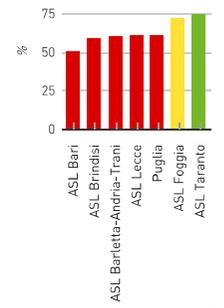
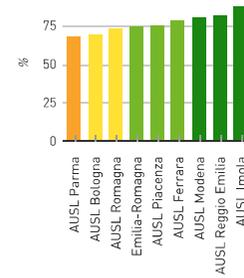
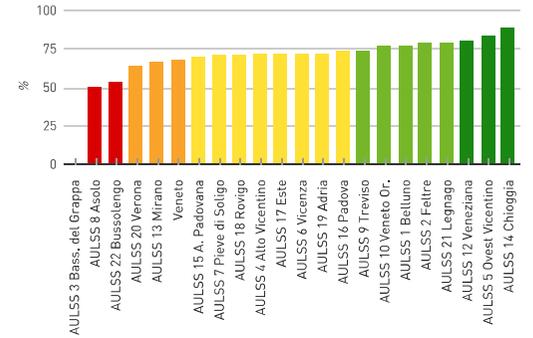
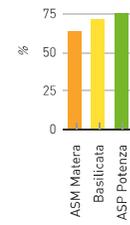
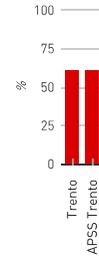
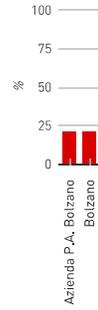
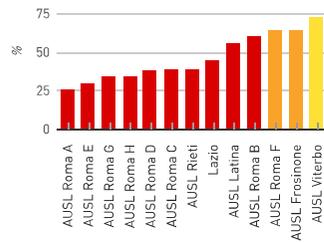
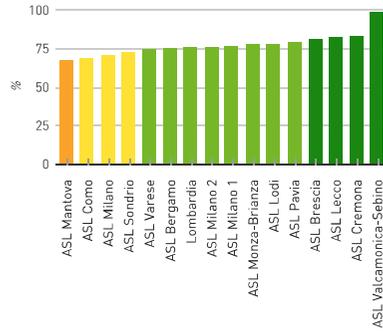
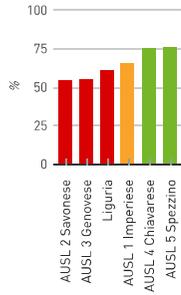
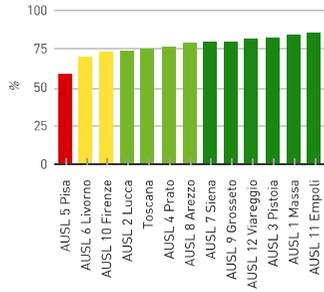
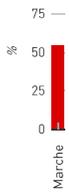


### B7.3 Papillomavirus (HPV) vaccine coverage

Human papillomavirus (HPV) is responsible for female genital infections and in the long run, even for the onset of cervical cancer. The vaccination is administered by all Local Health Authority vaccine centres. It consists of three intramuscular injections administered at 6-month intervals. The immunization campaign runs together with, but does not replace, the Pap test screening programme, which remains the fundamental tool for the prevention of cervical cancer. The indicator of papillomavirus vaccine coverage is the ratio between the percentage of vaccination cycles completed by 31st December and the number of girls in their 12th year of life. This age group preceding initiation of sexual activity is the most suitable for universal vaccination to attain the best immune response.



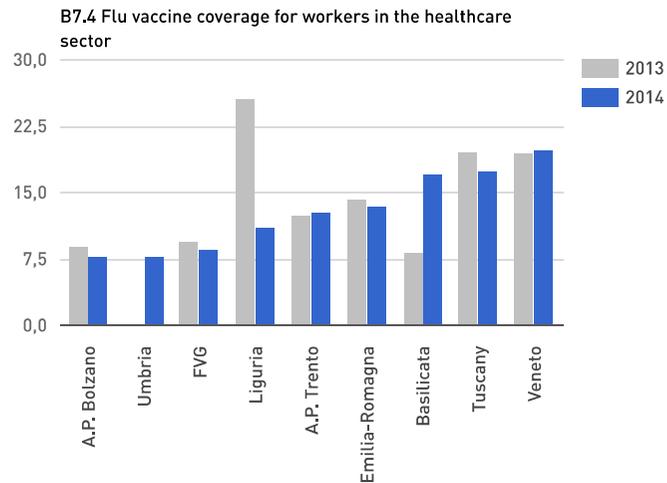
<b>Definition</b>	HPV vaccine coverage in the target population
<b>Numerator</b>	HPV vaccine cycles completed in the reference cohort (*) (3rd dose recorded by December 31st)
<b>Denominator</b>	Number of locally resident girls who have turned 12 (born in (*))
<b>Notes</b>	(*) The cohort of children born in 2012 was used for 2014
<b>Source</b>	Source varies across Regions



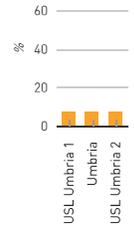
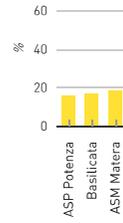
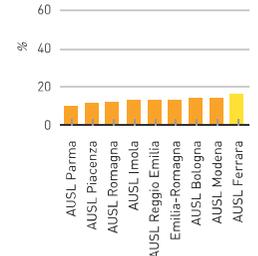
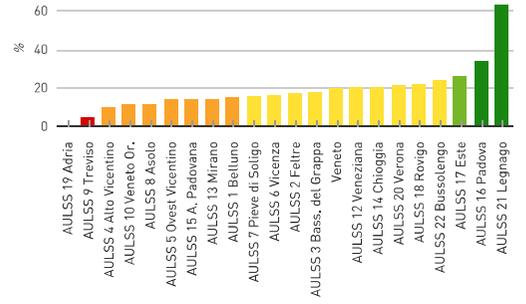
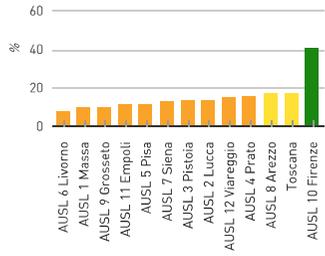
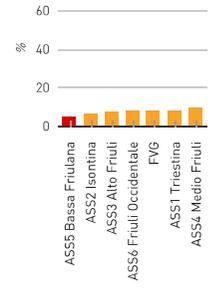
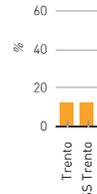
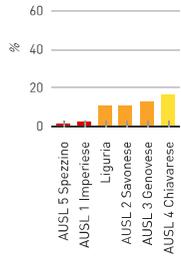


### B7.4 Flu vaccine coverage for workers in the healthcare sector

Healthcare personnel are a strategic target for the flu vaccination campaign. Non-vaccinated healthcare professionals run the risk of transmitting the flu virus to patients. In addition, employee absences on account of flu infection have serious repercussions on routine Local Health Authorities activities. However, as shown by the data, despite prevention campaigns promoted in all Local Health Authorities, the proportion of vaccinated healthcare professionals is still rather low.



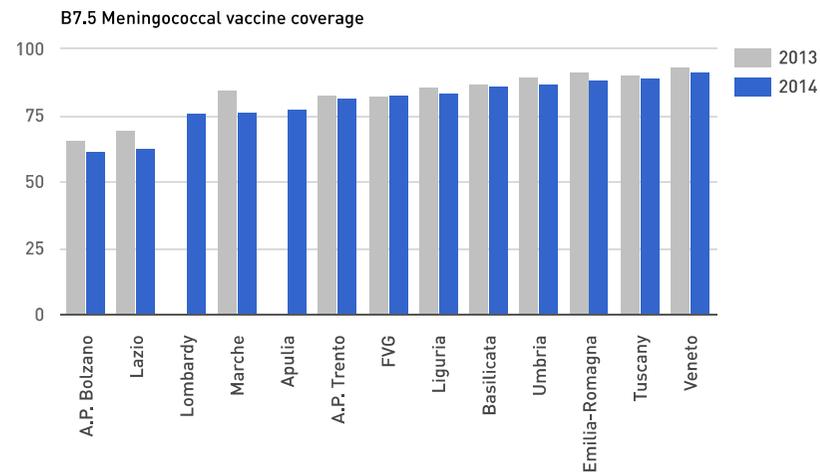
<b>Definition</b>	Flu vaccine coverage in the target population
<b>Numerator</b>	Number of vaccinated healthcare professionals
<b>Denominator</b>	Total number of professionals with healthcare and technical role
<b>Notes</b>	Vaccinated healthcare professionals means all the vaccinated healthcare personnel registered in the end of season Report sent to the Ministry
<b>Source</b>	End of season Ministerial Flow. Annual Report on full and part time public employees



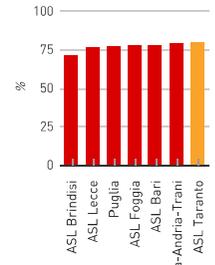
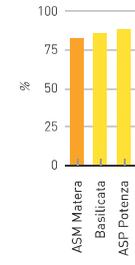
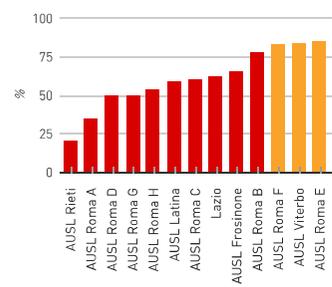
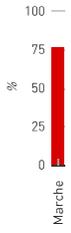
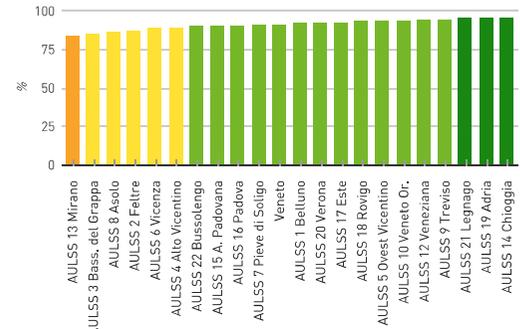
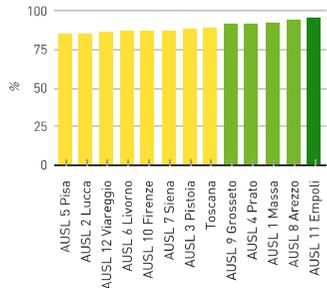
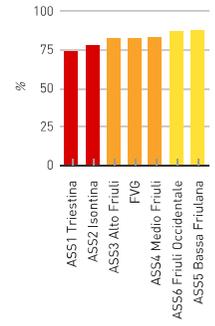
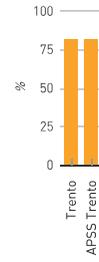
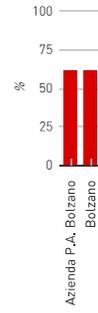
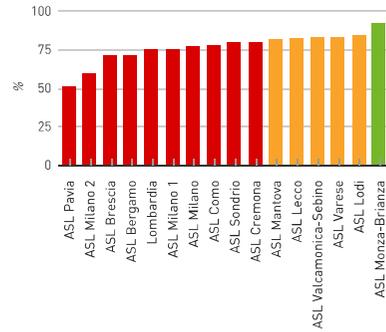
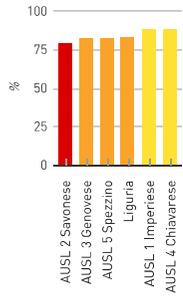


## B7.5 Meningococcal vaccine coverage

Meningococcus (*Neisseria Menigitidis*) is a bacterium transmitted from person to person through saliva droplets produced by breathing, sneezing and coughing. While frequently observed in the throat, where it does not trigger disease, if it enters the bloodstream it may cause serious illness like “invasive meningococcal” disease. This can lead to septicaemia (an infection of the blood) and meningitis (inflammation of the membranes surrounding the brain). Children under 4 and adolescents are more frequently affected by these serious infections. Prevention is the most effective weapon against meningococcal infections. Since 2002, the Meningococcal C vaccination has also been made available to children under two. Following approval of the 2012-2014 National Immunization Programme, the vaccine, previously available in many, but not all Regions, is now on the national immunization calendar.



<b>Definition</b>	Meningococcal vaccine coverage at 24 months of age
<b>Numerator</b>	Meningococcal vaccine cycles completed (one dose) registered by December 31st
<b>Denominator</b>	Number of locally resident children under 24 months by December 31st
<b>Notes</b>	(*) The cohort of children born in year 2012 was used for year 2014. The vaccine cycles of this cohort completed in the year were added to the numerator
<b>Source</b>	Source varies across Regions

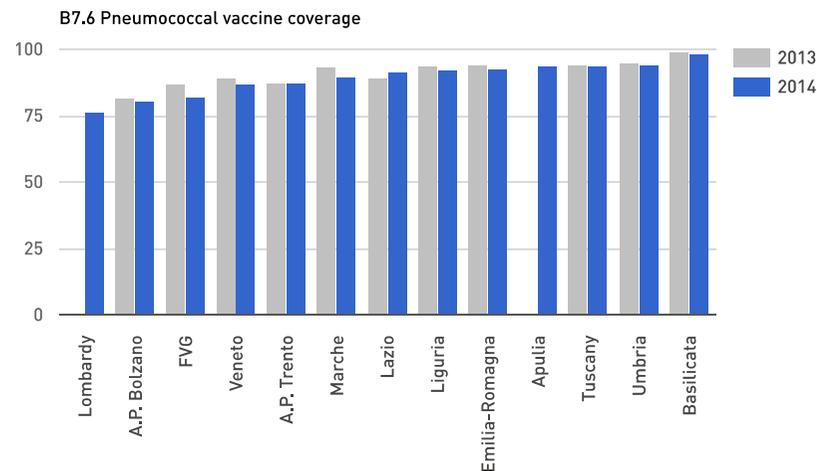




## B7.6 Pneumococcal vaccine coverage

Pneumococcus (*Streptococcus pneumoniae*) belongs to a family of bacteria with approximately 80 subtypes, some of which are responsible for infections in childhood. Transmitted from person to person through saliva droplets, the bacterium is often found in the throat and nose of many healthy individuals, without producing symptoms. If, however, it gets into the bloodstream, it can cause so-called “invasive pneumococcal disease”. Although this serious infection can affect people of all ages, the under-twos and especially chronic disease sufferers are most at risk.

The availability of a safe, effective vaccine is the most important prevention tool against the most serious pneumococcal diseases in children. Following approval of the 2012-2014 National Immunization Programme, the vaccine, previously available in many, but not all Regions, is now on the national immunization calendar.



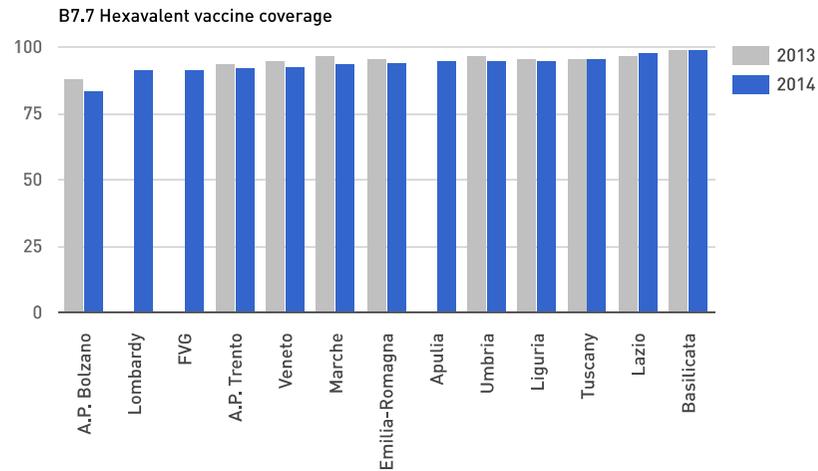
<b>Definition</b>	Pneumococcal coverage at 24 months of age
<b>Numerator</b>	Pneumococcal vaccine cycles (3rd dose) completed by December 31st (*)
<b>Denominator</b>	Number of locally resident children under 24 months by December 31st
<b>Notes</b>	(*) We refer to pneumococcal 13-valent vaccine. The cohort of children born in 2012 was used for 2014. The vaccine cycles completed by this cohort in the year were added to the numerator
<b>Source</b>	Source varies across Regions



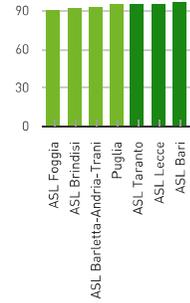
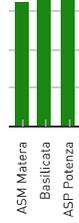
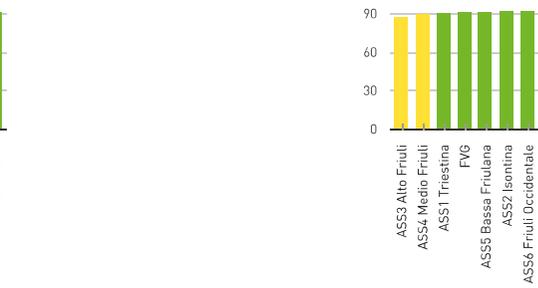
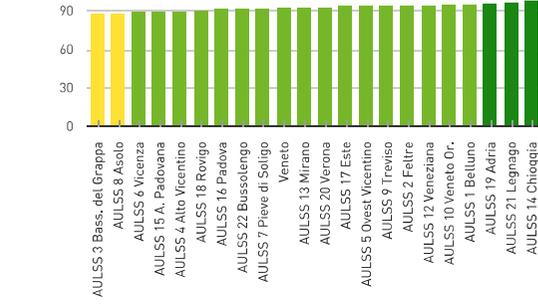
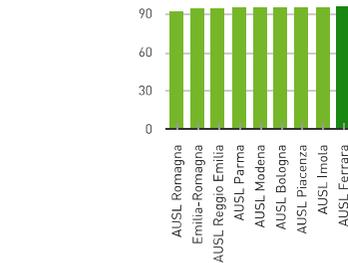
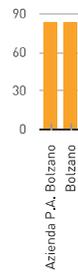
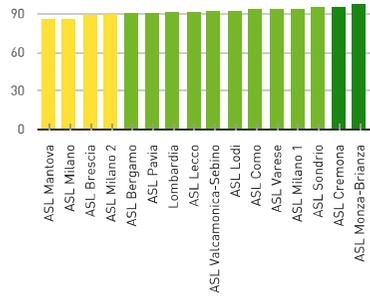
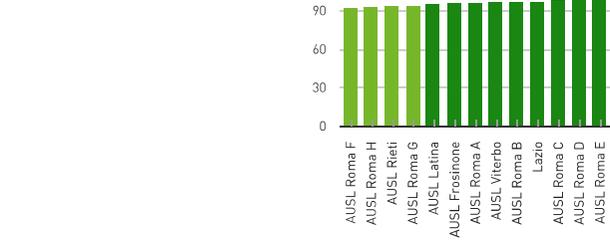
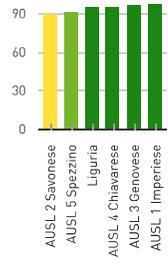
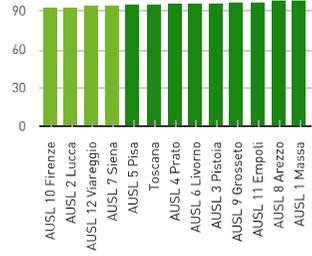


### B7.7 Hexavalent vaccine coverage

Hexavalent vaccine contains 6 antigens designed to protect against pertussis, tetanus, diphtheria, polio, viral hepatitis B and Haemophilus influenzae type B. The coverage goal is 95% of the target population.



<b>Definition</b>	Hexavalent vaccine coverage at 24 months of age
<b>Numerator</b>	Hexavalent vaccine cycles (3rd dose) completed by December 31st
<b>Denominator</b>	Number of locally resident children under 24 months
<b>Notes</b>	The cohort of children born in year 2012 was used for year 2014. The vaccine cycles completed by this cohort in the year were added to the numerator
<b>Source</b>	Source varies across Regions





## B28 Homecare

Homecare is the provision of healthcare and social-health activities at patients' homes and comprises medical treatment, nursing and rehabilitation services aimed at taking care of non self-sufficient and vulnerable people.

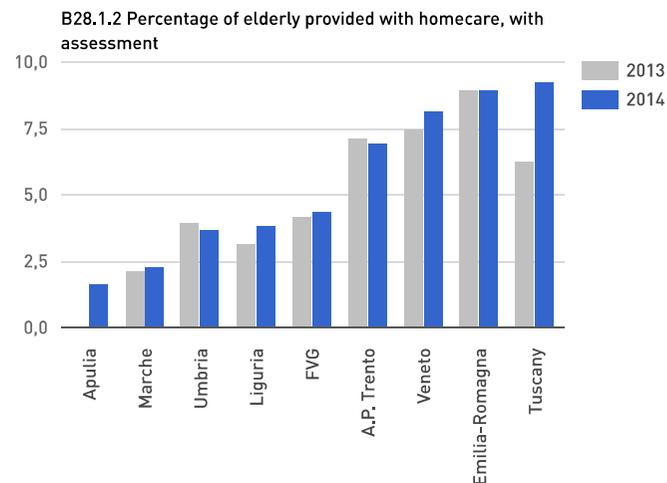
The score attributed to the composite indicator is that of indicator B28.1.2.

### B28 Homecare [evaluated]

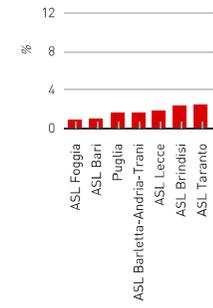
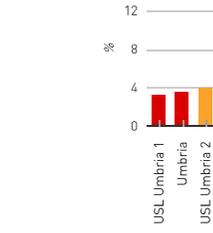
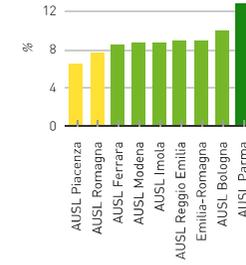
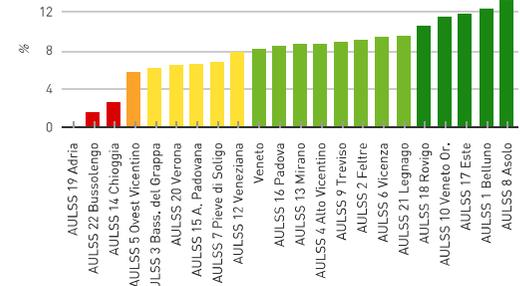
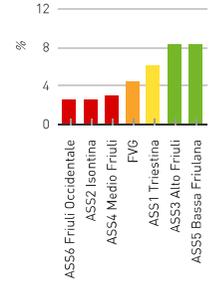
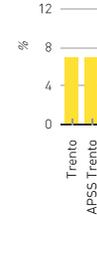
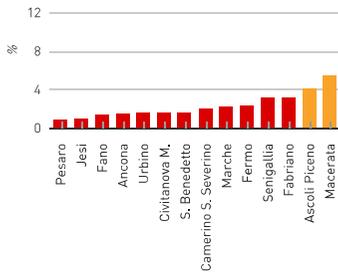
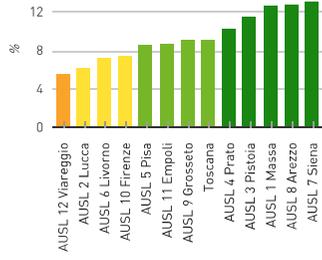
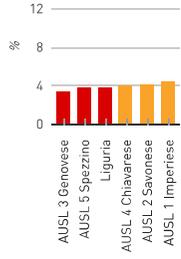
- *B28.1.1 Percentage of elderly provided with homecare* [observational]
- B28.1.2 Percentage of elderly provided with homecare, with assessment [evaluated]
- *B28.2.5 Percentage of residents over-75 discharged from hospital, receiving at least one home visit within 2 days* [observational]
- *B28.2.9* [observational]

### B28.1.2 Percentage of elderly provided with homecare, with assessment

The indicator monitors the percentage of elderly who have received homecare at least once. Only cases assessed either for a social-health or healthcare pathway were considered. Occasional services provided that did not require assessment were excluded.



<b>Definition</b>	Percentage of elderly provided with homecare and for whom an assessment was performed out of the total elderly population (65 years and over)
<b>Numerator</b>	People aged 65 years and over receiving at least one home visit, with assessment, x 100
<b>Denominator</b>	Locally resident population aged 65 years and over
<b>Notes</b>	This indicator monitors the percentage of elderly people receiving at least one home visit. Only those cases where an assessment was made for a socio-medical pathway or healthcare pathway were considered. Occasional homecare visits not requiring assessment were excluded
<b>Source</b>	Homecare - Residential care Flow





C

QUALITY, APPROPRIATENESS,  
CONTINUITY OF CARE,  
PATIENT SAFETY



## C1 Healthcare demand management capability

The healthcare demands of citizens on the National Health System should be carefully governed by healthcare professionals. Hospital admissions and hospitalization rates should be especially well managed to ensure that the healthcare delivered meets the patients' needs in the most appropriate way. Since 2013, the 2011 resident Italian population (source: ISTAT) has been used to calculate standardized hospitalization rates. The indicator score is the average of sub-indicators C1.1.1 and C.1.1.2.1.

### C1 Healthcare demand management capability [evaluated]

- C1.1 Standardized hospitalization rate [evaluated]
- C1.1.1 Standardized hospitalization rate of acute inpatients [evaluated]
- C1.1.1.1 Standardized hospitalization rate of acute medical DRGs [0-64 years] [observational]
- C1.1.2 Standardized hospitalization rate of acute outpatients [observational]
- C1.1.2.1 Standardized hospitalization rate of acute medical outpatients [evaluated]
- C1.1.2.2 Standardized hospitalization rate of acute surgical outpatients [observational]
- C1.1.2.2.1 Standardized hospitalization rate of surgical outpatients [observational]
- C1.1.3 Standardized hospitalization rate for post-acute care [observational]
- C1.3 Per capita hospital beds [observational]
- C1.5 Case-mix index (teaching hospitals) [observational]
- C1.6 Percentage of surgical inpatient admissions [observational]

**Lombardia**  
 ASL Bergamo ●  
 ASL Brescia ●  
 ASL Como ●  
 ASL Cremona ●  
 ASL Lecco ●  
 ASL Lodi ●  
 ASL Mantova ●  
 ASL Milano ●  
 ASL Milano 1 ●  
 ASL Milano 2 ●  
 ASL Monza-Brianza ●  
 ASL Pavia ●  
 ASL Sondrio ●  
 ASL Varese ●  
 ASL Valcamonica-Sebino ●

**Liguria**  
 AUSL 1 Imperiese ●  
 AUSL 2 Savonese ●  
 AUSL 3 Genovese ●  
 AUSL 4 Chiavarese ●  
 AUSL 5 Spezzino ●

**Bolzano**  
 Azienda P.A. Bolzano ●

**Trento**  
 APSS Trento ●

**Friuli Venezia Giulia**  
 ASS1 Triestina ●  
 ASS2 Isoncina ●  
 ASS3 Alto Friuli ●  
 ASS4 Medio Friuli ●  
 ASS5 Bassa Friulana ●  
 ASS6 Friuli Occidentale ●

**Veneto**  
 AULSS 1 Belluno ●  
 AULSS 2 Feltre ●  
 AULSS 3 Bass. del Grappa ●  
 AULSS 4 Alto Vicentino ●  
 AULSS 5 Ovest Vicentino ●  
 AULSS 6 Vicenza ●  
 AULSS 7 Pieve di Soligo ●  
 AULSS 8 Asolo ●  
 AULSS 9 Treviso ●  
 AULSS 10 Veneto Or. ●  
 AULSS 12 Veneziana ●  
 AULSS 13 Mirano ●  
 AULSS 14 Chioggia ●  
 AULSS 15 A. Padovana ●  
 AULSS 16 Padova ●  
 AULSS 17 Este ●  
 AULSS 18 Rovigo ●  
 AULSS 19 Adria ●  
 AULSS 20 Verona ●  
 AULSS 21 Legnago ●  
 AULSS 22 Bussolengo ●

**Marche**  
 Pesaro ●  
 Urbino ●  
 Fano ●  
 Senigallia ●  
 Jesi ●  
 Fabriano ●  
 Ancona ●  
 Civitanova M. ●  
 Macerata ●  
 Camerino S. Severino ●  
 Fermo ●  
 S. Benedetto ●  
 Ascoli Piceno ●

**Emilia-Romagna**  
 AUSL Piacenza ●  
 AUSL Parma ●  
 AUSL Reggio Emilia ●  
 AUSL Modena ●  
 AUSL Bologna ●  
 AUSL Imola ●  
 AUSL Ferrara ●  
 AUSL Romagna ●

**Sardegna**  
 ASL 1 Sassari ●  
 ASL 2 Olbia-Tempio ●  
 ASL 3 Nuoro ●  
 ASL 4 Ogliastra ●  
 ASL 5 Oristano ●  
 ASL 6 Medio Campidano ●  
 ASL 7 Carbonia-Iglesias ●  
 ASL 8 Cagliari ●

**Toscana**  
 AUSL 1 Massa ●  
 AUSL 2 Lucca ●  
 AUSL 3 Pistoia ●  
 AUSL 4 Prato ●  
 AUSL 5 Pisa ●  
 AUSL 6 Livorno ●  
 AUSL 7 Siena ●  
 AUSL 8 Arezzo ●  
 AUSL 9 Grosseto ●  
 AUSL 10 Firenze ●  
 AUSL 11 Empoli ●  
 AUSL 12 Viareggio ●

**Lazio**  
 Comune di Roma ●  
 AUSL Roma F ●  
 AUSL Roma G ●  
 AUSL Roma H ●  
 AUSL Viterbo ●  
 AUSL Rieti ●  
 AUSL Latina ●  
 AUSL Frosinone ●

**Calabria**  
 ASP Cosenza ●  
 ASP Crotona ●  
 ASP Catanzaro ●  
 ASP Vibo Val. ●  
 ASP Reggio Calabria ●

**Basilicata**  
 ASP Potenza ●  
 ASM Matera ●

**Umbria**  
 USL Umbria 1 ●  
 USL Umbria 2 ●

**Puglia**  
 ASL Brindisi ●  
 ASL Taranto ●  
 ASL Barletta-Andria-Trani ●  
 ASL Bari ●  
 ASL Foggia ●  
 ASL Lecce ●

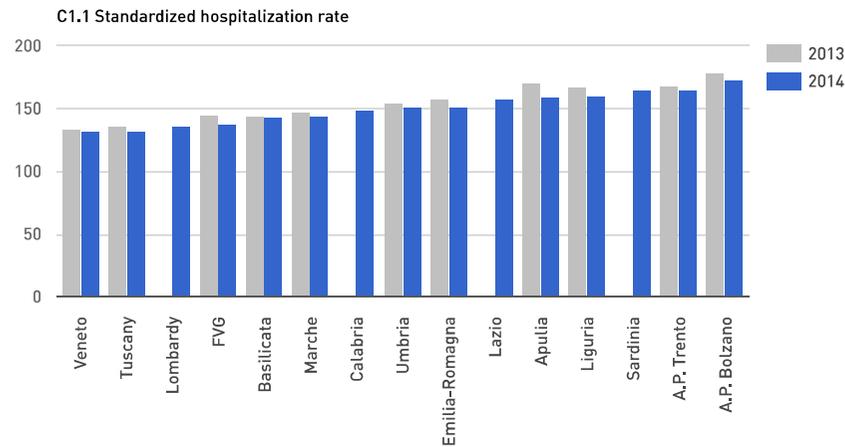




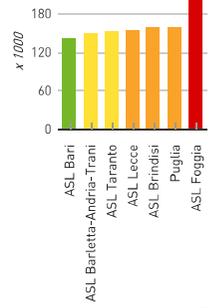
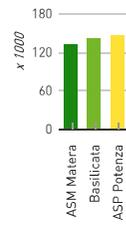
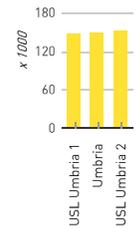
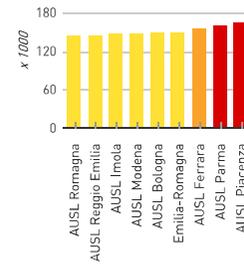
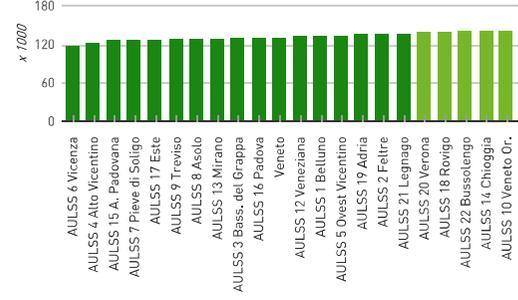
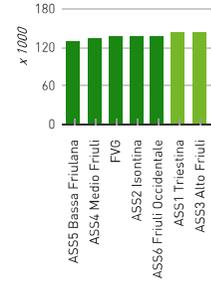
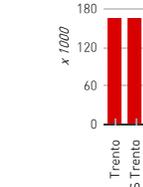
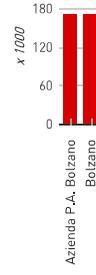
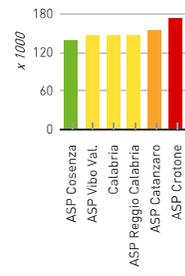
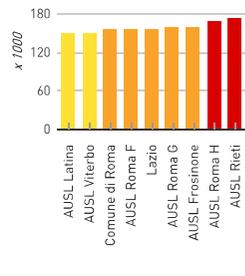
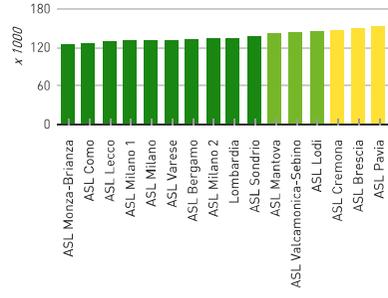
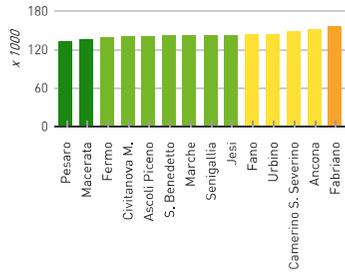
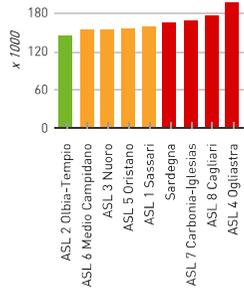
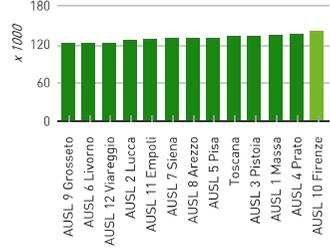
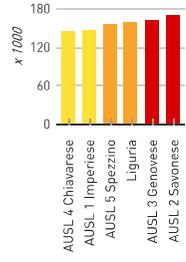
### C1.1 Standardized hospitalization rate

The role of hospitals has progressively changed from being the place of reference for any kind of health problems to high-tech organizations able to provide care in response to acute and complex problems. Excessive recourse to hospitals implies an inappropriate use of resources.

Bolzano residents admitted to Austrian hospitals were included in the calculation of the indicator for the A.P. of Bolzano.



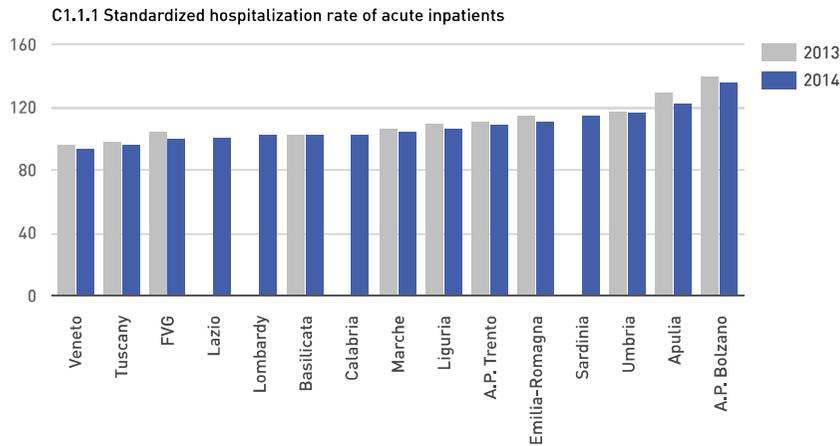
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<b>Numerator</b>	Number of hospital admissions of residents
<b>Denominator</b>	Number of residents
<b>Notes</b>	<p>Inpatient admissions of residents, either to a hospital in the Region of the patients residence or to a facility in another Region, were considered. Where no passive mobility data were available, an estimate based on the previous year was used. Excluded:</p> <ul style="list-style-type: none"> <li>- Admissions to unaccredited private hospitals</li> <li>- Normal newborns (DRG 391)</li> </ul> <p>Standardization based on age and sex. Standard population means the resident Italian population in 2011 last Census. Source: ISTAT. Age classes: 0-4, 5-9, 10-14, ..., 80-84, 85+</p>
<b>Source</b>	Regional Information System - Hospital discharge records



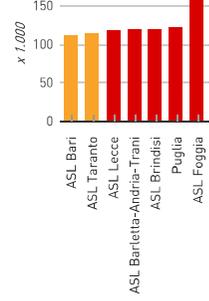
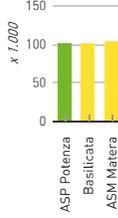
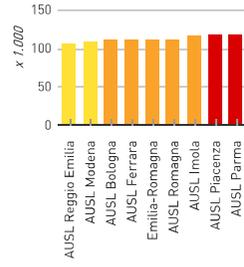
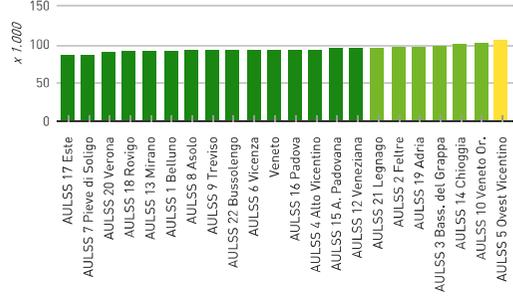
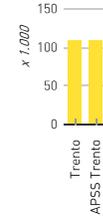
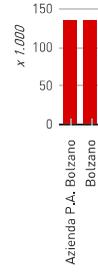
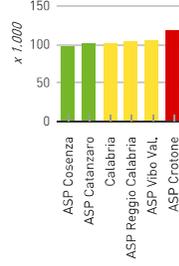
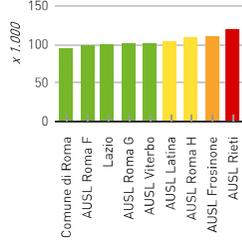
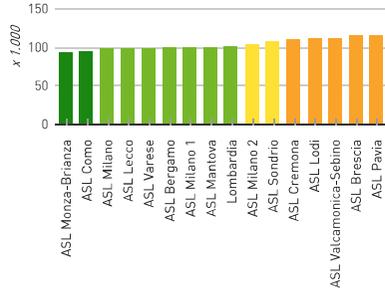
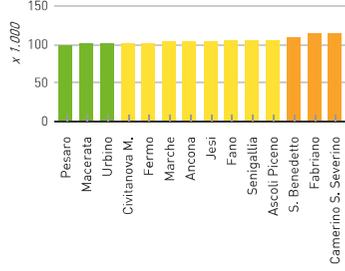
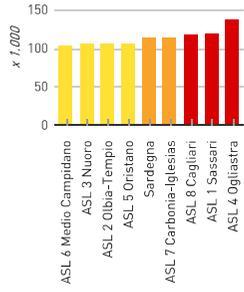
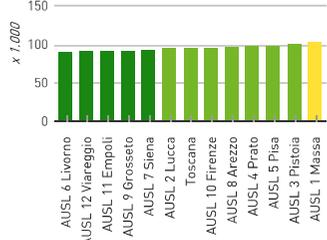
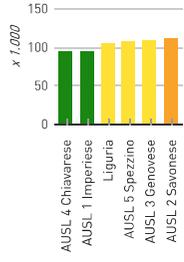


### C1.1.1 Standardized hospitalization rate of acute inpatients

Hospitals are the appropriate response to medium-high complexity health needs, where timely response and the availability of adequate equipment are fundamental. An excessively high per capita admission rate is indicative of problems both in the area of directing demand and in resource reallocating for adequate primary care. Bolzano residents admitted to Austrian hospitals were included in the calculation of the indicator for the A.P. of Bolzano.



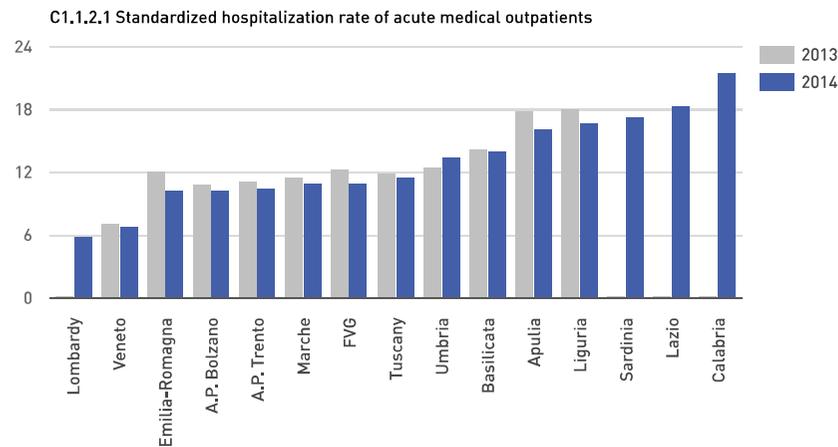
<b>Definition</b>	Age and sex-standardized hospitalization rate for acute inpatient admissions
<b>Numerator</b>	Number of acute inpatient admissions of residents
<b>Denominator</b>	Number of residents
<b>Notes</b>	<p>Overall admissions of residents, either to a hospital in the Region of the patients residence or to a facility in another Region, were considered. Where no passive mobility data were available, an estimate based on the previous year was used. Day-Surgery was included.</p> <p>Excluded:</p> <ul style="list-style-type: none"> <li>- Admissions to unaccredited private hospitals</li> <li>- Normal newborns (DRG 391)</li> <li>- Discharges from spinal division, rehabilitation, long-term care, neuro-rehabilitation and palliative care (codes 28, 56, 60, 75, 99)</li> </ul> <p>Standardization based on age and sex. Standard population means the resident Italian population in 2011, last Census. Source: ISTAT. Age classes: 0-4, 5-9, 10-14, ..., 80-84, 85+</p>



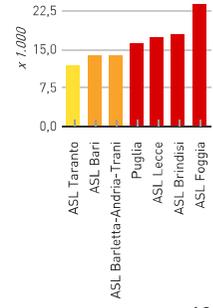
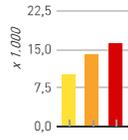
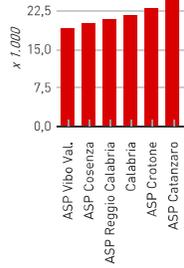
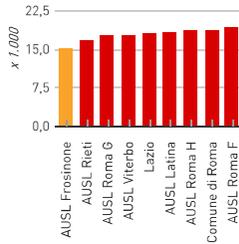
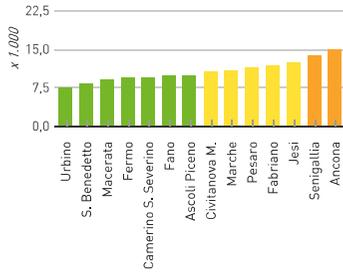
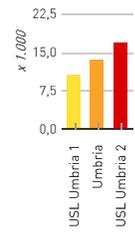
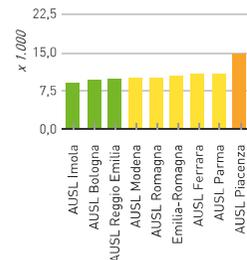
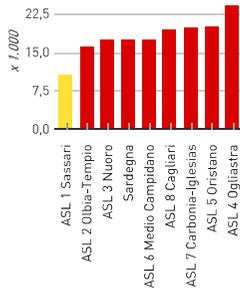
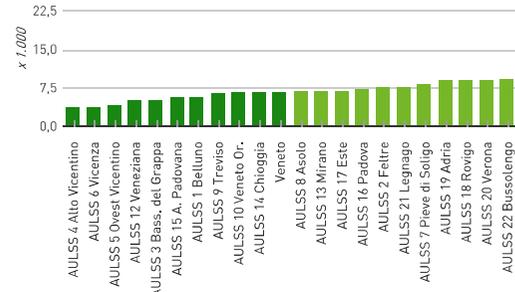
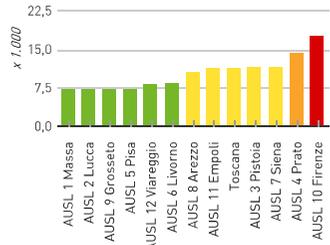
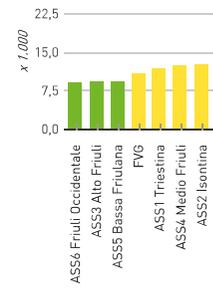
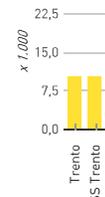
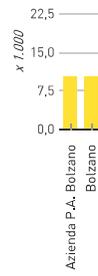
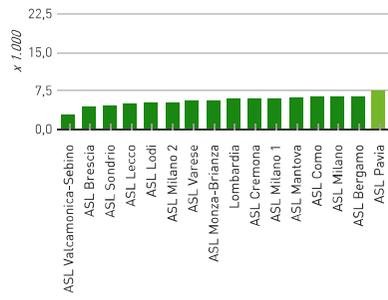
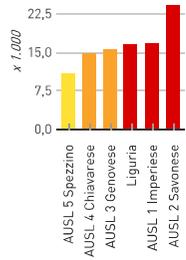


### C1.1.2.1 Standardized hospitalization rate of acute medical outpatients

Day Hospital admissions were calculated considering only acute medical admissions. This evidences the changes in admissions in this setting.



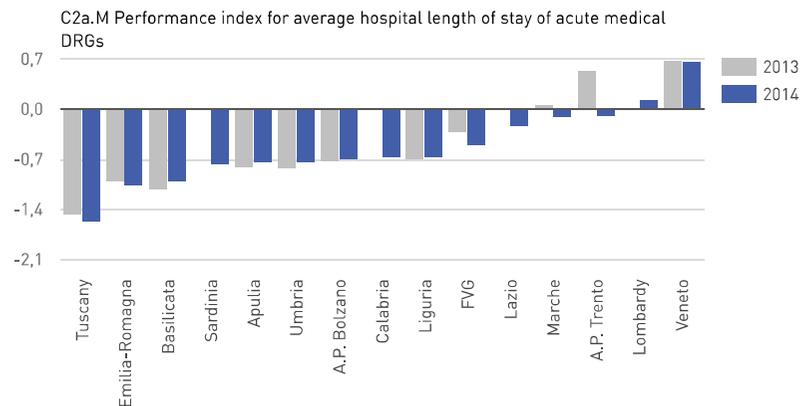
<b>Definition</b>	Age and sex-standardized DH hospitalization rate of acute medical outpatients
<b>Numerator</b>	Number of DH medical outpatient admissions of residents (per 1,000 residents)
<b>Denominator</b>	Number of residents
<b>Notes</b>	<p>DH admissions of residents, either to a hospital in the Region of the patients residence or to a facility in another Region, were considered. Where no passive mobility data were available, an estimate based on the previous year was used. Day-Surgery was included.</p> <p>Excluded:</p> <ul style="list-style-type: none"> <li>- Admissions to unaccredited private hospitals</li> <li>- Normal newborns (DRG 391)</li> <li>- Discharges from spinal division, rehabilitation, long-term care, neuro-rehabilitation and palliative care (codes 28, 56, 60, 75, 99)</li> <li>- Discharges from radiotherapy and chemotherapy (DRG 409, 410, 492)</li> </ul> <p>Standardization was based on age and sex. Standard population means the resident Italian population in 2011, last Census. Source: ISTAT. Age classes: 0-4, 5-9, 10-14, ..., 80-84, 85+</p>



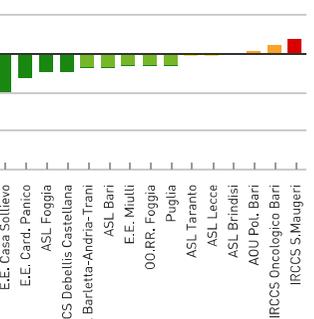
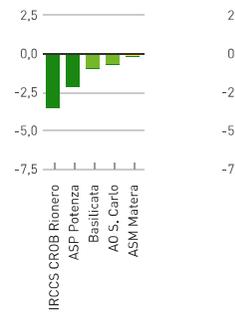
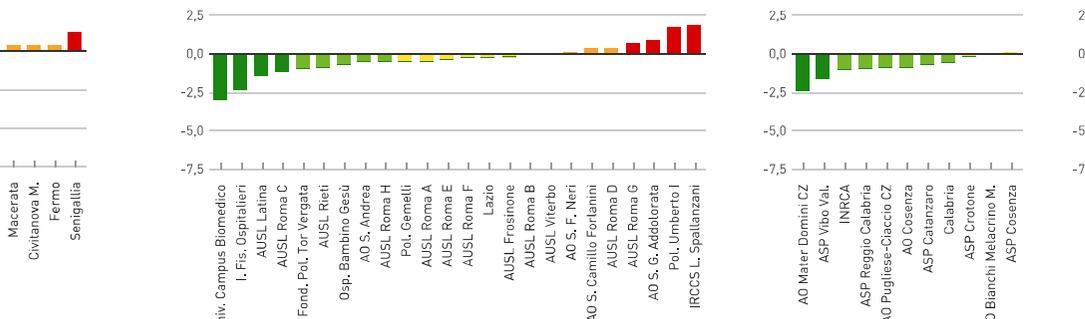
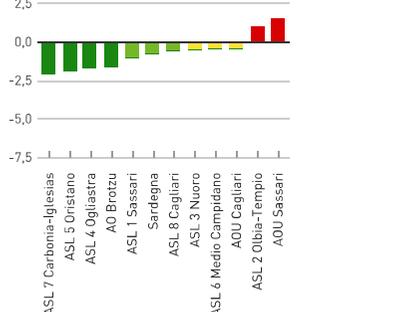
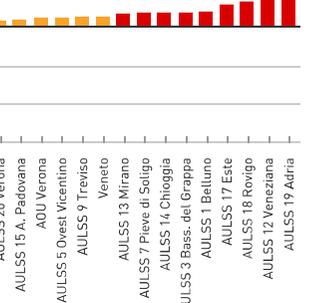
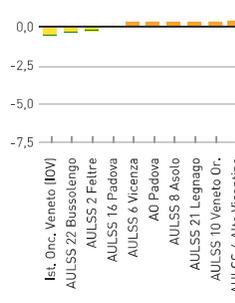
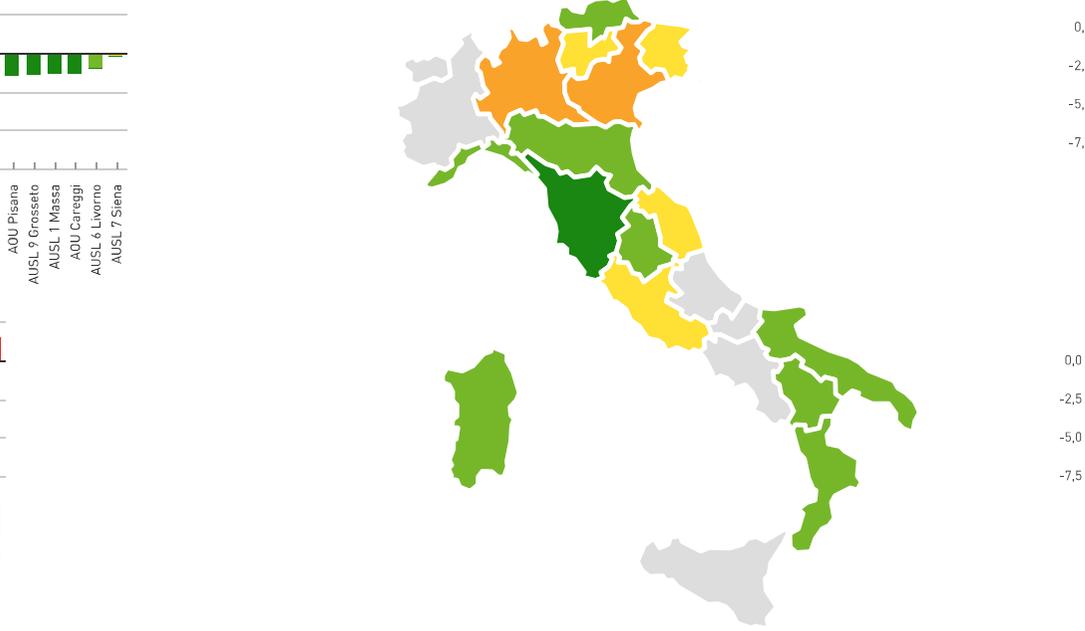
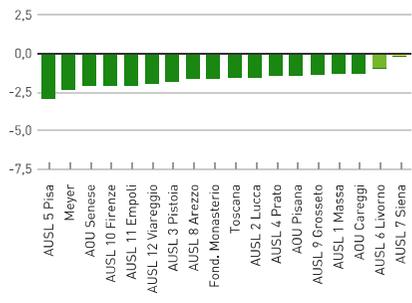
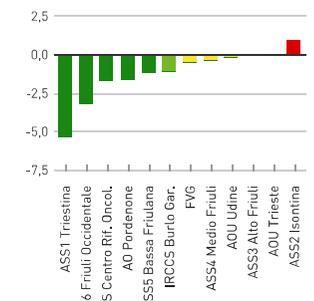
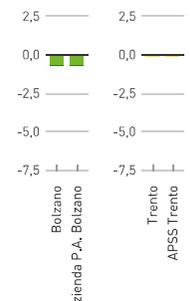
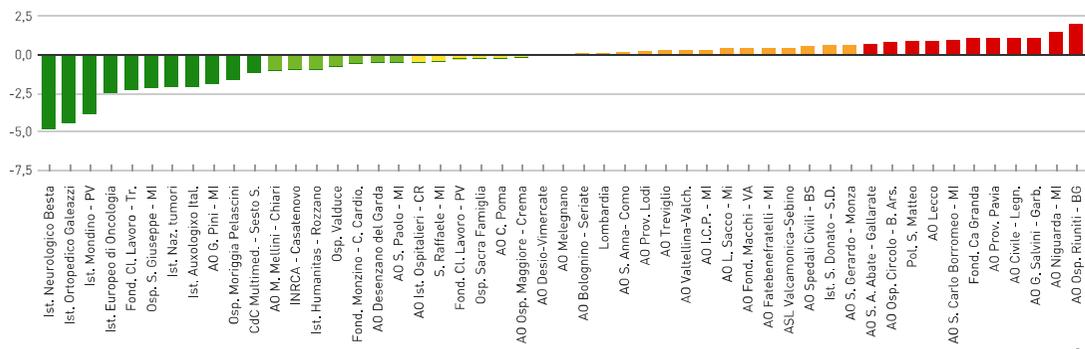
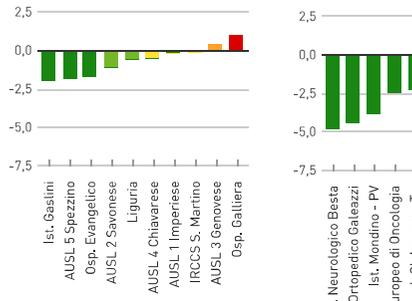


## C2a.M Performance index for average hospital length of stay of acute medical DRGs

The average hospitalization performance index (AHPI) compares the length of stay of each admission to the average length of stay recorded in 2013 for the same type of admission in the Regions of the network. The AHPI evidences the degree of efficiency of the services provided by each hospital: a low value (shorter lengths of stay) is associated with good case management, both in terms of clinical conditions and resource use. The AHPI allows consistent comparison of the different facilities, as hospitals are evaluated taking into account the case-mix and, therefore, the type of patients they treat. Data refer to medical admissions.



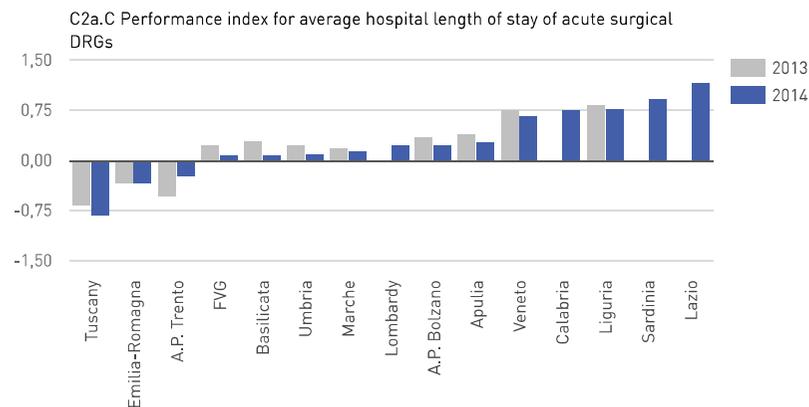
<b>Definition</b>	Performance index for average length of stay of acute medical DRGs
<b>Numerator</b>	$\sum (\text{days of actual stay} - \text{expected days of stay})$
<b>Denominator</b>	Number of discharges
<b>Notes</b>	Only inpatient admissions lasting more than 1 day were considered. Patients discharged from spinal division, rehabilitation, long-term care, neuro-rehabilitation and palliative care (codes 28, 56, 60, 75, 99), normal newborns (DRG 391), admissions that last 365 days or more, and patients who died were excluded. DRG Grouper XXIV has been used. Days of actual stay are those spent in the hospital by all patients discharged from the healthcare facility. Expected days of stay are calculated by multiplying the reference length of stay of each DRG by the number of discharges in the same DRG. The reference for expected days of stay is the average stay for 2013 in the Network of Regions
<b>Source</b>	Regional Information System - Hospital discharge records



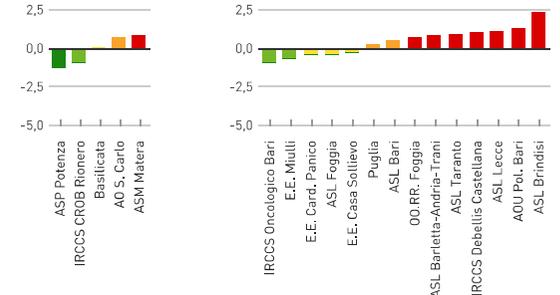
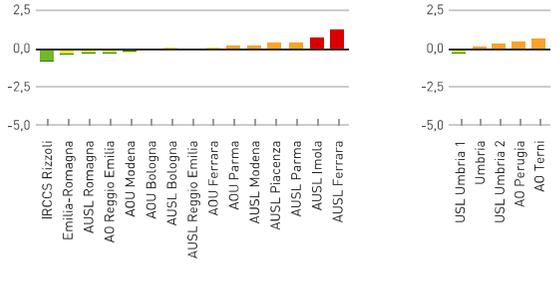
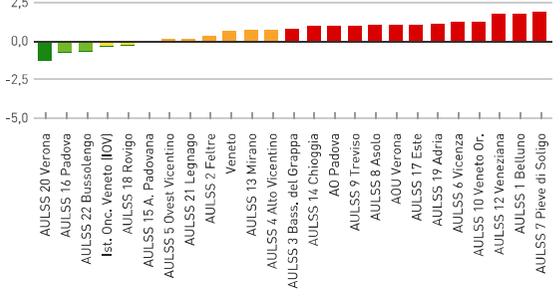
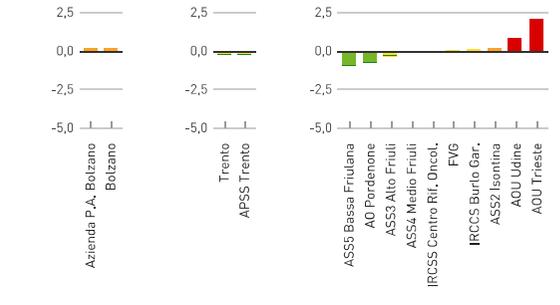
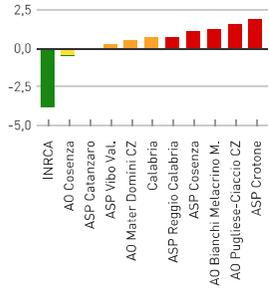
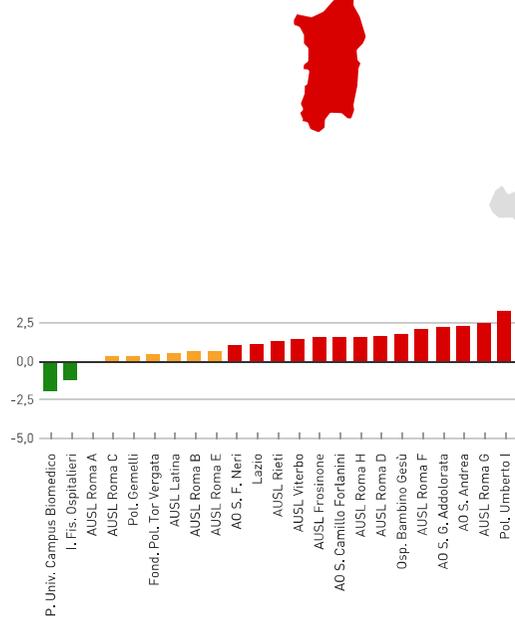
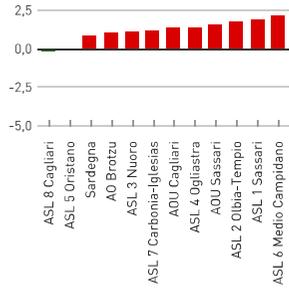
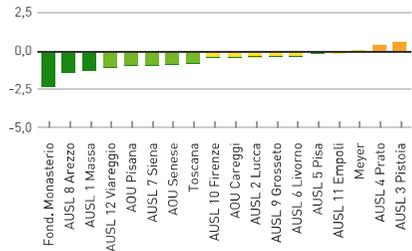
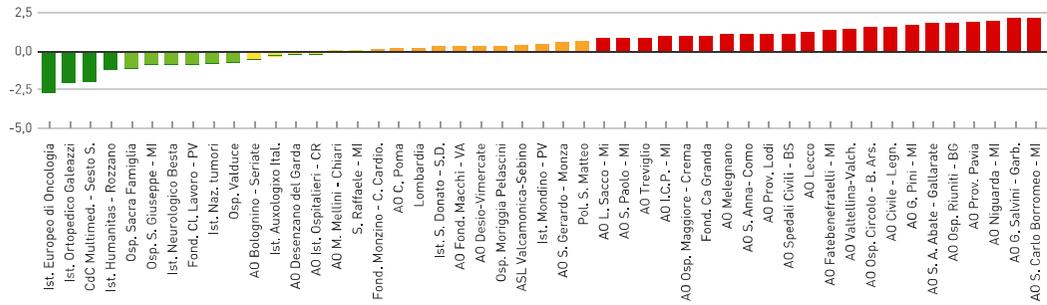
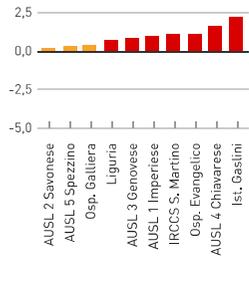


## C2a.C Performance index for average hospital length of stay of acute surgical DRGs

The average hospitalization performance index (AHPI) compares the length of stay of each admission to the average length of stay recorded in 2013 for the same type of admission in the Regions of the network. The AHPI evidences the degree of efficiency of the services provided by each hospital: a low value (shorter lengths of stay) is associated with good case management, both in terms of clinical conditions and resource use. The AHPI allows consistent comparison of the different facilities, as hospitals are evaluated taking into account the case-mix and, therefore, the type of patients they treat. Data refer to surgery admissions.



<b>Definition</b>	Performance index for average length of stay - hospitalization for acute surgical DRGs
<b>Numerator</b>	$\sum$ (days of actual stay - expected days of stay)
<b>Denominator</b>	Number of discharges
<b>Notes</b>	Only inpatient admissions lasting more than 1 day were considered. Patients discharged from spinal division, rehabilitation, long-term care, neuro-rehabilitation and palliative care spinal (codes 28, 56, 60, 75, 99). Normal newborns (DRG 391), admissions that last 365 days or more, and patients who died were excluded. DRG Grouper XXIV has been used. Days of actual stay are those spent in the hospital by all patients discharged from the providing facility. Expected days of stay are calculated by multiplying the reference length of stay of each DRG by the number of discharges in the same DRG. The reference for expected days of stay is the average stay for 2013 in the Network of Regions
<b>Source</b>	Regional Information System - Hospital discharge records





### C3b Preoperative average length of stay for elective surgery

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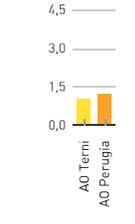
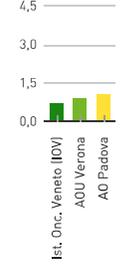
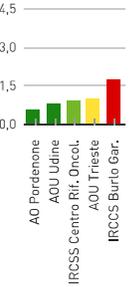
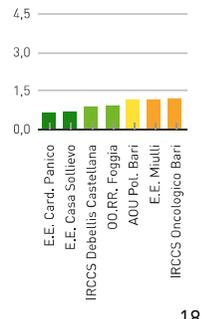
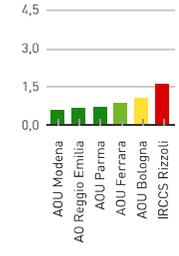
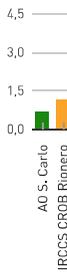
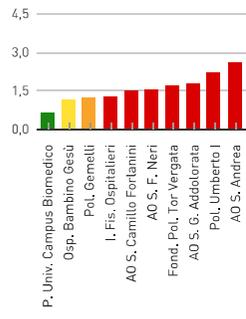
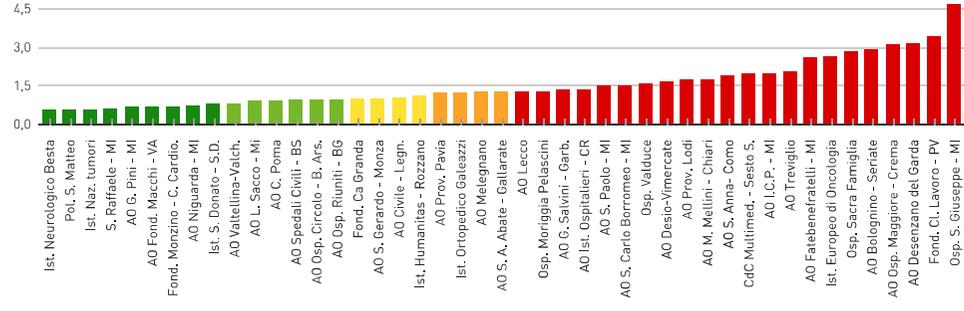
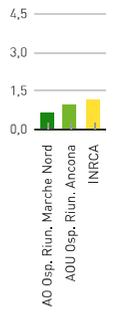
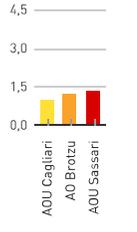
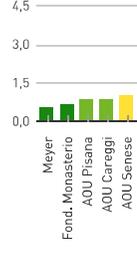
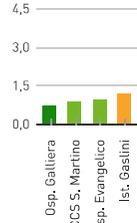
#### C3b Preoperative average length of stay for elective surgery [evaluated]

- C3.4 Preoperative average hospital length of stay for elective surgery of more than 1 day (teaching/research/autonomous general hospitals) [evaluated]
- C3.5 Preoperative average length of hospital stay for elective surgery of more than 1 day (Local Health Authorities)[observational]

### C3.4 Preoperative average hospital length of stay for elective surgery of more than 1 day (teaching/research/autonomous general hospitals)

This indicator is widely used internationally to assess operational efficiency in the management of elective surgery as it measures the average length of stay in hospital before surgery. A patient due for elective surgery should not be admitted before the day before the surgery. The medical tests required for the operation should be performed in an outpatient setting prior to admission. It follows therefore, that a high indicator score is indicative of inefficiency. From a methodological point of view, the analysis was limited only to surgery wards and excluded patients admitted to medical wards for surgical procedures related to the treatment or diagnosis of their condition, since surgery was not the main reason for hospitalization and therefore may have been carried out in the days following admission.

<b>Definition</b>	Preoperative average length of hospital stay for elective surgery of more than 1 day (teaching/research/autonomous general hospitals)
<b>Numerator</b>	Number of hospitalisation days prior to surgery
<b>Denominator</b>	Number of patients discharged following surgical procedure
<b>Notes</b>	<p>The analysis was limited to non-emergency elective inpatient admissions, and planned admissions with pre-surgery hospitalization of more than 1 day. In the numerator, the first operation in chronological order was considered. For the Meyer Teaching Hospital and for the G. Monasterio Foundation (paediatric wards) only admissions of residents in their reference area were considered. Codes ICD-9 CM: Codes for surgical procedures: from 00 to 86 and 87.53, 88.52, 88.53, 88.54, 88.55, 88.56, 88.57, 92.27, 92.30, 92.31, 92.32, 92.33, 92.39, 96.70, 96.71, 96.72, 98.51.</p> <p>Admission ward: Surgical (06 paediatric cardiac surgery, 07 cardiac surgery, 09 general surgery, 10 maxillofacial surgery, 11 paediatric surgery, 12 plastic surgery, 13 thoracic surgery, 14 vascular surgery, 30 neurosurgery, 34 ophthalmology, 35 dentistry and stomatology, 36 orthopaedics and traumatology, 38 otolaryngology, 43 urology, 76 paediatric neurosurgery, 78 paediatric urology)</p> <p>Paediatrics, obstetrics and gynaecology: selecting only those discharged with surgical DRG</p> <p>Excluded: - Transplants (DRG 103, 302, 480, 481, 495, 512, 513. Pancreas: main intervention 528*) - Discharged with a compilation error in the date field of the operation - Patients with more than 7 days of pre-surgery hospital days - Discharges with the date of surgery prior to the date of admission</p>
<b>Source</b>	Regional Information System - Hospital discharge records



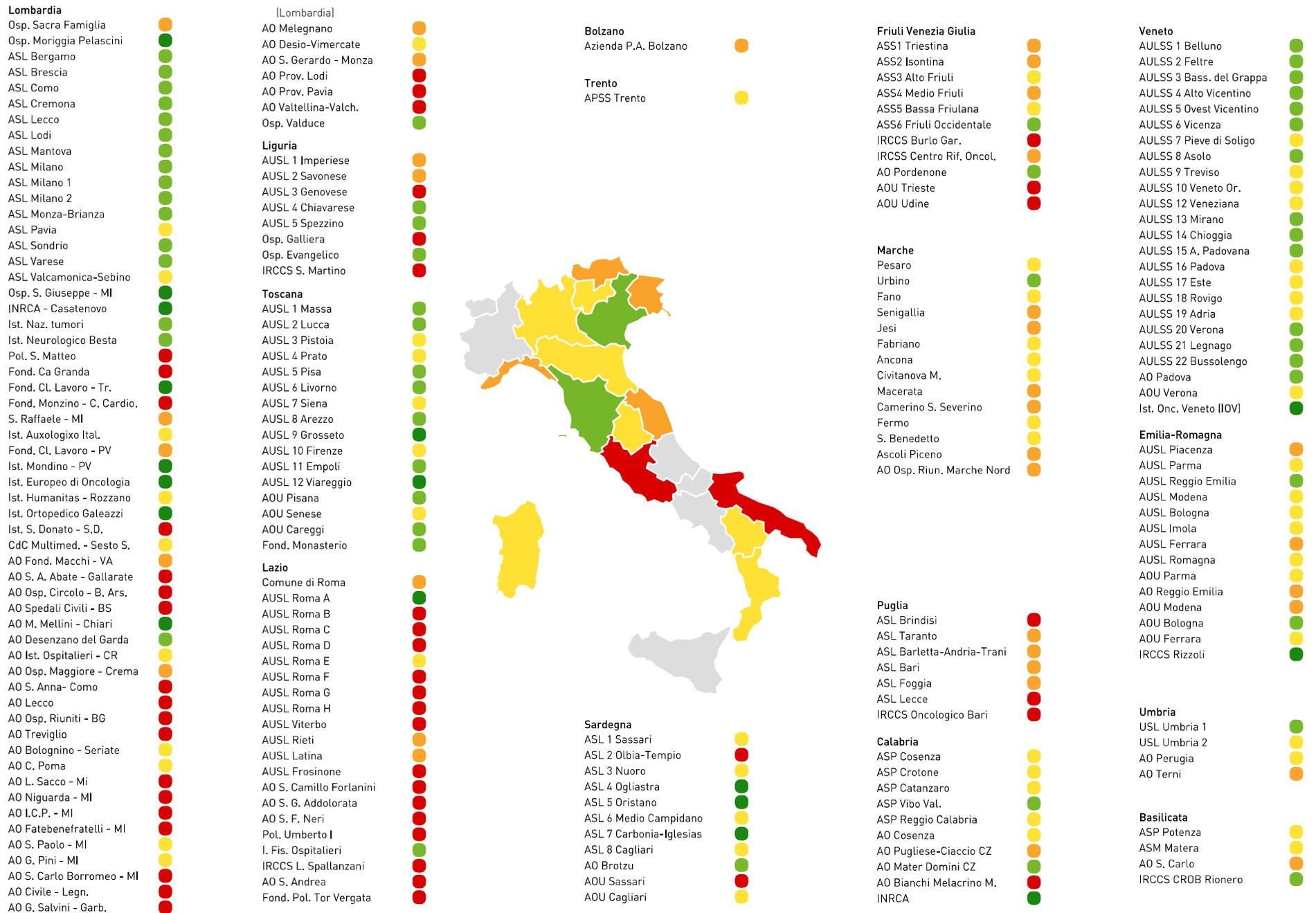


## C14 Appropriateness of care

Appropriateness of medical care is achieved when services are provided at the right time and according to acknowledged clinical standards. It follows that high levels of appropriateness will be associated with a higher probability of obtaining the expected results. The set of indicators making up the C14 composite indicator (hospitalization rate for medical Essential Levels of Care admissions, either short or excessively long medical hospitalizations, day hospital admissions) is intended to evaluate the appropriateness of medical healthcare delivery provided. The score attributed to the composite indicator (C14) is the average of sub-indicators C4.8, C14.2a, C14.3a and C14.4.

### C14 Appropriateness of care [evaluated]

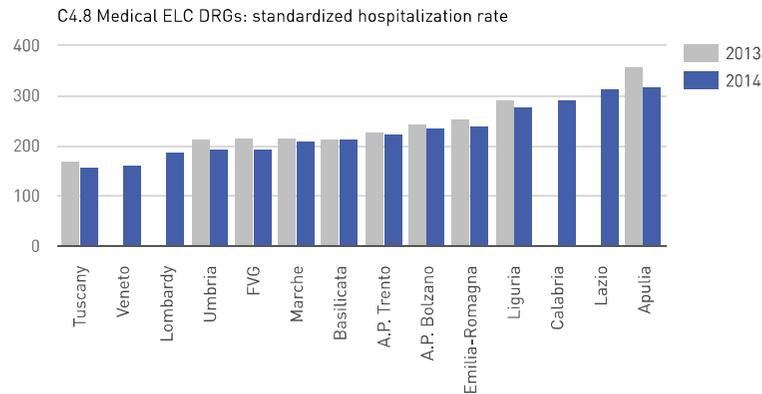
- C4.8 Medical ELC DRGs: standardized hospitalization rate [evaluated]
- C14.2 Percentage of medical outpatient hospital admissions for diagnostic purposes [observational]
- C14.2a DH admissions for diagnostic purposes [evaluated]
- C14.2.2 Percentage of medical outpatient admissions for diagnostic purposes - paediatric [observational]
- C14.3 Percentage of short medical hospital stays [observational]
- C14.3a Admission rate for short medical hospital stays [evaluated]
- C14.3.2 Percentage of short medical hospital stays - paediatrics [observational]
- C14.4 Percentage of over-threshold medical admissions of patients >= 65 years [evaluated]
- C14.5 Standardized medical outpatient admission rate [observational]



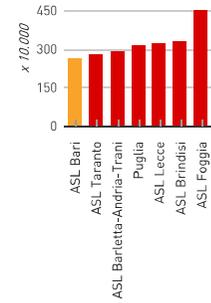
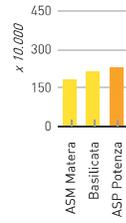
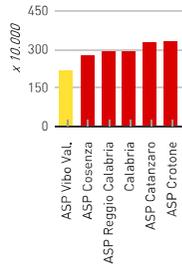
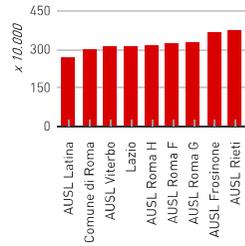
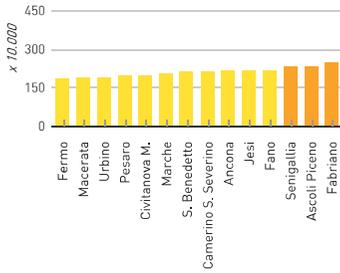
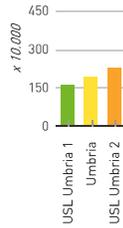
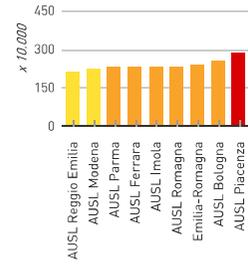
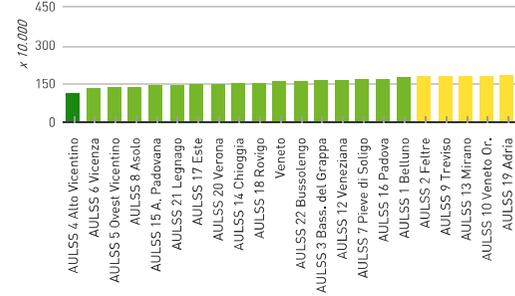
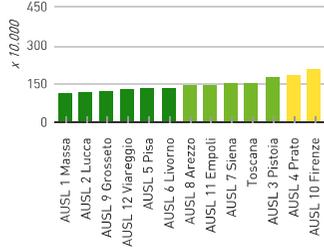
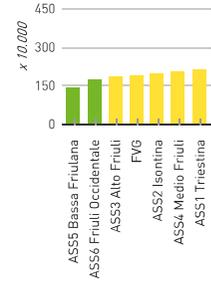
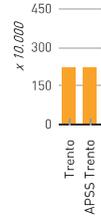
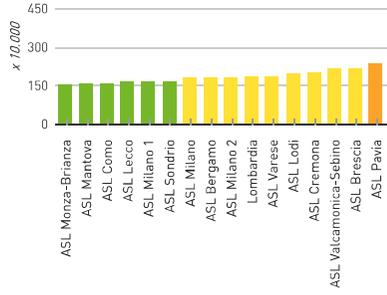
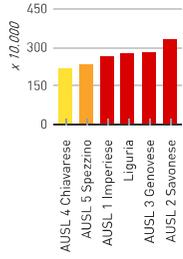


### C4.8 Medical ELC DRGs: standardized hospitalization rate

The Essential Levels of Care (ELC) are those services that must be made available by the NHS to all citizens. These include medical care (indicated in the Healthcare Agreement 2010-2012) that does not imply hospitalization, and which is more appropriately treated by primary care. Indicator C4.8 measures the number of potentially inappropriate medical hospitalizations. Since 2013, the Italian resident population in 2011 has been used to calculate standardized hospitalization rate. Bolzano residents admitted to Austrian hospitals were not included in the calculation of the indicator for the A.P. of Bolzano.



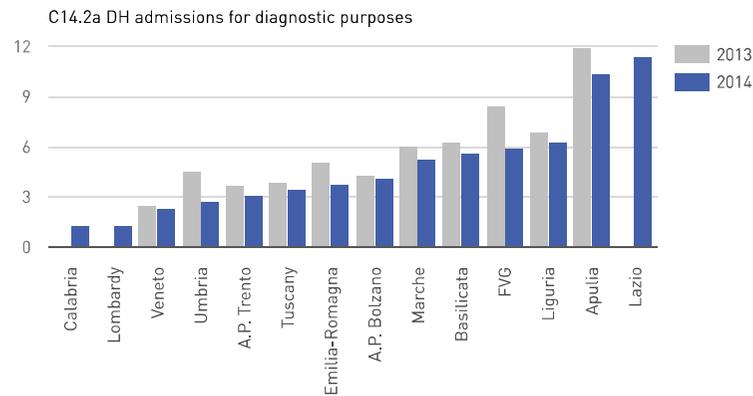
<b>Definition</b>	Age-sex standardized hospitalization rate per medical ELC DRGs
<b>Numerator</b>	Number of admissions of residents per medical DRGs per 10,000 residents
<b>Denominator</b>	Number of residents
<b>Notes</b>	DRGs considered are those of the Healthcare Agreement 2010 - 2012 (with exclusions indicated in Annex B): 13,19,47, 65, 70, 73, 74, 88, 131, 133, 134, 139, 142, 183, 184, 187, 189, 206, 208, 241, 243, 245, 248, 249, 250, 251, 252, 254, 256, 276, 281, 282, 283, 284, 294, 295, 299, 301, 317, 323, 324, 326, 327, 329, 332, 333, 349, 351, 352, 369, 384, 395, 396, 399, 404, 409, 410, 411, 412, 426, 427, 429, 465, 466, 467, 490, 563, 564. Admissions of residents, either to a hospital in the Region of the patients residence or to a facility in another Region, are included. Where no passive mobility data were available, an estimate based on the previous year was used. Excluded: - Patients discharged from spinal divisions, rehabilitation, long-term care, neuro-rehabilitation and palliative care (codes 28, 56, 60, 75, 99) - Patients discharged from unaccredited private hospitals
<b>Source</b>	Regional Information System - Hospital discharge records



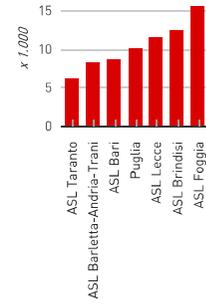
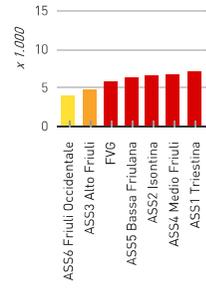
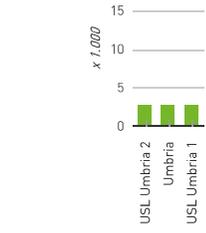
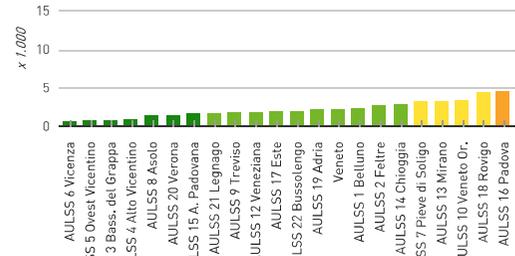
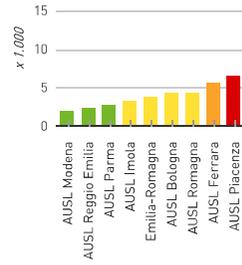
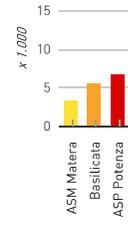
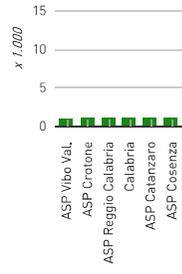
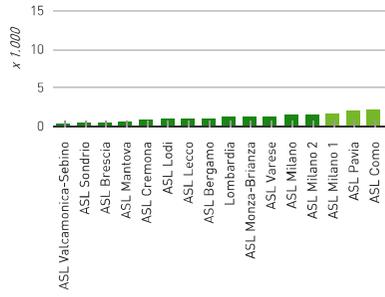
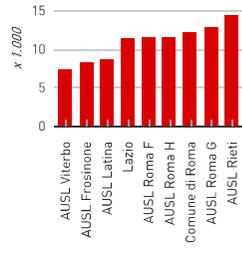
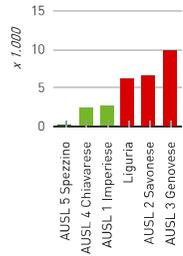
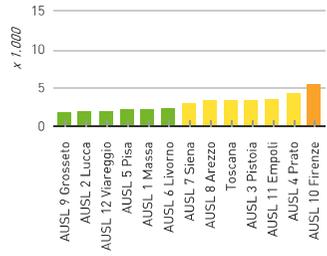
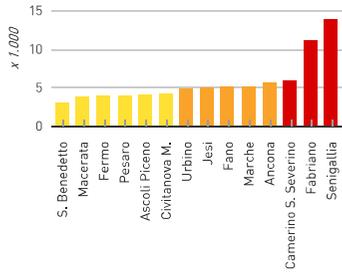


### C14.2a DH admissions for diagnostic purposes

Beds in hospital must be available for patients who really need them. For this reason, diagnostic procedures should be carried out in an outpatient setting, not in the hospital. This indicator measures the appropriateness of Day Hospital admissions.



<b>Definition</b>	Diurnal diagnostic admission rate, per 1,000 residents
<b>Numerator</b>	Number of DH acute admissions for diagnostic purposes, per 1,000 residents
<b>Denominator</b>	Number of residents
<b>Notes</b>	Residents discharged from public and private accredited hospitals following acute DH admission for diagnostic purposes were considered. Where no passive mobility data were available, an estimate was calculated based on the previous year figures. The field "Reason for outpatient admission" took into account "DH diagnostic admission". Excluded: Codes 190.5 Malignant tumours of the retina; V10.84 Personal history of malignant tumour of the eyes; V16.8 Family history of other malignant tumour; V42.1 Heart transplant; 996.83 Complications of heart transplant; V42.6 Lung transplant; 996.84 Complications of lung transplant; discharges from specialty 25, "Occupational medicine"; radio and chemotherapies [discharge diagnosis V580 Radiotherapy session, V581 Antineoplastic chemotherapy and immunotherapy); patients discharged from spinal division, rehabilitation, long-term care, neuro-rehabilitation and palliative care (codes 28, 56, 60, 75, 99); deceased patients
<b>Source</b>	Regional Information System - Hospital discharge records



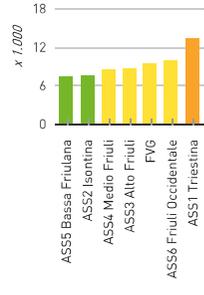
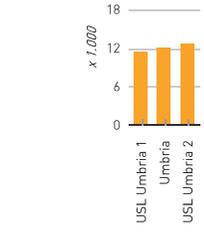
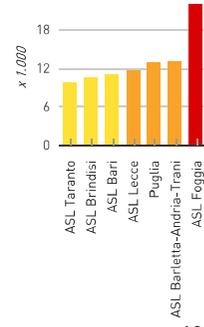
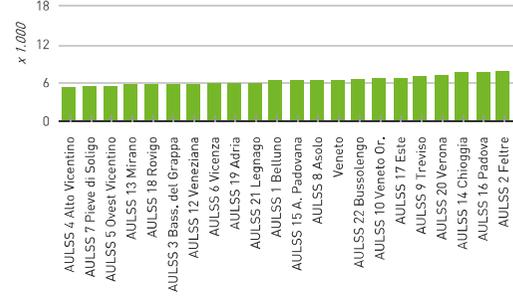
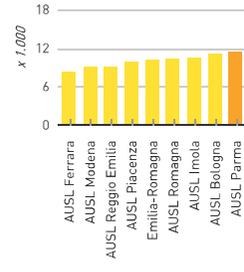
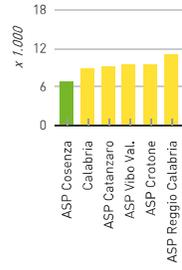
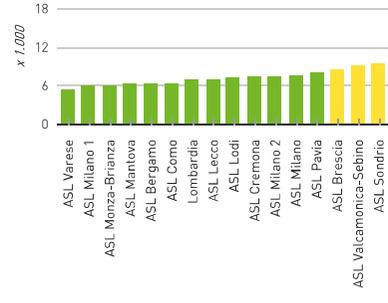
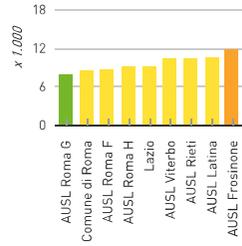
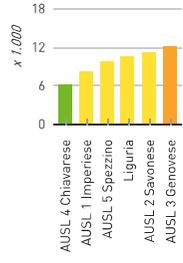
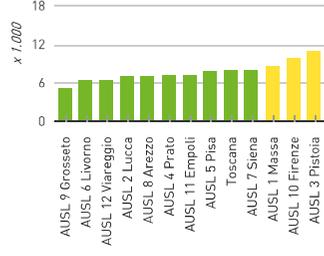
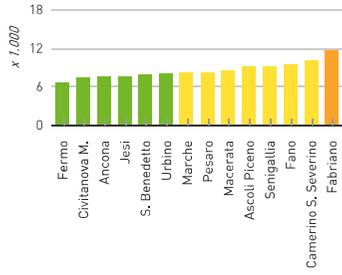


### C14.3a Admission rate for short medical hospital stays

Short hospitalizations (0-2 days) are often avoidable and usually occur in settings where the hospital is still the only accessible healthcare facility for citizens. Short-term admissions are reduced when primary care is reinforced.



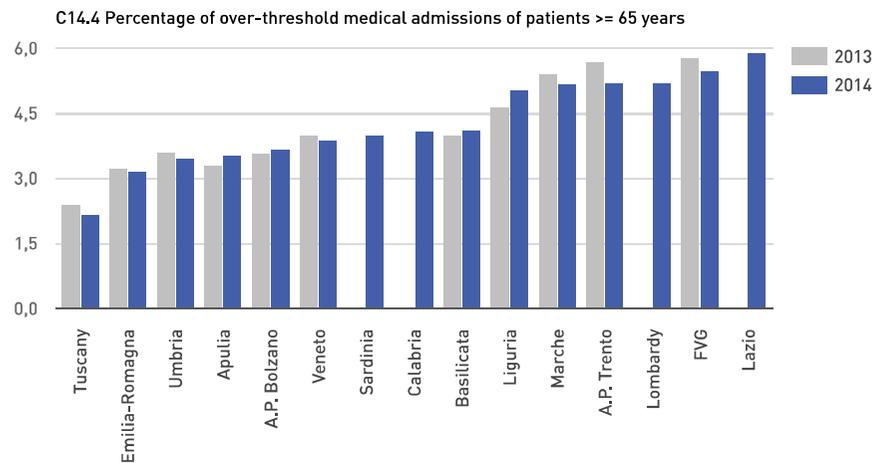
<b>Definition</b>	Admission rate for short medical inpatient admissions, per 1,000 residents
<b>Numerator</b>	Number of short medical inpatient admissions, per 1,000
<b>Denominator</b>	Number of residents
<b>Notes</b>	Inpatient admissions with medical DRG were considered. Where no passive mobility data were available, the previous year figures were used. Short-term admissions were considered as stays of 0-1-2 days. Excluded: DRG 391: normal newborns; DRG 373: vaginal deliveries without complicating diagnosis; discharge modes: deceased, discharged against medical advice (AMA), referred to other public or private care institute; discharges for cerebral angiography (code ICD9-CM 88.41 in primary or secondary procedure); discharges for Radio Metabolic Therapy (codes ICD9-CM 9227, 9228, 9229 in primary or secondary procedure) and cancer diagnosis (codes ICD9-CM da 140 a 239, V58.0 in primary or secondary procedure)
<b>Source</b>	Regional Information System - Hospital discharge records



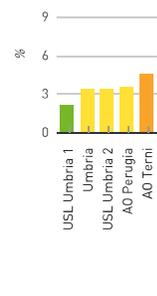
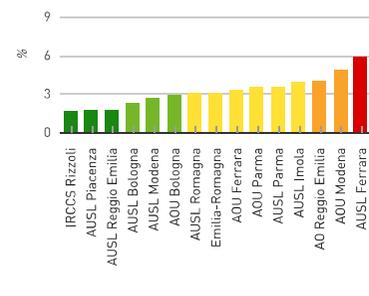
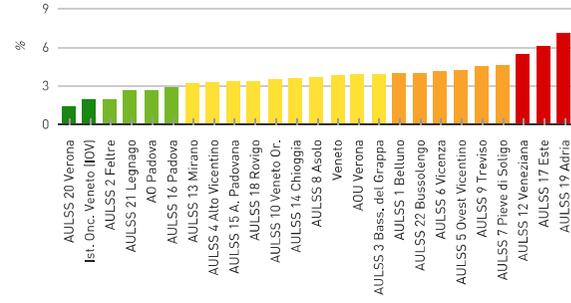
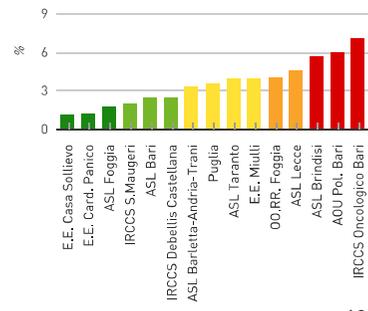
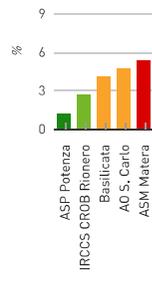
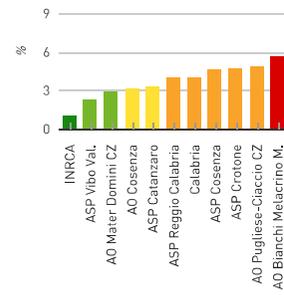
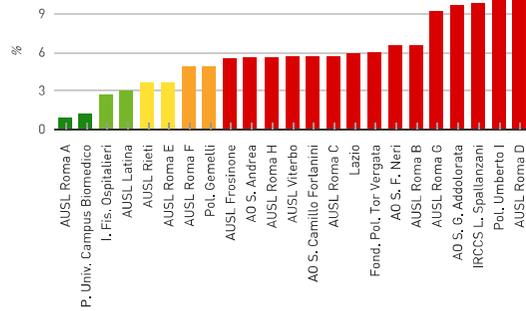
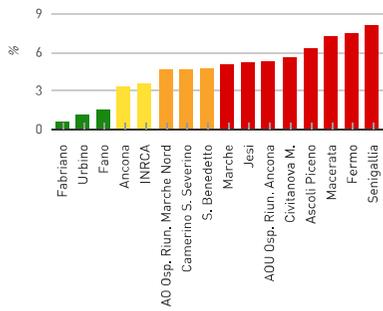
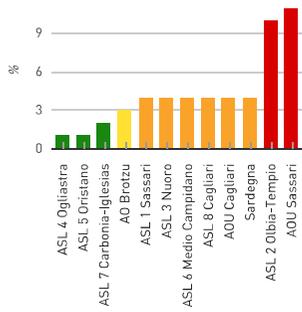
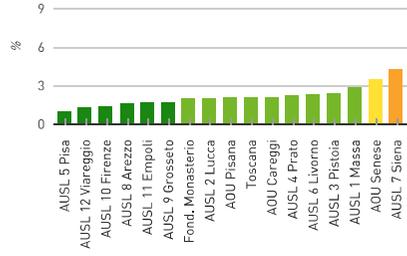
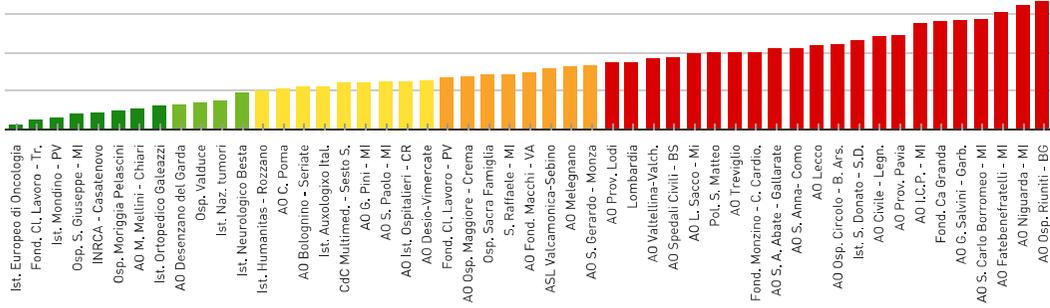
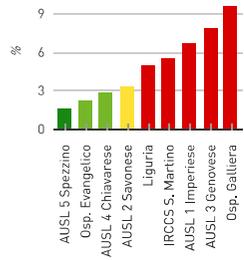


### C14.4 Percentage of over-threshold medical admissions of patients ≥ 65 years

This indicator identifies acute medical admissions whose length of stay exceeds the maximum established threshold. Excessively long length of stay may be related not only to hospital or Local Health Authority inefficiencies (i.e. lack of special residential facilities or homecare pathways), but also to a lack of integration between hospital and primary care. Since hospitalization rates over the established threshold are more likely to concern the over-64 population, the indicator refers to this age group.



<b>Definition</b>	Percentage of over-threshold medical admissions of patients aged 65 years and over
<b>Numerator</b>	Number of over-threshold medical admissions per 100
<b>Denominator</b>	Number of medical admissions
<b>Notes</b>	DRG-specific length of stay thresholds set by the Ministry were considered; threshold values for DRGs 557, 558, 559, 577 - with no Ministry-set threshold refer to the Testo Unico sulla Compensazione interregionale della mobilità sanitaria (Norms for Interregional Compensation of Health Mobility, January 27th 2010). Patients of 65 and over were considered. Only inpatient admissions were considered. Excluded: patients discharged from spinal division, rehabilitation, long-term care, neuro-rehabilitation and palliative care (codes 28, 56, 60, 75, 99)
<b>Source</b>	Regional Information System - Hospital discharge records





## C4 Surgical appropriateness

Surgical appropriateness occurs when services are provided in a timely manner, employing the best and well established techniques that best meet patient needs through optimization of the cost/benefit/risk ratio. To reflect this, the C4 composite indicator highlights how surgery departments use available resources, both for inpatient admissions and day surgery.

The indicator score is the weighted average of the scores of the following indicators (weight of each indicator shown in brackets): C4.1 (40%), C4.4 (20%), C4.7 (40%).

### C4 Surgical appropriateness [evaluated]

- C4.1 Percentage of medical DRGs discharged from surgical wards [evaluated]
- C4.1.1 Percentage of medical DRGs discharged from surgical wards: inpatient admissions [evaluated]
- C4.1.2 Percentage of medical DRGs discharged from surgical wards: outpatient admissions [evaluated]
- C4.4 Percentage of laparoscopic cholecystectomies performed in one day [evaluated]
- C4.7 Percentage of Day Surgery admissions for ELC surgical DRGs [evaluated]
- *C4.13 DRGs at high-risk of inappropriateness* [observational]

**Lombardia**

Osp. Sacra Famiglia ●  
 Osp. Moriggia Pelascini ●  
 ASL Valcamonica-Sebino ●  
 Osp. S. Giuseppe - MI ●  
 Ist. Naz. tumori ●  
 Ist. Neurologico Besta ●  
 Pol. S. Matteo ●  
 Fond. Ca Granda ●  
 Fond. Monzino - C. Cardio. ●  
 S. Raffaele - MI ●  
 Fond. Cl. Lavoro - PV ●  
 Ist. Europeo di Oncologia ●  
 Ist. Humanitas - Rozzano ●  
 Ist. Ortopedico Galeazzi ●  
 Ist. S. Donato - S.D. ●  
 CdC Multimed. - Sesto S. ●  
 AO Fond. Macchi - VA ●  
 AO S. A. Abate - Gallarate ●  
 AO Osp. Circolo - B. Ars. ●  
 AO Spedali Civili - BS ●  
 AO M. Mellini - Chiari ●  
 AO Desenzano del Garda ●  
 AO Ist. Ospitalieri - CR ●  
 AO Osp. Maggiore - Crema ●  
 AO S. Anna- Como ●  
 AO Lecco ●  
 AO Osp. Riuniti - BG ●  
 AO Treviglio ●  
 AO Bolognino - Seriate ●  
 AO C. Poma ●  
 AO L. Sacco - Mi ●  
 AO Niguarda - MI ●  
 AO I.C.P. - MI ●  
 AO Fatebenefratelli - MI ●  
 AO S. Paolo - MI ●  
 AO G. Pini - MI ●  
 AO S. Carlo Borromeo - MI ●  
 AO Civile - Legn. ●  
 AO G. Salvini - Garb. ●  
 AO Melegnano ●  
 AO Desio-Vimercate ●  
 AO S. Gerardo - Monza ●  
 AO Prov. Lodi ●  
 AO Prov. Pavia ●  
 AO Valtellina-Valch. ●  
 Osp. Valduce ●

**Liguria**

AUSL 1 Imperiese ●  
 AUSL 2 Savonese ●  
 AUSL 3 Genovese ●  
 AUSL 4 Chiavarese ●  
 AUSL 5 Spezzino ●  
 Osp. Galliera ●  
 Osp. Evangelico ●  
 IRCCS S. Martino ●  
 Ist. Gaslini ●

**Toscana**

AUSL 1 Massa ●  
 AUSL 2 Lucca ●  
 AUSL 3 Pistoia ●  
 AUSL 4 Prato ●  
 AUSL 5 Pisa ●  
 AUSL 6 Livorno ●  
 AUSL 7 Siena ●  
 AUSL 8 Arezzo ●  
 AUSL 9 Grosseto ●  
 AUSL 10 Firenze ●  
 AUSL 11 Empoli ●  
 AUSL 12 Viareggio ●  
 AOU Pisana ●  
 AOU Senese ●  
 AOU Careggi ●  
 Meyer ●  
 Fond. Monasterio ●  
 Fond. Mon. (Pediatrici) ●  
 Fond. Mon. (Adulti) ●

**Sardegna**

ASL 1 Sassari ●  
 ASL 2 Olbia-Tempio ●  
 ASL 3 Nuoro ●  
 ASL 4 Ogliastra ●  
 ASL 5 Oristano ●  
 ASL 6 Medio Campidano ●  
 ASL 7 Carbonia-Iglesias ●  
 ASL 8 Cagliari ●  
 AO Brotzu ●  
 AOU Sassari ●  
 AOU Cagliari ●

**Lazio**

AUSL Roma A ●  
 AUSL Roma B ●  
 AUSL Roma C ●  
 AUSL Roma D ●  
 AUSL Roma E ●  
 AUSL Roma F ●  
 AUSL Roma G ●  
 AUSL Roma H ●  
 AUSL Viterbo ●  
 AUSL Rieti ●  
 AUSL Latina ●  
 AUSL Frosinone ●  
 AO S. Camillo Forlanini ●  
 AO S. G. Addolorata ●  
 AO S. F. Neri ●  
 Osp. Bambino Gesù ●  
 Pol. Umberto I ●  
 I. Fis. Ospitalieri ●  
 AO S. Andrea ●  
 Fond. Pol. Tor Vergata ●

**Bolzano**

Azienda P.A. Bolzano ●

**Trento**

APSS Trento ●

**Friuli Venezia Giulia**

ASS2 Isontina ●  
 ASS3 Alto Friuli ●  
 ASS4 Medio Friuli ●  
 ASS5 Bassa Friulana ●  
 IRCCS Burlo Gar. ●  
 IRCCS Centro Rif. Oncol. ●  
 AO Pordenone ●  
 AOU Trieste ●  
 AOU Udine ●

**Marche**

Urbino ●  
 Fano ●  
 Senigallia ●  
 Jesi ●  
 Fabriano ●  
 Ancona ●  
 Civitanova M. ●  
 Macerata ●  
 Camerino S. Severino ●  
 Fermo ●  
 S. Benedetto ●  
 Ascoli Piceno ●  
 AO Osp. Riun. Marche Nord ●  
 AOU Osp. Riun. Ancona ●  
 INRCA ●

**Puglia**

ASL Brindisi ●  
 ASL Taranto ●  
 ASL Barletta-Andria-Trani ●  
 ASL Bari ●  
 ASL Foggia ●  
 ASL Lecce ●  
 IRCCS Oncologico Bari ●  
 IRCCS Debellis Castellana ●  
 E.E. Casa Sollievo ●  
 AOU Pol. Bari ●  
 OD.RR. Foggia ●

**Basilicata**

ASP Potenza ●  
 ASM Matera ●  
 AO S. Carlo ●  
 IRCCS CROB Rionero ●

**Veneto**

AULSS 1 Belluno ●  
 AULSS 2 Feltre ●  
 AULSS 3 Bass. del Grappa ●  
 AULSS 4 Alto Vicentino ●  
 AULSS 5 Ovest Vicentino ●  
 AULSS 6 Vicenza ●  
 AULSS 7 Pieve di Soligo ●  
 AULSS 8 Asolo ●  
 AULSS 9 Treviso ●  
 AULSS 10 Veneto Or. ●  
 AULSS 12 Veneziana ●  
 AULSS 13 Mirano ●  
 AULSS 14 Chioggia ●  
 AULSS 15 A. Padovana ●  
 AULSS 16 Padova ●  
 AULSS 17 Este ●  
 AULSS 18 Rovigo ●  
 AULSS 19 Adria ●  
 AULSS 20 Verona ●  
 AULSS 21 Legnago ●  
 AULSS 22 Bussolengo ●  
 AO Padova ●  
 AOU Verona ●  
 Ist. Onc. Veneto (IOV) ●

**Emilia-Romagna**

AUSL Piacenza ●  
 AUSL Parma ●  
 AUSL Reggio Emilia ●  
 AUSL Modena ●  
 AUSL Bologna ●  
 AUSL Imola ●  
 AUSL Ferrara ●  
 AUSL Romagna ●  
 AOU Parma ●  
 AO Reggio Emilia ●  
 AOU Modena ●  
 AOU Bologna ●  
 AOU Ferrara ●  
 IRCCS Rizzoli ●

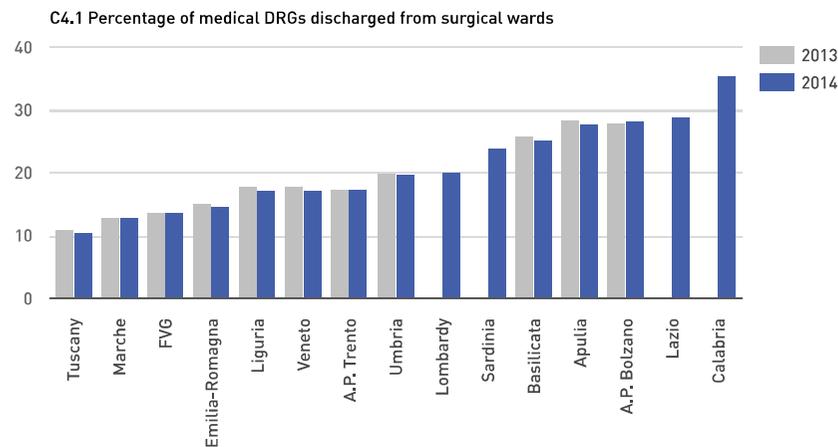
**Umbria**

USL Umbria 1 ●  
 USL Umbria 2 ●  
 AO Perugia ●  
 AO Terni ●

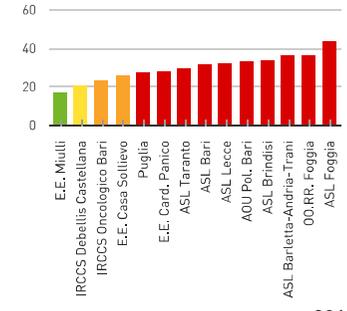
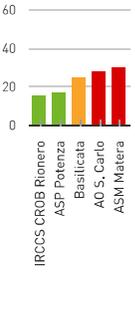
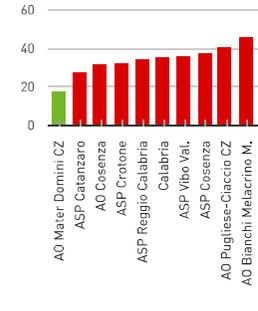
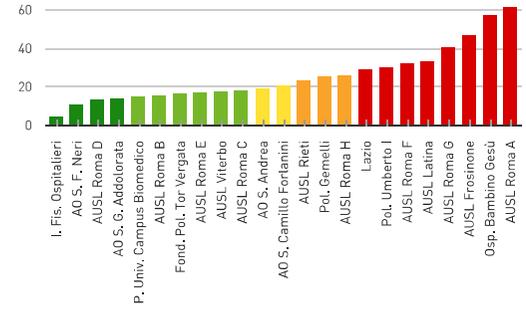
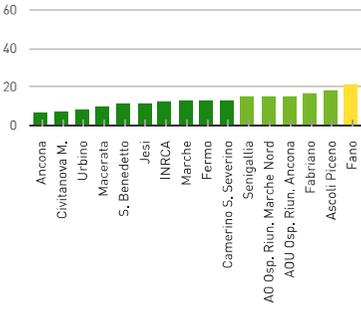
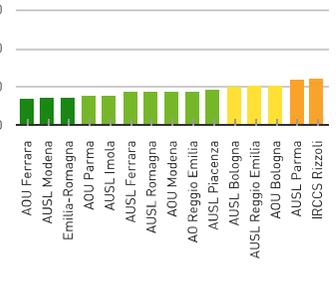
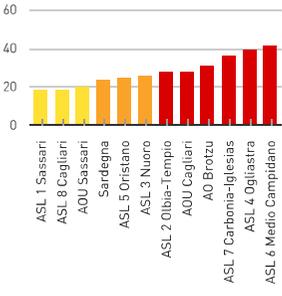
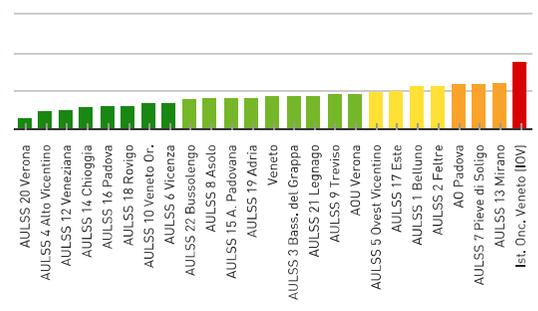
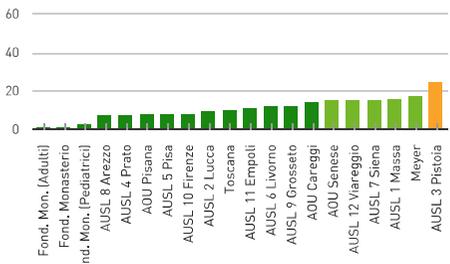
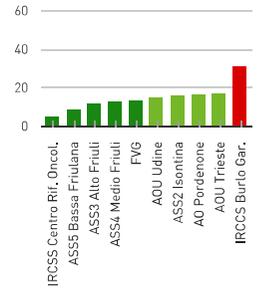
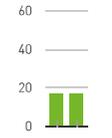
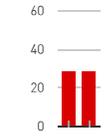
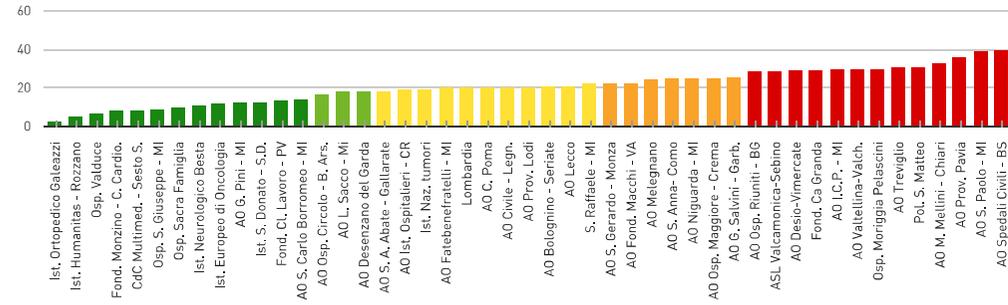
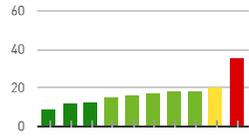


### C4.1 Percentage of medical DRGs discharged from surgical wards

Indicator C4.1 measures the degree of organizational inappropriateness in terms of the number of patients discharged from surgical wards who have not undergone surgery. Since the cost of a surgery bed is much higher than that of a medical ward bed, organizational improvements must be made to limit surgery admissions as much as possible. The percentage of patients with medical DRG discharged from surgical wards should not exceed 20%. The indicator includes two sub-indicators, C4.1.1 and C4.1.2, referring to inpatient and outpatient admissions respectively. This is because the findings of inappropriateness among the various Health Authorities for these two hospitalization settings differ widely, with no obvious correlation. In order to have a more detailed picture, the two phenomena were analysed singly.



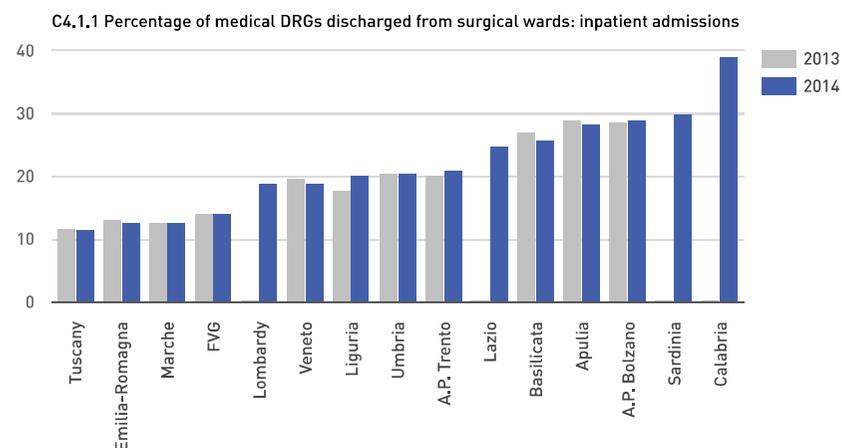
<b>Definition</b>	Percentage of patients discharged from surgical wards with medical DRGs
<b>Numerator</b>	Number of discharges from surgical wards with medical DRGs, per 100
<b>Denominator</b>	Number of discharges from surgical wards
<b>Notes</b>	<p>Selection of surgical specialties: 06 paediatric cardiac surgery, 07 cardiac surgery, 09 general surgery, 10 maxillofacial surgery, 11 paediatric surgery, 12 plastic surgery, 13 thoracic surgery, 14 vascular surgery, 30 neurosurgery, 34 ophthalmology, 35 dentistry and stomatology, 36 orthopaedics and traumatology, 38 otolaryngology, 43 urology, 48 nephrology (enabling kidney transplant), 76 paediatric neurosurgery, 78 paediatric urology, 98 day surgery.</p> <p>Excluded:</p> <ul style="list-style-type: none"> <li>- discharges with main interventions in lithotripsy (procedure code ICD9-CM: 98.5, 98.51, 98.52, 98.59)</li> <li>- discharges with principal and secondary diagnoses for non-performed surgery (V641, V642, V643)</li> <li>- discharges with DRG 470 (non-attributable DRG), 124, 125 (cardiovascular diseases, except acute myocardial infarction, with cardiac catheterization and uncomplicated/complicated diagnosis)</li> <li>- primary procedures 21.31 (with diagnosis 471.0, for all diagnoses), 43.11, 45.43, 51.10, 51.11, 51.85, 51.88, 59.95</li> <li>- patients discharged with neither medical nor surgical DRG type</li> </ul>
<b>Source</b>	Regional Information System - Hospital discharge records



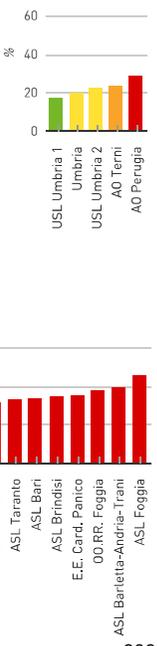
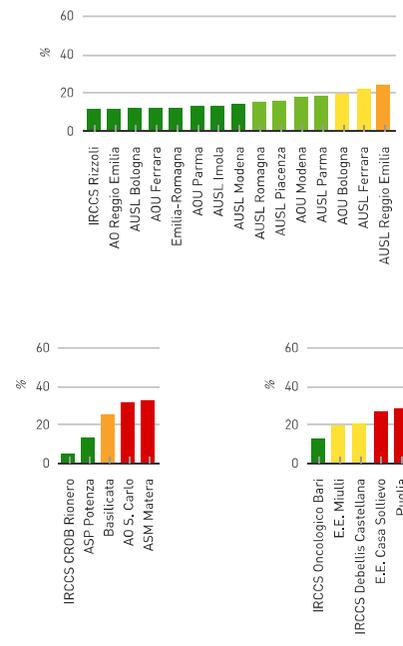
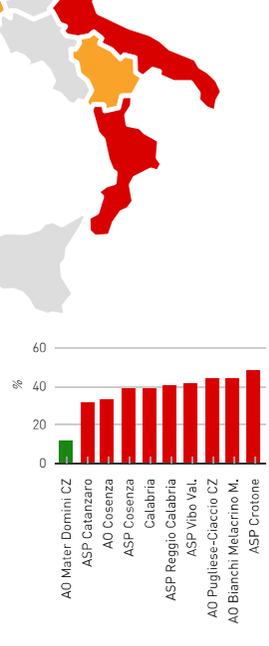
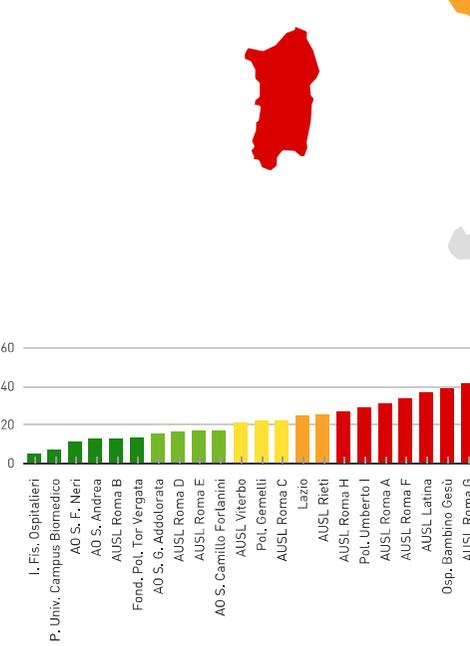
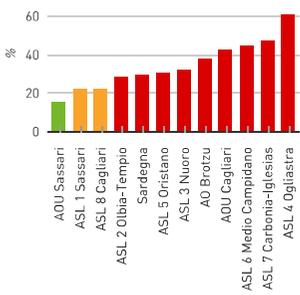
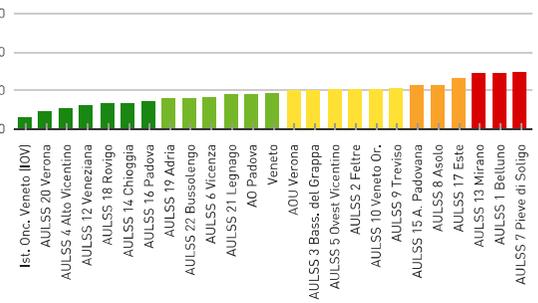
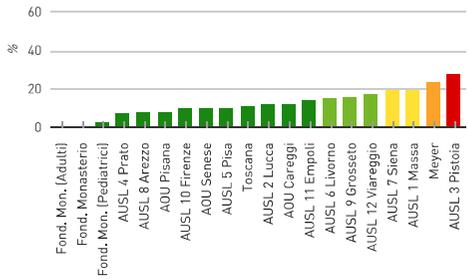
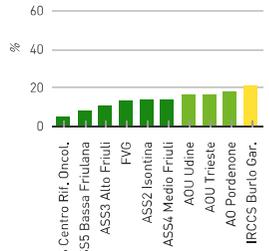
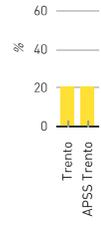
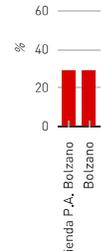
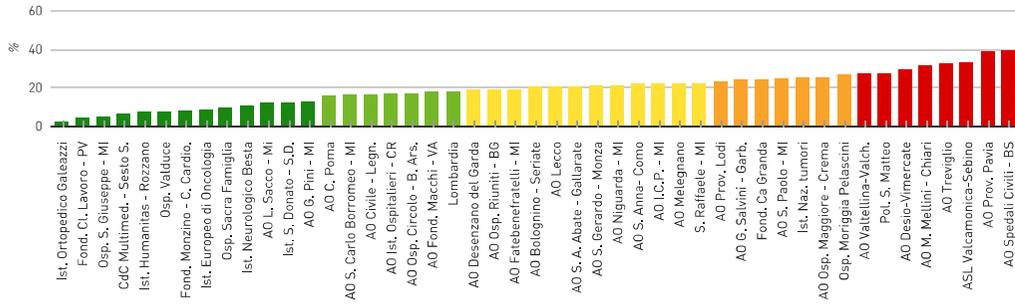
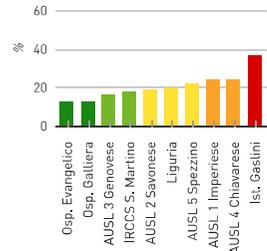


### C4.1.1 Percentage of medical DRGs discharged from surgical wards: inpatient admissions

The indicator measures the percentage of inpatient admissions of medical DRGs to surgical wards (including One-Day Surgery). Not requiring major surgery, these patients would have been more appropriately dealt with in non-surgical wards.



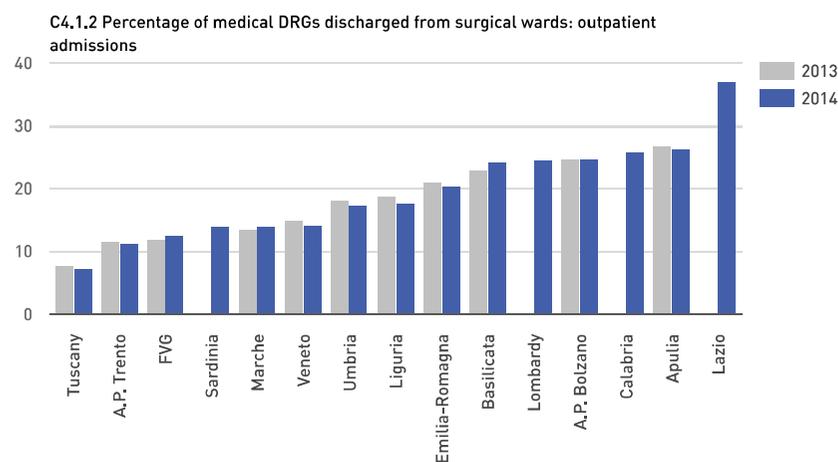
<b>Definition</b>	Percentage of patients discharged from surgical wards with medical DRGs: inpatient admissions
<b>Numerator</b>	Number of discharges from surgical wards with medical DRGs (inpatient admissions), per 100
<b>Denominator</b>	Number of discharges from surgical wards: inpatient admissions
<b>Notes</b>	<p>Selection of surgical specialties:                      06 paediatric cardiac surgery, 07 cardiac surgery, 09 general surgery, 10 maxillofacial surgery, 11 paediatric surgery, 12 plastic surgery, 13 thoracic surgery, 14 vascular surgery, 30 neurosurgery, 34 ophthalmology, 35 dentistry and stomatology, 36 orthopaedics and traumatology, 38 otolaryngology, 43 urology, 48 nephrology (enabling kidney transplant), 76 paediatric neurosurgery, 78 paediatric urology, 98 day surgery.                      One-Day Surgery is included.                      Excluded:                      - discharges with main interventions in lithotripsy (procedure code ICD9-CM: 98.5, 98.51, 98.52, 98.59)                      - discharges with principal and secondary diagnoses for procedures not performed (V641, V642, V643)                      - discharges with DRG 470 (non-attributable DRG), 124, 125                      - principal procedures 21.31 (with diagnosis 471.0, for all diagnoses), 43.11, 45.43, 51.10, 51.11, 51.85, 51.88, 59.95                      - patients discharged with neither a medical or surgical DRG</p>
<b>Source</b>	Regional Information System - Hospital discharge records



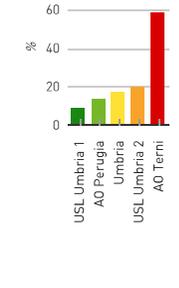
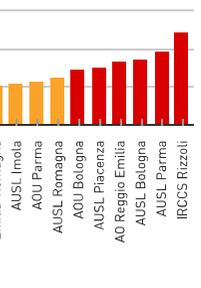
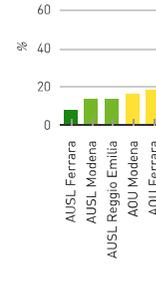
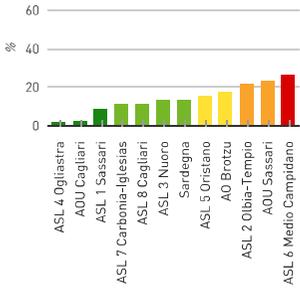
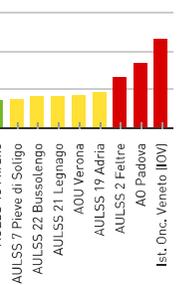
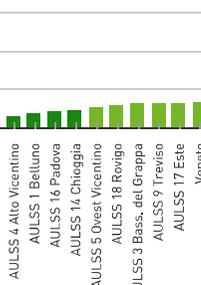
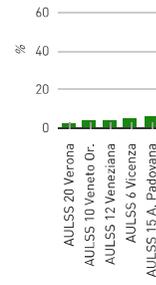
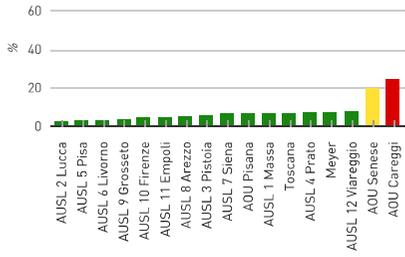
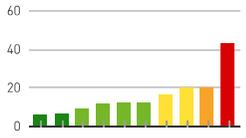
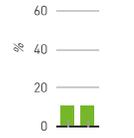
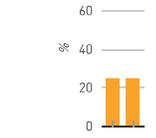
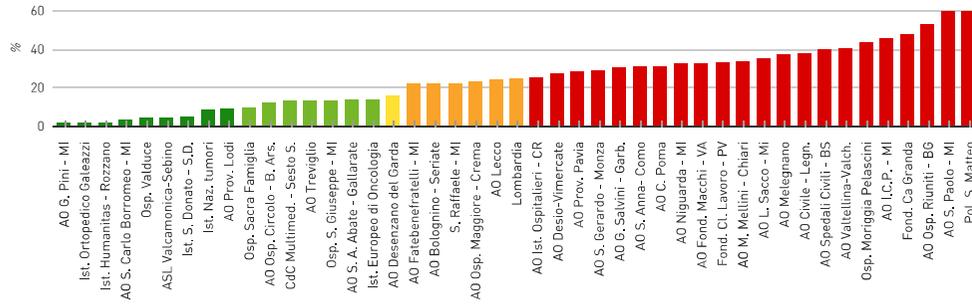
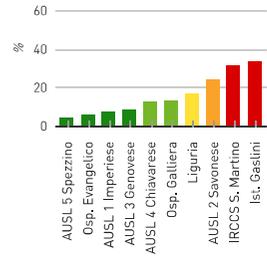


### C4.1.2 Percentage of medical DRGs discharged from surgical wards: outpatient admissions

The indicator refers to outpatient admissions. This is monitored because the findings of inappropriateness among the various Health Authorities for this hospitalization setting differ widely from inpatient admissions, with no obvious correlation.



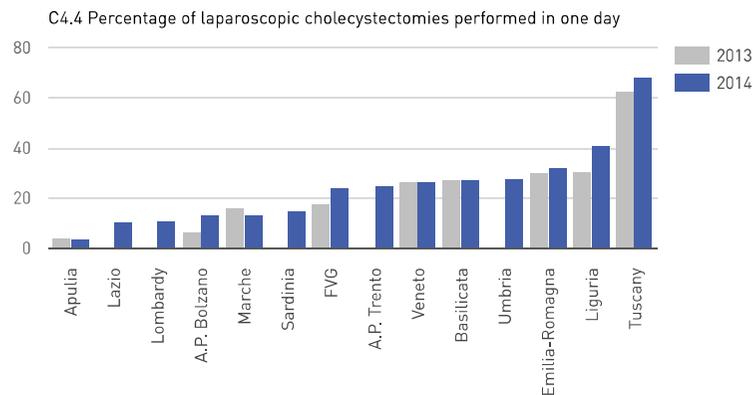
<b>Definition</b>	Percentage of patients discharged from surgical wards with medical DRGs: outpatient admissions
<b>Numerator</b>	Number of discharges from surgical wards with medical DRGs: outpatient admissions
<b>Denominator</b>	Number of discharges from surgical wards: outpatient admissions
<b>Notes</b>	<p>Selection of surgical specialties:                      06 paediatric cardiac surgery, 07 cardiac surgery, 09 general surgery, 10 maxillofacial surgery, 11 paediatric surgery, 12 plastic surgery, 13 thoracic surgery, 14 vascular surgery, 30 neurosurgery, 34 ophthalmology, 35 dentistry and stomatology, 36 orthopaedics and traumatology, 38 otolaryngology, 43 urology, 48 nephrology (enabling kidney transplant), 76 paediatric neurosurgery, 78 paediatric urology, 98 day surgery.                      One-Day Surgery is excluded.                      Excluded:                      - discharges with main interventions in lithotripsy (procedure code ICD9-CM: 98.5, 98.51, 98.52, 98.59)                      - discharges with principal and secondary diagnoses for non-performed surgery (V641, V642, V643)                      - discharges with DRG 470 (non-attributable DRG), 124, 125                      - primary procedures 21.31 (with diagnosis 471.0, for all diagnoses), 43.11, 45.43, 51.10, 51.11, 51.85, 51.88, 59.95                      - controls following retinoblastoma interventions:                      - DRG 048 and principal diagnosis 190.5,                      - DRG 411 and principal diagnosis V10.84 with procedure 95.03, 99.26 (for all interventions)                      - patients discharged with neither medical nor surgical DRG</p>
<b>Source</b>	Regional Information System - Hospital discharge records



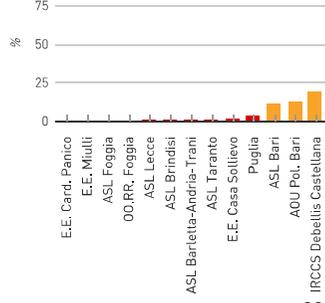
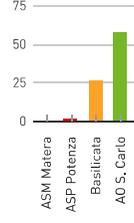
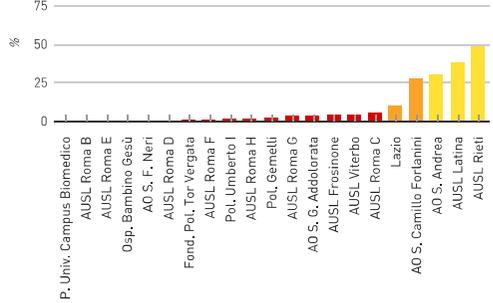
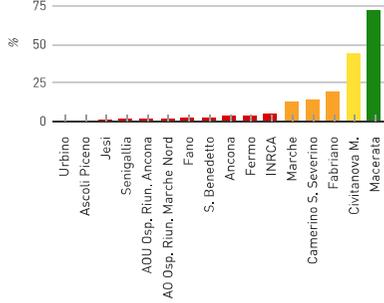
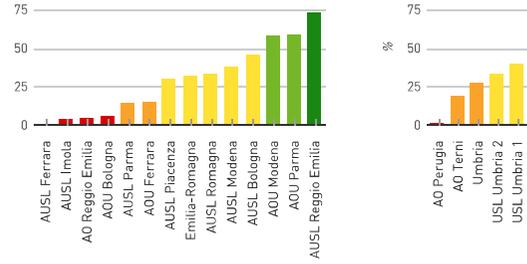
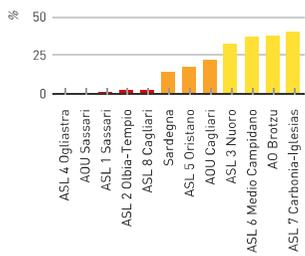
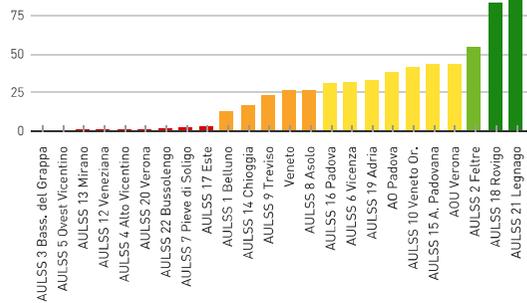
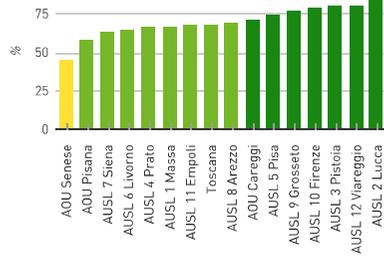
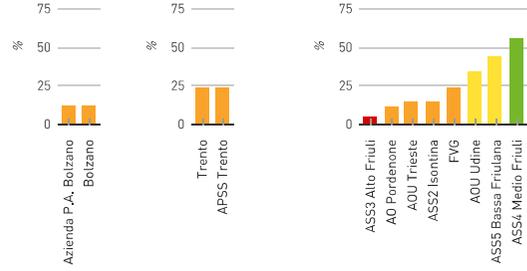
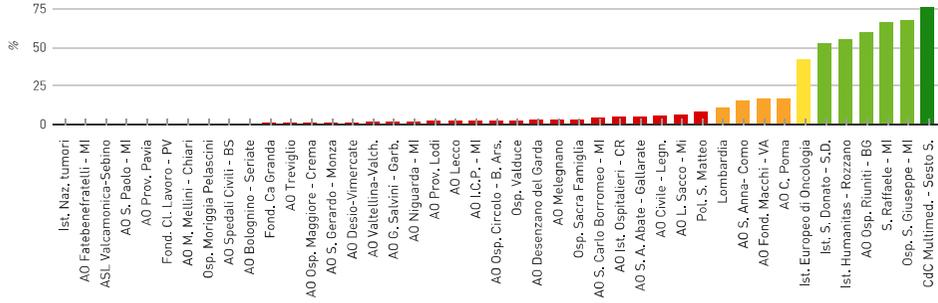
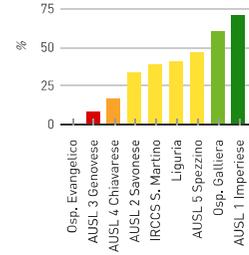


### C4.4 Percentage of laparoscopic cholecystectomies performed in one day

In many European countries and the United States, a patient undergoing laparoscopic cholecystectomy is generally discharged the same or, at most, the following day. At international level, the appropriateness standard has been set at 80%, since in some specific cases the patient must be kept under observation for longer. The analysis considered only elective procedures, thereby excluding complications related to emergency hospitalizations (Calland et al. 2001; Litwin, Mitchell 2008; National Institutes of Health 1992; Shea et al. 1998; The Southern Surgeons Club 1991; Vaughan et al. 2013).



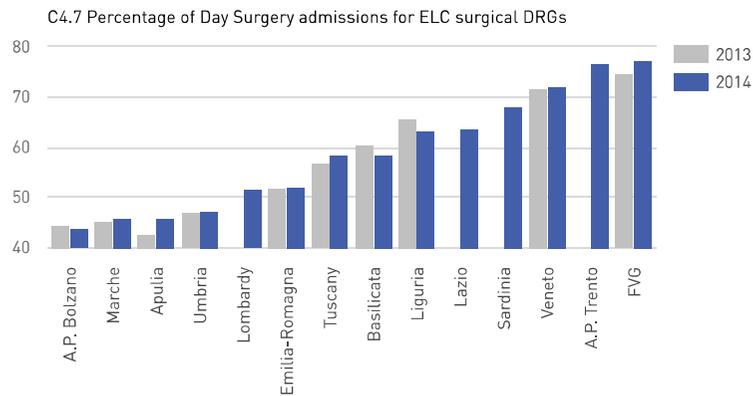
<b>Definition</b>	Percentage of laparoscopic cholecystectomies performed in day surgery or with 0-1 day inpatient length of stay
<b>Numerator</b>	Number of laparoscopic cholecystectomies performed in Day Surgery, or 0-1 day inpatient length of stay, per 100
<b>Denominator</b>	Number of laparoscopic cholecystectomies
<b>Notes</b>	The analysis considered only non-emergency scheduled admissions and scheduled admissions with pre-hospitalization. Surgical procedure code ICD9-CM: 51.23 - "laparoscopic cholecystectomy" for all procedures
<b>Source</b>	Regional Information System - Hospital discharge records



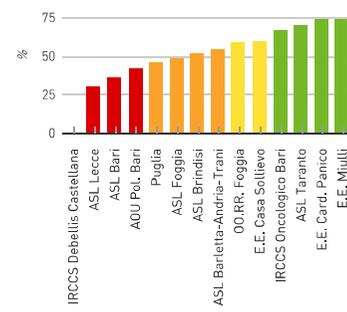
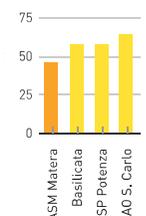
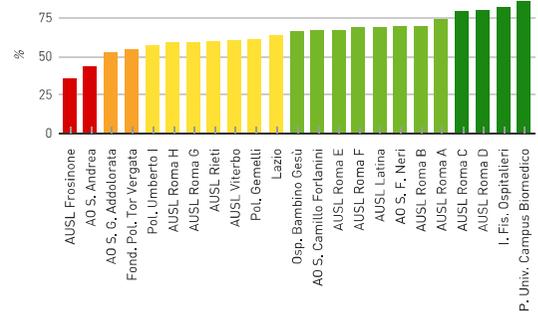
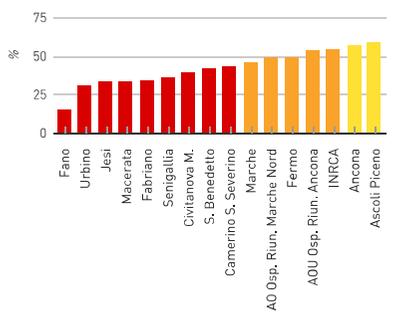
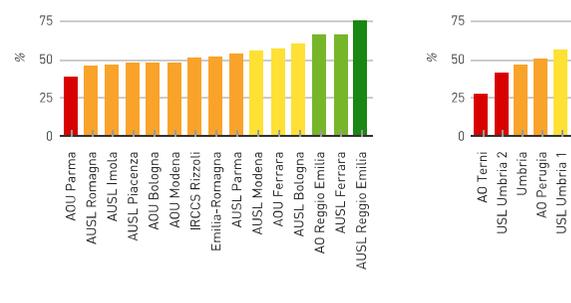
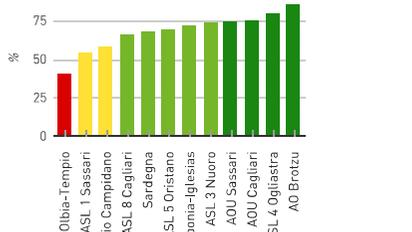
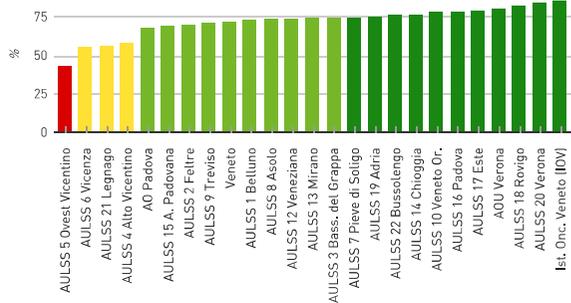
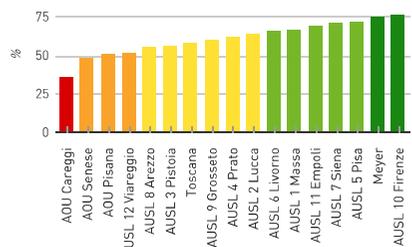
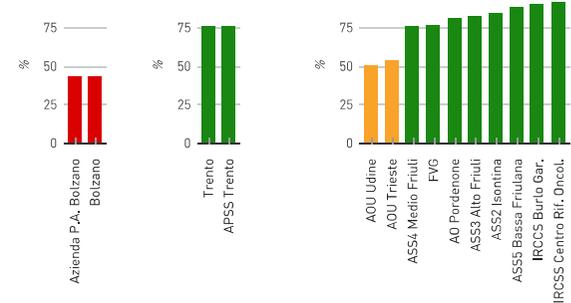
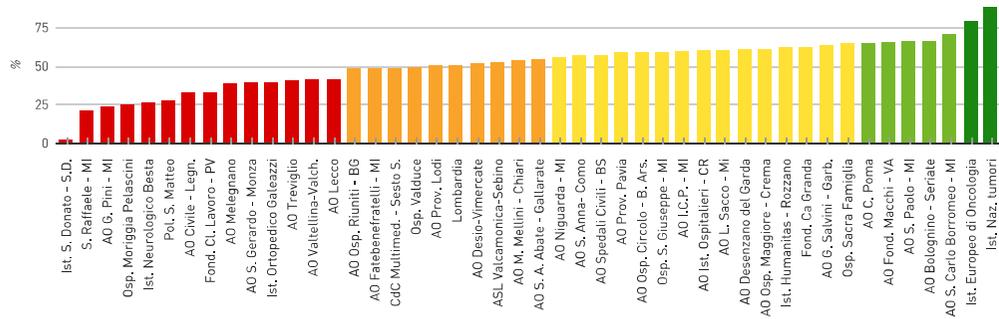
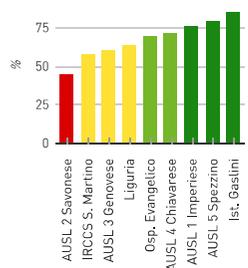


### C4.7 Percentage of Day Surgery admissions for “ELC surgical DRGs”

The 2010-2012 Healthcare Agreement identifies a list of “ELC surgical DRGs”, i.e. surgical procedures to be performed in the Day Surgery setting; these procedures are actually compatible with same-day patient discharge and longer hospitalization is inappropriate and wasteful of resources.



<b>Definition</b>	Percentage of Day Surgery admissions for “ELC surgical DRGs”
<b>Numerator</b>	Number of “ELC surgical DRGs” performed in Day Surgery
<b>Denominator</b>	Number of “ELC surgical DRGs” performed in Day Surgery or in inpatient setting
<b>Notes</b>	<p>The DRGs defined in the 2010-2012 Healthcare Agreement were considered (exclusions indicated in Annex B): 8, 36, 38, 40, 41, 42, 51, 55, 59, 60, 61, 62, 158, 160, 162, 163, 168, 169, 227, 228, 229, 232, 262, 266, 267, 268, 270, 311, 315, 339, 340, 342, 343, 345, 359, 360, 362, 364, 377, 381, 503, 538.</p> <p>Outpatient DRGs excluded:</p> <ul style="list-style-type: none"> <li>- 006 Carpal tunnel decompression</li> <li>- 039 Interventions on lens with or without vitrectomy</li> <li>- 119 Vein ligation and stripping</li> </ul> <p>DRGs with less than 30 cases per Health Authority per year were excluded.</p> <p>Only admissions of residents of the Region were considered.</p> <p>One-Day Surgery was excluded from the numerator.</p> <p>Patients discharged from spinal division, rehabilitation, long-term care, neuro-rehabilitation and palliative care (codes 28, 56, 60, 75, 99) were excluded</p>
<b>Source</b>	Regional Information System - Hospital discharge records





## C5 Quality of the care process

Every health system aims to deliver high quality patient care service. Clinical quality indicators monitor the correct adoption of instrumental techniques and diagnostic procedures, and the promptness and accuracy of service provision against the benchmark of scientific evidence and clinical guidelines.

The indicator score is the weighted average of the following indicator scores (weight of each indicator shown in brackets): C5.1 (20%), C5.2 (40%), C5.3 (20%), C16.7 (20%).

### C5 Quality of the care process [evaluated]

- C5.1 Percentage of readmissions within 30 days [evaluated]
- C5.2 Percentage of femoral neck fractures operated within 2 days of admission [evaluated]
- C5.3 Percentage of transurethral prostatectomies [evaluated]
- *C5.10 Percentage of laparoscopic colon resections [observational]*
- *C5.11 Percentage of laparoscopic appendectomies in women aged 15-49 [observational]*
- *C5.12 Percentage of operated femur fractures of all diagnosed femur fractures [observational]*
- C16.7 Percentage of surgical admissions from Emergency Department (ED) with surgical DRG on discharge [evaluated]

**Lombardia**

Osp. Sacra Famiglia  
 Osp. Moriggia Pelascini  
 ASL Valcamonica-Sebino  
 Osp. S. Giuseppe - MI  
 Ist. Naz. tumori  
 Pol. S. Matteo  
 Fond. Ca Granda  
 S. Raffaele - MI  
 Ist. Europeo di Oncologia  
 Ist. Humanitas - Rozzano  
 Ist. Ortopedico Galeazzi  
 Ist. S. Donato - S.D.  
 CdC Multimed. - Sesto S.  
 AO Fond. Macchi - VA  
 AO S. A. Abate - Gallarate  
 AO Osp. Circolo - B. Ars.  
 AO Spedali Civili - BS  
 AO M. Mellini - Chiari  
 AO Desenzano del Garda  
 AO Ist. Ospitalieri - CR  
 AO Osp. Maggiore - Crema  
 AO S. Anna- Como  
 AO Lecco  
 AO Osp. Riuniti - BG  
 AO Treviglio  
 AO Bolognino - Seriate  
 AO C. Poma  
 AO L. Sacco - Mi  
 AO Niguarda - MI  
 AO I.C.P. - MI  
 AO Fatebenefratelli - MI  
 AO S. Paolo - MI  
 AO G. Pini - MI  
 AO S. Carlo Borromeo - MI  
 AO Civile - Legn.  
 AO G. Salvini - Garb.  
 AO Melegnano  
 AO Desio-Vimercate  
 AO S. Gerardo - Monza  
 AO Prov. Lodi  
 AO Prov. Pavia  
 AO Valtellina-Valch.

**Liguria**

AUSL 1 Imperiese  
 AUSL 2 Savonese  
 AUSL 3 Genovese  
 AUSL 4 Chiavarese  
 AUSL 5 Spezzino  
 Osp. Galliera  
 Osp. Evangelico  
 IRCCS S. Martino  
 Ist. Gaslini

**Toscana**

AUSL 1 Massa  
 AUSL 2 Lucca  
 AUSL 3 Pistoia  
 AUSL 4 Prato  
 AUSL 5 Pisa  
 AUSL 6 Livorno  
 AUSL 7 Siena  
 AUSL 8 Arezzo  
 AUSL 9 Grosseto  
 AUSL 10 Firenze  
 AUSL 11 Empoli  
 AUSL 12 Viareggio  
 AOU Pisana  
 AOU Senese  
 AOU Careggi  
 Meyer  
 Fond. Monasterio

**Sardegna**

ASL 1 Sassari  
 ASL 2 Olbia-Tempio  
 ASL 3 Nuoro  
 ASL 4 Ogliastra  
 ASL 5 Oristano  
 ASL 6 Medio Campidano  
 ASL 7 Carbonia-Iglesias  
 ASL 8 Cagliari  
 AO Brotzu  
 AOU Sassari

**Lazio**

AUSL Roma A  
 AUSL Roma B  
 AUSL Roma C  
 AUSL Roma D  
 AUSL Roma E  
 AUSL Roma F  
 AUSL Roma G  
 AUSL Roma H  
 AUSL Viterbo  
 AUSL Rieti  
 AUSL Latina  
 AUSL Frosinone  
 AO S. Camillo Forlanini  
 AO S. G. Addolorata  
 AO S. F. Neri  
 Osp. Bambino Gesù  
 Pol. Umberto I  
 I. Fis. Ospitalieri  
 AO S. Andrea  
 Fond. Pol. Tor Vergata  
 AO S. Camillo-Forlanini  
 AO S. Giovanni/Addolorata  
 AO S. F. Neri  
 Pol. Umberto I  
 I. Fis. Osp. Reg. Elena  
 AO S. Andrea  
 Pol. Tor Vergata

**Bolzano**

Azienda P.A. Bolzano

**Trento**

APSS Trento

**Calabria**

ASP Cosenza  
 ASP Crotona  
 ASP Catanzaro  
 ASP Vibo Val.  
 ASP Reggio Calabria  
 AO Cosenza  
 AO Pugliese-Ciaccio CZ  
 AO Bianchi Melacrino M.

**Friuli Venezia Giulia**

ASS2 Isontina  
 ASS3 Alto Friuli  
 ASS4 Medio Friuli  
 ASS5 Bassa Friulana  
 IRCCS Burlo Gar.  
 IRCCS Centro Rif. Oncol.  
 AO Pordenone  
 AOU Trieste  
 AOU Udine

**Marche**

Urbino  
 Fano  
 Senigallia  
 Jesi  
 Fabriano  
 Ancona  
 Civitanova M.  
 Macerata  
 Camerino S. Severino  
 Fermo  
 S. Benedetto  
 Ascoli Piceno  
 AO Osp. Riun. Marche Nord  
 AOU Osp. Riun. Ancona  
 INRCA

**Puglia**

ASL Brindisi  
 ASL Taranto  
 ASL Barletta-Andria-Trani  
 ASL Bari  
 ASL Foggia  
 ASL Lecce  
 IRCCS Oncologico Bari  
 IRCCS Debellis Castellana  
 E.E. Casa Sollievo  
 IRCCS S.Maugeri  
 AOU Pol. Bari  
 OO.RR. Foggia

**Basilicata**

ASP Potenza  
 ASM Matera  
 AO S. Carlo

**Veneto**

AULSS 1 Belluno  
 AULSS 2 Feltre  
 AULSS 3 Bass. del Grappa  
 AULSS 4 Alto Vicentino  
 AULSS 5 Ovest Vicentino  
 AULSS 6 Vicenza  
 AULSS 7 Pieve di Soligo  
 AULSS 8 Asolo  
 AULSS 9 Treviso  
 AULSS 10 Veneto Or.  
 AULSS 12 Veneziana  
 AULSS 13 Mirano  
 AULSS 14 Chioggia  
 AULSS 15 A. Padovana  
 AULSS 16 Padova  
 AULSS 17 Este  
 AULSS 18 Rovigo  
 AULSS 19 Adria  
 AULSS 20 Verona  
 AULSS 21 Legnago  
 AULSS 22 Bussolengo  
 AO Padova  
 AOU Verona  
 Ist. Onc. Veneto (IOV)

**Emilia-Romagna**

AUSL Piacenza  
 AUSL Parma  
 AUSL Reggio Emilia  
 AUSL Modena  
 AUSL Bologna  
 AUSL Imola  
 AUSL Ferrara  
 AUSL Romagna  
 AOU Parma  
 AO Reggio Emilia  
 AOU Modena  
 AOU Bologna  
 AOU Ferrara  
 IRCCS Rizzoli

**Umbria**

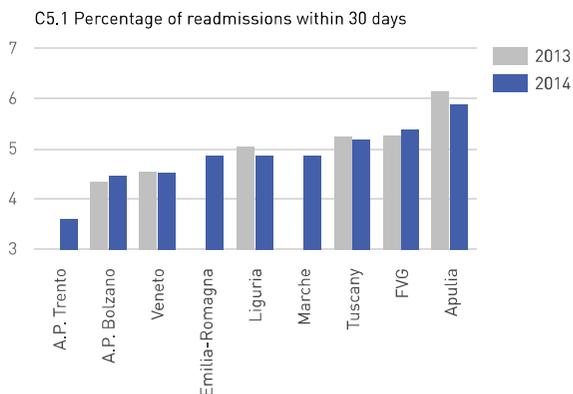
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 USL Umbria 2  
 AO Perugia  
 AO Terni



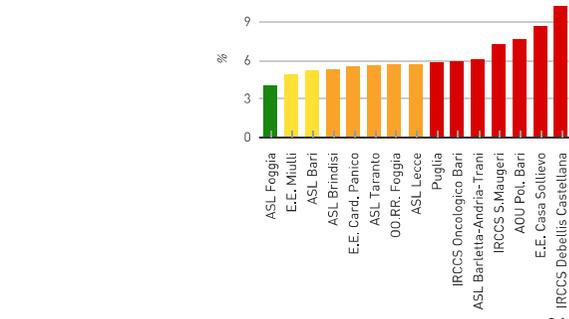
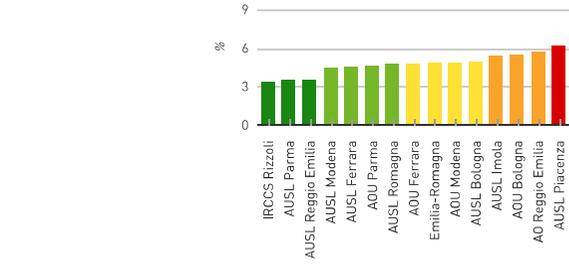
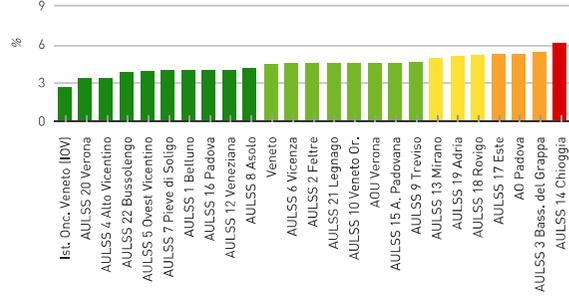
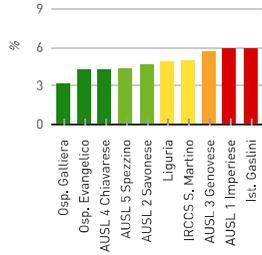
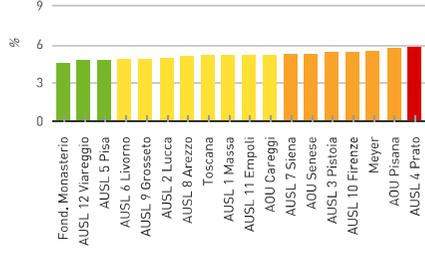
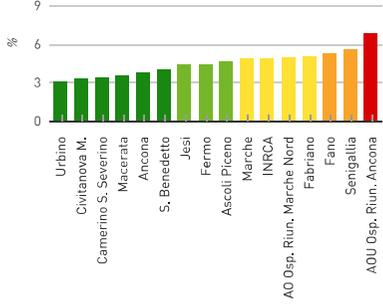


### C5.1 Percentage of readmissions within 30 days

If appropriately treated, the patient should not be re-admitted before one month of discharge. The indicator measures the number of patients readmitted to a hospital within 30 days of the previous admission for a similar problem. Repeated admission is attributed to the previous Health Authority to admit the patient.



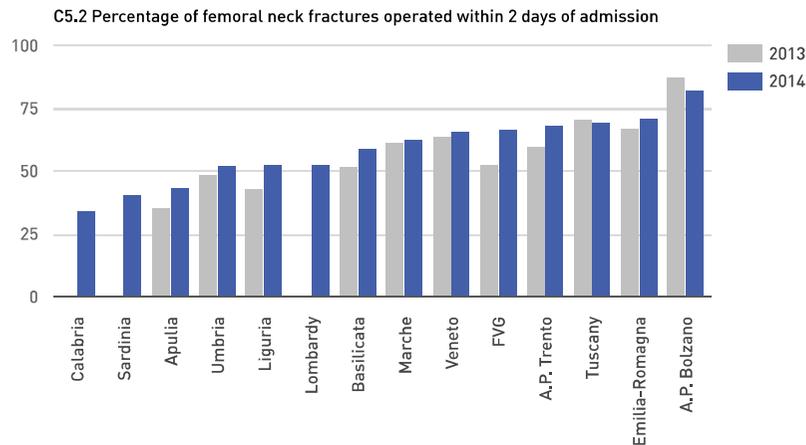
<b>Definition</b>	Percentage of readmissions within 30 days
<b>Numerator</b>	Number of readmissions within 30 days with the same MDC (first episode in the period between 1st January - 30th November, following episode in the period between 1st January - 31st December), per 100
<b>Denominator</b>	Number of admissions from 1 January to 30 November
<b>Notes</b>	<p>Inpatient admissions in the Region of adult residents, with valid patient ID, in the first 11 months of the year were considered.</p> <p>Readmissions are those bearing the same patient ID, MDC as a previous admission and which took place within <math>\leq 30</math> days of the first admission.</p> <p>Readmissions are not generated by:</p> <ul style="list-style-type: none"> <li>- admissions followed by voluntary discharge;</li> <li>- admissions followed by discharge for patient transfer to another public or private care institute for acute treatment; transfer within the same institute; transfer to a public or private rehabilitation institute, if the discharge date is the same as the readmission date.</li> </ul> <p>Readmission is attributed to the Health Authority admitting the patient on the previous occasion. For example, in the event of a third readmission within 30 days from the first, this will be attributed to the Health Authority making the second admission.</p> <p>Admissions excluded from both the numerator and the denominator:</p> <ul style="list-style-type: none"> <li>- with anonymous fiscal code;</li> <li>- patients admitted to psychiatric ward (code 40);</li> <li>- admissions or discharges from spinal unit, long-term functional rehabilitation units, neuro-rehabilitation and palliative care (28, 56, 60, 75,99);</li> <li>- discharges for radiotherapy and chemotherapy (DRG 409, 410, 492);</li> <li>- deceased patients with only one admission;</li> <li>- admissions to private unaccredited hospitals</li> </ul>
<b>Source</b>	Regional Information System - Hospital discharge records





## C5.2 Percentage of femoral neck fractures operated within 2 days of admission

International guidelines agree that surgical procedure (for fracture reduction and prosthetic replacement) is the best treatment for femoral neck fractures, increasing the likelihood of recovery and return to normal limb function. Several studies have shown that long waiting times for the intervention are associated with increased risk of mortality and patient disability. Prompt surgery for femur fracture is a determinant of patient functional recovery, reducing the risk of serious negative outcomes in terms of complications, disability and impact on social life. As a result, the general recommendations are for patients with femoral neck fracture to be operated on within 24 hours of admission to hospital. The care process is strongly affected by the organizational capacity of the facility, which in turn determines promptness of intervention. An important role is played not only by orthopaedics but also by the Emergency Departments, which should rapidly direct patients to the ward. Femur fractures require articulated and complex management if quality of orthopaedic care is to be ensured.



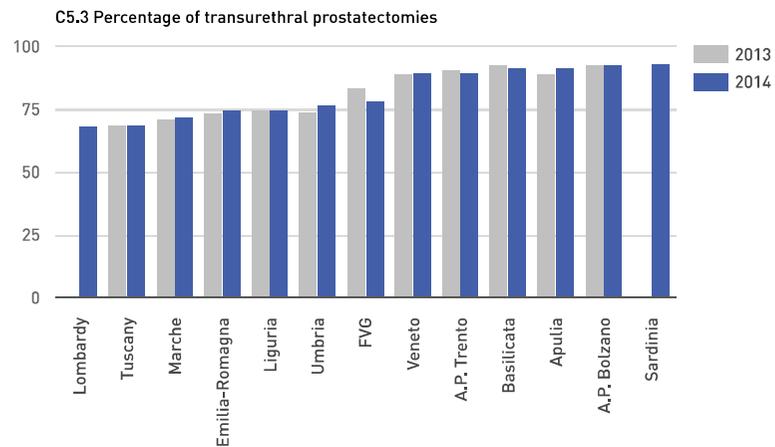
<b>Definition</b>	Percentage of procedures for femoral neck fracture with length of stay between admission and surgical procedure $\leq$ 2 days
<b>Numerator</b>	Number of procedures for femoral neck fracture with length of stay between admission and surgical procedure $\leq$ 2 days, per 100
<b>Denominator</b>	Number of procedures for femoral neck fracture
<b>Notes</b>	Only inpatient admissions were considered. Codes ICD9-CM in primary diagnosis: Femoral neck fracture 820.xx and surgical procedure codes ICD9-CM for primary or secondary procedure: - 79.15 Closed reduction of femur fracture with internal fixation - 79.35 Open reduction of femur fracture with internal fixation - 81.51 Total hip replacement - 81.52 Partial hip replacement - 78.55 Internal fixation without reduction of fracture of the femur
<b>Source</b>	Regional Information System - Hospital discharge records





### C5.3 Percentage of transurethral prostatectomies

The indicator assesses the type of prostatectomy technique used in the procedure as a measure of professional quality. The transurethral procedure is a minimally invasive technique ensuring rapid postoperative recovery and shorter hospital stay, which in turn implies lower resource utilization.



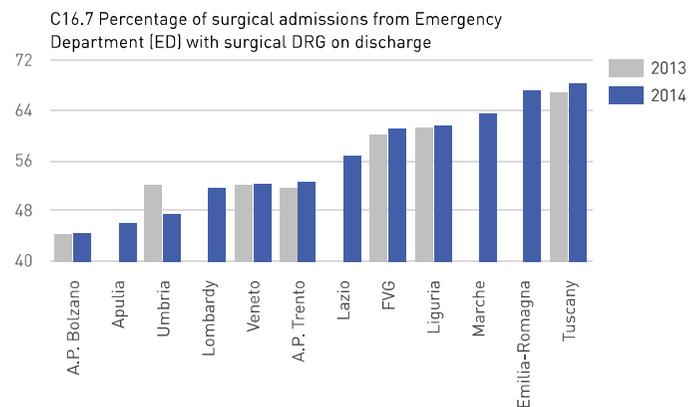
<b>Definition</b>	Percentage of transurethral prostatectomies
<b>Numerator</b>	Number of transurethral prostatectomies, per 100
<b>Denominator</b>	Number of transurethral prostatectomies
<b>Notes</b>	Cases of prostate cancer in primary diagnosis (185) were excluded. Codes: Numerator: Code ICD9-CM of principal intervention 60.21, 60.29 Denominator: Code ICD9-CM of principal intervention 60.21, 60.29, 60.3, 60.4, 60.5, 60.61, 60.62, 60.69
<b>Source</b>	Regional Information System - Hospital discharge records



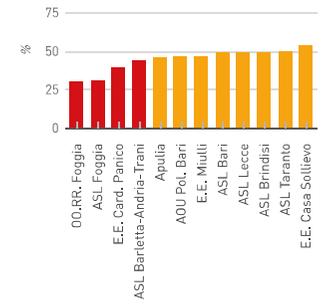
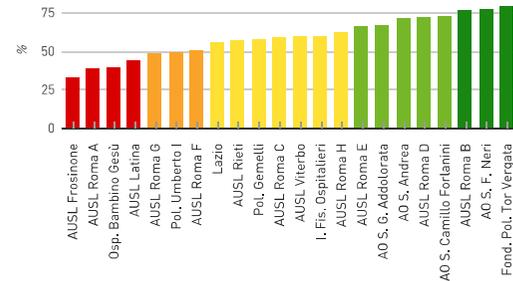
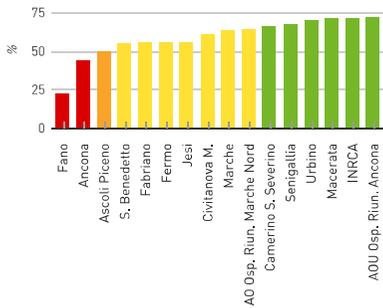
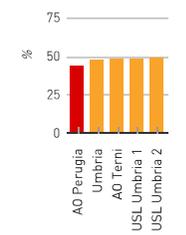
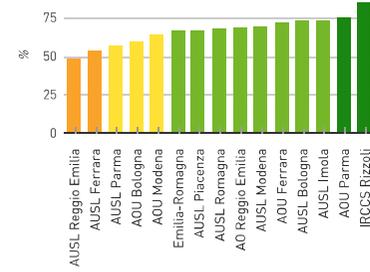
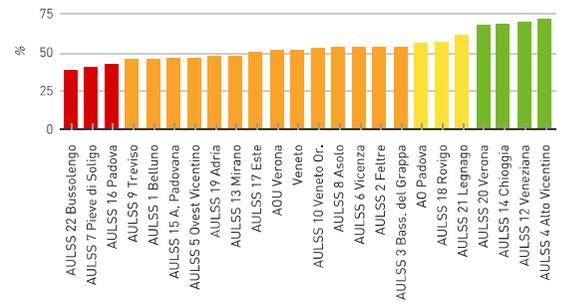
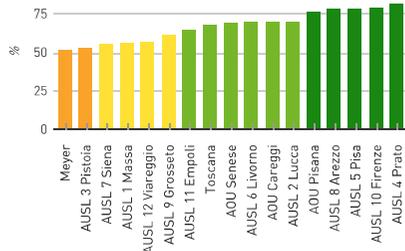
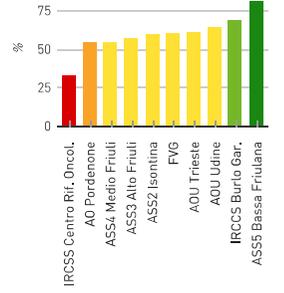
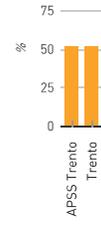
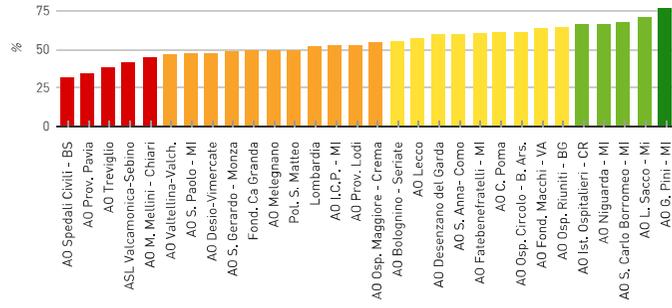
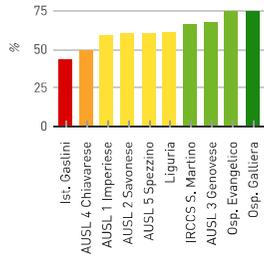


### C16.7 Percentage of surgical admissions from Emergency Department (ED) with surgical DRG on discharge

Introduced in 2014, indicator C16.7 monitors the percentage of patients transferred from the Emergency Department to a surgical ward, who have a surgical DRG on discharge. Calculated on the basis of hospital discharge records, the indicator highlights both the ability of the Emergency Department staff to correctly address their patients and, secondly, overall hospital organizational efficiency.



<b>Definition</b>	Percentage of surgery admissions from the ED with surgical DRG on discharge, compared to surgery admissions with medical or surgical DRG on discharge
<b>Numerator</b>	Number of surgery admissions from the ED with surgical DRG on discharge
<b>Denominator</b>	Number of surgery admissions from the ED with medical or surgical DRG on discharge
<b>Notes</b>	Inpatient admissions by public hospitals and surgical ward admissions were considered: 06 paediatric cardiac surgery, 07 cardiac surgery, 09 general surgery, 10 maxillofacial surgery, 11 paediatric surgery, 12 plastic surgery, 13 thoracic surgery, 14 vascular surgery, 30 neurosurgery, 34 ophthalmology, 35 dentistry and stomatology, 36 orthopaedics and traumatology, 38 otolaryngology, 43 urology, 76 paediatric neurosurgery, 78 paediatric urology. The following admission wards were excluded: 37 obstetrics and gynaecology and 39 paediatrics. Patient discharged with neither medical nor surgical DRGs were excluded
<b>Source</b>	Regional Information System - Hospital discharge records





## C7 Maternal and child care

The quality of the birth pathway is measured through indicators chosen on the basis of both the literature [Health Canada, Sutter Women's & Children's Services, 2001] and professional experience. Only a selection of the indicators of the Performance Evaluation System for the birth pathway was assigned a score (C-section, episiotomies and assisted deliveries, hospitalization rate in paediatric age, hospitalization rate in the first year of life, percentage of admissions above the childbirth threshold, and dispersion index in facilities below the childbirth threshold). The others were included as context indicators to provide a more complete understanding of the process.

The indicator score is the weighted average of the scores of the following indicators (weight of each indicator shown in brackets): C7.1 (60%), C7.3 (6%), C7.6 (10%), C7.7 (8%), C7.7.1 (6%), C17.4.1 (5%), C17.4.2 (5%).

### C7 Maternal and child care [evaluated]

- C7.1 Percentage of C-section deliveries (NTSV) [evaluated]
- C7.1.2 Percentage of C-section deliveries in the 1st group of Robson's classification [observational]
- C7.1.3 Percentage of C-section deliveries in the 2nd group of Robson's classification [observational]
- C7.1.4 Percentage of elective C-section deliveries over NTSV deliveries [observational]
- C7.2 Percentage of induced labours [observational]
- C7.3 Percentage of episiotomies (NTSV) [evaluated]
- C7.6 Percentage of assisted deliveries (forceps or ventouse) [evaluated]
- C7.20 Percentage of severe peri-/intra-partum asphyxia [observational]
- C7.13 Percentage of foreign women attending the first visit late (>12th week of gestation) [observational]
- C7.13.1 Percentage of women with low education level attending the first visit late (>12th week of gestation) [observational]
- C7.14 Percentage of foreign women attending fewer than 4 visits during pregnancy [observational]
- C7.14.1 Percentage of women with low level of education attending fewer than 4 visits during pregnancy [observational]
- C7.7 Paediatric hospitalization rate (0-14 years) [evaluated]
- C7.7.1 Admission rate during the first year of life [evaluated]
- C7.7.2 Paediatric admission rate (1-5 years) [observational]
- C7.7.3 Paediatric admission rate (6-13 years) [observational]
- C17.4 Delivery volumes [evaluated]
- C17.4.1 Percentage of admissions over the childbirth threshold [evaluated]
- C17.4.2 Dispersion index of deliveries in facilities under the childbirth threshold [evaluated]

**Lombardia**

Osp. Sacra Famiglia ●  
 Osp. Moriggia Pelascini ●  
 ASL Bergamo ●  
 ASL Brescia ●  
 ASL Como ●  
 ASL Cremona ●  
 ASL Lecco ●  
 ASL Lodi ●  
 ASL Mantova ●  
 ASL Milano ●  
 ASL Milano 1 ●  
 ASL Milano 2 ●  
 ASL Monza-Brianza ●  
 ASL Pavia ●  
 ASL Sondrio ●  
 ASL Varese ●  
 ASL Valcamonica-Sebino ●  
 Osp. S. Giuseppe - MI ●  
 Pol. S. Matteo ●  
 Fond. Ca Granda ●  
 S. Raffaele - MI ●  
 AO Fond. Macchi - VA ●  
 AO S. A. Abate - Gallarate ●  
 AO Osp. Circolo - B. Ars. ●  
 AO Spedali Civili - BS ●  
 AO M. Mellini - Chiari ●  
 AO Desenzano del Garda ●  
 AO Ist. Ospitalieri - CR ●  
 AO Osp. Maggiore - Crema ●  
 AO S. Anna - Como ●  
 AO Lecco ●  
 AO Osp. Riuniti - BG ●  
 AO Treviglio ●  
 AO Bolognino - Seriate ●  
 AO C. Poma ●  
 AO L. Sacco - Mi ●  
 AO Niguarda - MI ●  
 AO I.C.P. - MI ●  
 AO Fatebenefratelli - MI ●  
 AO S. Paolo - MI ●  
 AO S. Carlo Borromeo - MI ●  
 AO Civile - Legn. ●  
 AO G. Salvini - Garb. ●  
 AO Melegnano ●  
 AO Desio-Vimercate ●  
 AO Prov. Lodi ●  
 AO Prov. Pavia ●  
 AO Valtellina-Valch. ●  
 Osp. Valduce ●

**Liguria**

AUSL 1 Imperiese ●  
 AUSL 2 Savonese ●  
 AUSL 3 Genovese ●  
 AUSL 4 Chiavarese ●  
 AUSL 5 Spezzino ●  
 Osp. Galliera ●  
 Osp. Evangelico ●  
 IRCCS S. Martino ●  
 Ist. Gaslini ●

**Toscana**

AUSL 1 Massa ●  
 AUSL 2 Lucca ●  
 AUSL 3 Pistoia ●  
 AUSL 4 Prato ●  
 AUSL 5 Pisa ●  
 AUSL 6 Livorno ●  
 AUSL 7 Siena ●  
 AUSL 8 Arezzo ●  
 AUSL 9 Grosseto ●  
 AUSL 10 Firenze ●  
 AUSL 11 Empoli ●  
 AUSL 12 Viareggio ●  
 AOU Pisana ●  
 AOU Senese ●  
 AOU Careggi ●

**Lazio**

AUSL Roma A ●  
 AUSL Roma B ●  
 AUSL Roma C ●  
 AUSL Roma D ●  
 AUSL Roma E ●  
 AUSL Roma F ●  
 AUSL Roma G ●  
 AUSL Roma H ●  
 AUSL Viterbo ●  
 AUSL Rieti ●  
 AUSL Latina ●  
 AUSL Frosinone ●  
 AO S. Camillo-Forlanini ●  
 AO S. Giovanni/Addolorata ●  
 AO S. F. Neri ●  
 Pol. Umberto I ●

**Bolzano**

Azienda P.A. Bolzano ●

**Trento**

APSS Trento ●

**Calabria**

ASP Cosenza ●  
 ASP Crotona ●  
 ASP Catanzaro ●  
 ASP Vibo Val. ●  
 ASP Reggio Calabria ●

**Friuli Venezia Giulia**

ASS1 Triestina ●  
 ASS2 Isoncina ●  
 ASS3 Alto Friuli ●  
 ASS4 Medio Friuli ●  
 ASS5 Bassa Friulana ●  
 ASS6 Friuli Occidentale ●  
 IRCCS Burlo Gar. ●  
 AO Pordenone ●  
 AOU Udine ●

**Marche**

Pesaro ●  
 Urbino ●  
 Fano ●  
 Senigallia ●  
 Jesi ●  
 Fabriano ●  
 Ancona ●  
 Civitanova M. ●  
 Macerata ●  
 Camerino S. Severino ●  
 Fermo ●  
 S. Benedetto ●  
 Ascoli Piceno ●  
 AO Osp. Riun. Marche Nord ●  
 AOU Osp. Riun. Ancona ●

**Puglia**

ASL Brindisi ●  
 ASL Taranto ●  
 ASL Barletta-Andria-Trani ●  
 ASL Bari ●  
 ASL Foggia ●  
 ASL Lecce ●  
 E.E. Casa Sollievo ●  
 AOU Pol. Bari ●  
 OO.RR. Foggia ●

**Basilicata**

ASP Potenza ●  
 ASM Matera ●  
 AO S. Carlo ●

**Veneto**

AULSS 1 Belluno ●  
 AULSS 2 Feltre ●  
 AULSS 3 Bass. del Grappa ●  
 AULSS 4 Alto Vicentino ●  
 AULSS 5 Ovest Vicentino ●  
 AULSS 6 Vicenza ●  
 AULSS 7 Pieve di Soligo ●  
 AULSS 8 Asolo ●  
 AULSS 9 Treviso ●  
 AULSS 10 Veneto Or. ●  
 AULSS 12 Veneziana ●  
 AULSS 13 Mirano ●  
 AULSS 14 Chioggia ●  
 AULSS 15 A. Padovana ●  
 AULSS 16 Padova ●  
 AULSS 17 Este ●  
 AULSS 18 Rovigo ●  
 AULSS 19 Adria ●  
 AULSS 20 Verona ●  
 AULSS 21 Legnago ●  
 AULSS 22 Bussolengo ●  
 AO Padova ●  
 AOU Verona ●

**Emilia-Romagna**

AUSL Piacenza ●  
 AUSL Parma ●  
 AUSL Reggio Emilia ●  
 AUSL Modena ●  
 AUSL Bologna ●  
 AUSL Imola ●  
 AUSL Ferrara ●  
 AUSL Romagna ●  
 AOU Parma ●  
 AO Reggio Emilia ●  
 AOU Modena ●  
 AOU Bologna ●  
 AOU Ferrara ●

**Umbria**

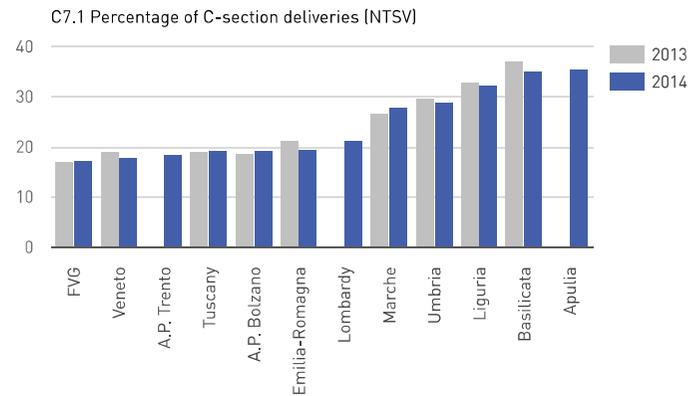
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 USL Umbria 2 ●  
 AO Perugia ●  
 AO Terni ●



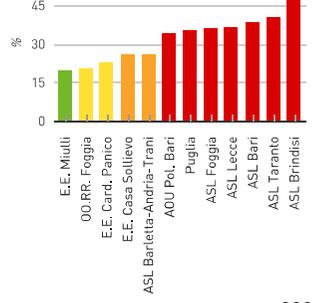
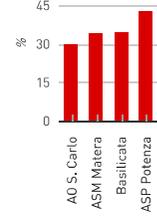
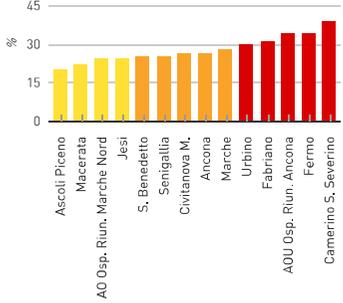
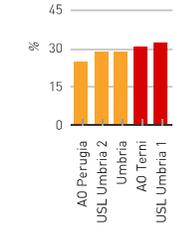
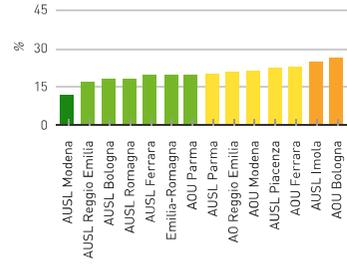
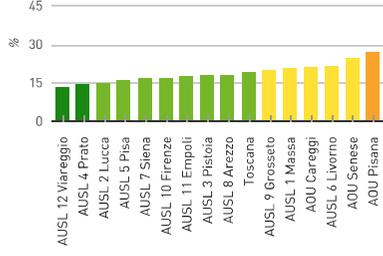
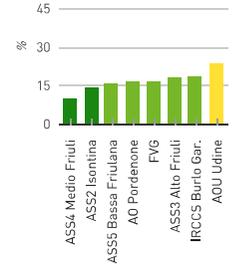
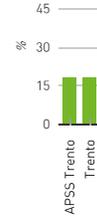
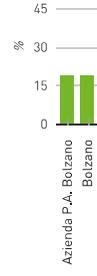
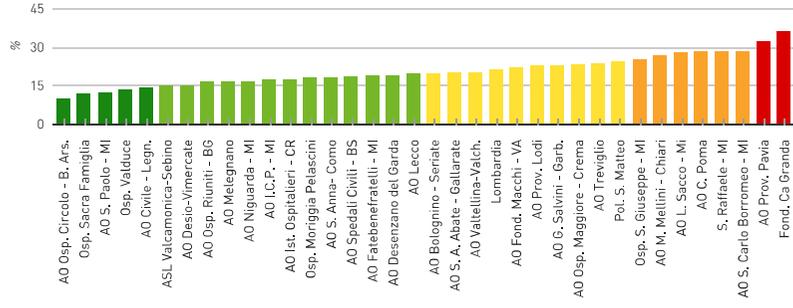
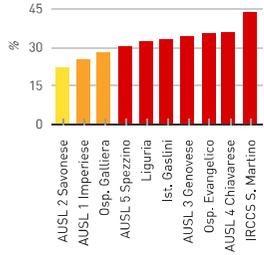


### C7.1 Percentage of C-section deliveries (NTSV)

Data comparison of C-section births in the various Health Authorities is not always possible due to patient variability. The American College of Gynaecologists and Obstetricians proposes the use of a specific indicator that limits the analysis to a case-mix of primiparous women, with delivery at term, non-twin delivery and child in a vertex position (NTSV), in order to make comparison between different maternity units possible. This indicator includes a broad segment of the population with about 32-39% C-section deliveries [Evaluation of C-Section Delivery, 2000].



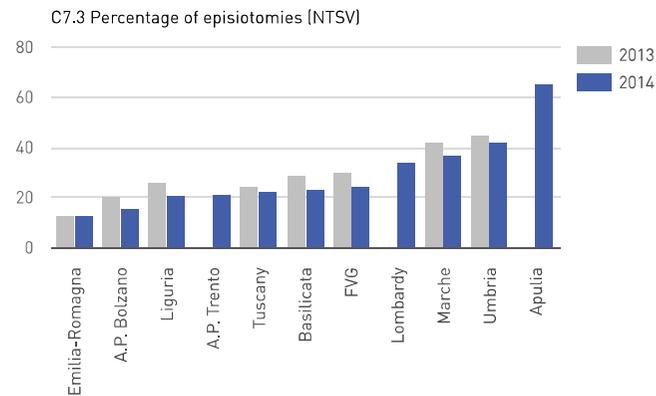
<b>Definition</b>	Percentage of C-section deliveries (NTSV)
<b>Numerator</b>	Number of NTSV C-section deliveries, per 100
<b>Denominator</b>	Number of NTSV deliveries
<b>Notes</b>	NTSV (Nulliparous, Term, Singleton, Vertex): primiparous women; non-twin birth; birth at term between gestational week 37+0 and 41+6; child in vertex position. Childbirths with medically assisted procreation were excluded. Only women aged between 14 and 49 were considered
<b>Source</b>	Regional Information System - CEDAP Flow



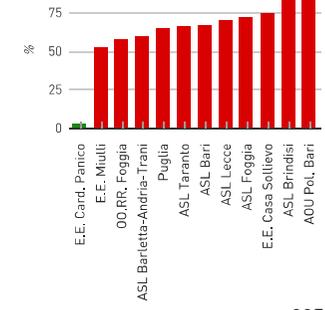
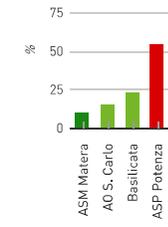
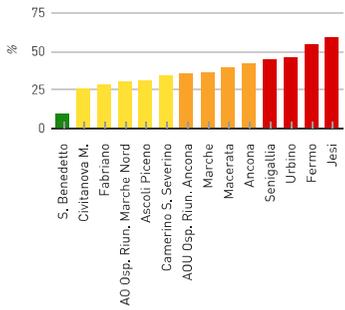
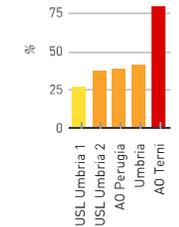
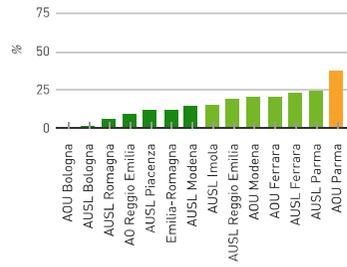
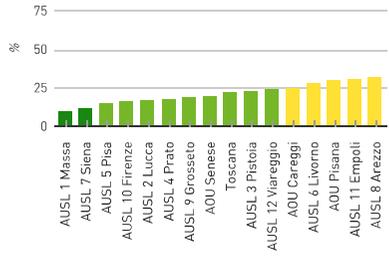
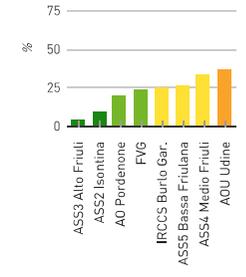
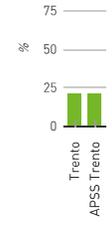
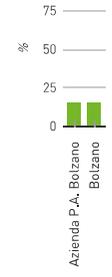
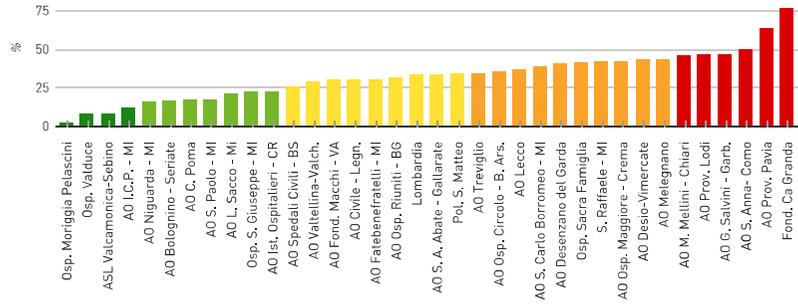
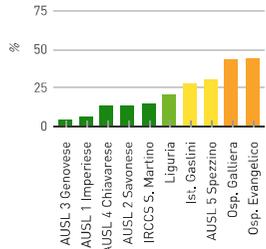


### C7.3 Percentage of episiotomies (NTSV)

Episiotomy, one of the most frequently used procedures in vaginal delivery, has become a routine practice even without evidence of its effectiveness either in the short or medium-long term. Randomized controlled trials have shown that limiting the use of episiotomy (both median and mediolateral) reduces the incidence of injuries and complications of the perineal area [Viswanathan et al., 2005].



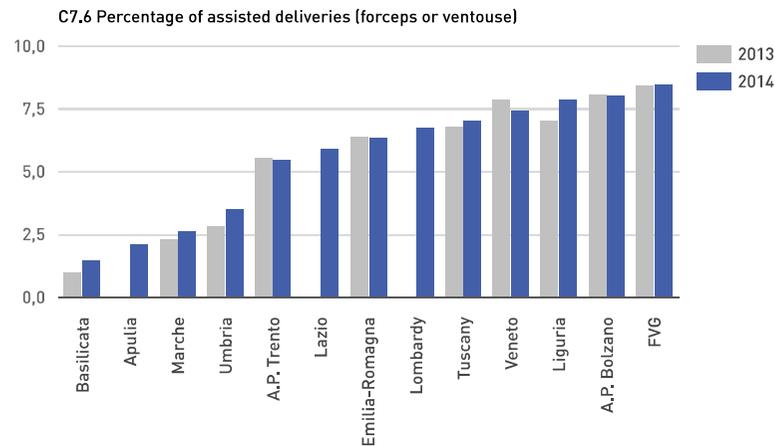
<b>Definition</b>	Percentage of episiotomies for NTSV vaginal deliveries
<b>Numerator</b>	Number of episiotomies performed for NTSV vaginal deliveries, per 100
<b>Denominator</b>	Number of NTSV vaginal deliveries
<b>Notes</b>	<p>NTSV (Nulliparous, Term, Singleton, Vertex):                      primiparous women;                      birth at term between week of gestation 37+0 and 41+6;                      non-twin birth;                      child in vertex position.</p> <p>Only women aged between 14 and 49 years were considered.                      Vaginal delivery: non-operative vaginal delivery, forceps, ventouse and turning.                      Deliveries without registered information about episiotomy were excluded from the calculation.                      In Regions with no "Episiotomy" field in CEDAP, data were cross-checked with Hospital Discharge Records:                      Selection of inpatient admissions with DRG: 372-373-374-375                      Primary and secondary procedure ICD9-CM: Episiotomy 72.1, 72.21, 72.31, 73.6                      Deliveries with breech presentation in primary or secondary procedures were excluded: 72.5x, 72.6</p>
<b>Source</b>	Regional Information System - CEDAP Flow; Regions: Basilicata, Emilia-Romagna, Friuli, Umbria and A.P. Bolzano - CEDAP and Hospital Discharge Records



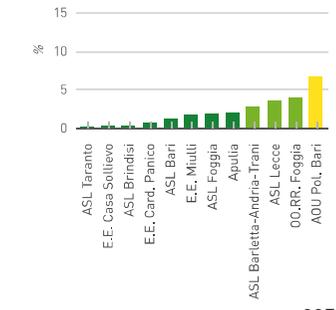
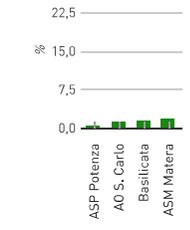
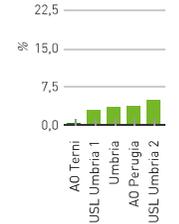
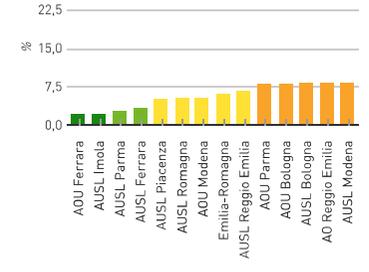
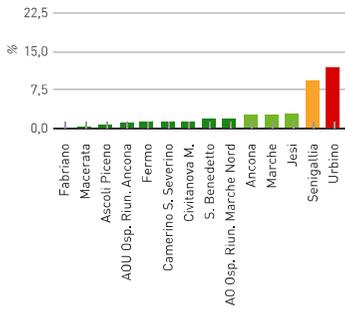
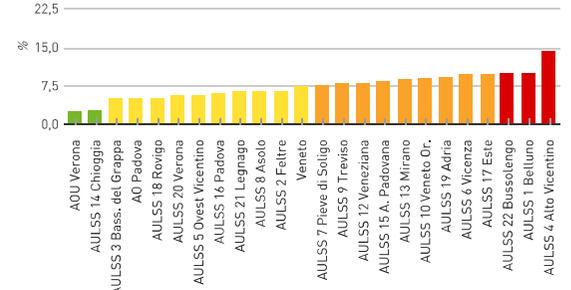
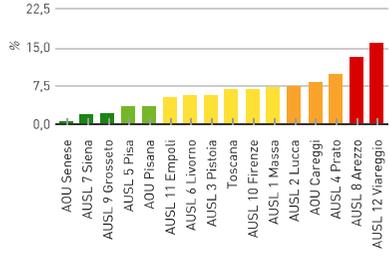
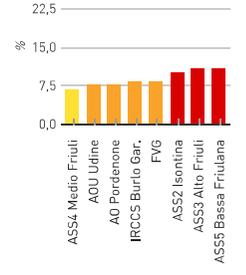
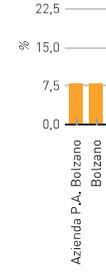
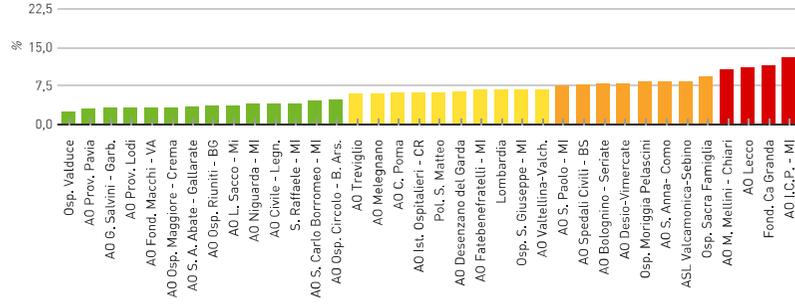
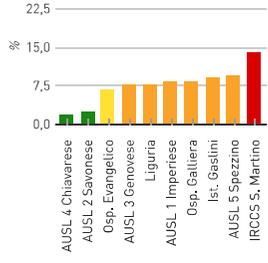


### C7.6 Percentage of assisted deliveries (forceps or ventouse)

Monitoring the use of forceps and ventouse provides information on obstetric techniques adopted by Health Authorities, and allows contextualizing of results in relation to the type of delivery. This indicator must be considered together with the percentage of C-section births in order to identify a possible correlation between a lower percentage of C-section deliveries and an increased use of assisted births.



<b>Definition</b>	Percentage of operative vaginal deliveries with forceps or ventouse
<b>Numerator</b>	Number of vaginal deliveries with forceps or ventouse, per 100
<b>Denominator</b>	Number of vaginal deliveries
<b>Notes</b>	Delivery mode: natural, forceps, ventouse and turning
<b>Source</b>	Regional Information System - CEDAP Flow

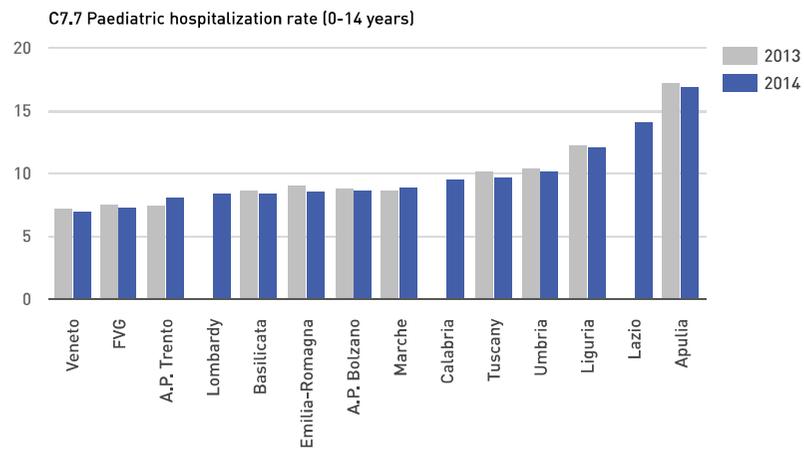




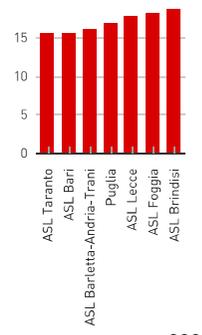
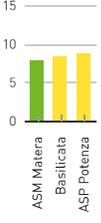
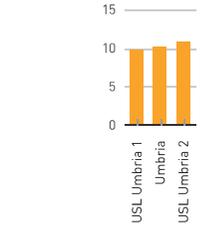
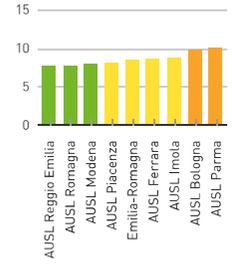
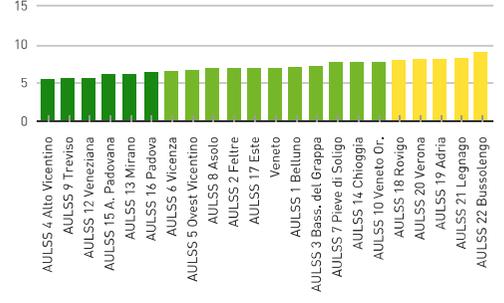
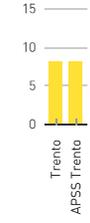
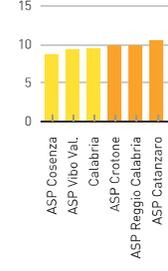
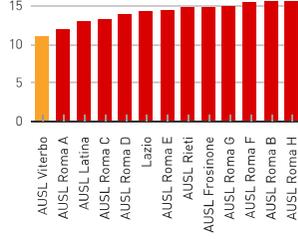
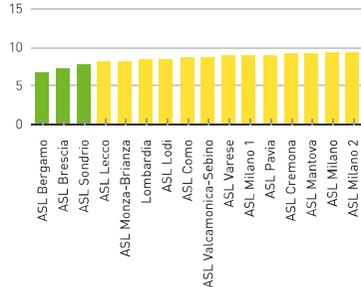
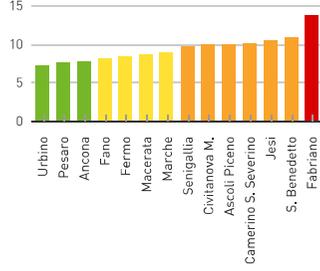
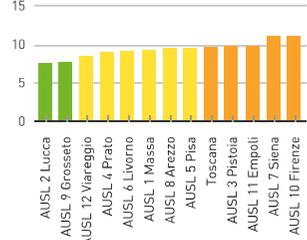
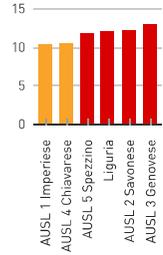
### C7.7 Paediatric hospitalization rate (0-14 years)

Despite its decrease in recent years, hospitalization rate for children in Italy is higher than in other western countries. Since epidemiological conditions do not differ, it is likely that the rate is related to a substantial variation in hospital access protocols, different organization of the service network and a high level of inappropriateness of child hospital admissions (Fortino et al. 2005; ASSR 2002). A pivotal role is played by strengthening primary care, developing a new relationship with the hospital, improving continuity of care and enhancing the role of the paediatrician in defining the most suitable care pathways (Zanetti et al. 2005).

Bolzano residents admitted to Austrian hospitals were included in the calculation of the indicator for the A.P. of Bolzano.



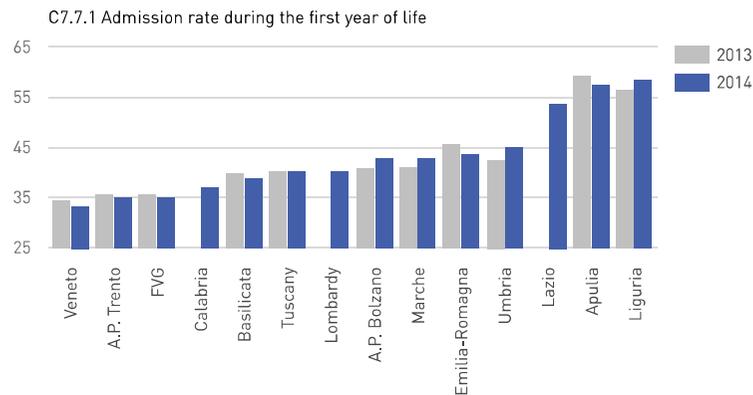
<b>Definition</b>	Paediatric hospitalization rate per 100 residents (aged <14 years)
<b>Numerator</b>	Number of admissions (<14 years), per 100
<b>Denominator</b>	Resident population (<14 years)
<b>Notes</b>	Inpatient and outpatient admissions of residents, either to a hospital in the Region of the patients residence or to a facility in another Region, were considered. Where no passive mobility data were available, the previous year figures were applied. Excluded: - admissions to unaccredited private hospitals - admissions of normal newborns (DRG 391)
<b>Source</b>	Regional Information System - Hospital discharge records



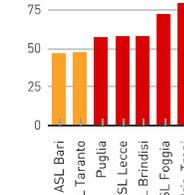
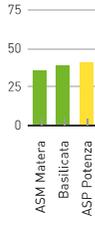
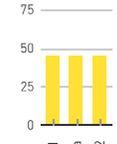
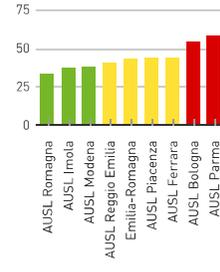
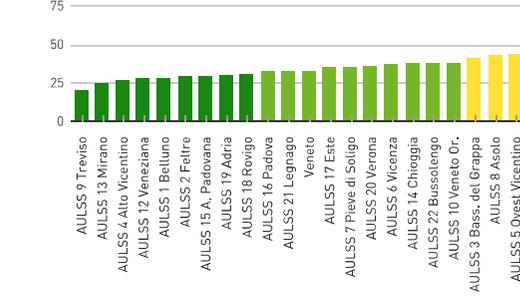
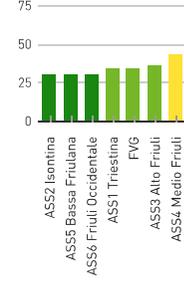
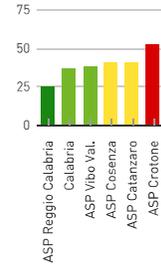
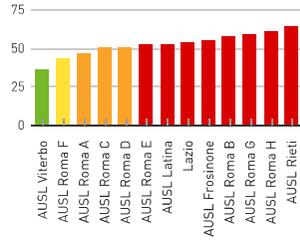
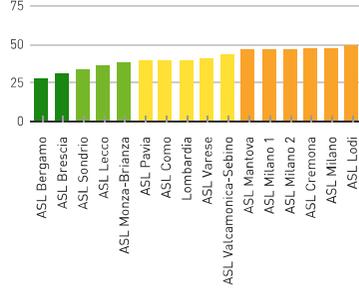
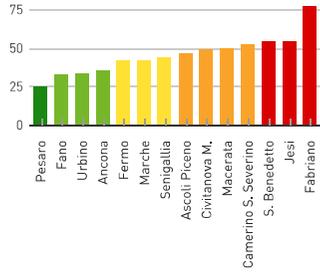
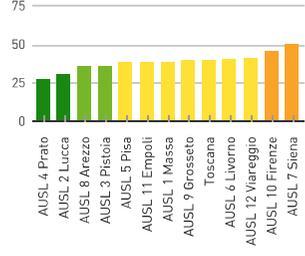
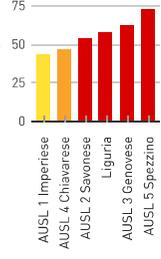


### C7.7.1 Admission rate during the first year of life

Paediatric patients more frequently access hospitals in their first year of life. However, paediatric hospitalization in Italy is much more frequent than in the rest of the world, raising the issue of the organizational models adopted. Little attention is probably paid to the correct use of available resources and to the real needs of the children and their families. The following aspects are of fundamental importance in limiting inappropriate hospital admissions: effective continuity of care between primary care and hospital, effective gate-keeping by Temporary Observation units in Emergency Departments, guaranteed 24h paediatric care.



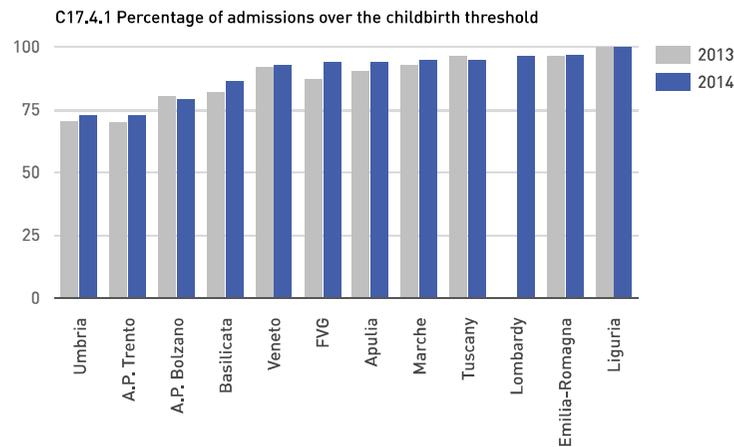
<b>Definition</b>	Admission rate during the first year of life per 100 residents (<1 year)
<b>Numerator</b>	Number of admissions during the first year of life (<1 year), per 100
<b>Denominator</b>	Resident population (<1 year)
<b>Notes</b>	<p>Overall hospital admissions of residents, either to a hospital in their Region of residence or to a facility in another Region, were considered. Where no passive mobility data were available, previous year figures were applied.</p> <p>Patients excluded:</p> <ul style="list-style-type: none"> <li>- admissions to unaccredited private hospitals</li> <li>- admissions of normal newborns (DRG 391)</li> </ul>
<b>Source</b>	Regional Information System - Hospital discharge records



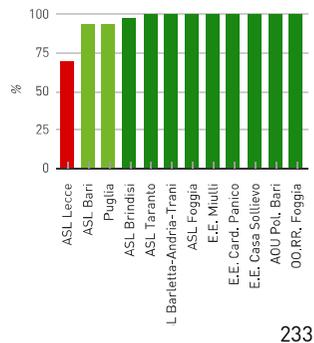
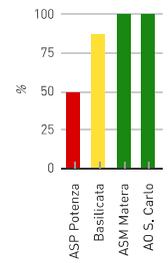
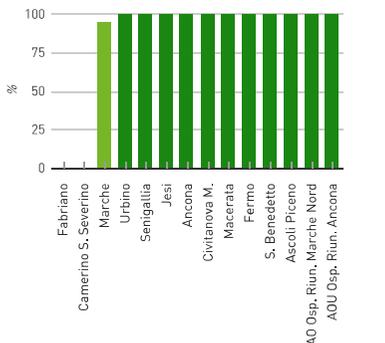
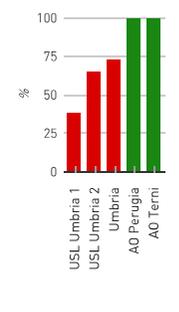
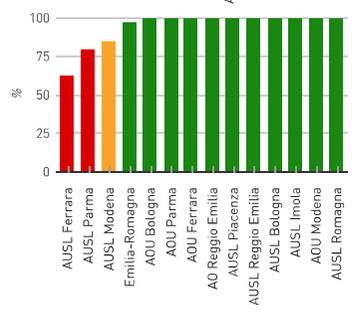
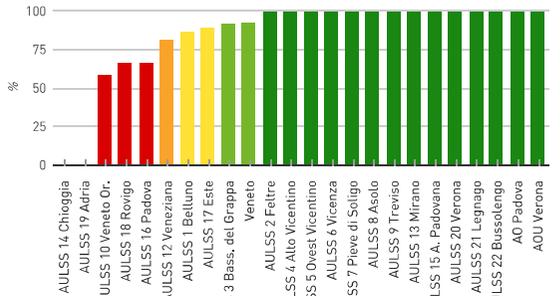
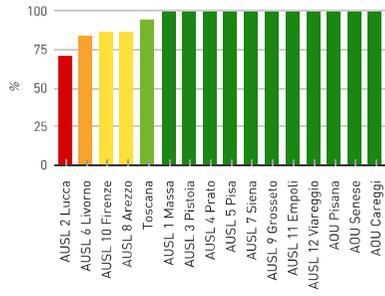
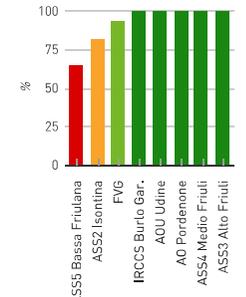
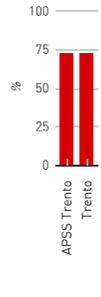
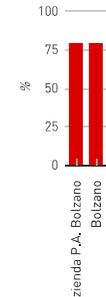
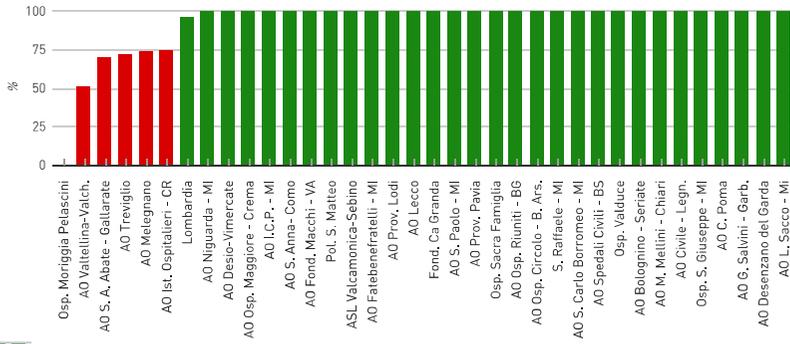
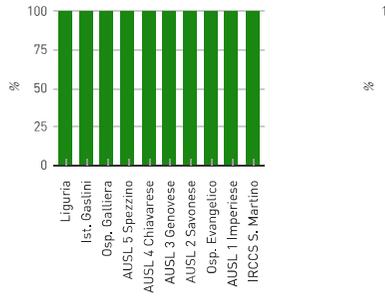


### C17.4.1 Percentage of admissions over the childbirth threshold

This indicator monitors the percentage of births delivered in maternity hospitals above the childbirth threshold compared to the total number of deliveries.



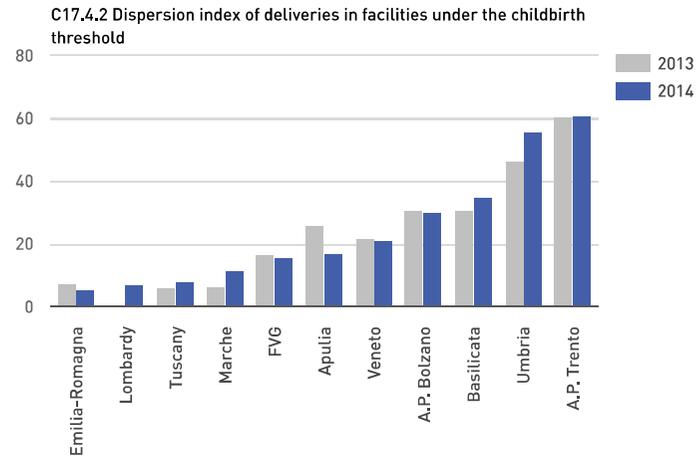
<b>Definition</b>	Percentage of admissions over the childbirth threshold
<b>Numerator</b>	Number of deliveries in maternity hospitals over the childbirth threshold
<b>Denominator</b>	Total number of deliveries
<b>Notes</b>	<p>The indicator is based on the National Outcome Evaluation Programme PNE protocols 2012, ed. 2013. The following admissions were considered:</p> <ul style="list-style-type: none"> <li>* DRG 370-375</li> <li>* or principal/secondary diagnosis codes: ICD-9-CM V27.x, 650, 640.xy-676.xy, with y=1 or 2</li> <li>* or procedure codes: 72.x, 73.2x, 73.5x, 73.6, 73.8, 73.9x, 74.0, 74.1, 74.2, 74.4, 74.99. Only hospitals with birth facilities have been considered. The minimum volume threshold is 500 childbirths per year</li> </ul>
<b>Source</b>	Regional Information System - Hospital discharge records



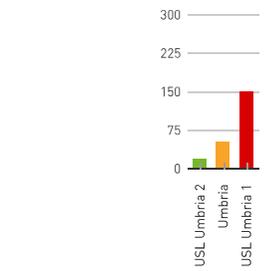
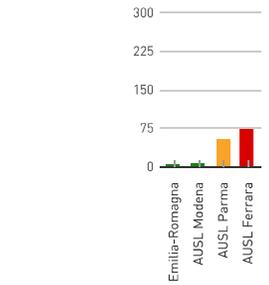
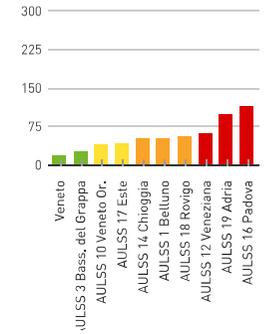
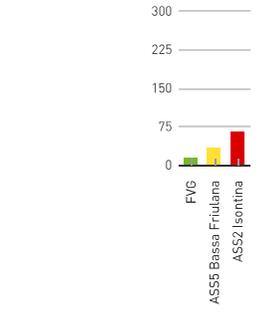
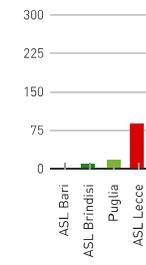
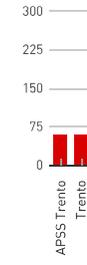
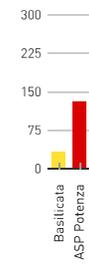
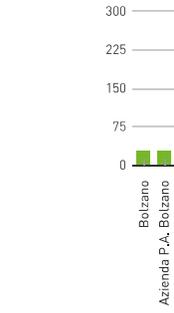
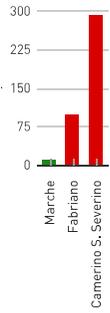
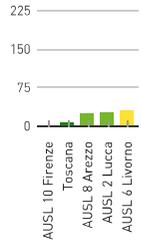
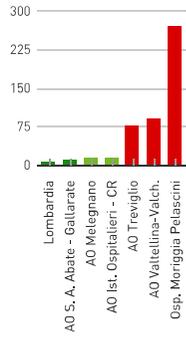


### C17.4.2 Dispersion index of deliveries in facilities under the childbirth threshold

The indicator considers only those hospitals with a number of deliveries below the established childbirth threshold (500); the difference between the actual volume of deliveries and the childbirth threshold is measured taking the dispersion index, multiplied by the percentage of deliveries below the threshold out of the total number of deliveries.



<b>Definition</b>	Dispersion index of deliveries in hospitals under the childbirth threshold
<b>Numerator</b>	Square root of the sum of the squares of the differences for each hospital between the number of admissions and the threshold, multiplied by the percentage of under threshold admissions out of total admissions
<b>Denominator</b>	Square root of the total number of maternity hospitals under the childbirth threshold
<b>Notes</b>	The indicator is based on the National Outcome Evaluation Programme PNE protocols 2012, ed. 2013. The following admissions were considered: * DRG 370-375 * or principal/secondary diagnosis codes: ICD-9-CM V27.x, 650, 640.xy-676.xy, with y =1 or 2 * or procedure codes: 72.x, 73.2x, 73.5x, 73.6, 73.8, 73.9x, 74.0, 74.1, 74.2, 74.4, 74.99. The minimum volume threshold is 500 childbirths per year
<b>Source</b>	Regional Information System - Hospital discharge records





## C8a Hospital-primary care integration

One of the main goals of the NHS is to ensure continuity of care delivered by primary and secondary healthcare professionals, guaranteeing that the fragmentation resulting from ultra-specialized expertise is offset by an integrated healthcare framework. Continuity of care requires specific pathways and healthcare provision by a jointly accountable team of healthcare and social service professionals. Inadequate integration can have significant negative consequences for both patients and organizations, leading to lower effectiveness of care, the perception of inadequate care delivery on the part of patients and relatives and, last but not least, inappropriate use of resources.

This indicator aims to assess the effectiveness of primary care and its integration with hospitals, a key element to ensure a good continuity of care. The effectiveness of primary care is measured both indirectly - reporting long-term or repeated hospitalizations or hospitalizations for specific diseases for which healthcare could be satisfactorily delivered by primary care - and directly, measuring sentinel indicators of local women's health clinics. The score attributed to the composite indicator (C8a) is the average of sub-indicators C8b.2, C8a.19.1 and C8a.19.2.

### C8a Hospital-primary care integration [evaluated]

- C8b.2 Hospital admission rate with length of stay of over 30 days [evaluated]
- C8a.2 Percentage of readmissions 31 - 180 days following discharge [observational]
- C8a.3 Underage conception rate (12-17 years) [observational]
- C11a.4.1 Pneumonia hospitalization rate (20-74 years) [observational]
- C8a.19 Paediatrics [observational]
- C8a.19.1 Paediatric hospitalization rate for asthma (2-17 years) [evaluated]
- C8a.19.2 Paediatric hospitalization rate for gastroenteritis (0-17 years) [evaluated]

- Lombardia**
- ASL Bergamo
  - ASL Brescia
  - ASL Como
  - ASL Cremona
  - ASL Lecco
  - ASL Lodi
  - ASL Mantova
  - ASL Milano
  - ASL Milano 1
  - ASL Milano 2
  - ASL Monza-Brianza
  - ASL Pavia
  - ASL Sondrio
  - ASL Varese
  - ASL Valcamonica-Sebino

- Liguria**
- AUSL 1 Imperiese
  - AUSL 2 Savonese
  - AUSL 3 Genovese
  - AUSL 4 Chiavarese
  - AUSL 5 Spezzino

- Toscana**
- AUSL 1 Massa
  - AUSL 2 Lucca
  - AUSL 3 Pistoia
  - AUSL 4 Prato
  - AUSL 5 Pisa
  - AUSL 6 Livorno
  - AUSL 7 Siena
  - AUSL 8 Arezzo
  - AUSL 9 Grosseto
  - AUSL 10 Firenze
  - AUSL 11 Empoli
  - AUSL 12 Viareggio

- Lazio**
- Comune di Roma
  - AUSL Roma A
  - AUSL Roma B
  - AUSL Roma C
  - AUSL Roma D
  - AUSL Roma E
  - AUSL Roma F
  - AUSL Roma G
  - AUSL Roma H
  - AUSL Viterbo
  - AUSL Rieti
  - AUSL Latina
  - AUSL Frosinone

- Bolzano**
- Azienda P.A. Bolzano

- Trento**
- APSS Trento

- Calabria**
- ASP Cosenza
  - ASP Crotona
  - ASP Catanzaro
  - ASP Vibo Val.
  - ASP Reggio Calabria

- Basilicata**
- ASP Potenza
  - ASM Matera

- Friuli Venezia Giulia**
- ASS1 Triestina
  - ASS2 Isontria
  - ASS3 Alto Friuli
  - ASS4 Medio Friuli
  - ASS5 Bassa Friulana
  - ASS6 Friuli Occidentale

- Veneto**
- AULSS 1 Belluno
  - AULSS 2 Feltre
  - AULSS 3 Bass. del Grappa
  - AULSS 4 Alto Vicentino
  - AULSS 5 Ovest Vicentino
  - AULSS 6 Vicenza
  - AULSS 7 Pieve di Soligo
  - AULSS 8 Asolo
  - AULSS 9 Treviso
  - AULSS 10 Veneto Or.
  - AULSS 12 Veneziana
  - AULSS 13 Mirano
  - AULSS 14 Chioggia
  - AULSS 15 A. Padovana
  - AULSS 16 Padova
  - AULSS 17 Este
  - AULSS 18 Rovigo
  - AULSS 19 Adria
  - AULSS 20 Verona
  - AULSS 21 Legnago
  - AULSS 22 Bussolengo

- Emilia-Romagna**
- AUSL Piacenza
  - AUSL Parma
  - AUSL Reggio Emilia
  - AUSL Modena
  - AUSL Bologna
  - AUSL Imola
  - AUSL Ferrara
  - AUSL Romagna

- Marche**
- Pesaro
  - Urbino
  - Fano
  - Senigallia
  - Jesi
  - Fabriano
  - Ancona
  - Civitanova M.
  - Macerata
  - Camerino S. Severino
  - Fermo
  - S. Benedetto
  - Ascoli Piceno

- Puglia**
- ASL Brindisi
  - ASL Taranto
  - ASL Barletta-Andria-Trani
  - ASL Bari
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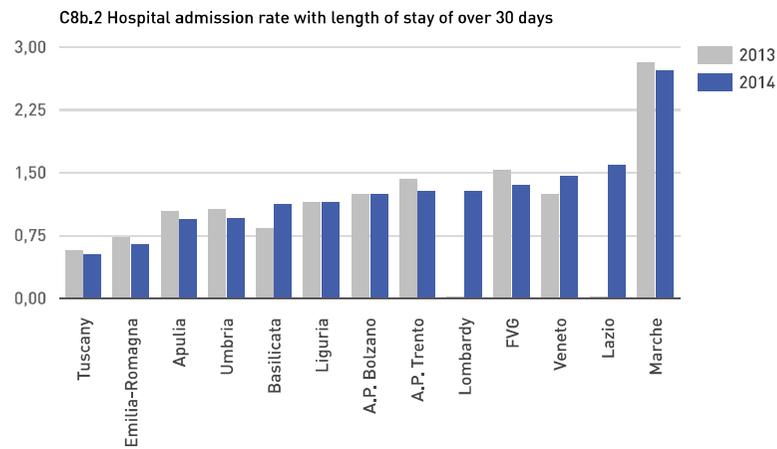
- Umbria**
- USL Umbria 1
  - USL Umbria 2



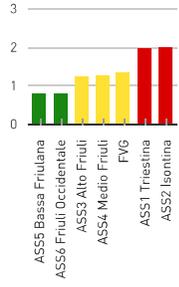
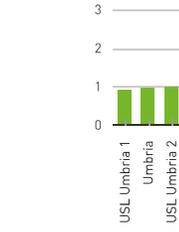
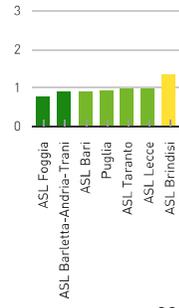
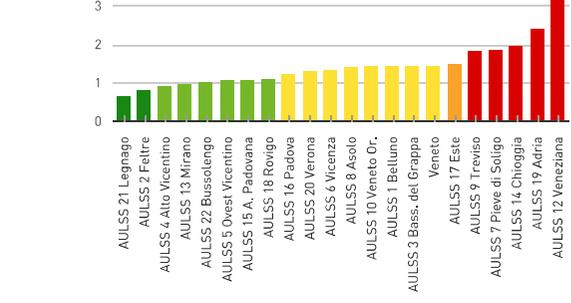
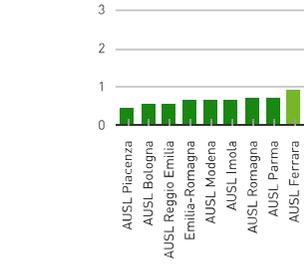
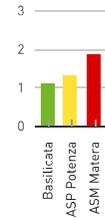
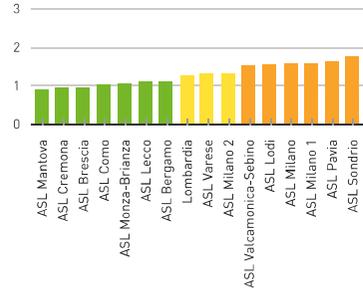
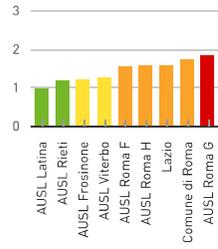
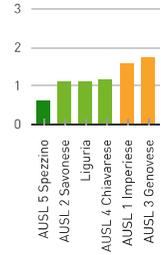
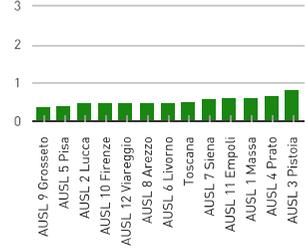
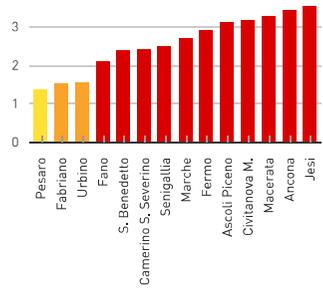


### C8b.2 Hospital admission rate with length of stay of over 30 days

This indicator is an indirect measure of primary care service and continuity of care between hospitals and primary services. A high admission rate for hospitalization of more than 30 days – excluding the more complex cases – may signal a lack of local level organization to handle ‘social’ cases that should be managed with personalized patient care plans in residential facilities or homecare.



<b>Definition</b>	Hospital admission rate with length of stay of over 30 days
<b>Numerator</b>	Number of discharges with a stay longer than 30 days, per 1,000
<b>Denominator</b>	Number of residents aged over 1 year
<b>Notes</b>	<p>Only inpatient admissions of regional residents in regional hospitals were considered.</p> <p>Excluded:</p> <ul style="list-style-type: none"> <li>- admissions by unaccredited private hospitals;</li> <li>- patients admitted, transferred or discharged from: infectious disease unit 24, spinal unit 28, pulmonology 68, psychiatry 40, burn unit 47, intensive care 49, recovery and functional rehabilitation 56, long-term care 60, neonatal intensive care 73, neuro-rehabilitation 75, palliative care 99;</li> <li>- children under 1 year of age;</li> <li>- patients discharged from psychiatry (DRG 425, 426, 427, 428, 429, 430, 431, 432, 433, 521, 522, 523)</li> </ul> <p>Age and sex - based standardization: the standard population is the resident population of Italy as recorded in 2011 by the last Census; source: ISTAT. Age classes: 1-4, 5-9, 10-14, ..., 80-84, 85+</p>
<b>Source</b>	Regional Information System - Hospital discharge records

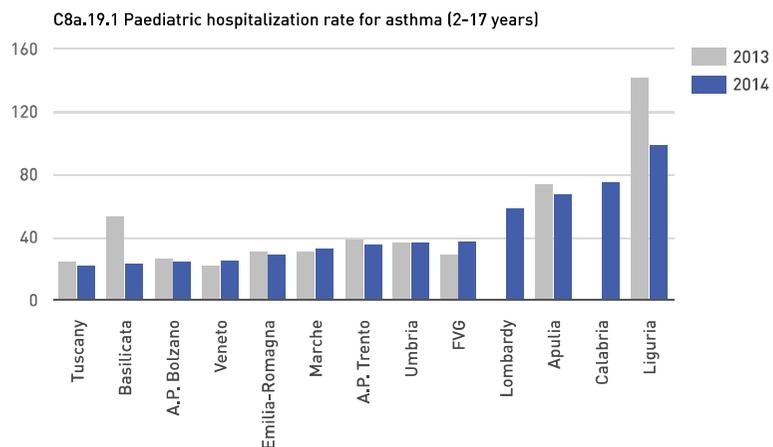




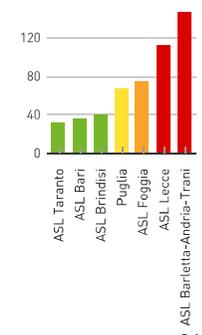
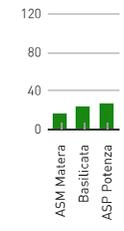
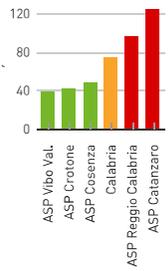
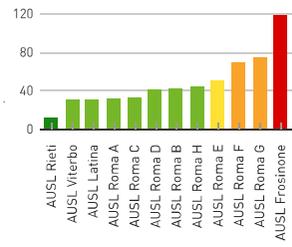
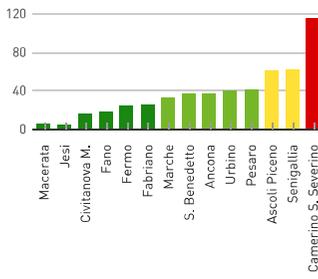
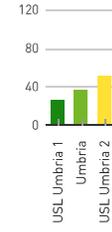
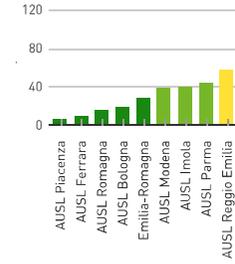
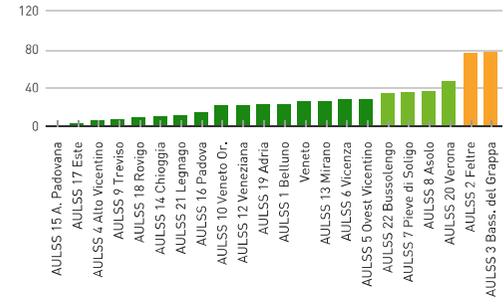
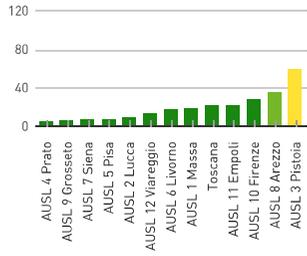
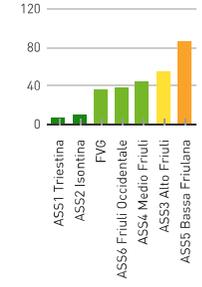
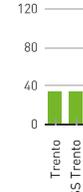
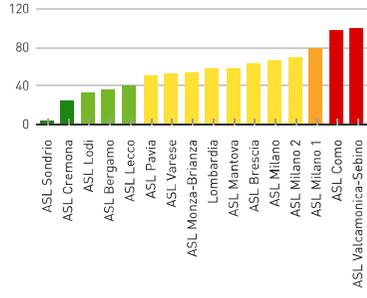
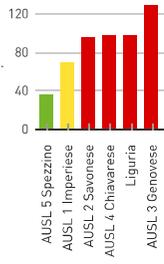
### C8a.19.1 Paediatric hospitalization rate for asthma (2-17 years)

Bronchial asthma is the most common chronic disease in childhood (with increasing morbidity levels) while acute asthma is the most common medical emergency in children. A key role in the management of this disease is played by primary care and redefining its link-in with hospitals. Improving care continuity and reinforcing the role of the family paediatricians are fundamental to establishing the most suitable management pathways for bronchial asthma, limiting hospitalization to the most serious cases.

Bolzano residents admitted to Austrian hospitals were not included in the calculation of the indicator for the A.P. of Bolzano.



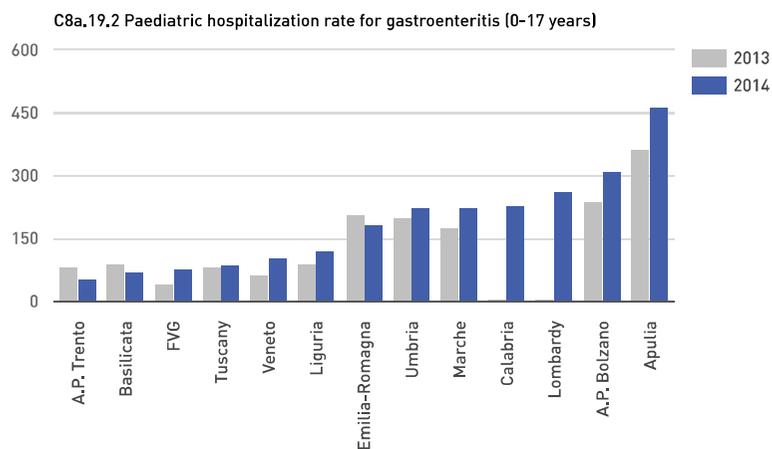
<b>Definition</b>	Paediatric asthma hospitalization rate (2-17 years)
<b>Numerator</b>	Number of asthma admissions (2-17 years), per 100,000
<b>Denominator</b>	Resident population (2-17 years)
<b>Notes</b>	<p>Inpatient hospital admissions of residents, either to a hospital in their Region of residence or to a facility in another Region, were considered. Where no passive mobility data were available, assessment was based on the previous year figures.</p> <p>Codes ICD9-CM in principal diagnosis for asthma: 493.*</p> <p>Excluded:</p> <ul style="list-style-type: none"> <li>- patients transferred from other care institutes;</li> <li>- patients under 2 years;</li> <li>- patients with secondary diagnosis of cystic fibrosis and anomalies of the respiratory system: 277.0*, 747.21, 748.3, 748.4, 748.5, 748.6*, 748.8, 748.9, 750.3, 759.3, 770.7;</li> <li>- admissions to unaccredited private hospitals</li> </ul>
<b>Source</b>	Regional Information System - Hospital discharge records



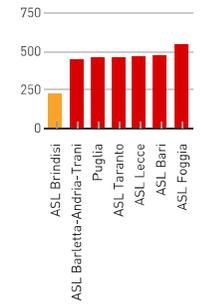
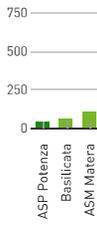
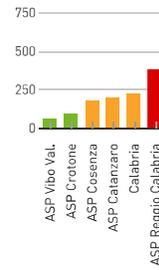
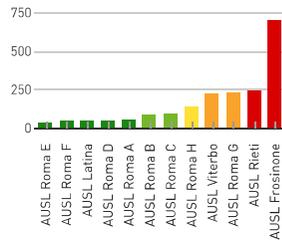
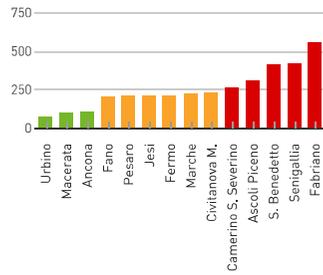
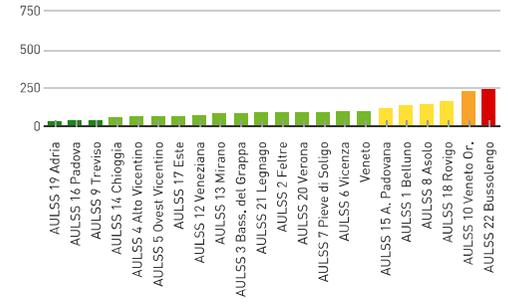
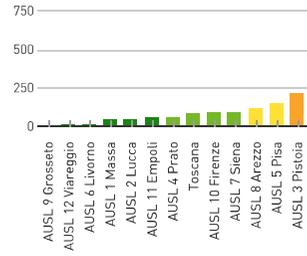
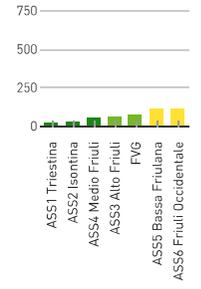
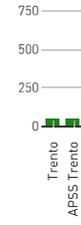
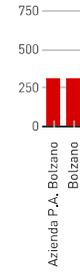
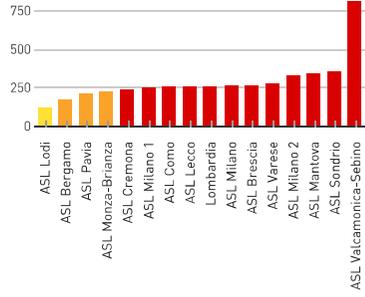
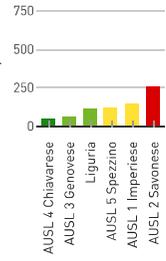


### C8a.19.2 Paediatric hospitalization rate for gastroenteritis (0-17 years)

In Italy, gastroenteritis is the most common reason for accessing emergency care and/or hospitalization, with significant costs for families and the health system. Disease management is based on prevention and control of complications, primarily dehydration. In most cases, gastroenteritis can be managed by primary care with stricter compliance by paediatricians to diagnostic/therapeutic guidelines and greater parent empowerment. Bolzano residents admitted to Austrian hospitals were not included in the calculation of the indicator for the A.P. of Bolzano.



<b>Definition</b>	Paediatric hospitalization rate for gastroenteritis (0-17 years)
<b>Numerator</b>	Number of gastroenteritis admissions of underage residents, per 100,000
<b>Denominator</b>	Underage resident population
<b>Notes</b>	<p>Inpatient hospital admissions of residents, either to a hospital in their Region of residence or to a facility in another Region, were considered. Where no passive mobility data were available, figures of the previous year were applied.</p> <p>Codes ICD9-CM:                      - principal diagnosis: 008.6*, 008.8, 009.*, 558.9                      or                      - secondary diagnosis of gastroenteritis and principal diagnosis of dehydration (276.5*)</p> <p>Discharges excluded:                      - patients transferred from other care institutes;                      - patients under 3 months (or newborns of unreported age);                      - patients with diagnosis of gastrointestinal abnormalities (categories: 538, 555, 556, 579 and codes 558.1, 558.2, 558.3);                      - patients with diagnosis of bacterial gastroenteritis (categories: 004, 005, 007 and codes 003.0, 006.0, 006.1, 006.2, 008.0*, 008.1, 008.2, 008.3, 008.4*, 008.5, 112.85);                      - admissions to unaccredited private hospitals</p>
<b>Source</b>	Regional Information System - Hospital discharge records





## C9 Appropriate prescribing of medication

"The Code of Ethics describes prescription appropriateness as decisions taken by the practitioner on the basis of rigorously tested and accredited scientific evidence that is applicable to the particular features of the individual patient in question, also taking into consideration appropriate use of resources. While an important feature of the system to be safeguarded, autonomous practitioner decision-making/prescription must be compatible with specific patient needs (risk/benefit ratio) and cost/benefit logic" (Guidelines on pharmacological treatment for hypertension, by the Therapeutic Commission of Tuscany Region, September 2010).

Although based on regional accounting data flows, drug consumption data can also be assessed for prescription appropriateness because - although drug prescriptions do not indicate the underlying condition for which the drug is prescribed -, it may nonetheless be presumed that prescription is based on an established diagnosis. Indicator C9 is the first step in monitoring appropriate drug use, unlike many other measurement practices that are excessively geared to cost-reduction considerations. The indicator monitors certain categories of drugs, such as statins and antihypertensives, with the highest consumption rate and hence greatest impact on healthcare spending. Although not exhaustive, since it does not allow association of drug use, diagnosis and user features, the indicator nonetheless flags up variations between Local Health Authorities and Regions, pointing to a certain degree of pharmaceutical inappropriateness. The score attributed to the composite indicator is the average of sub-indicators C9.1, C9.3, C9.4 and C9.8.1.1.

### C9 Appropriate prescribing of medication [evaluated]

- C9.1 Proton pump inhibitor consumption (antacids) [evaluated]
- C9.3 Incidence of sartans (antihypertensives) on substances acting on the renin-angiotensin system [evaluated]
- C9.4 Consumption of selective serotonin reuptake inhibitors (antidepressants) [evaluated]
- C9.8.1.1 Consumption of antibiotics [evaluated]
- C9.8.1.1.1 Paediatric antibiotic consumption [observational]
- C9.8.1.1.2 Paediatric cephalosporin consumption [observational]
- C9.9.2 Consumption of antipsychotics [observational]

**Lombardia**  
 ASL Bergamo  
 ASL Brescia  
 ASL Como  
 ASL Cremona  
 ASL Lecco  
 ASL Lodi  
 ASL Mantova  
 ASL Milano  
 ASL Milano 1  
 ASL Milano 2  
 ASL Monza-Brianza  
 ASL Pavia  
 ASL Sondrio  
 ASL Varese  
 ASL Valcamonica-Sebino



**Liguria**  
 AUSL 1 Imperiese  
 AUSL 2 Savonese  
 AUSL 3 Genovese  
 AUSL 4 Chiavarese  
 AUSL 5 Spezzino



**Bolzano**  
 Azienda P.A. Bolzano



**Trento**  
 APSS Trento



**Friuli Venezia Giulia**  
 ASS1 Triestina  
 ASS2 Isontina  
 ASS3 Alto Friuli  
 ASS4 Medio Friuli  
 ASS5 Bassa Friulana  
 ASS6 Friuli Occidentale



**Veneto**  
 AULSS 1 Belluno  
 AULSS 2 Feltre  
 AULSS 3 Bass. del Grappa  
 AULSS 4 Alto Vicentino  
 AULSS 5 Ovest Vicentino  
 AULSS 6 Vicenza  
 AULSS 7 Pieve di Soligo  
 AULSS 8 Asolo  
 AULSS 9 Treviso  
 AULSS 10 Veneto Or.  
 AULSS 12 Veneziana  
 AULSS 13 Mirano  
 AULSS 14 Chioggia  
 AULSS 15 A. Padovana  
 AULSS 16 Padova  
 AULSS 17 Este  
 AULSS 18 Rovigo  
 AULSS 19 Adria  
 AULSS 20 Verona  
 AULSS 21 Legnago  
 AULSS 22 Bussolengo



**Emilia-Romagna**  
 AUSL Piacenza  
 AUSL Parma  
 AUSL Reggio Emilia  
 AUSL Modena  
 AUSL Bologna  
 AUSL Imola  
 AUSL Ferrara  
 AUSL Romagna



**Toscana**  
 AUSL 1 Massa  
 AUSL 2 Lucca  
 AUSL 3 Pistoia  
 AUSL 4 Prato  
 AUSL 5 Pisa  
 AUSL 6 Livorno  
 AUSL 7 Siena  
 AUSL 8 Arezzo  
 AUSL 9 Grosseto  
 AUSL 10 Firenze  
 AUSL 11 Empoli  
 AUSL 12 Viareggio



**Lazio**  
 AUSL Roma A  
 AUSL Roma B  
 AUSL Roma C  
 AUSL Roma D  
 AUSL Roma E  
 AUSL Roma F  
 AUSL Roma G  
 AUSL Roma H  
 AUSL Viterbo  
 AUSL Rieti  
 AUSL Latina  
 AUSL Frosinone



**Basilicata**  
 ASP Potenza  
 ASM Matera



**Umbria**  
 USL Umbria 1  
 USL Umbria 2



**Puglia**  
 ASL Brindisi  
 ASL Taranto  
 ASL Barletta-Andria-Trani  
 ASL Bari  
 ASL Foggia  
 ASL Lecce  
 OO.RR. Foggia



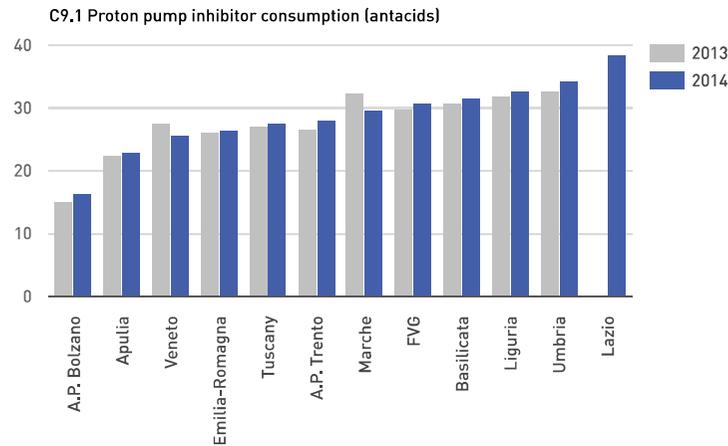
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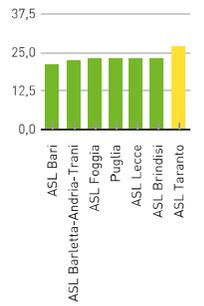
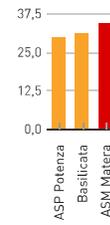
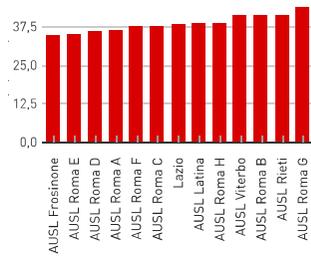
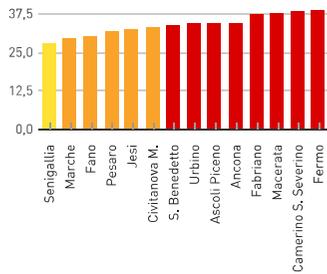
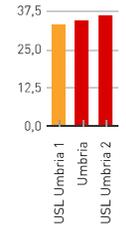
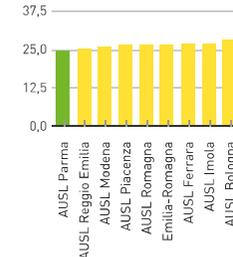
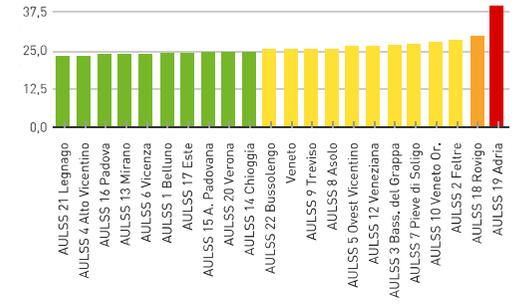
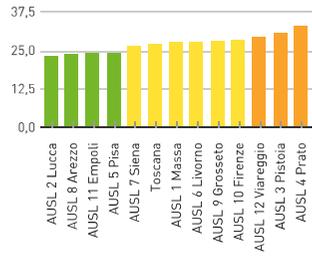
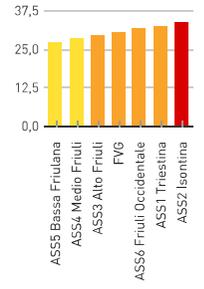
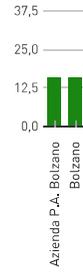
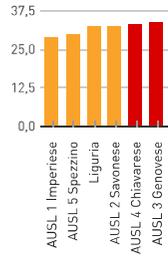


### C9.1 Proton pump inhibitor consumption (antacids)

In Italy, the consumption of proton pump inhibitors (PPIs) has increased over many years. Since the use of these drugs varies widely both in the Regions examined and nationally, unexplained by any reported epidemiological variability, it may be presumed that there is a certain degree of inappropriateness and/or over-prescription. This phenomenon is also of economic importance given the large expenditure for this drug category.



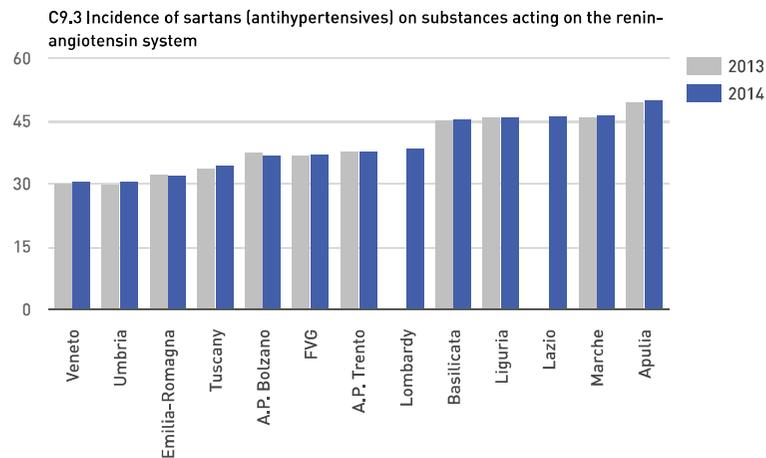
<b>Definition</b>	Consumption of proton pump inhibitors (antacids)
<b>Numerator</b>	Number of unit doses of proton pump inhibitors distributed
<b>Denominator</b>	Weighted resident population
<b>Notes</b>	ATC (Anatomical Therapeutic Chemical Classification) proton pump inhibitors class is A02BC. Private purchase was excluded. Pharmaceuticals financed by the National Health System and distributed by local pharmacies as well as direct/indirect supply were included. Population weighted as per the OsMed 2012 Report
<b>Source</b>	Regional pharmaceutical flows



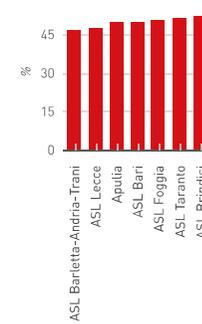
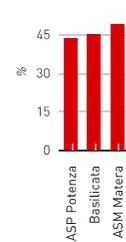
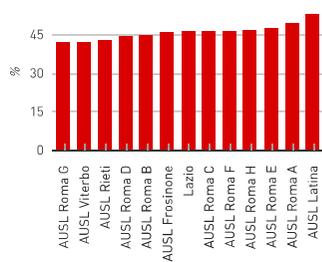
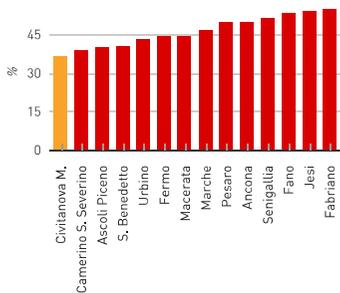
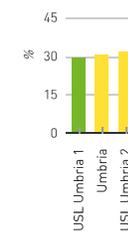
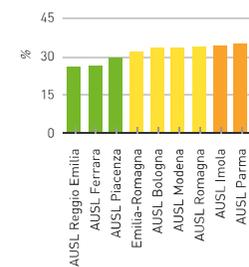
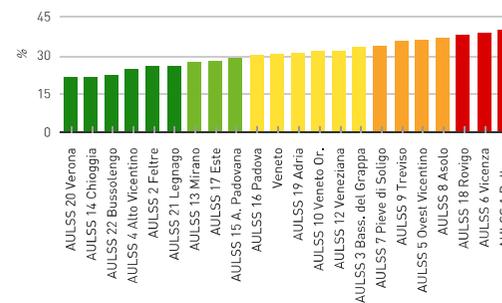
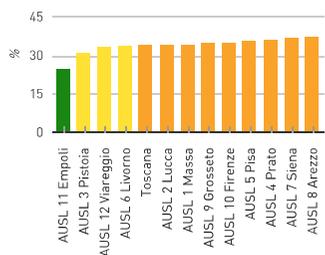
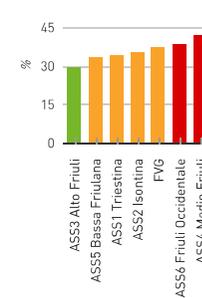
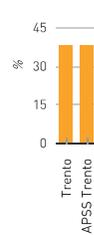
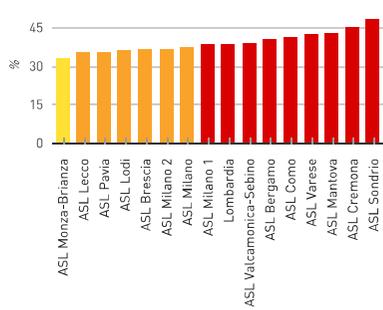
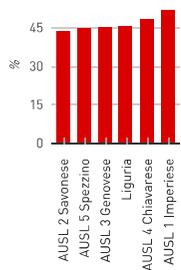


### C9.3 Incidence of sartans (antihypertensives) on substances acting on the renin-angiotensin system

Clinical studies have shown ACE inhibitors and sartans to have equivalent therapeutic effectiveness. Since, however, ACE inhibitors are less expensive than sartans, these must be the drug of choice if practitioners are to comply with the ethical principle of choosing the least expensive treatment, given the equivalent clinical effectiveness of the two drugs in blocking renin-angiotensin system. As a result, sartan prescription should always be accompanied by documented evidence of intolerance to ACE inhibitors, there being no clinical condition where sartans are to be preferred to ACE inhibitors (source: Guidelines on pharmacological treatment for hypertension, by the Therapeutic Commission of Tuscany Region, September 2010).



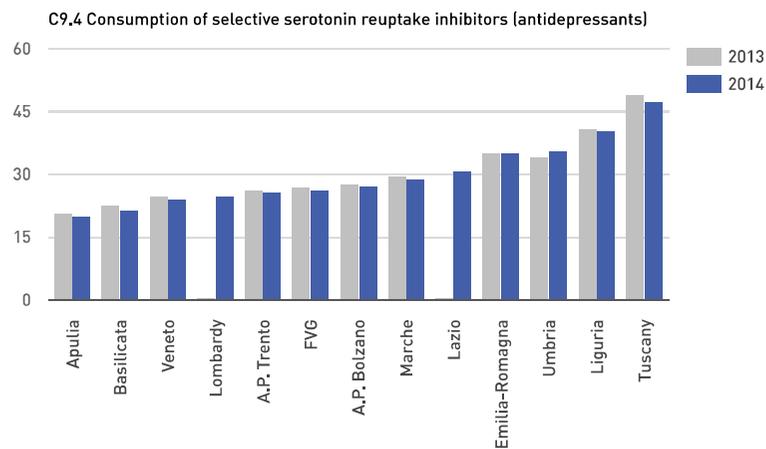
<b>Definition</b>	Consumption of angiotensin II antagonists both in combination or single drug therapy (ATC= C09C and C09D), distributed by local pharmacies, compared to the ATC class C09 "substances acting on the renin-angiotensin"
<b>Numerator</b>	Number of packets of angiotensin II antagonists both in combination or single drug therapy distributed by local pharmacies and financed by the National Health System, per 100
<b>Denominator</b>	Number of packets of drugs belonging to the C09 group "substances acting on the renin-angiotensin" distributed by local pharmacies and financed by the National Health System
<b>Notes</b>	Angiotensin II antagonists both in combination therapy or not (sartans) belong to the ATC (Anatomical Therapeutic Chemical classification) class C09C and C09D. Substances acting on the renin-angiotensin belong to the C09 group. Private purchase excluded
<b>Source</b>	Regional pharmaceutical flows



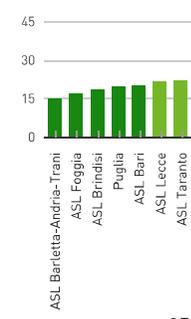
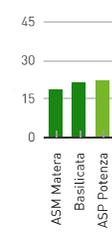
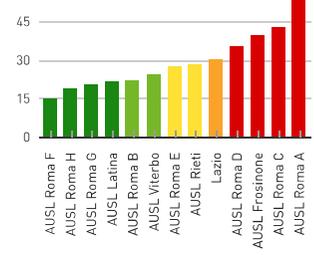
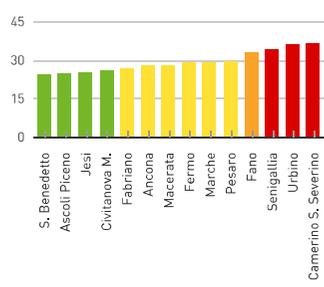
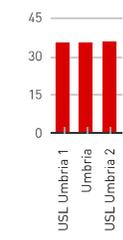
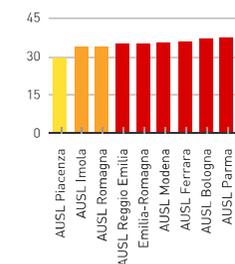
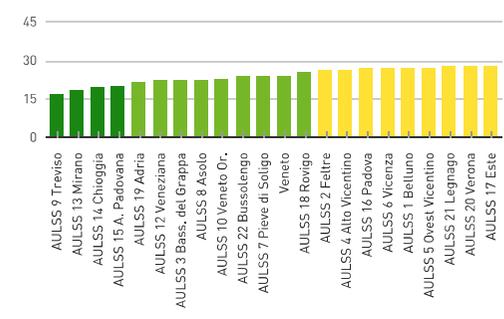
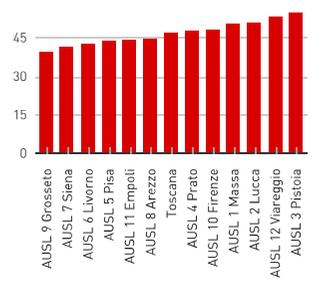
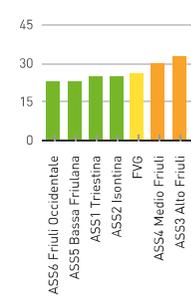
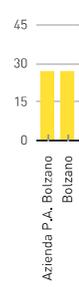
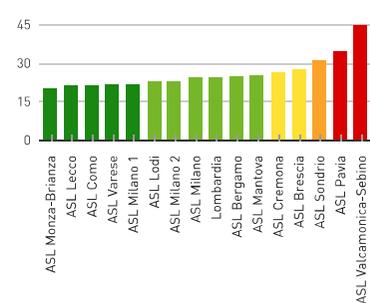
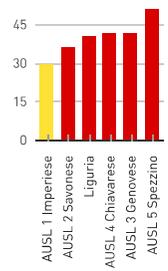


### C9.4 Consumption of selective serotonin reuptake inhibitors (antidepressants)

The indicator monitors the prescription of antidepressants, since overuse might signal inappropriate drug use.



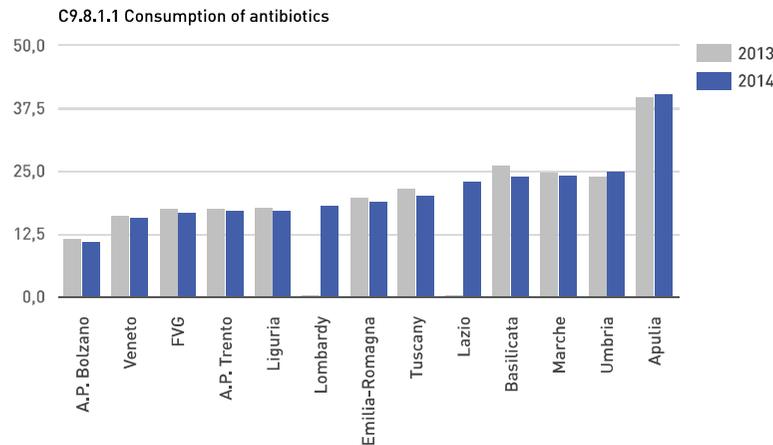
<b>Definition</b>	Consumption of selective serotonin reuptake inhibitors (SSRIs), distributed by local pharmacies and direct/indirect supply
<b>Numerator</b>	Defined Daily Doses (DDD) of SSRIs distributed by local pharmacies and direct/indirect supply, per 1,000
<b>Denominator</b>	Number of residents per 365
<b>Notes</b>	Selective serotonin reuptake inhibitors belong to the ATC (Anatomical Therapeutic Chemical classification) class N06AB. Drug consumption was calculated on the basis of the Defined Daily Dose (DDD), i.e. the maintenance dose for adults per day as per the main therapeutic indication for the drug. DDD allows comparison of drugs containing the same active principle but in different doses. The indicator allows the comparison of numerically different populations in different periods of time. Private purchase excluded. Pharmaceuticals financed by the National Health System and distributed by local pharmacies and direct/indirect supply included
<b>Source</b>	Regional pharmaceutical flows



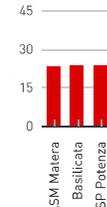
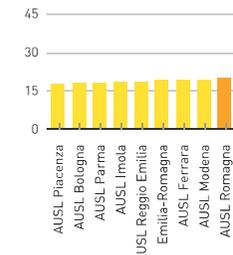
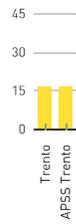
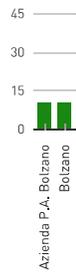
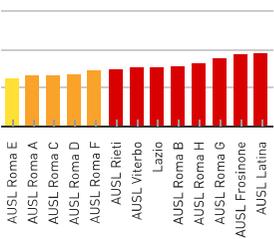
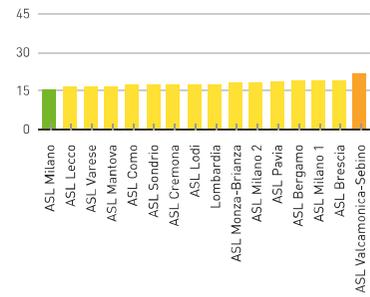
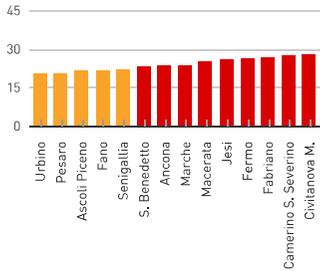
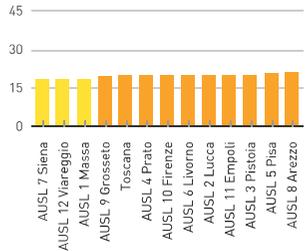
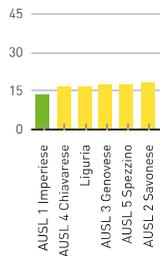


### C9.8.1.1 Consumption of antibiotics

Italy ranks fifth among European countries for high antimicrobial expenditure of total public and private outlay for pharmaceuticals (6.7%, excluding hospital spending), after France (11.0%), Belgium (10.3%), Austria (10.0%) and Germany (8.5%). In 2013, broad-spectrum antibiotics were the 5th highest expenditure category at national level (2.693 million euros) and ranked 11th in terms of use (38DDD per 1,000 habitants). Spending for broad-spectrum antibiotics increased 1.8% compared to the previous year, as did consumption (+3.4%). Inappropriate drug use is the main cause of the increased antibiotic resistance (AIFA, 2014).



<b>Definition</b>	Consumption of antibiotics, financed by the National Health System and distributed by local pharmacies and direct/indirect supply
<b>Numerator</b>	Defined Daily Doses (DDD) of antibiotics distributed by local pharmacies and direct/indirect supply, per 1,000
<b>Denominator</b>	Number of residents, per 365
<b>Notes</b>	Antibiotics belong to the ATC (Anatomical Therapeutic Chemical classification) class J01. Drug consumption was calculated on the basis of the Defined Daily Dose (DDD), i.e. the maintenance dose for adults per day of therapy as per the main therapeutic indication for the drug. DDD allows comparison of drugs containing the same active principle but in different doses. The indicator allows the comparison of numerically different populations in different periods of time. Private purchase excluded. Pharmaceuticals financed by the National Health System and distributed by local pharmacies and direct/indirect supply included
<b>Source</b>	Regional pharmaceutical flows





## C10 Oncological pathway

This composite indicator includes sub-indicators measuring key features of the oncological care pathway, such as the process, volumes, pharmaceutical expenditure and surgical appropriateness. Some of the indicators specifically refer to treatments for breast and prostate cancer.

The indicator score is equal to the weighted average of the scores of the following indicators (weighting of each indicator shown in brackets): C10.2.1 (60%), C17.5 (40%).

### C10 Oncological pathway [evaluated]

- C10.2.1 Percentage of breast-conserving or nipple/skin sparing surgery for breast cancer [evaluated]
- C10.2.2 Percentage of women undergoing sentinel lymph node excision [observational]
  - C10.2.2.1 Percentage of women undergoing radical axillary lymph node excision [observational]
- F10.2.1 Average expenditure for oncological drugs [observational]
- C17.1 Breast cancer surgery volumes [observational]
  - C17.1.1 Percentage of over-threshold breast cancer admissions [observational]
  - C17.1.2 Dispersion index of cases in wards under the breast cancer threshold [observational]
- C17.5 Prostate cancer surgery volumes [evaluated]
  - C17.5.1 Percentage of over- threshold prostate cancer admissions [evaluated]
  - C17.5.2 Dispersion index of cases in wards under the prostate cancer threshold [evaluated]

**Lombardia**

Osp. Sacra Famiglia	●
Osp. Moriggia Pelascini	●
ASL Valcamonica-Sebino	●
Osp. S. Giuseppe - MI	●
Ist. Naz. tumori	●
Pol. S. Matteo	●
Fond. Ca Granda	●
S. Raffaele - MI	●
Fond. Cl. Lavoro - PV	●
Ist. Europeo di Oncologia	●
Ist. Humanitas - Rozzano	●
Ist. S. Donato - S.D.	●
CdC Multimed. - Sesto S.	●
AO Fond. Macchi - VA	●
AO S. A. Abate - Gallarate	●
AO Osp. Circolo - B. Ars.	●
AO Spedali Civili - BS	●
AO M. Mellini - Chiari	●
AO Desenzano del Garda	●
AO Ist. Ospitalieri - CR	●
AO Osp. Maggiore - Crema	●
AO S. Anna- Como	●
AO Lecco	●
AO Osp. Riuniti - BG	●
AO Treviglio	●
AO Bolognino - Seriate	●
AO C. Poma	●
AO L. Sacco - Mi	●
AO Niguarda - MI	●
AO I.C.P. - MI	●
AO Fatebenefratelli - MI	●
AO S. Paolo - MI	●
AO S. Carlo Borromeo - MI	●
AO Civile - Legn.	●
AO G. Salvini - Garb.	●
AO Melegnano	●
AO Desio-Vimercate	●
AO S. Gerardo - Monza	●
AO Prov. Lodi	●
AO Prov. Pavia	●
AO Valtellina-Valch.	●
Osp. Valduce	●

**Liguria**

AUSL 1 Imperiese	●
AUSL 2 Savonese	●
AUSL 3 Genovese	●
AUSL 4 Chiavarese	●
AUSL 5 Spezzino	●
Osp. Galliera	●
Osp. Evangelico	●
IRCCS S. Martino	●

**Toscana**

AUSL 1 Massa	●
AUSL 2 Lucca	●
AUSL 3 Pistoia	●
AUSL 4 Prato	●
AUSL 5 Pisa	●
AUSL 6 Livorno	●
AUSL 7 Siena	●
AUSL 8 Arezzo	●
AUSL 9 Grosseto	●
AUSL 10 Firenze	●
AUSL 11 Empoli	●
AUSL 12 Viareggio	●
AOU Pisana	●
AOU Senese	●
AOU Careggi	●

**Basilicata**

ASM Matera	●
AO S. Carlo	●
IRCCS CROB Rionero	●

**Bolzano**

Azienda P.A. Bolzano	●
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**Trento**

APSS Trento	●
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**Friuli Venezia Giulia**

ASS2 Isontina	●
ASS3 Alto Friuli	●
ASS4 Medio Friuli	●
ASS5 Bassa Friulana	●
IRCCS Centro Rif. Oncol.	●
AO Pordenone	●
AOU Trieste	●
AOU Udine	●

**Puglia**

ASL Brindisi	●
ASL Taranto	●
ASL Barletta-Andria-Trani	●
ASL Bari	●
ASL Foggia	●
ASL Lecce	●
IRCCS Oncologico Bari	●
E.E. Casa Sollievo	●
AOU Pol. Bari	●
OO,RR. Foggia	●

**Umbria**

USL Umbria 1	●
USL Umbria 2	●
AO Perugia	●
AO Terni	●

**Veneto**

AULSS 1 Belluno	●
AULSS 2 Feltre	●
AULSS 3 Bass. del Grappa	●
AULSS 4 Alto Vicentino	●
AULSS 5 Ovest Vicentino	●
AULSS 6 Vicenza	●
AULSS 7 Pieve di Soligo	●
AULSS 8 Asolo	●
AULSS 9 Treviso	●
AULSS 10 Veneto Or.	●
AULSS 12 Veneziana	●
AULSS 13 Mirano	●
AULSS 14 Chioggia	●
AULSS 15 A. Padovana	●
AULSS 16 Padova	●
AULSS 17 Este	●
AULSS 18 Rovigo	●
AULSS 19 Adria	●
AULSS 20 Verona	●
AULSS 21 Legnago	●
AULSS 22 Bussolengo	●
AO Padova	●
AOU Verona	●
Ist. Onc. Veneto (IOV)	●

**Emilia-Romagna**

AUSL Piacenza	●
AUSL Parma	●
AUSL Reggio Emilia	●
AUSL Modena	●
AUSL Bologna	●
AUSL Imola	●
AUSL Ferrara	●
AUSL Romagna	●
AOU Parma	●
AO Reggio Emilia	●
AOU Modena	●
AOU Bologna	●
AOU Ferrara	●

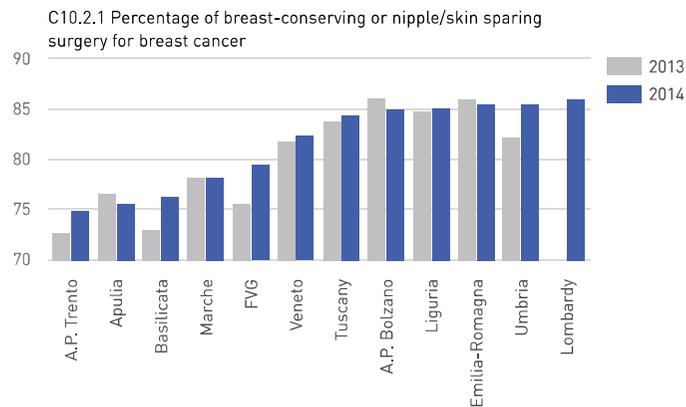
**Marche**

Urbino	●
Fano	●
Senigallia	●
Jesi	●
Fabiano	●
Ancona	●
Civitanova M.	●
Macerata	●
Camerino S. Severino	●
Fermo	●
S. Benedetto	●
Ascoli Piceno	●
AO Osp. Riun. Marche Nord	●
AOU Osp. Riun. Ancona	●

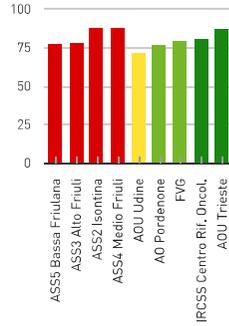
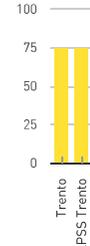
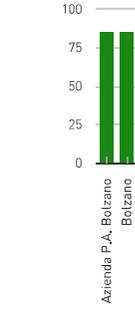
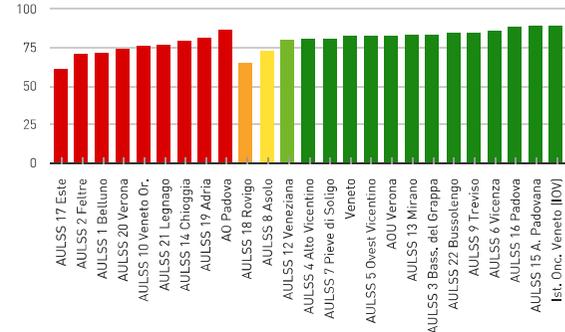
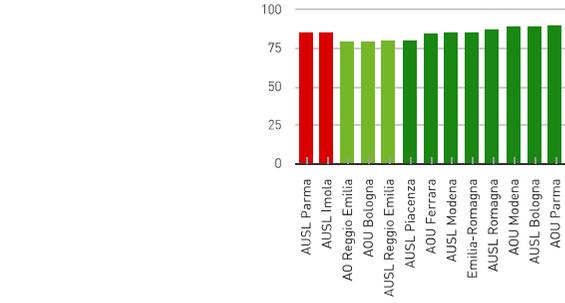
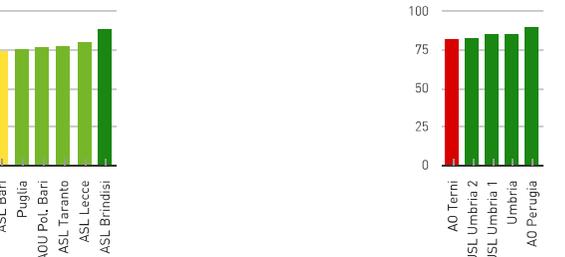
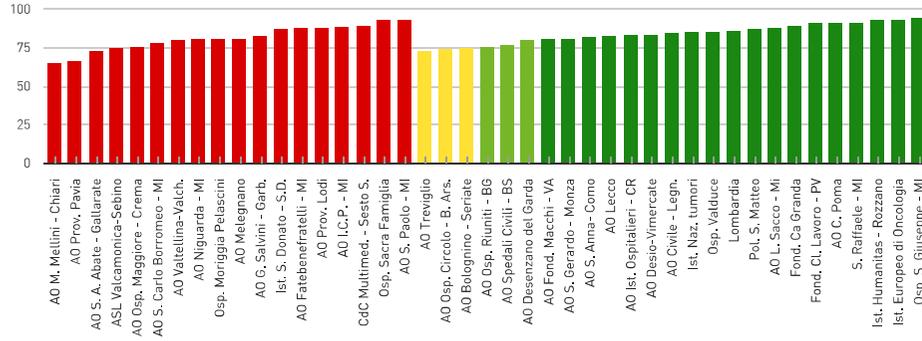
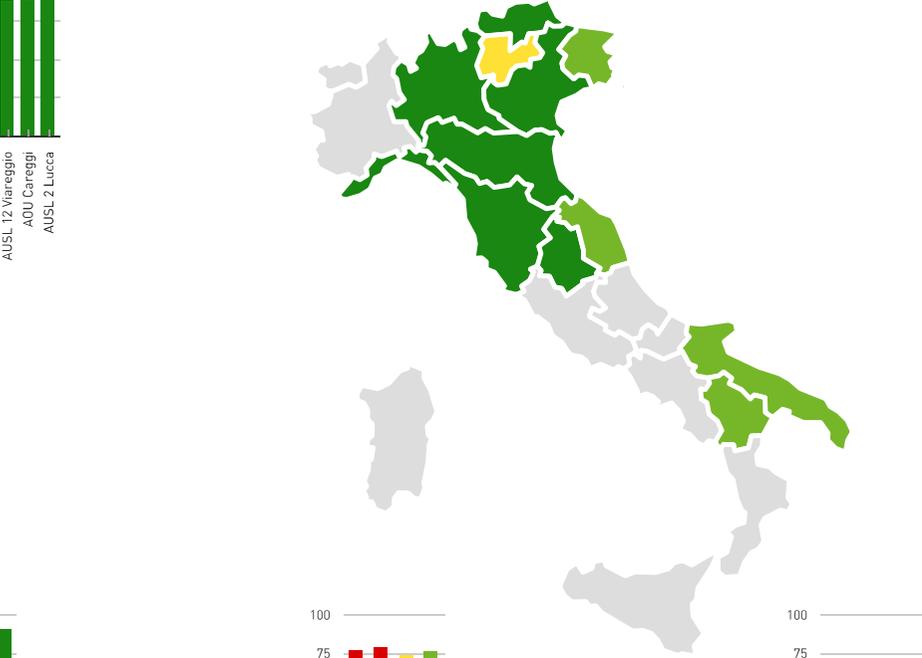
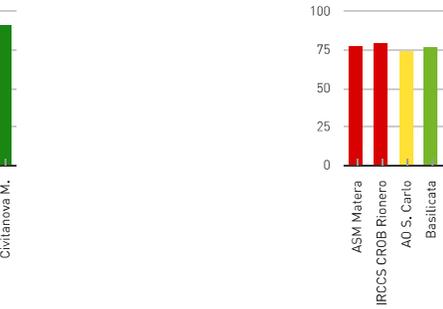
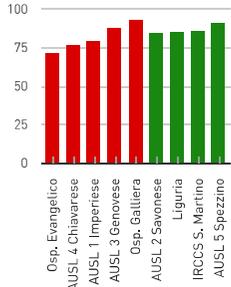
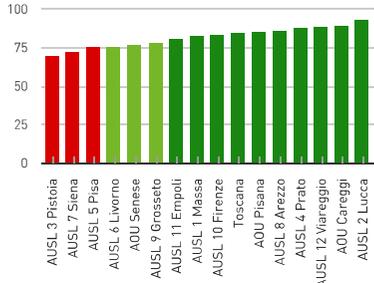
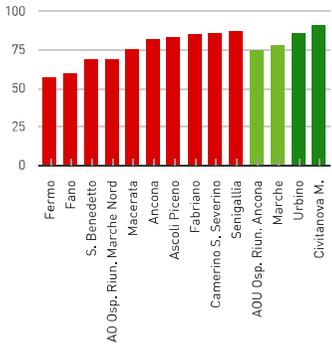


### C10.2.1 Percentage of breast-conserving or nipple/skin sparing surgery for breast cancer

This indicator measures the percentage of conservative or nipple/skin-sparing surgery out of the total number of procedures for malignant breast cancer. Surgery for malignant breast cancer is generally classified into conservative or demolition procedures. This indicator goes beyond this classification and considers both the conservative interventions and those interventions which preserve skin or nipple or carry out reconstruction, as against mastectomy not followed by reconstruction. Evaluation takes into account the standards identified by the European Society of Breast Cancer Specialists (EUSOMA) for conservative procedures (Rosselli del Turco et al., 2010) combining them with the number of surgical procedures for breast cancer. On the basis of this "mixed" criterion, Health Authorities that met the expected surgical quality standards but performed less than 150 procedures in 2014 were assigned a poor performance score.



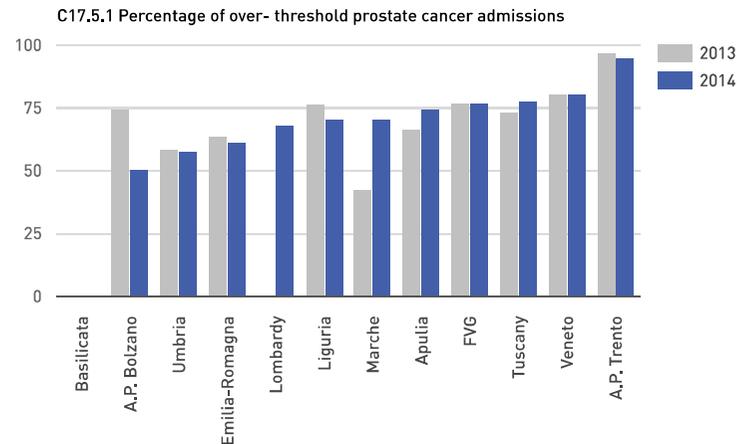
<b>Definition</b>	Percentage of breast-conserving or nipple/skin sparing surgery for breast cancer out of the total number of breast cancer procedures
<b>Numerator</b>	Number of breast-conserving or nipple/skin sparing surgery for breast cancer, per 100
<b>Denominator</b>	Number of breast cancer procedures
<b>Notes</b>	<p>Numerator:</p> <p>A) BREAST-CONSERVING                      Codes ICD9-CM of Principal diagnosis: 174.* or 233.0 and Codes ICD9-CM of primary or secondary intervention: 85.2* breast tissue removal or 85.31 unilateral reduction mammoplasty or 85.32 bilateral reduction mammoplasty with exclusion of nipple/skin sparing cases (see C10.2.1.2) and "demolition" cases (see C10.2.1.3)</p> <p>OR</p> <p>B) NIPPLE/SKIN SPARING. Codes ICD9-CM of Principal diagnosis: invasive carcinoma: 174.* or carcinoma in situ: 233.0 and principal or secondary intervention with codes ICD9-CM: (85.4* Mastectomy and (85.53 Unilateral prosthesis or 85.54 Bilateral prosthesis or 85.95 Tissue expander insertion or 85.34 Unilateral subcutaneous mastectomy and 85.36 Bilateral subcutaneous mastectomy and (85.53 Unilateral prosthesis or 85.54 Bilateral prosthesis or 85.95 Tissue expander insertion)) or 85.33 Unilateral subcutaneous mastectomy and 85.35 Bilateral subcutaneous mastectomy with prosthesis implant).</p> <p>Attention: procedures 85.34 and 85.36 without (85.53 or 85.54 or 85.95) are considered encoding errors.</p> <p>Denominator: Codes ICD9-CM of principal diagnosis: invasive carcinoma: 174.* or Carcinoma in situ: 233.0 and Codes ICD9-CM of primary or secondary procedure: breast surgeries: 85.2*, 85.3*, 85.4*</p> <p>Surgeries provided in the Region also to non-residents in the Region. Only female patients</p>
<b>Source</b>	Hospital discharge records



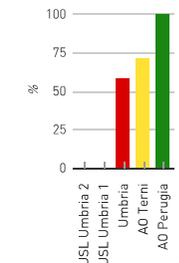
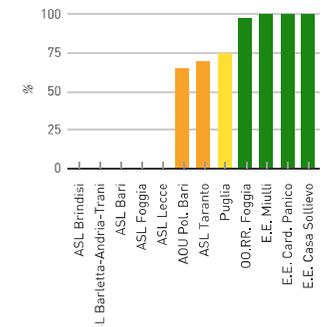
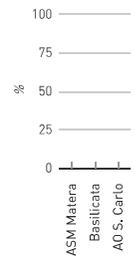
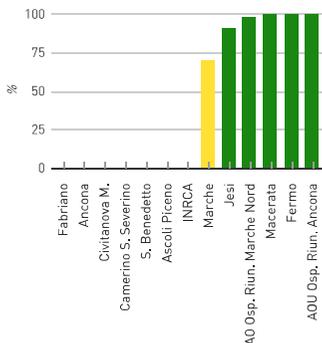
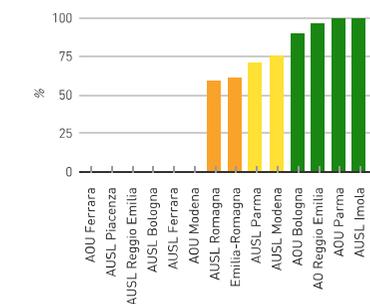
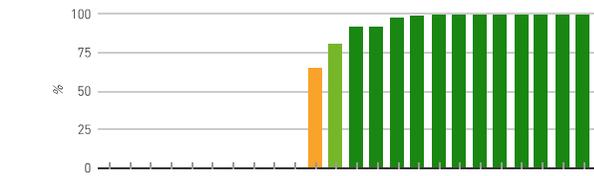
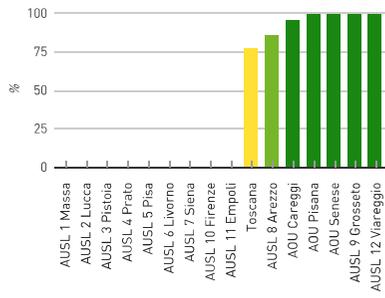
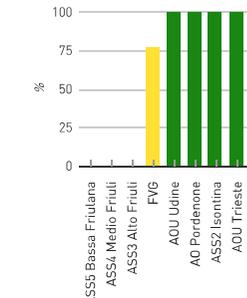
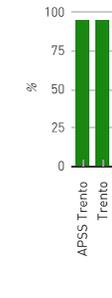
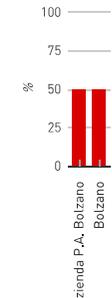
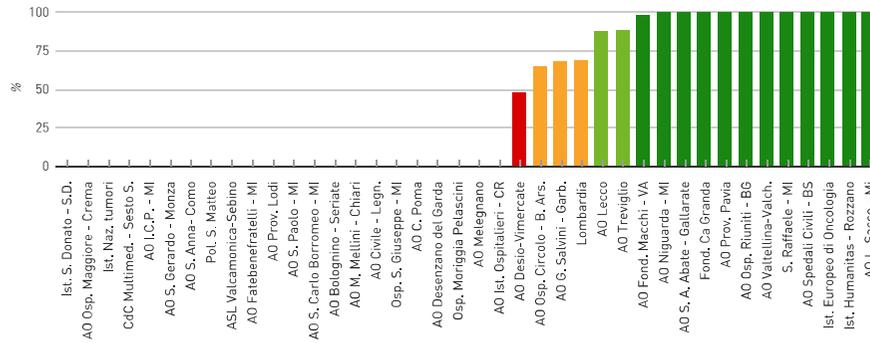
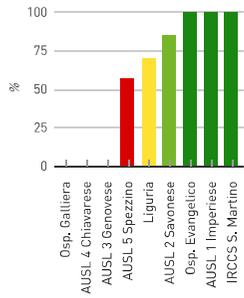


### C17.5.1 Percentage of over- threshold prostate cancer admissions

The indicator assesses the appropriate distribution of prostate cancer procedures within the regional hospital network. In particular, it measures the percentage of prostate cancer procedures carried out in wards performing more than the threshold number (50) prostate cancer procedures a year, out of the total number of prostate cancer surgical procedures.



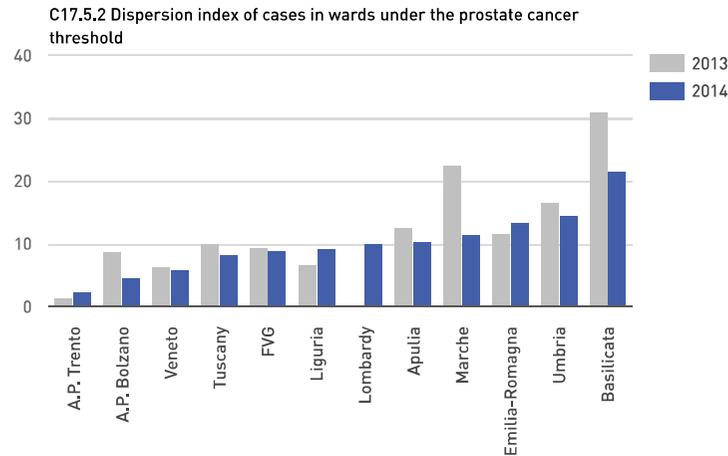
<b>Definition</b>	Percentage of prostate cancer admissions over the threshold
<b>Numerator</b>	Number of admissions in wards over the threshold
<b>Denominator</b>	Total number of admissions
<b>Notes</b>	Inpatient admissions with codes ICD9-CM of principal or secondary diagnosis of prostate cancer (185, 198.1) and codes ICD9-CM principal or secondary procedures for resection or radical removal of the prostate (60.3, 60.4, 60.5, 60.61, 60.62, 60.69) or transurethral prostate resection (60.21, 60.29, 60.96, 60.97). Patients transferred (i.e. admitted, transferred or discharged) from General Surgery (09) and Urology (43) were selected. The first ward to admit the patient was considered as the ward performing the procedure. The minimum threshold is 50 procedures per year. The indicator is based on the National Outcome Evaluation Programme PNE protocols 2012 Ed. 2013
<b>Source</b>	Regional Information System - Hospital discharge records



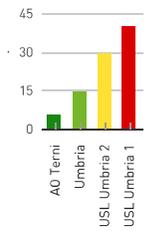
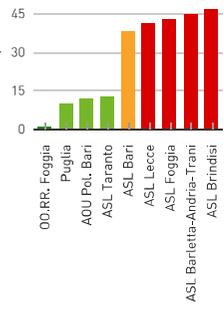
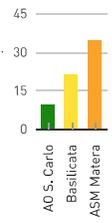
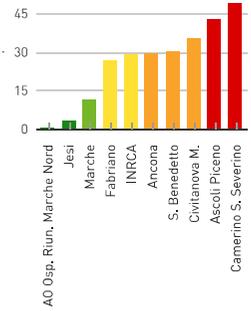
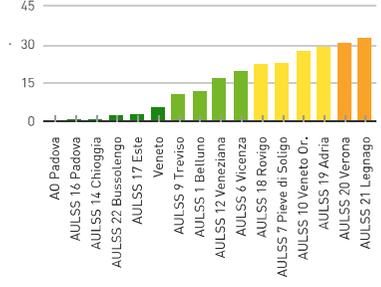
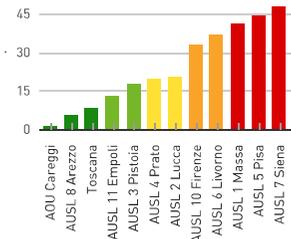
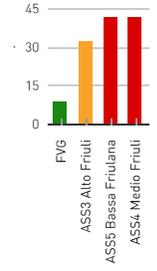
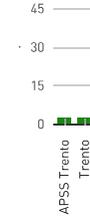
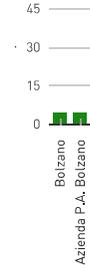
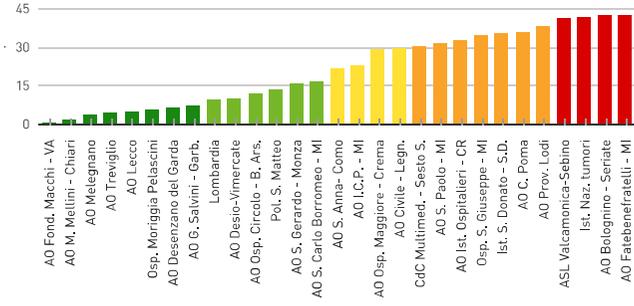
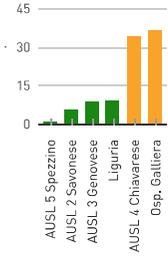


### C17.5.2 Dispersion index of cases in wards under the prostate cancer threshold

Compared to C17.5.1, this indicator focuses exclusively on departments performing fewer than the threshold number of prostate cancer procedures (50), showing the deviation from the threshold value (dispersion index).



<b>Definition</b>	Dispersion index of cases in wards under the prostate cancer threshold volume
<b>Numerator</b>	Square root of the sum of the squares of all the differences for each ward between the number of admissions and the threshold, multiplied by the percentage of under threshold admissions out of total admissions for each Health Authority
<b>Denominator</b>	Square root of the total number of wards under the threshold
<b>Notes</b>	Inpatient admissions with codes ICD9-CM of principal or secondary diagnosis of prostate cancer (185, 198.1) and codes ICD9-CM principal or secondary procedure for resection or radical removal of the prostate (60.3, 60.4, 60.5, 60.61, 60.62, 60.69) or transurethral resection of the prostate (60.21, 60.29, 60.96, 60.97) were considered. Patients transferred patients (i.e. admitted, transferred or discharged) from General Surgery (09) and Urology (43) were included; the first ward to admit the patient was considered the facility performing the procedure. The minimum threshold is 50 procedures per year. The indicator is based on the National Outcome Evaluation Programme PNE protocols 2012 Ed. 2013
<b>Source</b>	Regional Information System - Hospital discharge records





## C11a Effectiveness of chronic care management

The main risk factors, such as hypertension, obesity, high cholesterol and blood glucose levels are modifiable through social interventions aimed at promoting the ability of citizens to preserve and improve their own health. Prevention and treatment of chronic diseases are therefore essential tools to ensure longer healthier lives. Indicator C11a indirectly evaluates the efficacy of primary care considering hospitalization rates for high-prevalence chronic diseases.

The score attributed to the composite indicator is the average of sub-indicators C11a.1.1, C11a.2.1, C11a.2.4 and C11a.3.1.

### C11a Effectiveness of chronic care management [evaluated]

- C11a.1.1 Heart failure hospitalization rate (50-74 years) [evaluated]
  - *C11a.1.1.1 Standardized heart failure hospitalization rate (over 18 years)* [observational]
- C11a.2.1 Diabetes hospitalization rate (35-74 years) [evaluated]
  - *C11a.2.1.1 Standardized hospitalization rate for diabetes complications (over 18 years)* [observational]
- C11a.2.4 Major amputation rate for diabetes [evaluated]
- C11a.3.1 COPD hospitalization rate (50-74 years) [evaluated]
  - *C11a.3.1.1 Standardized COPD hospitalization rate (over 18 years)* [observational]

**Lombardia**  
 ASL Bergamo  
 ASL Brescia  
 ASL Como  
 ASL Cremona  
 ASL Lecco  
 ASL Lodi  
 ASL Mantova  
 ASL Milano  
 ASL Milano 1  
 ASL Milano 2  
 ASL Monza-Brianza  
 ASL Pavia  
 ASL Sondrio  
 ASL Varese  
 ASL Valcamonica-Sebino



**Liguria**  
 AUSL 1 Imperiese  
 AUSL 2 Savonese  
 AUSL 3 Genovese  
 AUSL 4 Chiavarese  
 AUSL 5 Spezzino



**Bolzano**  
 Azienda P.A. Bolzano

**Trento**  
 APSS Trento



**Friuli Venezia Giulia**  
 ASS1 Triestina  
 ASS2 Isontina  
 ASS3 Alto Friuli  
 ASS4 Medio Friuli  
 ASS5 Bassa Friulana  
 ASS6 Friuli Occidentale



**Veneto**  
 AULSS 1 Belluno  
 AULSS 2 Feltre  
 AULSS 3 Bass. del Grappa  
 AULSS 4 Alto Vicentino  
 AULSS 5 Ovest Vicentino  
 AULSS 6 Vicenza  
 AULSS 7 Pieve di Soligo  
 AULSS 8 Asolo  
 AULSS 9 Treviso  
 AULSS 10 Veneto Or.  
 AULSS 12 Veneziana  
 AULSS 13 Mirano  
 AULSS 14 Chioggia  
 AULSS 15 A. Padovana  
 AULSS 16 Padova  
 AULSS 17 Este  
 AULSS 18 Rovigo  
 AULSS 19 Adria  
 AULSS 20 Verona  
 AULSS 21 Legnago  
 AULSS 22 Bussolengo



**Toscana**  
 AUSL 1 Massa  
 AUSL 2 Lucca  
 AUSL 3 Pistoia  
 AUSL 4 Prato  
 AUSL 5 Pisa  
 AUSL 6 Livorno  
 AUSL 7 Siena  
 AUSL 8 Arezzo  
 AUSL 9 Grosseto  
 AUSL 10 Firenze  
 AUSL 11 Empoli  
 AUSL 12 Viareggio



**Lazio**  
 AUSL Roma A  
 AUSL Roma B  
 AUSL Roma C  
 AUSL Roma D  
 AUSL Roma E  
 AUSL Roma F  
 AUSL Roma G  
 AUSL Roma H  
 AUSL Viterbo  
 AUSL Rieti  
 AUSL Latina  
 AUSL Frosinone



**Basilicata**  
 ASP Potenza  
 ASM Matera



**Umbria**  
 USL Umbria 1  
 USL Umbria 2



**Emilia-Romagna**  
 AUSL Piacenza  
 AUSL Parma  
 AUSL Reggio Emilia  
 AUSL Modena  
 AUSL Bologna  
 AUSL Imola  
 AUSL Ferrara  
 AUSL Romagna



**Marche**  
 Pesaro  
 Urbino  
 Fano  
 Senigallia  
 Jesi  
 Fabriano  
 Ancona  
 Civitanova M.  
 Macerata  
 Camerino S. Severino  
 Fermo  
 S. Benedetto  
 Ascoli Piceno



**Puglia**  
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 ASL Taranto  
 ASL Barletta-Andria-Trani  
 ASL Bari  
 ASL Foggia  
 ASL Lecce

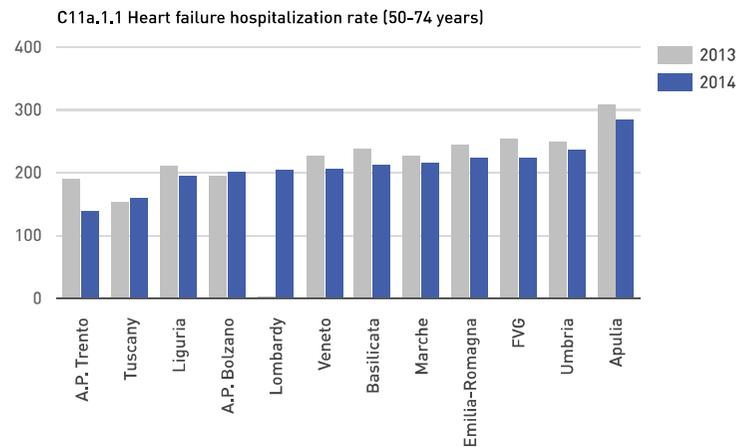




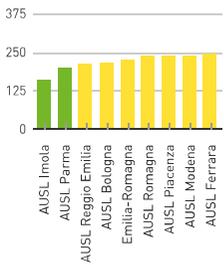
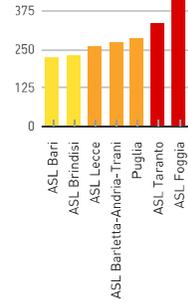
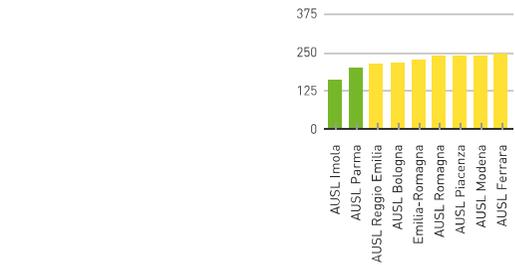
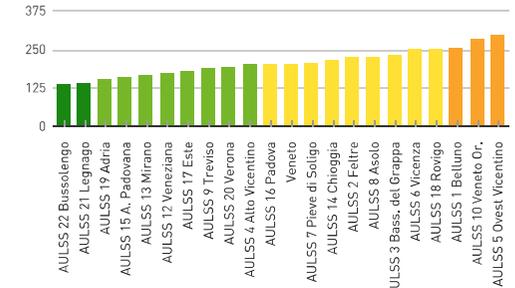
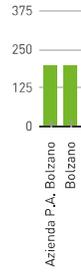
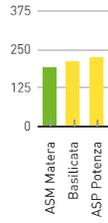
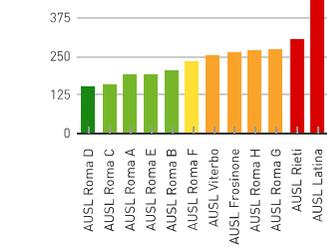
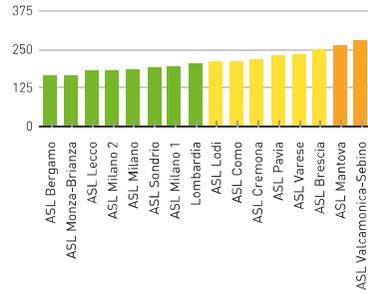
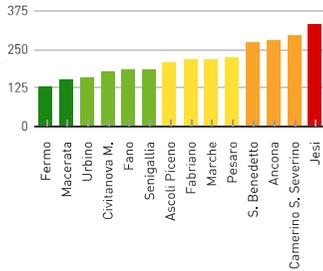
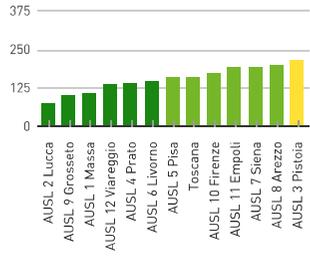
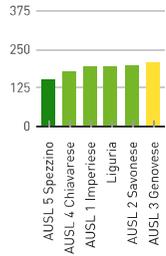
### C11a.1.1 Heart failure hospitalization rate (50-74 years)

The prevalence of heart failure has gradually increased as the population ages and mortality decreases for cardiovascular diseases. As heart failure should be managed mainly in the primary care setting, admissions of patients aged between 50 and 74 for heart failure can be equated with the inadequacy of care. It must be remembered, however, that as a chronic degenerative disease, a certain number of hospital admissions may be appropriate for more serious and complex cases. More accurate assessment of primary care appropriateness and effectiveness therefore requires the addition of further information regarding the complexity of the cases considered.

Bolzano residents admitted to Austrian hospitals were not included in the calculation of the indicator for the A.P. of Bolzano.



<b>Definition</b>	Heart failure hospitalization rate per 100,000 residents (50-74 years)
<b>Numerator</b>	Number of heart failure admissions (50-74 years)
<b>Denominator</b>	Resident population (aged 50-74)
<b>Notes</b>	<p>Inpatient admissions of residents, either to a hospital in the Region of the patients residence or to a facility in another Region, were considered. As long as passive mobility is not available, an estimate based on the previous year has been used.</p> <p>Codes ICD9-CM in principal diagnosis: 428.*, 398.91, 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93</p> <p>Discharges with codes 00.5*, 35.**, 36-**, 37.** in any field of procedure are excluded.</p> <p>Further exclusions:</p> <ul style="list-style-type: none"> <li>- discharges from spinal unit, rehabilitation, long-term care, neuro-rehabilitation and palliative care (codes 28, 56, 60, 75, 99)</li> <li>- admissions to unaccredited private hospitals</li> </ul>
<b>Source</b>	Regional Information System - Hospital discharge records

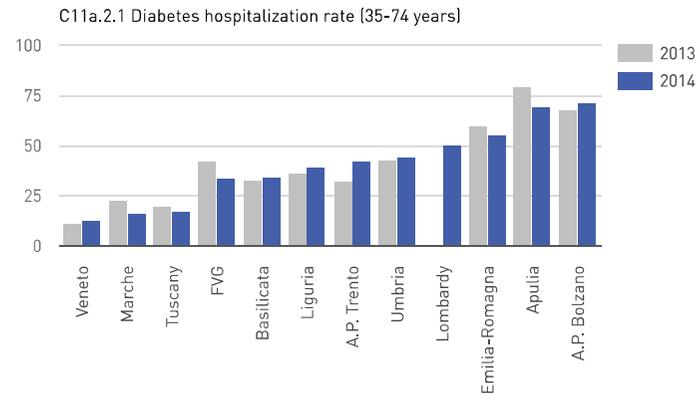




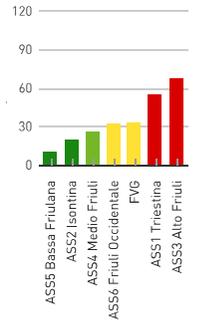
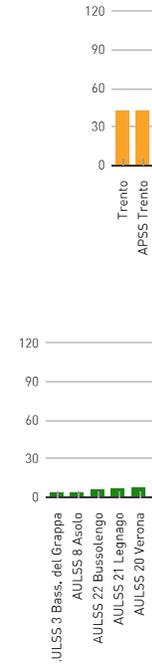
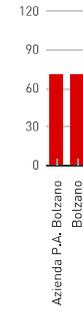
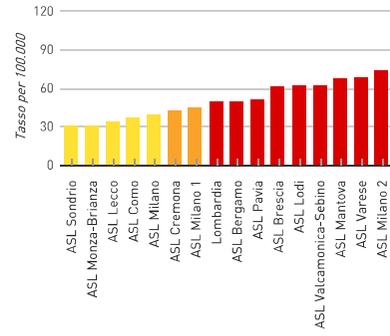
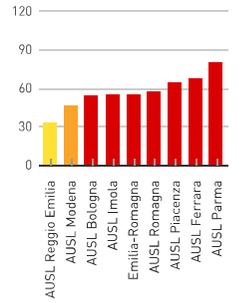
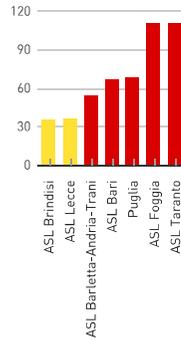
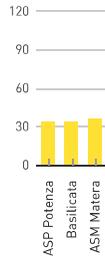
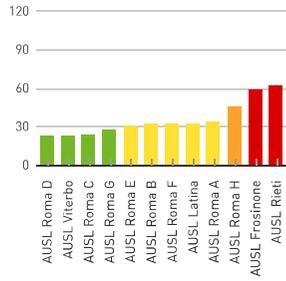
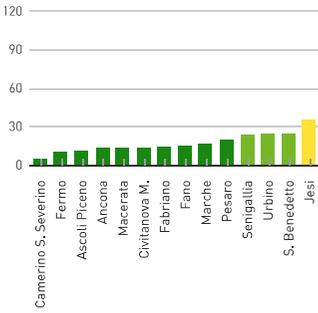
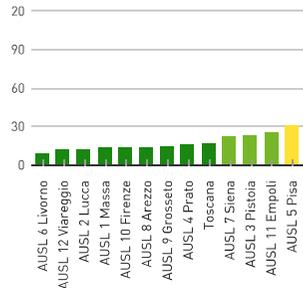
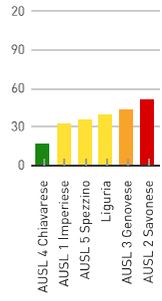
### C11a.2.1 Diabetes hospitalization rate (35-74 years)

Diabetes is a chronic disease, which, if acute, can give rise to complications in the long term. Decompensated diabetes may require hospitalization. Integrated disease management combining prevention, diagnosis and treatment is fundamental to avoid worsening of clinical conditions and subsequent hospitalization (Osservasalute Report 2012). The diabetes hospitalization rate is used as a proxy to monitor primary care organizational appropriateness.

Bolzano residents admitted to Austrian hospitals were not included in the calculation of the indicator for the A.P. of Bolzano.



<b>Definition</b>	Diabetes hospitalization rate for diabetes per 100,000 residents (35-74 years)
<b>Numerator</b>	Number of diabetes admissions (35-74 years)
<b>Denominator</b>	Resident population (35-74 years)
<b>Notes</b>	<p>Inpatient admissions of residents, either to a hospital in the Region of the patients residence or to a facility in another Region, were considered. Where no passive mobility data were available, previous year figures were used.</p> <p>Codes ICD9-CM in principal diagnosis: 250.xx Diabetes mellitus</p> <p>Exclusions:</p> <ul style="list-style-type: none"> <li>- DRGs 113 and 114;</li> <li>- procedure codes 36.** and 39.5*;</li> <li>- discharges from spinal unit, rehabilitation, long-term care, neuro-rehabilitation and palliative care (codes 28, 56, 60, 75, 99)</li> <li>- discharges with MDC 14 (Pregnancy, childbirth and puerperium) and 15 (Neonatal diseases)</li> <li>- admissions to unaccredited private hospitals</li> </ul>
<b>Source</b>	Regional Information System - Hospital discharge records

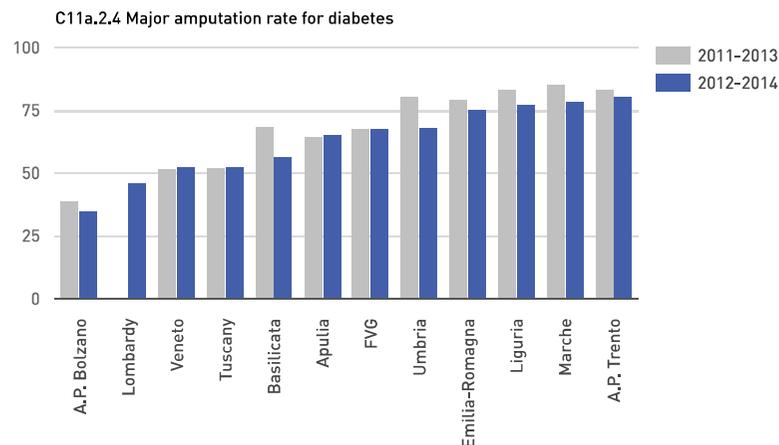




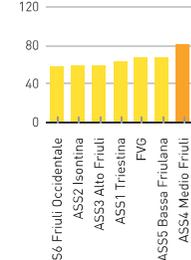
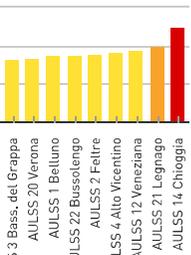
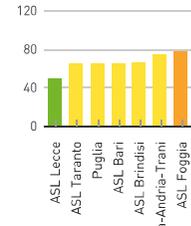
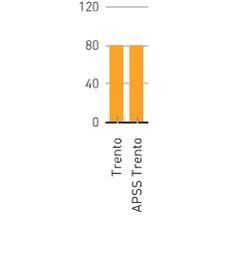
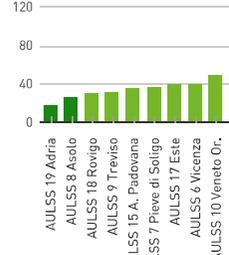
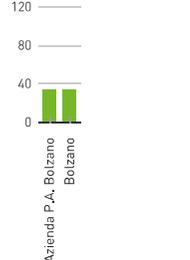
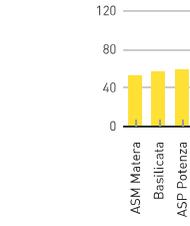
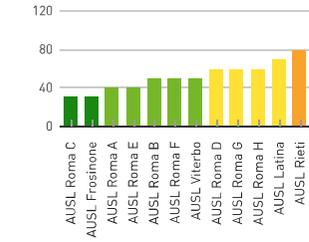
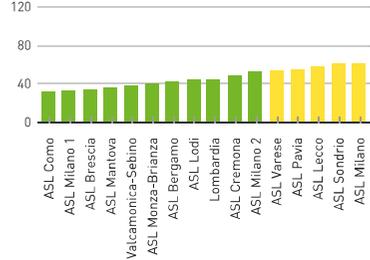
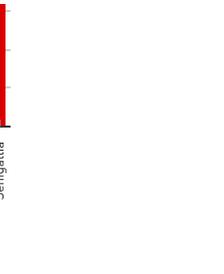
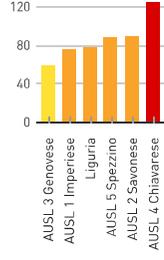
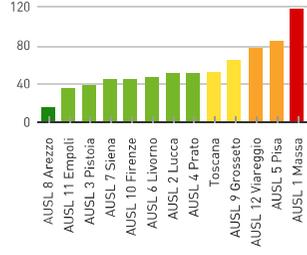
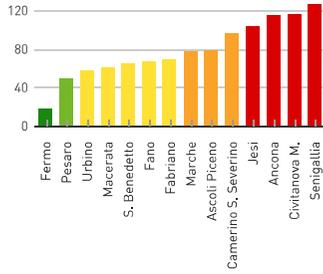
### C11a.2.4 Major amputation rate for diabetes

Improved diabetes treatment has extended the life expectancy of diabetic patients. This in turn implies commensurate improvement in the management of the chronic complications of the disease. The “diabetic foot” is a set of lower-limb complications of diabetes that, if not promptly identified and treated, may lead to limb amputation. A multidisciplinary approach is key to effective patient management: proper foot care, integration between the different professionals and vascularization procedures can improve patient prognosis and reduce the need for surgical procedures (Faglia et al., 2009). Indicator C11a.2.4 monitors amputation rates, thereby assessing overall care pathway organization and promptness of care.

Bolzano residents admitted to Austrian hospitals were not included in the calculation of the indicator for the A.P. of Bolzano.



<b>Definition</b>	Major amputation rate for diabetes
<b>Numerator</b>	Number of major amputations for diabetes per million residents in 201X(0) + 201X(1) + 201X(2), per 1,000
<b>Denominator</b>	Resident population 201X(0) + 201X(1) + 201X(2)
<b>Notes</b>	<p>Codes ICD9-CM in principal or secondary procedures:</p> <ul style="list-style-type: none"> <li>- 8410 lower limb amputation</li> <li>- 8412 foot amputation</li> <li>- 8413 ankle disarticulation</li> <li>- 8414 ankle amputation at the level of the malleoli of tibia and fibula</li> <li>- 8415 other below the knee amputation</li> <li>- 8416 knee disarticulation</li> <li>- 8417 above-the-knee amputation</li> <li>- 8418 hip disarticulation</li> <li>- 8419 abdominopelvic amputation</li> </ul> <p>Codes ICD9-CM in any diagnosis:</p> <ul style="list-style-type: none"> <li>- 250.xx Diabetes mellitus</li> </ul> <p>Exclusions:</p> <ul style="list-style-type: none"> <li>- Traumas (diagnosis 895.xx, 896.xx, 897.xx in any diagnosis)</li> <li>- DRG: 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390</li> <li>- admissions to unaccredited private hospitals</li> </ul>
<b>Source</b>	Regional Information System - Hospital discharge records

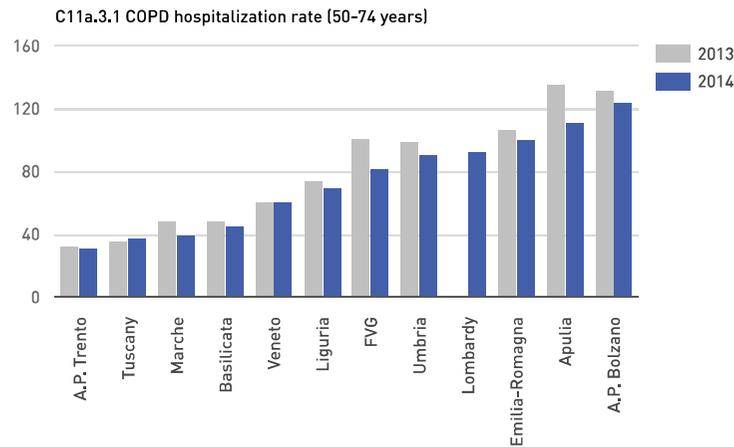




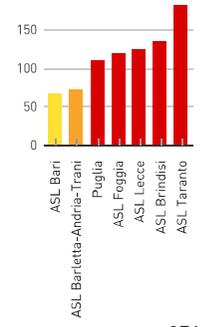
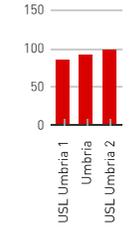
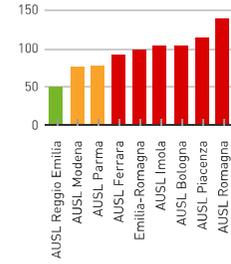
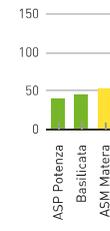
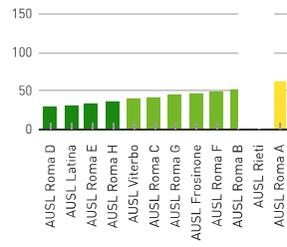
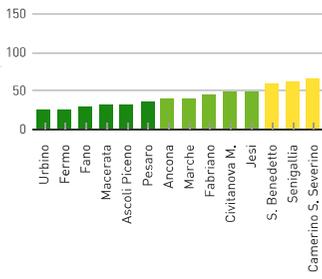
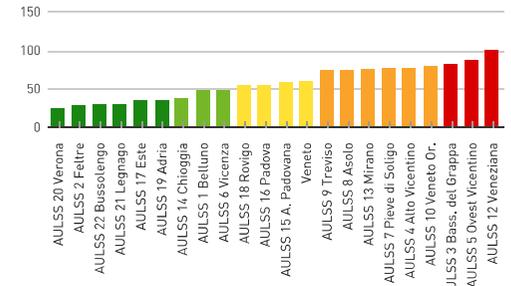
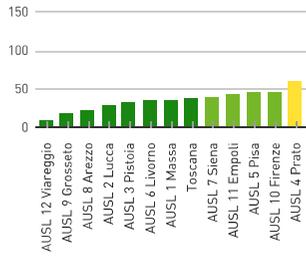
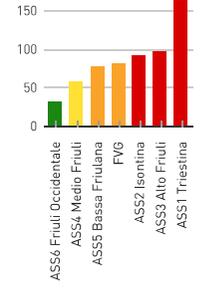
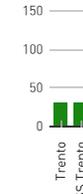
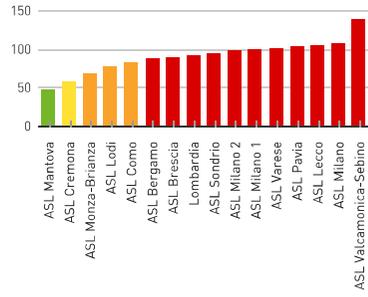
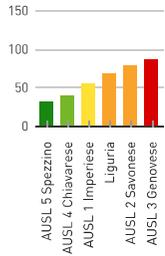
### C11a.3.1 COPD hospitalization rate (50-74 years)

Like many chronic-degenerative diseases, chronic obstructive pulmonary diseases (COPD), is best managed with the preventive educational approach for which optimal diagnosis and treatment pathways are of fundamental importance (Tockner et al., 2005). The COPD hospitalization rate measured by this indicator is considered a proxy for quality of care.

Bolzano residents admitted to Austrian hospitals were not included in the calculation of the indicator for the A.P. of Bolzano.



<b>Definition</b>	COPD (chronic obstructive pulmonary disease) hospitalization rate per 100,000 residents (50-74 years)
<b>Numerator</b>	Number of COPD admissions (50-74 years)
<b>Denominator</b>	Resident population (50-74 years)
<b>Notes</b>	<p>Inpatient admissions of residents, either to a hospital in the Region of the patients residence or to a facility in another Region, were considered. Where no passive mobility data were available, previous year figures were used.</p> <p>Codes ICD9-CM in principal diagnosis:</p> <ul style="list-style-type: none"> <li>490: bronchitis, not specified whether acute or chronic</li> <li>491*: chronic bronchitis</li> <li>492*: emphysema</li> <li>496: chronic airway obstructions, not elsewhere classified</li> <li>494*: bronchiectasis</li> </ul> <p>Excluded:</p> <ul style="list-style-type: none"> <li>- discharges from spinal unit, rehabilitation, long-term care, neuro-rehabilitation and palliative care (codes 28, 56, 60, 75, 99)</li> <li>- admissions to unaccredited private hospitals</li> </ul>
<b>Source</b>	Hospital discharge records





## C13a Diagnostic appropriateness

This composite indicator includes indicators assessing specialist outpatient care and magnetic resonance (MRI) imaging rates. Particular attention is paid to the use of musculoskeletal magnetic resonance in patients aged 65 years or more since, in this age group, the use of musculoskeletal magnetic resonance is at high-risk of inappropriateness. The score attributed to this composite indicator is the average of sub-indicators C13a.2.2.1 and C13a.2.2.2.

### C13a Diagnostic appropriateness [evaluated]

- C13.1 Standardized ambulatory service rate [observational]
- C13.2 Standardized medical imaging rate [observational]
- C13.2.1 Standardized CT scan rate [observational]
- C13.2.2 Standardized magnetic resonance imaging (MRI) scan rate [observational]
- C13a.2.2.1 Musculoskeletal MRI scan rate (>= 65 years) [evaluated]
- C13a.2.2.1.1 Standardized musculoskeletal and spine MRI scan rate (over 18 years) [observational]
- C13a.2.2.2 Percentage of patients repeating lumbar MRI scan within 12 months [evaluated]

**Lombardia**  
 ASL Bergamo  
 ASL Brescia  
 ASL Como  
 ASL Cremona  
 ASL Lecco  
 ASL Lodi  
 ASL Mantova  
 ASL Milano  
 ASL Milano 1  
 ASL Milano 2  
 ASL Monza-Brianza  
 ASL Pavia  
 ASL Sondrio  
 ASL Varese  
 ASL Valcamonica-Sebino



**Liguria**  
 AUSL 1 Imperiese  
 AUSL 2 Savonese  
 AUSL 3 Genovese  
 AUSL 4 Chiavarese  
 AUSL 5 Spezzino



**Bolzano**  
 Azienda P.A. Bolzano



**Trento**  
 APSS Trento



**Friuli Venezia Giulia**  
 ASS1 Triestina  
 ASS2 Isontina  
 ASS3 Alto Friuli  
 ASS4 Medio Friuli  
 ASS5 Bassa Friulana  
 ASS6 Friuli Occidentale



**Veneto**  
 AULSS 1 Belluno  
 AULSS 2 Feltre  
 AULSS 3 Bass. del Grappa  
 AULSS 4 Alto Vicentino  
 AULSS 5 Ovest Vicentino  
 AULSS 6 Vicenza  
 AULSS 7 Pieve di Soligo  
 AULSS 8 Asolo  
 AULSS 9 Treviso  
 AULSS 10 Veneto Or.  
 AULSS 12 Veneziana  
 AULSS 13 Mirano  
 AULSS 14 Chioggia  
 AULSS 15 A. Padovana  
 AULSS 16 Padova  
 AULSS 17 Este  
 AULSS 18 Rovigo  
 AULSS 19 Adria  
 AULSS 20 Verona  
 AULSS 21 Legnago  
 AULSS 22 Bussolengo



**Marche**  
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 Fermo  
 S. Benedetto  
 Ascoli Piceno



**Puglia**  
 ASL Brindisi  
 ASL Taranto  
 ASL Barletta-Andria-Trani  
 ASL Bari  
 ASL Foggia  
 ASL Lecce



**Emilia-Romagna**  
 AUSL Piacenza  
 AUSL Parma  
 AUSL Reggio Emilia  
 AUSL Modena  
 AUSL Bologna  
 AUSL Imola  
 AUSL Ferrara  
 AUSL Romagna



**Toscana**  
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 AUSL 2 Lucca  
 AUSL 3 Pistoia  
 AUSL 4 Prato  
 AUSL 5 Pisa  
 AUSL 6 Livorno  
 AUSL 7 Siena  
 AUSL 8 Arezzo  
 AUSL 9 Grosseto  
 AUSL 10 Firenze  
 AUSL 11 Empoli  
 AUSL 12 Viareggio



**Lazio**  
 AUSL Roma A  
 AUSL Roma B  
 AUSL Roma C  
 AUSL Roma D  
 AUSL Roma E  
 AUSL Roma F  
 AUSL Roma G  
 AUSL Roma H  
 AUSL Viterbo  
 AUSL Rieti  
 AUSL Latina  
 AUSL Frosinone



**Basilicata**  
 ASP Potenza  
 ASM Matera



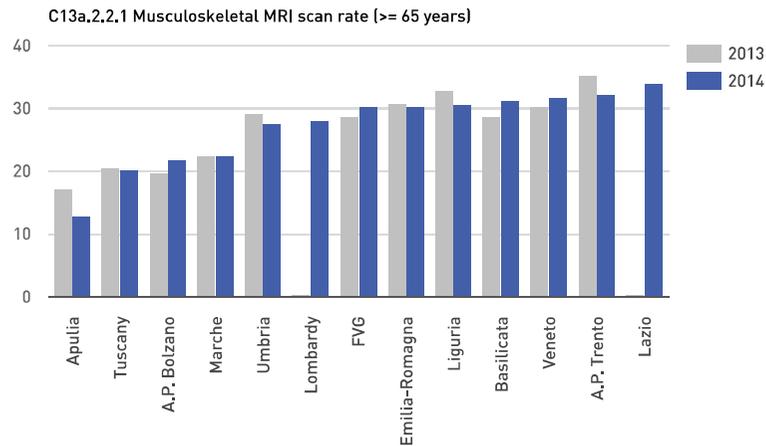
**Umbria**  
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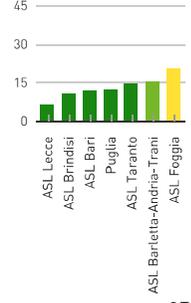
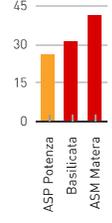
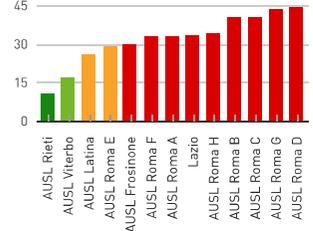
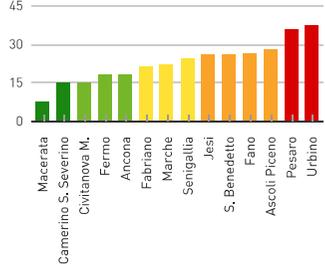
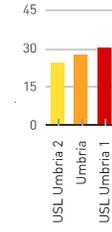
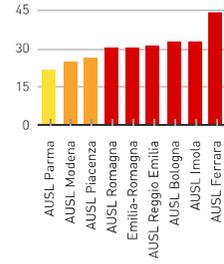
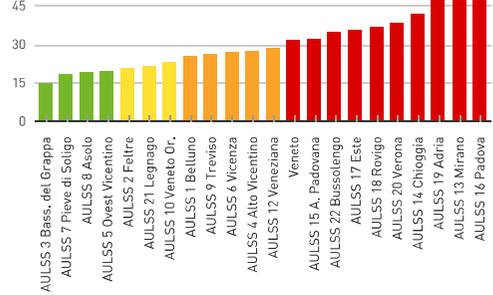
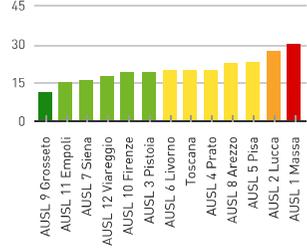
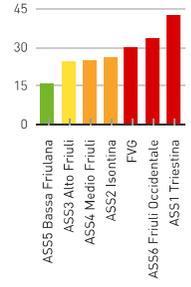
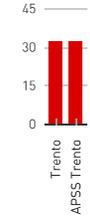
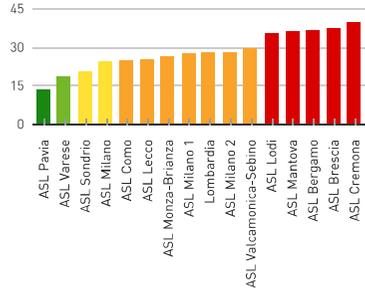
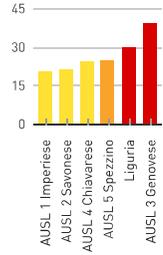


### C13a.2.2.1 Musculoskeletal MRI scan rate ( $\geq 65$ years)

Musculoskeletal magnetic resonance investigations performed on patients aged 65 or more is one of the items of indicator C13.2.2. In the group of people aged 65 or more, musculoskeletal magnetic resonance is used in the diagnostic procedure to identify degenerative osteoarthritis. It does not, however, provide a definitive diagnosis, which could be achieved with alternative tests. Awareness must be raised among both prescribers and citizens regarding appropriate use of resources and services.



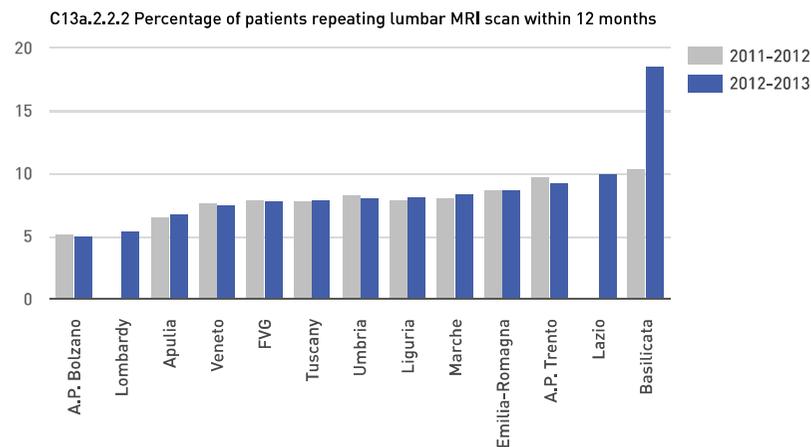
<b>Definition</b>	Musculoskeletal MRI scan rate, per 1,000 residents ( $\geq 65$ years)
<b>Numerator</b>	Number of Musculoskeletal MRI scans ( $\geq 65$ years)
<b>Denominator</b>	Resident population ( $\geq 65$ years)
<b>Notes</b>	MRI scans with or without a contrast medium were considered (codes 88.94.1 and 88.94.2). Scans for residents in the Region are included, even if performed outside the Region. Public and accredited private providers were both included. Services provided for inpatients and the ED were excluded
<b>Source</b>	Regional Information System - Outpatient Flow



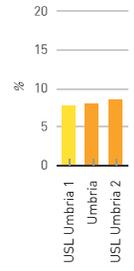
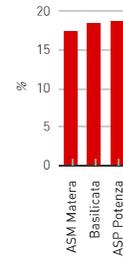
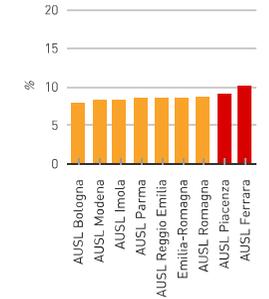
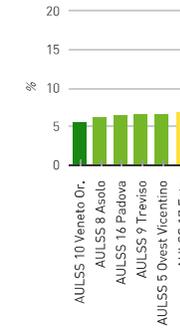
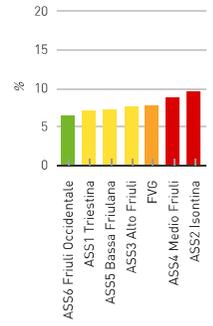
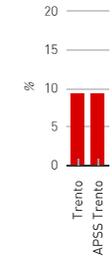
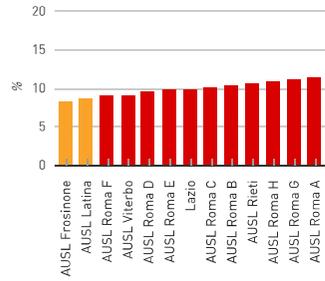
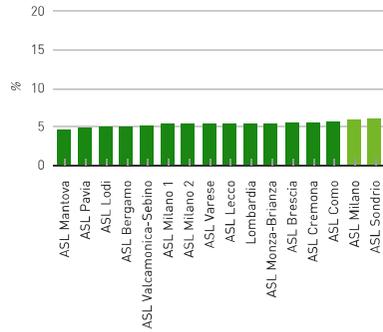
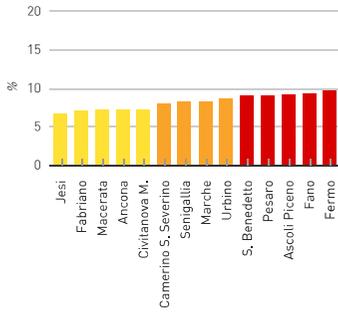
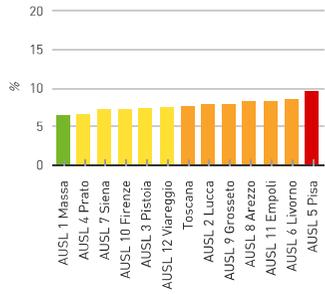
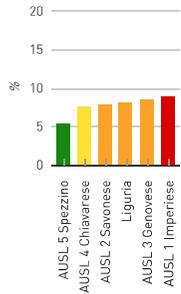


### C13a.2.2.2 % Percentage of patients repeating lumbar MRI scan within 12 months

In the field of diagnostic imaging, the term “inappropriateness” refers to the execution of diagnostic tests that do not lead to a therapeutic decision and which are inappropriate to solve the clinical question. Magnetic Resonance Imaging (MRI) is one of the most expensive procedures and is at high-risk of inappropriateness. The indicator measures the number of people repeating lumbar MRI within 12 months from the previous investigation, since it reveals potential misuse.



<b>Definition</b>	Percentage of patients repeating a lumbar MRI scan within 12 months
<b>Numerator</b>	Number of patients who repeat a lumbar MRI scan within 12 months from their previous lumbar MRI scan
<b>Denominator</b>	Number of patients who have a lumbar MRI scan
<b>Notes</b>	Residents in the Region were considered. Passive mobility was included both in the numerator and denominator. Denominator: Patients who have had a scan in the year X-2, with the code: - 88.93 Nuclear magnetic resonance of the spine - 88.93.1 Nuclear magnetic resonance of the spine with or without contrast medium Excluded: anonymous and private practice patients Numerator: Patients who have one lumbar MRI scan in the 365 days following the first scan. Year x-1 was referred to for the numerator. Year 2012 was used to calculate the denominator while 2013 was used for the numerator. In the event of change of residence, the last Health Authority of residence in chronological order was considered. A scan repeated on the same day of the previous scan was not considered as a repeated procedure
<b>Source</b>	Regional Information System - Outpatient Flow





## C15 Mental health

Disorders related to mental illness and addiction are of considerable and increasing importance for health budgets in all countries due to their high frequency and the socio-economic costs of the ensuing disabilities. It is estimated that current social conditions, namely population aging, loneliness and even substance consumption, will increase the prevalence of mental health problems. To this end, WHO has indicated early diagnosis and adequate treatment of mental disease as a primary objective. Several initiatives at the national and regional level have been launched to ensure adequate treatment of the diseases by primary care, and so minimize the need for compulsory treatment, and promote social integration (Osservasalute Report, 2014). Starting from 2015, new indicators measuring different aspects of local care activities, i.e. appropriateness and effectiveness of the care pathway, have been included. The value of the composite indicator is the average of the sub-indicators C8a.13a, C8a.13.2 and C8a.5.

### C15 Mental health [evaluated]

- C8a.13a Percentage of psychiatric patient readmissions 8 - 30 days following discharge [evaluated]
- C8a.13.2 Percentage of psychiatric patient readmissions within 7 days from discharge [evaluated]
- C8a.5 Hospitalization rate for psychiatric disorders [evaluated]
  - C8a.5.1 Hospitalization rate for schizophrenia and psychotic disorders [observational]
  - C8a.5.2 Hospitalization rate for mood disorders [observational]
  - C8a.5.3 Hospitalization rate for mild to moderate depression [observational]
  - C8a.5.4 Hospitalization rate for anxiety and adjustment disorders [observational]
  - C8a.5.5 Hospitalization rate for personality disorders [observational]
  - C8a.5.7 Hospitalization rate for dementia [observational]
  - C8a.5.8 Hospitalization rate for substance-induced mental disorders [observational]
  - C8a.5.6 Hospitalization rate for other mental health diagnoses [observational]
- C15.8 Performance index for average length of stay for psychiatric disorders [observational]
- C15.2 Contact with the department of mental health within 7 days from discharge [observational]
- C15.9.1 Output of the therapy process: percentage of patients dropping out of the project (mental health) [observational]
- C15.9.2 Output of the therapy process: percentage of patients dropping out of the project (addictions) [observational]
- C8a.7 Hospitalization rate for psychiatric disorders (0-17 years) [observational]
- C15.11 Dropout from primary care services for severe neuropsychiatric disorders [observational]

- Lombardia**
- Osp. Sacra Famiglia
  - Osp. Moriggia Pelascini
  - ASL Bergamo
  - ASL Brescia
  - ASL Como
  - ASL Cremona
  - ASL Lecco
  - ASL Lodi
  - ASL Mantova
  - ASL Milano
  - ASL Milano 1
  - ASL Milano 2
  - ASL Monza-Brianza
  - ASL Pavia
  - ASL Sondrio
  - ASL Varese
  - ASL Valcamonica-Sebino
  - Osp. S. Giuseppe - MI
  - Ist. Neurologico Besta
  - Pol. S. Matteo
  - Fond. Ca Granda
  - Ist. Scient. E. Medea
  - S. Raffaele - MI
  - Ist. Auxologico Ital.
  - Fond. Cl. Lavoro - PV
  - Ist. Mondino - PV
  - Osp. Sacro Cuore FBF - BS
  - Ist. Humanitas - Rozzano
  - Ist. S. Donato - S.D.
  - A0 Fond. Macchi - VA
  - A0 S. A. Abate - Gallarate
  - A0 Osp. Circolo - B. Ars.
  - A0 Spedali Civili - BS
  - A0 M. Mellini - Chiari
  - A0 Desenzano del Garda
  - A0 Ist. Ospitalieri - CR
  - A0 Osp. Maggiore - Crema
  - A0 S. Anna- Como
  - A0 Lecco
  - A0 Osp. Riuniti - BG
  - A0 Treviglio
  - A0 Bolognino - Seriate
  - A0 C. Poma
  - A0 L. Sacco - Mi
  - A0 Niguarda - MI
  - A0 I.C.P. - MI
  - A0 Fatebenefratelli - MI
  - A0 S. Paolo - MI
  - A0 S. Carlo Borromeo - MI
  - A0 Civile - Legn.
  - A0 G. Salvini - Garb.
  - A0 Melegnano
  - A0 Desio-Vimercate
  - A0 S. Gerardo - Monza
  - A0 Prov. Lodi
  - A0 Prov. Pavia
  - A0 Valtellina-Valch.
  - Osp. Valduce

- Liguria**
- AUSL 1 Imperiese
  - AUSL 2 Savonese
  - AUSL 3 Genovese
  - AUSL 4 Chiavarese
  - AUSL 5 Spezzino
  - Osp. Galliera
  - Osp. Evangelico
  - IRCCS S. Martino

- Toscana**
- AUSL 1 Massa
  - AUSL 2 Lucca
  - AUSL 3 Pistoia
  - AUSL 4 Prato
  - AUSL 5 Pisa
  - AUSL 6 Livorno
  - AUSL 7 Siena
  - AUSL 8 Arezzo
  - AUSL 9 Grosseto
  - AUSL 10 Firenze
  - AUSL 11 Empoli
  - AUSL 12 Viareggio
  - AOU Pisana
  - AOU Senese
  - AOU Careggi

- Lazio**
- AUSL Roma A
  - AUSL Roma B
  - AUSL Roma C
  - AUSL Roma D
  - AUSL Roma E
  - AUSL Roma F
  - AUSL Roma G
  - AUSL Roma H
  - AUSL Viterbo
  - AUSL Rieti
  - AUSL Latina
  - AUSL Frosinone
  - A0 S. Camillo-Forlanini
  - A0 S. Giovanni/Addolorata
  - A0 S. F. Neri
  - Pol. Umberto I
  - A0 S. Andrea
  - Pol. Tor Vergata

- Bolzano**
- Azienda P.A. Bolzano
- Trento**
- APSS Trento



- Friuli Venezia Giulia**
- ASS1 Triestina
  - ASS2 Isoncina
  - ASS3 Alto Friuli
  - ASS4 Medio Friuli
  - ASS5 Bassa Friulana
  - ASS6 Friuli Occidentale
  - A0 Pordenone
  - AOU Trieste
  - AOU Udine

- Marche**
- Pesaro
  - Urbino
  - Fano
  - Senigallia
  - Jesi
  - Fabriano
  - Ancona
  - Civitanova M.
  - Macerata
  - Camerino S. Severino
  - Fermo
  - S. Benedetto
  - Ascoli Piceno
  - A0 Osp. Riun. Marche Nord
  - AOU Osp. Riun. Ancona
  - INRCA

- Puglia**
- ASL Brindisi
  - ASL Taranto
  - ASL Barletta-Andria-Trani
  - ASL Bari
  - ASL Foggia
  - ASL Lecce
  - E.E. Casa Sollievo
  - AOU Pol. Bari
  - 00.RR. Foggia

- Veneto**
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  - AULSS 2 Feltre
  - AULSS 3 Bass. del Grappa
  - AULSS 4 Alto Vicentino
  - AULSS 5 Ovest Vicentino
  - AULSS 6 Vicenza
  - AULSS 7 Pieve di Soligo
  - AULSS 8 Asolo
  - AULSS 9 Treviso
  - AULSS 10 Veneto Or.
  - AULSS 12 Veneziana
  - AULSS 13 Mirano
  - AULSS 14 Chioggia
  - AULSS 15 A. Padovana
  - AULSS 16 Padova
  - AULSS 17 Este
  - AULSS 18 Rovigo
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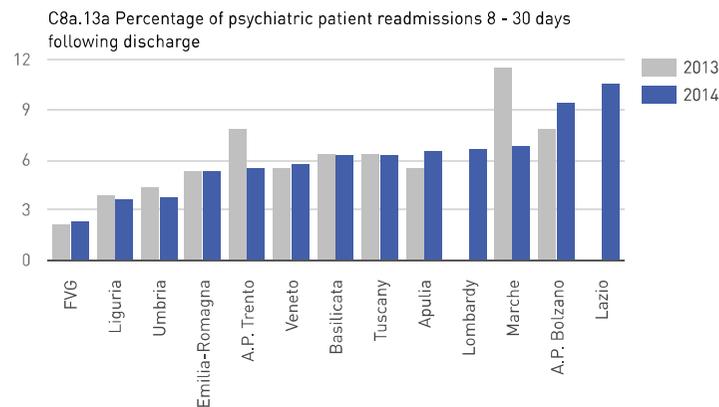
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  - AUSL Parma
  - AUSL Reggio Emilia
  - AUSL Modena
  - AUSL Bologna
  - AUSL Imola
  - AUSL Ferrara
  - AUSL Romagna
  - AOU Parma
  - A0 Reggio Emilia
  - AOU Modena
  - AOU Bologna
  - AOU Ferrara

- Umbria**
- USL Umbria 1
  - USL Umbria 2
  - A0 Perugia
  - A0 Terni



### C8a.13a Percentage of psychiatric patient readmissions 8 - 30 days following discharge

Re-admissions of patients with mental disorders within the month following discharge are indicative of poor integration between hospitals and primary care (OECD 2011). It is therefore necessary to develop post-hospitalization integrated care pathways to ensure appropriate primary care, as well as customized rehabilitation and therapy. The first Essential Levels of Care (ELC) definition (23/04/2008, Chapter IV, Art. 25, 26, 32) call for abandoning the model based on the concept of service delivery and adoption of an approach that identifies a personalized therapeutic rehabilitation plan comprising a series of processes. Services must be patient-oriented with patient involvement at all stages (diagnosis, therapy, rehabilitation) with continuity and integration of care. Care pathway goals and clinical outcomes must take into account aspects such as quality of life as well as satisfaction levels of patients and their families.



<b>Definition</b>	Percentage of psychiatric patient readmissions 8 - 30 days following discharge
<b>Numerator</b>	Number of readmissions for adult psychiatric patients between 8 and 30 days from discharge to any regional facility (first admission between January 1st and November 30th , readmissions between January 1st and December 31st )
<b>Denominator</b>	Number of admissions for psychiatric disorders from January 1st to November 30th

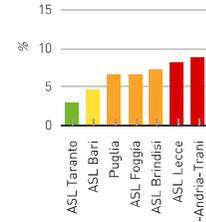
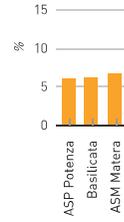
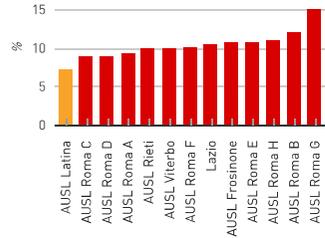
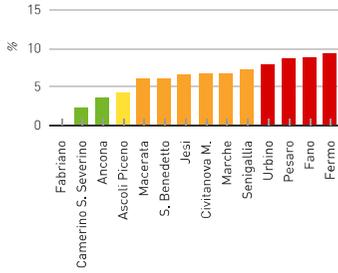
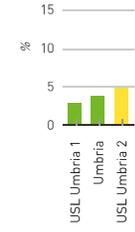
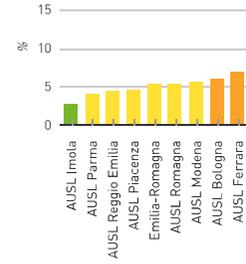
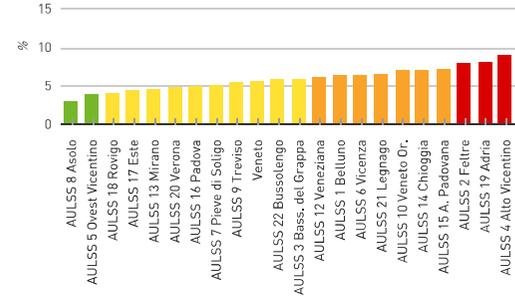
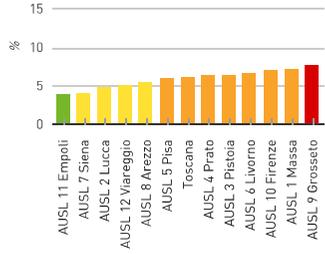
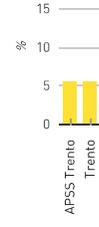
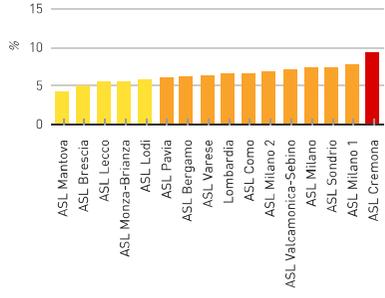
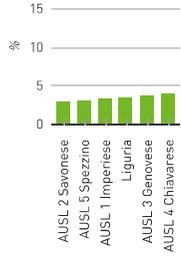
**Notes** Inpatient admissions of adult residents in the Region, with valid fiscal code, in the first 11 months of the year, were considered. Codes ICD9-CM for psychiatric disorders in principal diagnosis: 290.xx - 319.xx

Excluded from both the numerator and the denominator:  
 - disorders in childhood and adolescence codes ICD9-CM in principal diagnosis: 299.0x, 299.8x, 313-315;  
 - anonymous patient ID codes;  
 - deceased patients with only one admission registered.

A readmission for the numerator is considered:  
 - admission of the same patient ID code as recorded for a previous admission 8 to 30 days after the first admission;  
 - discharge from a public hospital followed by an admission to a private unaccredited hospital.

- admissions following voluntary discharge were not considered readmissions.  
 Patients coming from an unaccredited private hospital and admitted to a public hospital, or to an accredited or unaccredited private hospital were excluded.  
 Admissions to private unaccredited hospitals were excluded from the calculation of the denominator.  
 The readmission was attributed to the Health Authority of the patients residence

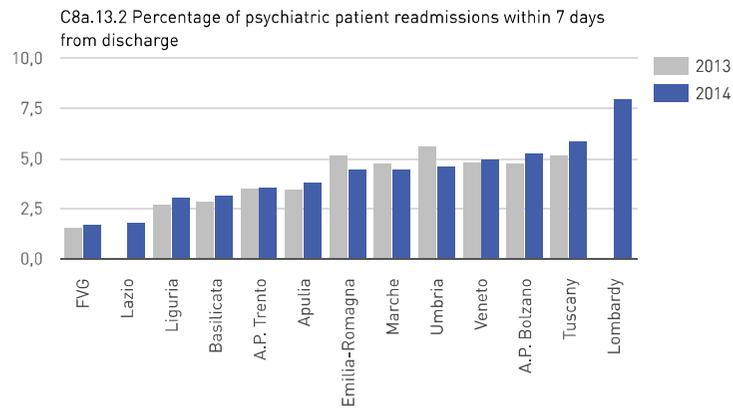
**Source** Regional Information System - Hospital discharge records



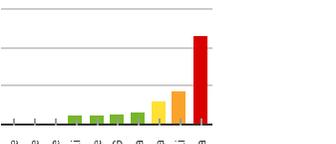
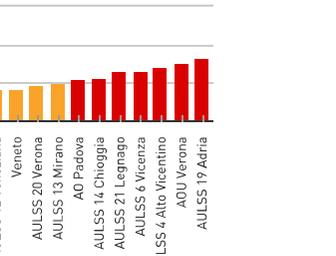
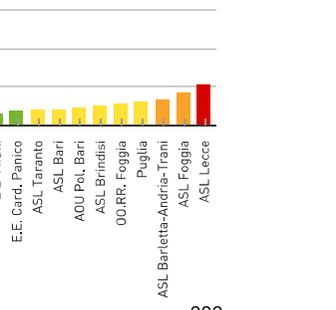
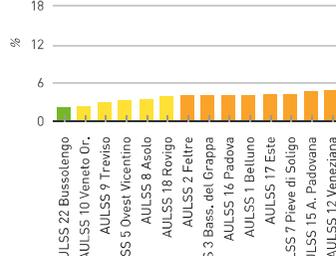
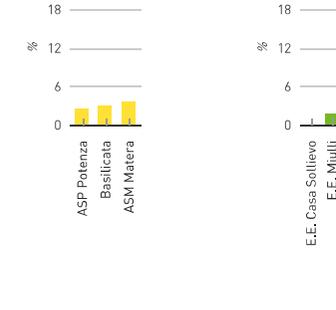
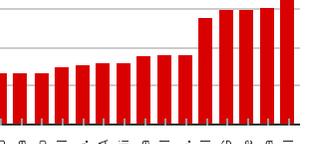
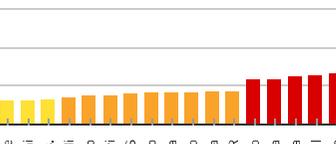
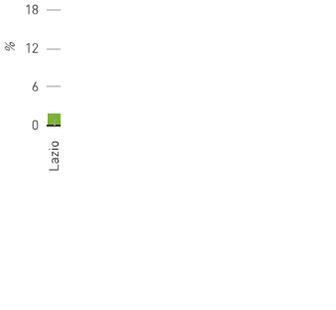
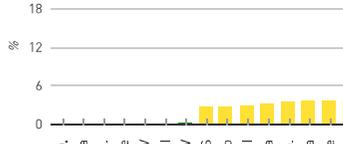
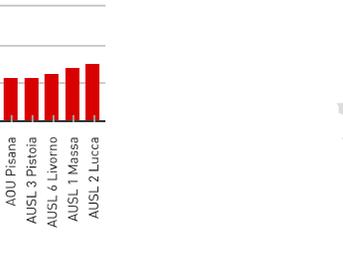
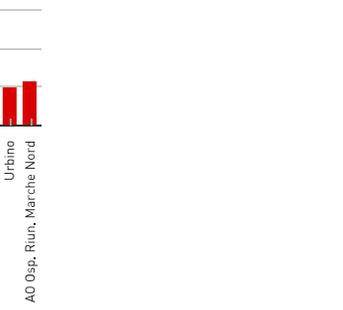
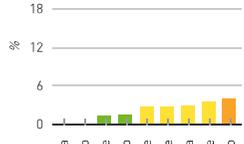
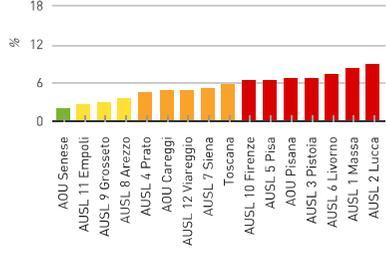
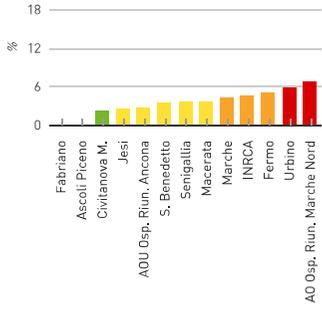


### C8a.13.2 Percentage of psychiatric patient readmissions within 7 days from discharge

Readmissions of patients within 7 days from the previous discharge may be indicative of mental health-case management problems. Readmissions are attributed to the previous hospital to admit the patient.



<b>Definition</b>	Percentage of psychiatric patient readmissions within 7 days from discharge
<b>Numerator</b>	Number of readmissions of adult psychiatric patients within 7 days from discharge in any regional facility, per 100
<b>Denominator</b>	Number of adult admissions for psychiatric disorders from January 1st to December 24th
<b>Notes</b>	<p>Inpatient admissions to regional hospitals of adult residents, with valid patient ID code were considered.                      DRG codes: 425, 426, 427, 428, 429, 430, 431, 432, 523.                      Codes ICD9-CM for psychiatric disorders in principal diagnosis: 290.xx - 319.xx                      Excluded (from both the numerator and the denominator):                      - admissions for childhood and adolescence disorders; codes ICD9-CM in principal diagnosis: 299.0x, 299.8x, 313-315;                      - admissions with anonymous patient ID code;                      - deceased patients with only one admission.</p> <p>Admissions with the following discharge mode were not considered readmissions:                      - voluntary;                      - transferred to another public or private care institute for acute inpatient treatment; transfer to a public or private rehabilitation institute, if the discharge date is the same as the readmission date</p> <p>Readmissions are re-registrations of the same patient ID code at any public, accredited or unaccredited private hospital 7 days after the previous discharge.                      Readmission was attributed to the Health Authority accepting the previous admission. In the event of a third admission within 7 days of the first, the Health Authority accepting the second admission will be attributed the case</p>
<b>Source</b>	Regional Information System - Hospital discharge records

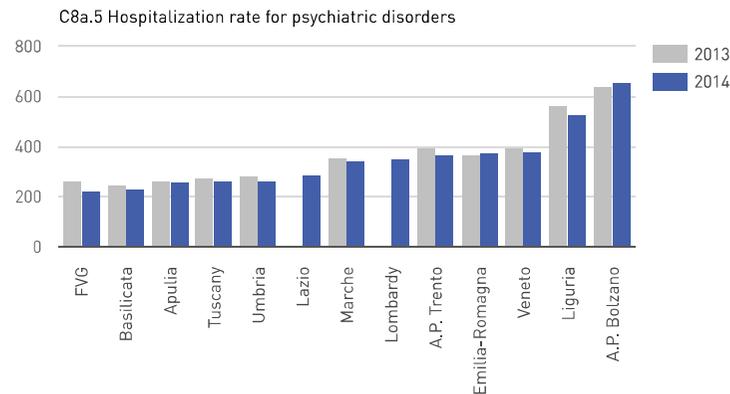




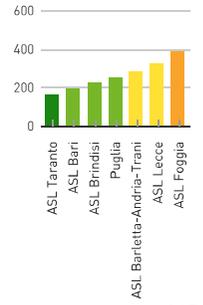
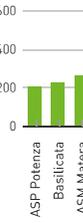
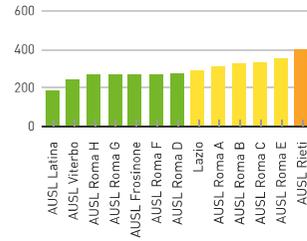
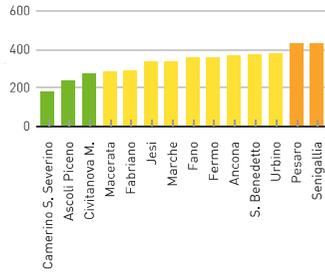
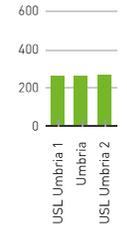
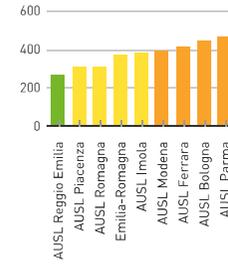
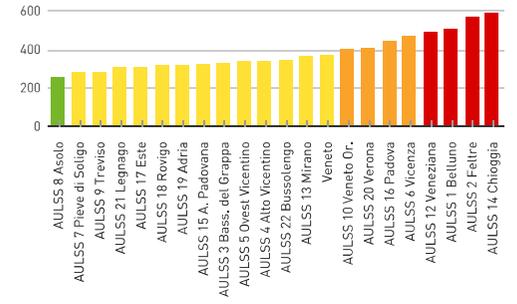
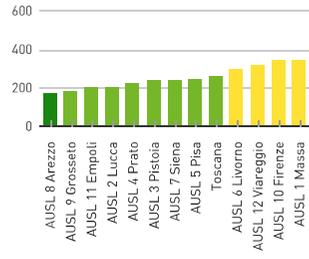
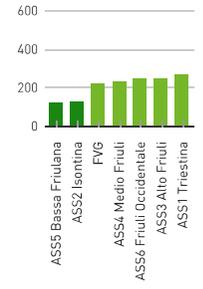
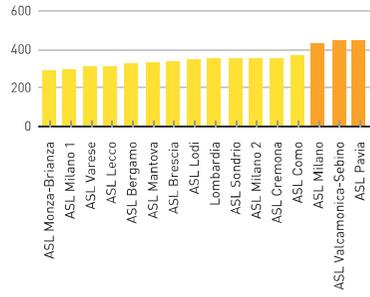
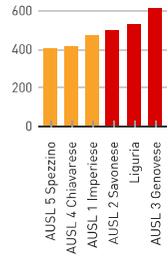
### C8a.5 Hospitalization rate for psychiatric disorders

The hospitalization rate for psychiatric diseases is an indicator aimed at evaluating the effectiveness of primary psychiatric care to guarantee an extensive network of integrated primary services delivering preventive and therapeutic care enabling mental health centres to provide better patient management, and so prevent acute episodes requiring hospitalization.

Bolzano residents admitted to Austrian hospitals were not included in the calculation of the indicator for the A.P. of Bolzano.



<b>Definition</b>	Hospitalization rate for psychiatric disorders, per 100,000 adult residents
<b>Numerator</b>	Number of admissions for psychiatric disorders for adult residents, per 100,000
<b>Denominator</b>	Resident adult population
<b>Notes</b>	Inpatient admissions of residents, either to a hospital in the Region of the patients residence or to a facility in another Region, were considered. Where no passive mobility data were available, previous year figures were used. Codes ICD9-CM for psychiatric disorders in principal diagnosis: 290.xx-319.xx.  Exclusions: - admissions for childhood and adolescence disorders: 299.0x, 299.8x, 313-315; - admissions to unaccredited private hospitals
<b>Source</b>	Regional Information System - Hospital discharge records





## C16 Emergency Department

The composite indicator provides a wide evaluation of the “Emergency—Urgency pathway”. On the one hand, indicators C16.1, C16.2, C16.3 and C16.4 provide an evaluation of Emergency Department activities: patient waiting times and gate-keeping effectiveness. On the other, the indicator measures certain aspects of the “118 system” (the emergency medical services) with C16.11 monitoring the time lapse between the incoming emergency call and the arrival on spot of the first emergency vehicle. The value of the composite indicator is the average of sub-indicators C16.1, C16.2, C16.3, C16.4 and C16.11.

### C16 Emergency Department [evaluated]

- C16.1 Percentage of yellow code patients visited within 30 minutes [evaluated]
- C16.2 Percentage of green code patients visited within 1 hour [evaluated]
- C16.3 Percentage of green code patients not referred to hospital and with a length of stay  $\leq 4$ h [evaluated]
- C16.4 Percentage of patients referred to hospital with a length of stay  $\leq 8$ h [evaluated]
- C16.11 Emergency vehicle response time [evaluated]

**Lombardia**

Osp. Sacra Famiglia ●  
 Osp. Moriggia Pelascini ●  
 ASL Valcamonica-Sebino ●  
 Osp. S. Giuseppe - MI ●  
 Pol. S. Matteo ●  
 Fond. Ca Granda ●  
 Fond. Monzino - C. Cardio. ●  
 S. Raffaele - MI ●  
 Ist. Auxologixo Ital. ●  
 Ist. Humanitas - Rozzano ●  
 Ist. Ortopedico Galeazzi ●  
 Ist. S. Donato - S.D. ●  
 CdC Multimed. - Sesto S. ●  
 AO Fond. Macchi - VA ●  
 AO S. A. Abate - Gallarate ●  
 AO Osp. Circolo - B. Ars. ●  
 AO Spedali Civili - BS ●  
 AO M. Mellini - Chiari ●  
 AO Desenzano del Garda ●  
 AO Ist. Ospitalieri - CR ●  
 AO Osp. Maggiore - Crema ●  
 AO S. Anna- Como ●  
 AO Lecco ●  
 AO Osp. Riuniti - BG ●  
 AO Treviglio ●  
 AO Bolognino - Seriate ●  
 AO C. Poma ●  
 AO L. Sacco - Mi ●  
 AO Niguarda - MI ●  
 AO I.C.P. - MI ●  
 AO Fatebenefratelli - MI ●  
 AO S. Paolo - MI ●  
 AO G. Pini - MI ●  
 AO S. Carlo Borromeo - MI ●  
 AO Civile - Legn. ●  
 AO G. Salvini - Garb. ●  
 AO Melegnano ●  
 AO Desio-Vimercate ●  
 AO S. Gerardo - Monza ●  
 AO Prov. Lodi ●  
 AO Prov. Pavia ●  
 AO Valtellina-Valch. ●  
 Osp. Valduce ●

**Liguria**

AUSL 1 Imperiese ●  
 AUSL 2 Savonese ●  
 AUSL 3 Genovese ●  
 AUSL 4 Chiavarese ●  
 AUSL 5 Spezzino ●  
 Osp. Galliera ●  
 Osp. Evangelico ●  
 IRCCS S. Martino ●  
 Ist. Gaslini ●

**Toscana**

AUSL 1 Massa ●  
 AUSL 2 Lucca ●  
 AUSL 3 Pistoia ●  
 AUSL 4 Prato ●  
 AUSL 5 Pisa ●  
 AUSL 6 Livorno ●  
 AUSL 7 Siena ●  
 AUSL 8 Arezzo ●  
 AUSL 9 Grosseto ●  
 AUSL 10 Firenze ●  
 AUSL 11 Empoli ●  
 AUSL 12 Viareggio ●  
 AOU Pisana ●  
 AOU Senese ●  
 AOU Careggi ●  
 Meyer ●

**Lazio**

AUSL Roma A ●  
 AUSL Roma B ●  
 AUSL Roma C ●  
 AUSL Roma D ●  
 AUSL Roma E ●  
 AUSL Roma F ●  
 AUSL Roma G ●  
 AUSL Roma H ●  
 AUSL Viterbo ●  
 AUSL Rieti ●  
 AUSL Latina ●  
 AUSL Frosinone ●  
 AO S. Camillo Forlanini ●  
 AO S. G. Addolorata ●  
 AO S. F. Neri ●  
 Osp. Bambino Gesù ●  
 Pol. Umberto I ●  
 AO S. Andrea ●  
 Fond. Pol. Tor Vergata ●

**Bolzano**

Azienda P.A. Bolzano ●

**Trento**

APSS Trento ●

**Basilicata**

ASP Potenza ●  
 ASM Matera ●  
 AO S. Carlo ●

**Friuli Venezia Giulia**

ASS2 Isontina ●  
 ASS3 Alto Friuli ●  
 ASS4 Medio Friuli ●  
 ASS5 Bassa Friulana ●  
 IRCCS Burlo Gar. ●  
 AO Pordenone ●  
 AOU Trieste ●  
 AOU Udine ●

**Umbria**

USL Umbria 1 ●  
 USL Umbria 2 ●  
 AO Perugia ●  
 AO Terni ●

**Puglia**

ASL Brindisi ●  
 ASL Taranto ●  
 ASL Barletta-Andria-Trani ●  
 ASL Bari ●  
 ASL Foggia ●  
 ASL Lecce ●  
 E.E. Casa Sollievo ●  
 AOU Pol. Bari ●  
 OO.RR. Foggia ●

**Veneto**

AULSS 1 Belluno ●  
 AULSS 2 Feltre ●  
 AULSS 3 Bass. del Grappa ●  
 AULSS 4 Alto Vicentino ●  
 AULSS 5 Ovest Vicentino ●  
 AULSS 6 Vicenza ●  
 AULSS 7 Pieve di Soligo ●  
 AULSS 8 Asolo ●  
 AULSS 9 Treviso ●  
 AULSS 10 Veneto Or. ●  
 AULSS 12 Veneziana ●  
 AULSS 13 Mirano ●  
 AULSS 14 Chioggia ●  
 AULSS 15 A. Padovana ●  
 AULSS 16 Padova ●  
 AULSS 17 Este ●  
 AULSS 18 Rovigo ●  
 AULSS 19 Adria ●  
 AULSS 20 Verona ●  
 AULSS 21 Legnago ●  
 AULSS 22 Bussolengo ●  
 AO Padova ●  
 AOU Verona ●

**Emilia-Romagna**

AUSL Piacenza ●  
 AUSL Parma ●  
 AUSL Reggio Emilia ●  
 AUSL Modena ●  
 AUSL Bologna ●  
 AUSL Imola ●  
 AUSL Ferrara ●  
 AUSL Romagna ●  
 AOU Parma ●  
 AO Reggio Emilia ●  
 AOU Modena ●  
 AOU Bologna ●  
 AOU Ferrara ●  
 IRCCS Rizzoli ●

**Marche**

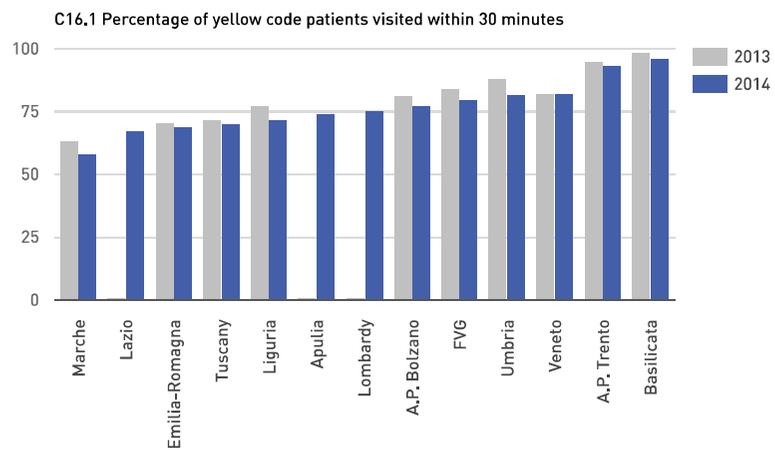
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 Fano ●  
 Senigallia ●  
 Jesi ●  
 Fabriano ●  
 Ancona ●  
 Civitanova M. ●  
 Macerata ●  
 Camerino S. Severino ●  
 Fermo ●  
 S. Benedetto ●  
 Ascoli Piceno ●  
 AO Osp. Riun. Marche Nord ●  
 AOU Osp. Riun. Ancona ●



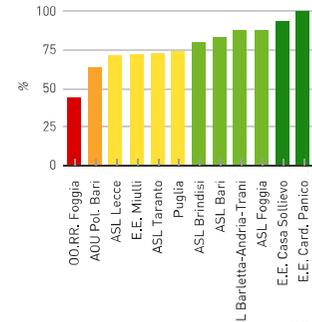
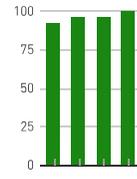
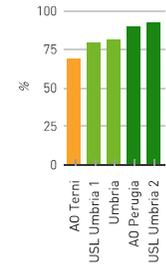
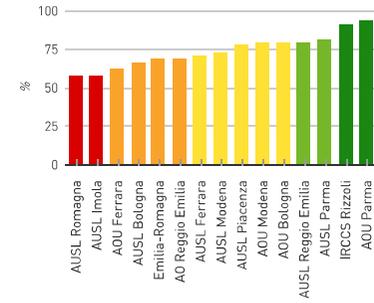
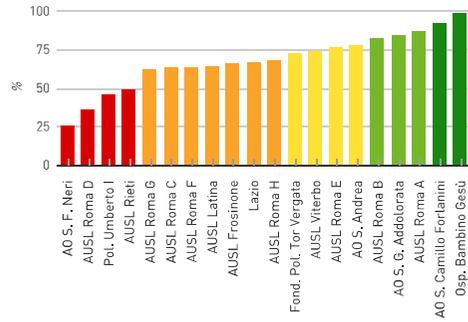
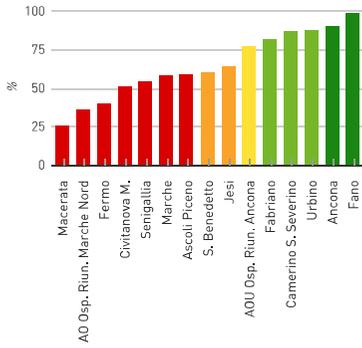
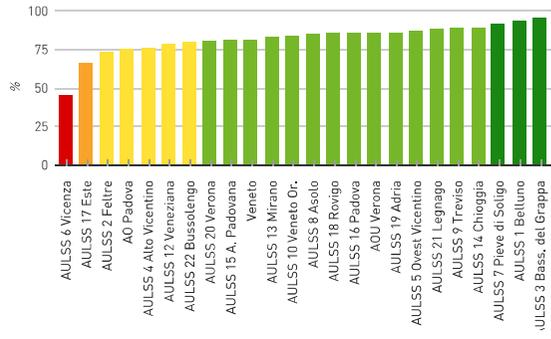
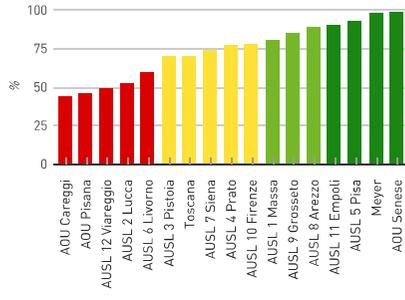
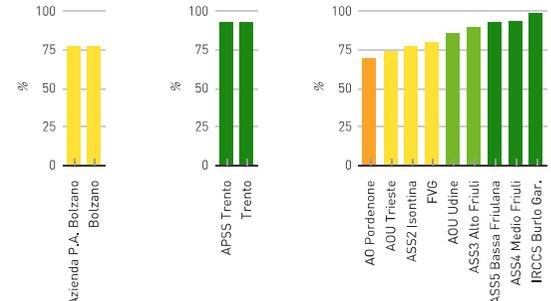
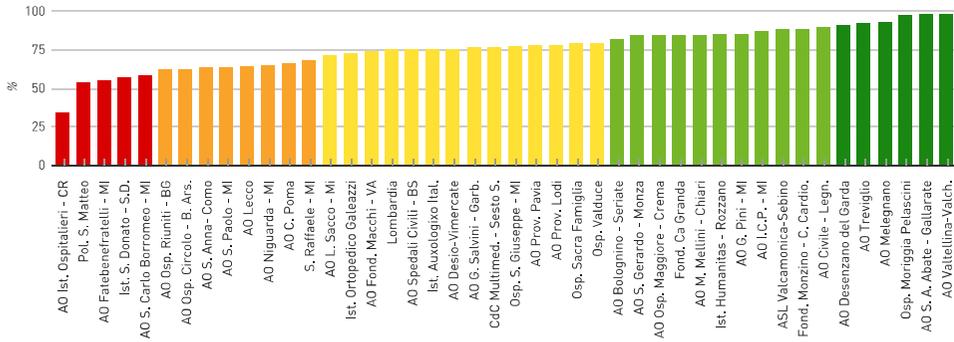
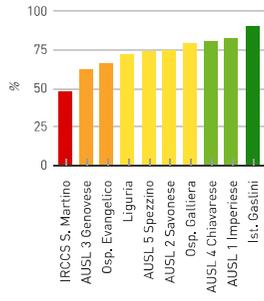


### C16.1 Percentage of yellow code patients visited within 30 minutes

The indicator monitors the percentage of yellow code patients visited by a doctor within 30 minutes of admission (triage).



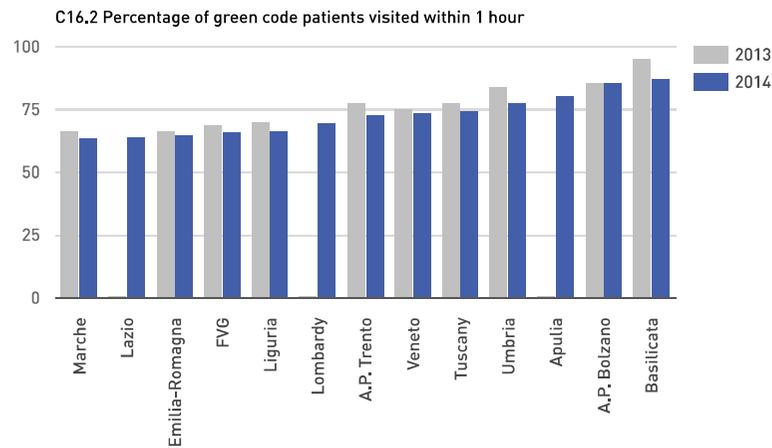
<b>Definition</b>	Percentage of yellow code patients visited within 30 minutes out of the total number of yellow code patients
<b>Numerator</b>	Number of yellow code patients visited within 30 minutes, per 100
<b>Denominator</b>	Total number of yellow code patients visited within 30 minutes or more
<b>Notes</b>	Reference is made to the colour code assigned on entering the ED
<b>Source</b>	Emergency Department Flow



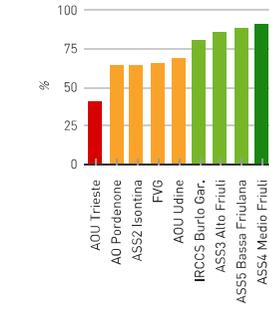
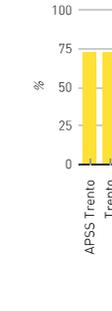
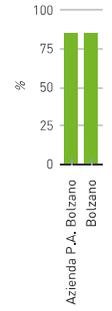
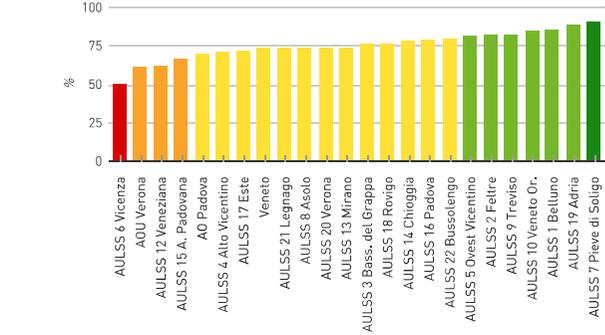
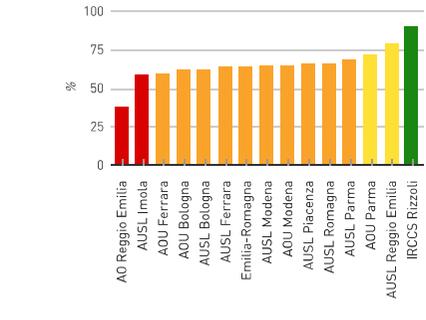
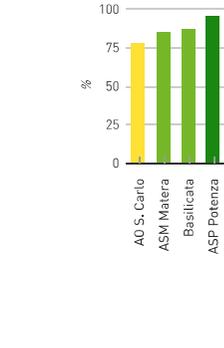
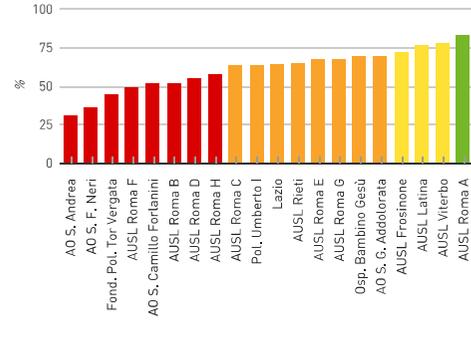
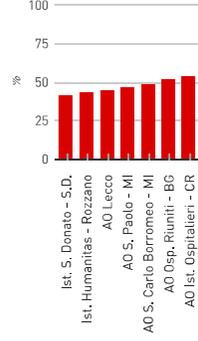
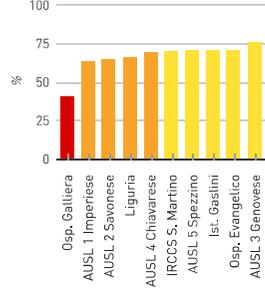
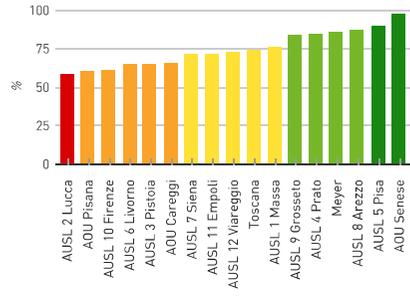
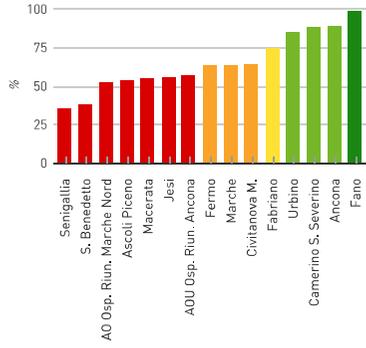


### C16.2 Percentage of green code patients visited within 1 hour

The indicator monitors the percentage of green code patients visited by a doctor within 1 hour of admission (triage).



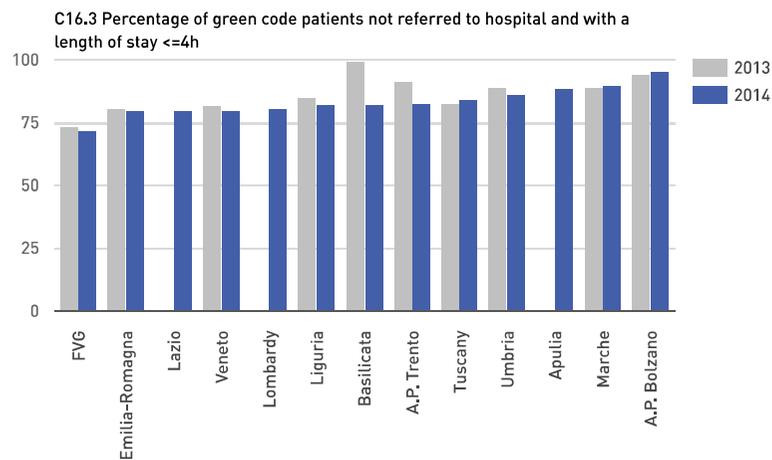
<b>Definition</b>	Percentage of green code patients visited within 1 hour out of the total number of green code patients
<b>Numerator</b>	Number of green code patients visited within 1 hour, per 100
<b>Denominator</b>	Total number of green code patients visited within 1 hour or more
<b>Notes</b>	Reference is made to the colour code assigned on entering the ED
<b>Source</b>	Emergency Department Flow



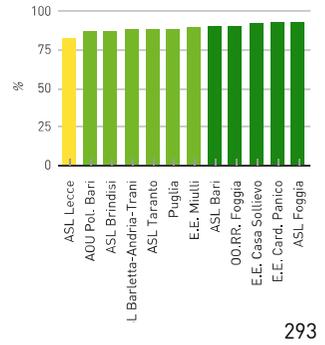
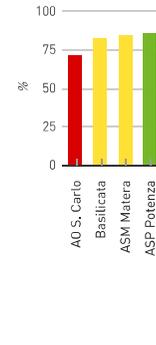
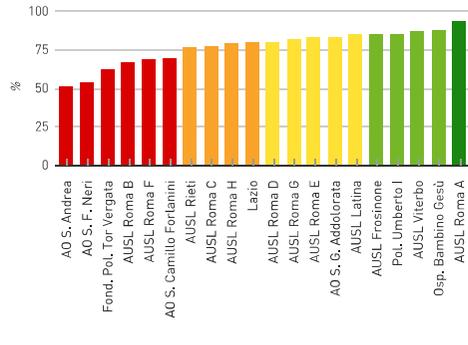
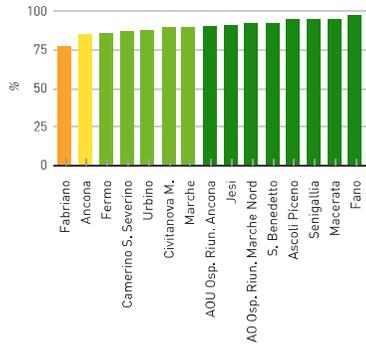
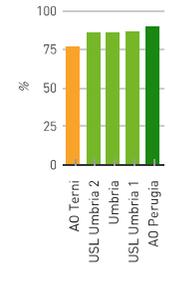
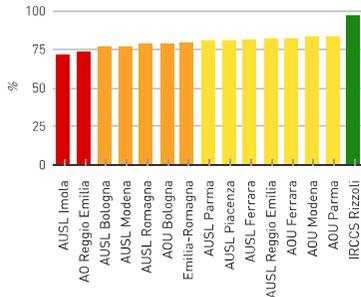
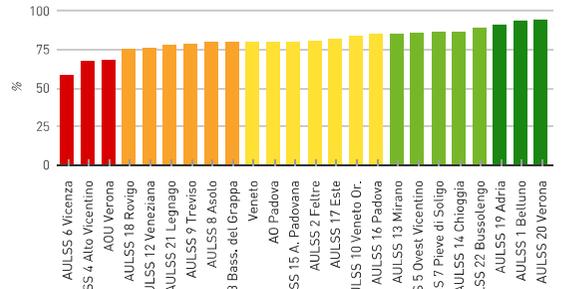
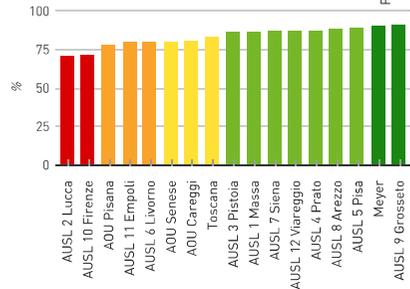
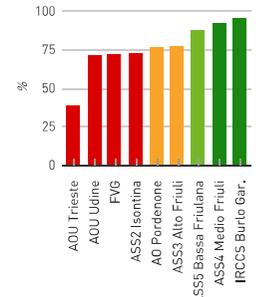
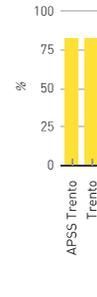
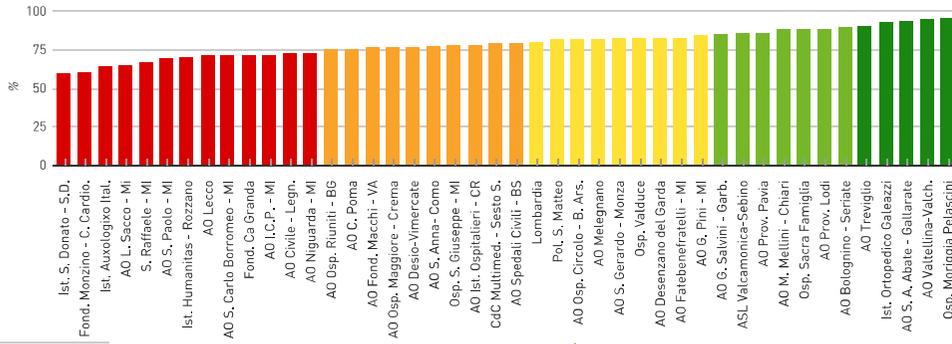
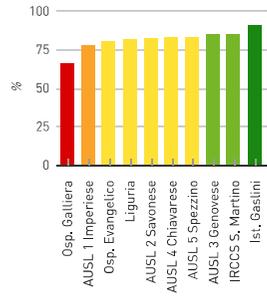


### C16.3 Percentage of green code patients not referred to hospital and with a length of stay <=4h

The indicator monitors the percentage of green code patients not referred to hospital or kept under observation, with a length of stay of less than 4 hours.



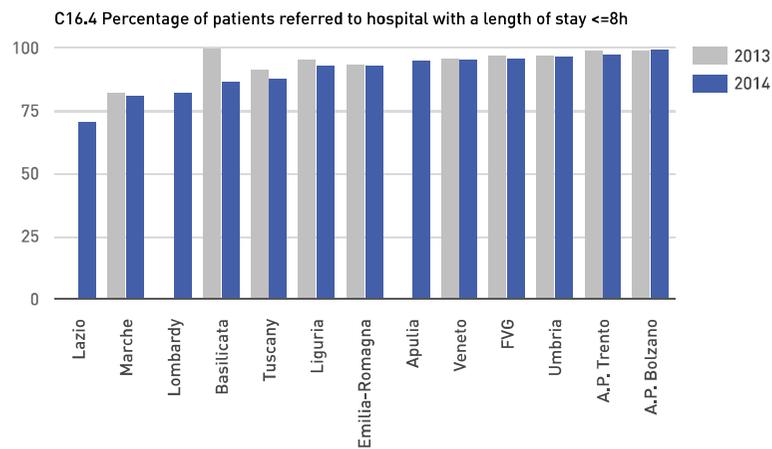
<b>Definition</b>	Percentage of green code patients not referred to hospital and with a length of stay <=4h
<b>Numerator</b>	Number of green code patients not referred to hospital and with a length of stay in ED of less than 4 hours, per 100
<b>Denominator</b>	Total number of green code patients not referred to hospital and with a length of stay in ED of less than 4 hours or more
<b>Notes</b>	Reference is made to the colour code assigned on entering the ED. Patients in short-term observation were excluded. The length of stay is calculated as the lapse of time between triage and discharge. Discharges for hospitalization and patients who leave the ED without being treated were excluded
<b>Source</b>	Emergency Department Flow



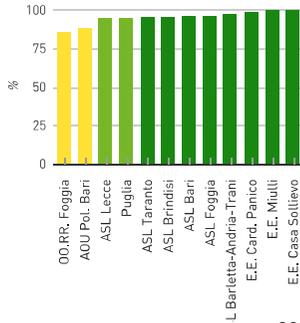
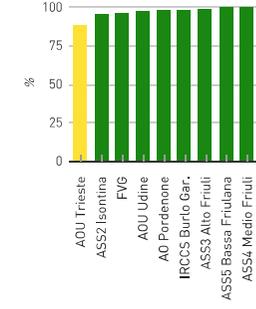
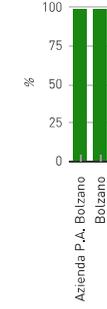
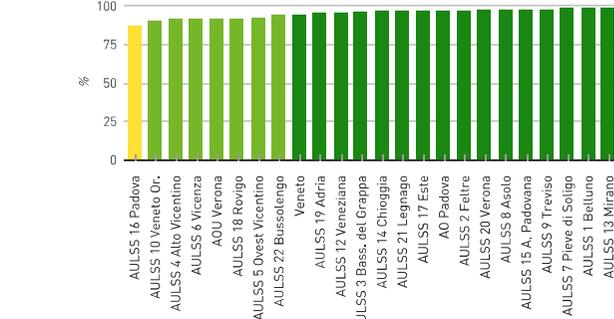
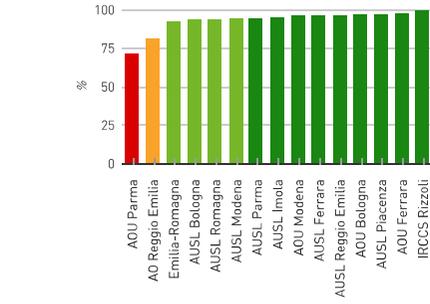
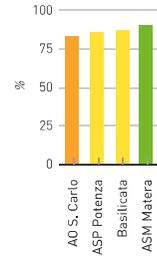
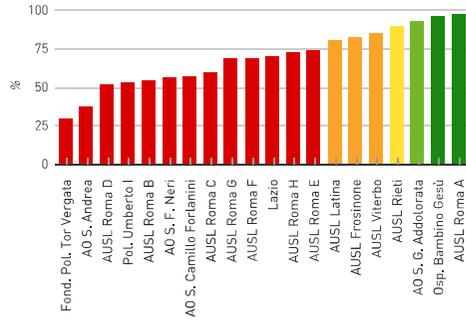
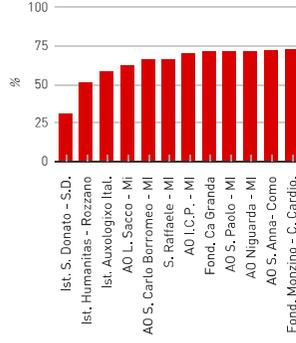
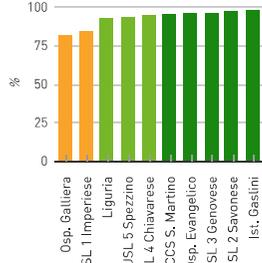
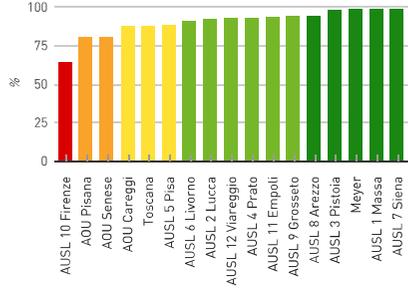
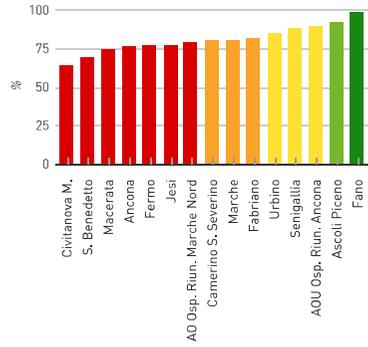


### C16.4 Percentage of patients referred to hospital with a length of stay <=8h

The indicator allows evaluation of the effectiveness of the hospital as a whole, monitoring promptness in the management of patients who are referred by the Emergency Department for hospitalization or other medical exams. The indicator measures the percentage of patients with a length of stay in the Emergency Department of less than 8 hours, from the moment of colour code assignment (triage) to discharge or transfer to another Institute. Cases of short-stay patients in observation status were excluded from the calculation of the indicator.



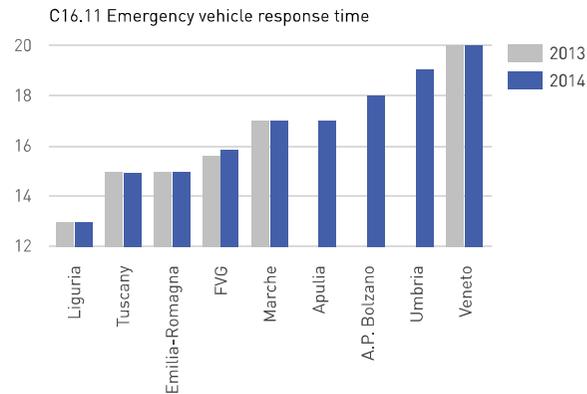
<b>Definition</b>	Percentage of patients referred to hospital with a length of stay in ED of <=8h
<b>Numerator</b>	Number of patients referred to hospital with a length of stay in ED of less than 8 hours, per 100
<b>Denominator</b>	Total number of patients referred to hospital from the ED
<b>Notes</b>	Patients placed in short-term observation were excluded. The length of stay is calculated as the lapse of time between triage and discharge. Only discharges with hospitalization or transfer to another healthcare facility were considered
<b>Source</b>	Emergency Department Flow



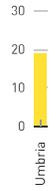
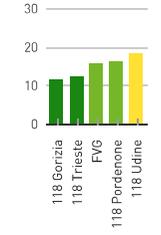
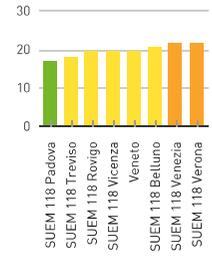
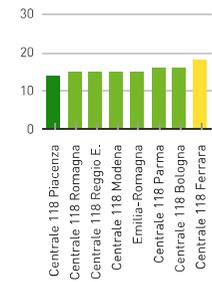
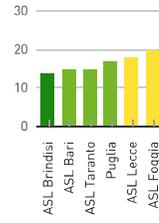
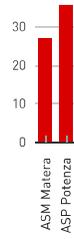
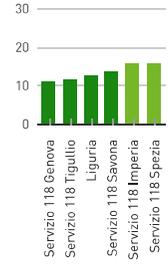
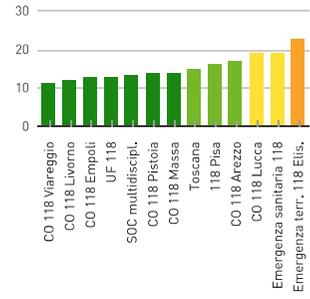
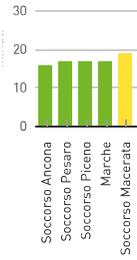


### C16.11 Emergency vehicle response time

The indicator provides an important measure of the service provided by the health emergency system, in terms of prompt response. The indicator measures the time lapse between the incoming call registration by the Emergency Operations centre and the arrival of the first emergency vehicle on the spot ("target").



<b>Definition</b>	Emergency vehicle response time
<b>Numerator</b>	
<b>Denominator</b>	
<b>Notes</b>	The indicator considers the 75th percentile of the distribution of time intervals between the incoming (alarm) and the arrival of the first rescue vehicle on the spot (target). Only red and yellow coded cases with a time range of 1 - 180 minutes were considered. Helicopter rescue missions were excluded. In 2014, Prato and Firenze Operations centres were grouped together. Data of the Prato Emergency centre referred to January and February 2014. All other months were covered by the Florence Operations Centre
<b>Source</b>	Regional Information System - 118 Flow





## C18 Appropriateness of elective surgery

The high inter- and intra-regional variation observed for most performance indicators in this category is sporadically due to the degree of customization/personalisation of services to citizens' social and health needs. Many international studies have shown that geographical variation of some elective surgery services is not entirely due to real differences in expressed needs, but rather flags up an issue of the appropriateness of professional and organizational behaviour. In health care, demand often creates and stimulates supply. Therefore, the selection and allocation of critical resources (such as medical professionals) become of crucial importance to limit both over-production and lack of supply that in turn impact mobility dynamics. Composite indicator C18 analyses the variability of hospitalization rates of the following elective surgery interventions: tonsillectomy, cholecystectomy, laparoscopic cholecystectomy, knee replacement, hip replacement, vein stripping, coronary angioplasty, transurethral prostatectomy, hysterectomy, knee arthroscopy. The score attributed to the composite indicator C18 is the average of sub-indicators C18.1 and C18.6.

### C18 Appropriateness of elective surgery [evaluated]

- C18.1 Standardized hospitalization rate for tonsillectomy [evaluated]
- C18.2 Standardized hospitalization rate for cholecystectomy [observational]
- C18.3 Standardized hospitalization rate for laparoscopic cholecystectomy [observational]
- C18.4 Standardized hospitalization rate for knee replacement surgery [observational]
- C18.5 Standardized hospitalization rate for hip replacement surgery [observational]
- C18.6 Standardized hospitalization rate for vein stripping [evaluated]
- C18.7 Standardized hospitalization rate for percutaneous coronary interventions (PCI) [observational]
- C18.8 Standardized hospitalization rate for transurethral prostatectomy for benign prostatic hyperplasia [observational]
- C18.9 Standardized hospitalization rate for hysterectomy [observational]
- C18.10 Standardized hospitalization rate for knee arthroscopy [observational]

- Lombardia**
- ASL Bergamo
  - ASL Brescia
  - ASL Como
  - ASL Cremona
  - ASL Lecco
  - ASL Lodi
  - ASL Mantova
  - ASL Milano
  - ASL Milano 1
  - ASL Milano 2
  - ASL Monza-Brianza
  - ASL Pavia
  - ASL Sondrio
  - ASL Varese
  - ASL Valcamonica-Sebino

- Liguria**
- AUSL 1 Imperiese
  - AUSL 2 Savonese
  - AUSL 3 Genovese
  - AUSL 4 Chiavarese
  - AUSL 5 Spezzino

- Bolzano**
- Azienda P.A. Bolzano

- Trento**
- APSS Trento

- Friuli Venezia Giulia**
- ASS1 Triestina
  - ASS2 Isontina
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  - ASS4 Medio Friuli
  - ASS5 Bassa Friulana
  - ASS6 Friuli Occidentale

- Veneto**
- AULSS 1 Belluno
  - AULSS 2 Feltre
  - AULSS 3 Bass. del Grappa
  - AULSS 4 Alto Vicentino
  - AULSS 5 Ovest Vicentino
  - AULSS 6 Vicenza
  - AULSS 7 Pieve di Soligo
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  - AULSS 14 Chioggia
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  - AULSS 19 Adria
  - AULSS 20 Verona
  - AULSS 21 Legnago
  - AULSS 22 Bussolengo

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  - Senigallia
  - Jesi
  - Fabriano
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  - Civitanova M.
  - Macerata
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  - Fermo
  - S. Benedetto
  - Ascoli Piceno

- Emilia-Romagna**
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  - AUSL Reggio Emilia
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- Toscana**
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  - AUSL 4 Prato
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  - AUSL 6 Livorno
  - AUSL 7 Siena
  - AUSL 8 Arezzo
  - AUSL 9 Grosseto
  - AUSL 10 Firenze
  - AUSL 11 Empoli
  - AUSL 12 Viareggio

- Lazio**
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  - AUSL Roma B
  - AUSL Roma C
  - AUSL Roma D
  - AUSL Roma E
  - AUSL Roma F
  - AUSL Roma G
  - AUSL Roma H
  - AUSL Viterbo
  - AUSL Rieti
  - AUSL Latina
  - AUSL Frosinone

- Basilicata**
- ASP Potenza
  - ASM Matera

- Puglia**
- ASL Brindisi
  - ASL Taranto
  - ASL Barletta-Andria-Trani
  - ASL Bari
  - ASL Foggia
  - ASL Lecce

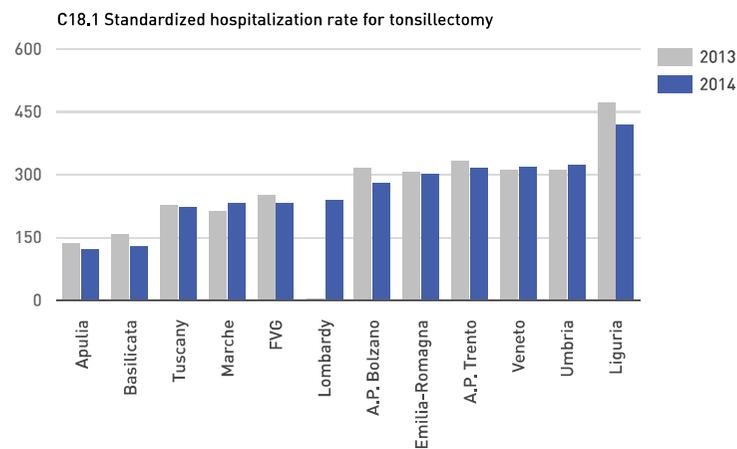
- Umbria**
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  - USL Umbria 2





### C18.1 Standardized hospitalization rate for tonsillectomy

The variation observed in tonsillectomy interventions is not entirely due to different population needs. It can also be indicative of problems of healthcare appropriateness because it relates to differences between Regions and Local Authorities in the organization of healthcare supply, their different adoption of technological innovations, and different clinical and professional behaviour. High hospitalization rates for tonsillectomy suggest possible lack of clear indications for surgery. The indicator also points up potential unwarranted variation in clinical practices, and the attendant issue of service provision discrepancies across the different geographical areas investigated. The indicator shows the age and sex- standardized hospitalization rate for surgical interventions for tonsillectomy in patients aged 17 years or less.



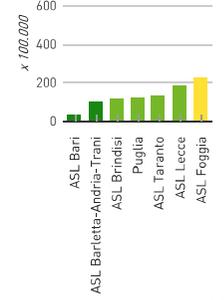
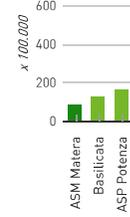
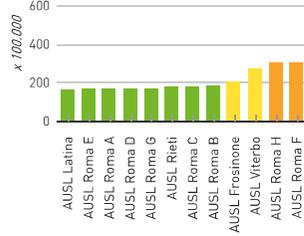
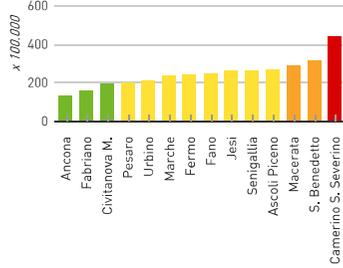
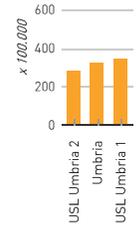
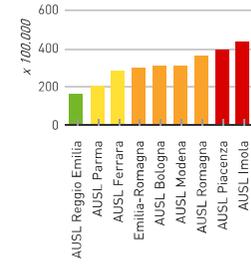
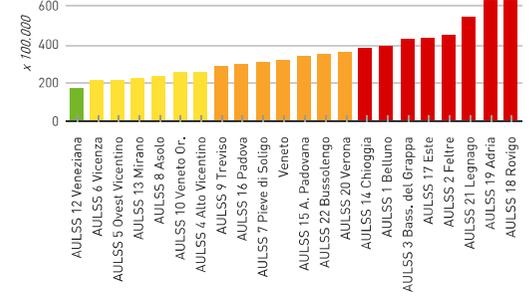
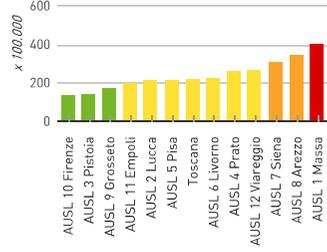
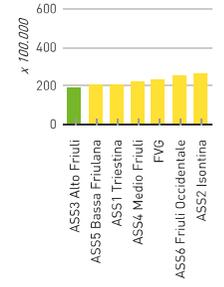
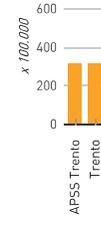
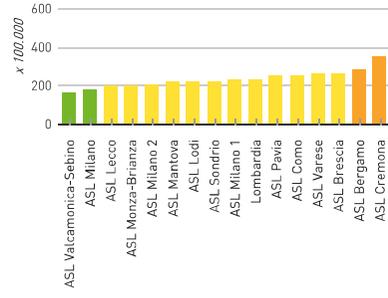
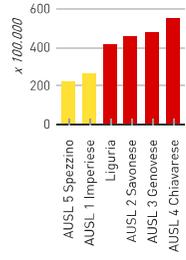
<b>Definition</b>	Age-sex standardized hospitalization rate for tonsillectomy, per 100,000 residents
<b>Numerator</b>	Number of admissions for tonsillectomy, per 100,000 residents
<b>Denominator</b>	Number of residents aged between 0 and 17 years

**Notes**  
 The following admissions are considered:  
 - hospitalization anywhere of residents in the Region, aged between 0 and 17 years;  
 - hospitalization in facilities in and outside the patients Region of residence in both public and accredited private hospitals;  
 - with codes ICD9CM of principal or secondary procedure for tonsillectomy with or without adenoidectomy: 28.2 e 28.3.

**Excluded:**  
 - admissions with MDC 14 or 15;  
 - admissions of patients transferred from other similar care institutes;  
 - patients with the following diagnosis codes: 140 149, 160.X, 161.X, 170.0, 170.1, 171.0, 172.0, 172.1, 172.2, 172.3, 172.4, 173.0, 173.1, 173.2, 173.3, 173.4, 190.X, 191.X, 192.0, 192.1, 193, 194.1, 194.3, 194.4, 195.0, 196.0, 200.01, 200.11, 200.21, 200.81, 201.01, 201.11, 201.21, 201.41, 201.51, 201.61, 201.91, 202.01, 202.11, 202.21, 202.31, 202.41, 202.51, 202.61, 202.81, 202.91, 210.X, 212.1, 215.0, 216.0, 216.1, 216.2, 216.3, 216.4, 224.X, 226, 227.1, 227.3, 227.4, 230.0, 231.0, 232.0, 232.1, 232.2, 232.3, 232.4, 235.0, 235.1; injury or poisoning: from 800\* to 999\*.

Age and sex-based standardization. The standard population is the resident population of Italy as recorded in 2011 by the last Census; source: ISTAT. Age classes: 0-4, 5-9, 10-14, 15-17. Where no passive mobility data were available, figures for the previous year were applied. The indicator is based on the National Outcome Evaluation Programme PNE protocols 2012 Ed. 2013

**Source** Regional Information System - Hospital discharge records

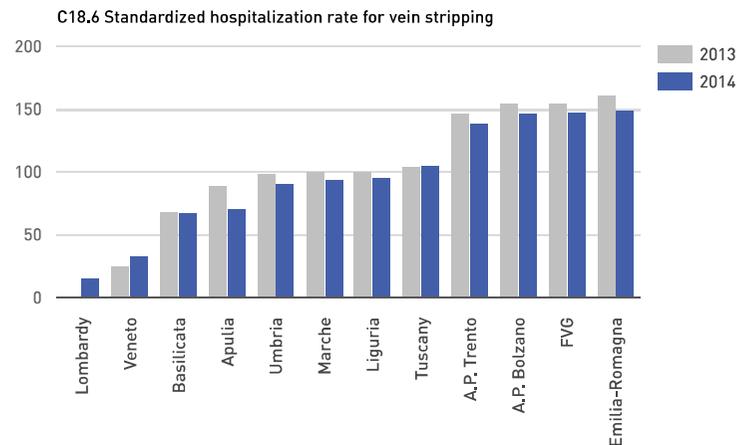




### C18.6 Standardized hospitalization rate for vein stripping

The variation observed in vein stripping procedures is not entirely due to different population needs. It can also be indicative of problems of healthcare appropriateness because it relates to differences between Regions and Local Authorities in the organization of healthcare supply, their different adoption of technological innovations, and different clinical and professional behaviour

Since systematic variation of needs for ligation or stripping surgery among the investigated areas is unlikely, the indicator signals a potential over- or underuse of the surgical technique. Furthermore, the Ministerial Decree of 29th November 2001 ("Definition of the essential levels of care") urges a shift from inpatient to outpatient treatment for this type of surgery. The indicator shows the age and sex- standardized hospitalization rate for surgical interventions for vein stripping in patients aged 18 years or more.



**Definition** Age-sex standardized hospitalization rate for vein stripping, per 100,000 residents

**Numerator** Number of discharges for vein stripping, per 100,000 residents

**Denominator** Number of adult residents

**Notes** The following admissions are considered:

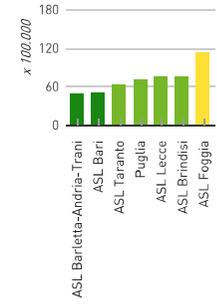
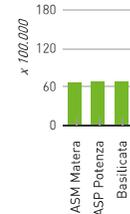
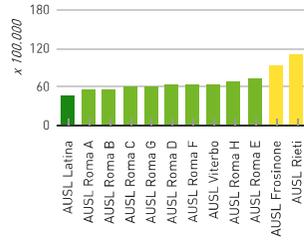
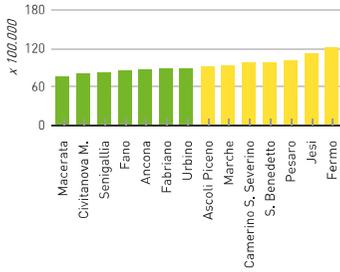
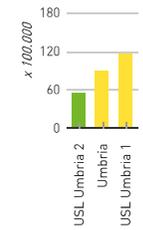
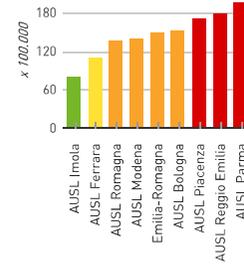
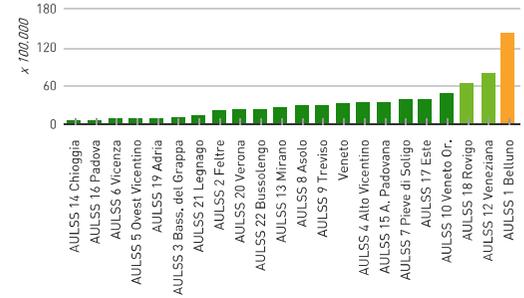
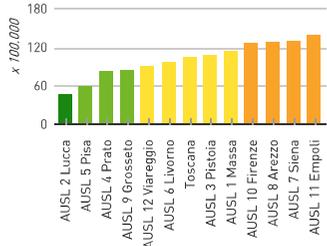
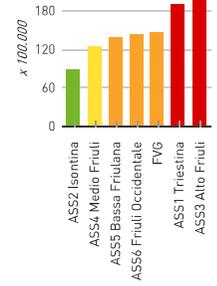
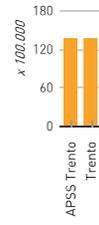
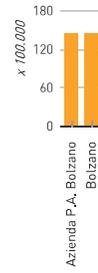
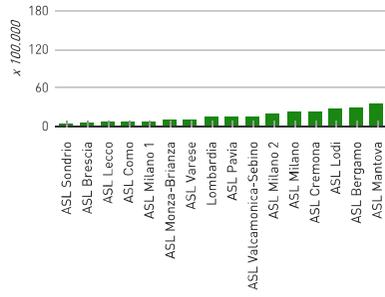
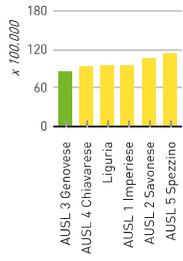
- hospitalization of residents anywhere in the Region or in facilities outside the Region of residence;
- hospitalization of residents aged 18 years and over;
- admissions with codes ICD9CM of primary or secondary procedure for varicose vein stripping of the lower limb: 38.59;
- admissions to public and accredited private hospitals.

**Excluded:**

- admissions with MDC 15;
- patients transferred from other similar care institutes.

Age and sex-based standardization. The standard population is the resident population of Italy as recorded in 2011 at the last Census; source: ISTAT. Age classes: 18-19, 20-24, 25-29, ..., 80-84, 85+. Where no passive mobility data were available, previous year figures were used. The indicator is based on the National Outcome Evaluation Programme PNE protocols 2012 Ed. 2013

**Source** Regional Information System - Hospital discharge records





## C21 Pharmaceutical compliance

Composite indicator C21 consists of four sub-indicators (administration of statins, ace-inhibitors, beta-blockers and antiplatelet agents) that monitor compliance with the various pharmacological therapies of the post-AMI pathway and two sub-indicators which refer to pharmaceutical compliance with statin and antidepressant use. The score attributed to the composite indicator is the average of sub-indicators C9.2 and C9.9.1.1.

### C21 Pharmaceutical compliance [evaluated]

- *C21.1.1 Percentage of AMI patients prescribed beta blockers following discharge* [observational]
- *C21.1.2 Percentage of AMI patients prescribed statins following discharge* [observational]
- *C21.1.3 Percentage of AMI patients prescribed ACE inhibitors or sartans following discharge* [observational]
- *C21.1.4 Percentage of AMI patients prescribed antiplatelet therapy following discharge* [observational]
- *C9.2 Percentage of statin-treated patients abandoning drug therapy* [evaluated]
- *C9.9.1.1 Percentage of antidepressant-treated patients abandoning drug therapy* [evaluated]

- Lombardia**
- ASL Bergamo
  - ASL Brescia
  - ASL Como
  - ASL Cremona
  - ASL Lecco
  - ASL Lodi
  - ASL Mantova
  - ASL Milano
  - ASL Milano 1
  - ASL Milano 2
  - ASL Monza-Brianza
  - ASL Pavia
  - ASL Sondrio
  - ASL Varese
  - ASL Valcamonica-Sebino

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  - AUSL 3 Genovese
  - AUSL 4 Chiavarese
  - AUSL 5 Spezzino

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  - AUSL 8 Arezzo
  - AUSL 9 Grosseto
  - AUSL 10 Firenze
  - AUSL 11 Empoli
  - AUSL 12 Viareggio

- Lazio**
- AUSL Roma A
  - AUSL Roma B
  - AUSL Roma C
  - AUSL Roma D
  - AUSL Roma E
  - AUSL Roma F
  - AUSL Roma G
  - AUSL Roma H
  - AUSL Viterbo
  - AUSL Rieti
  - AUSL Latina
  - AUSL Frosinone

- Basilicata**
- ASP Potenza
  - ASM Matera

- Puglia**
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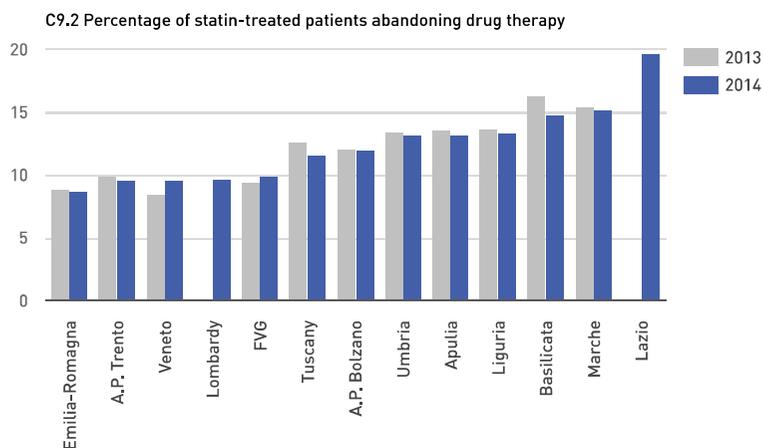
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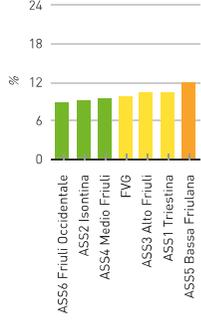
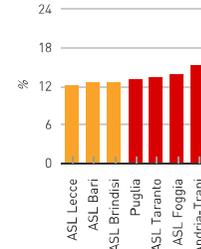
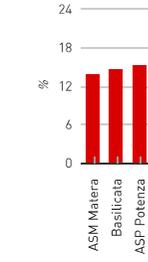
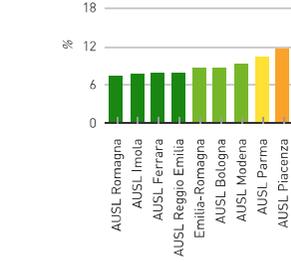
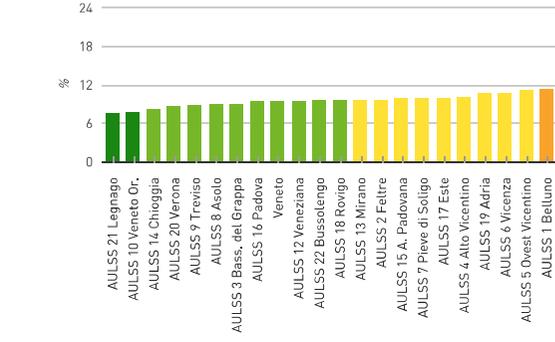
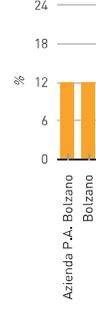
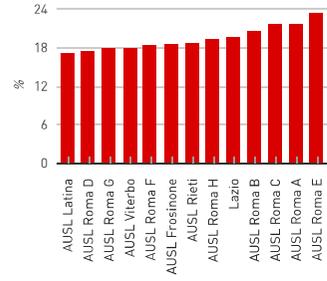
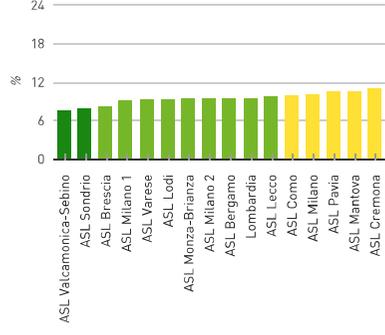
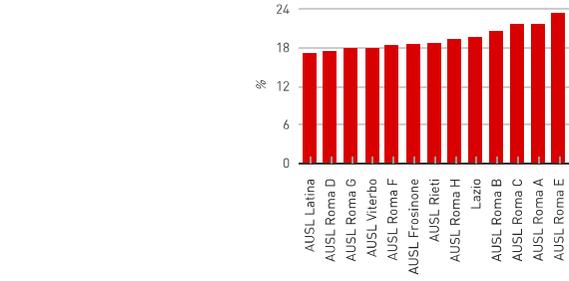
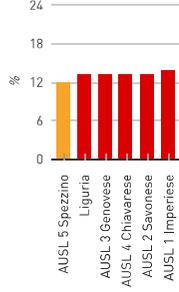
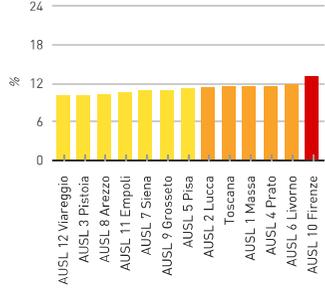
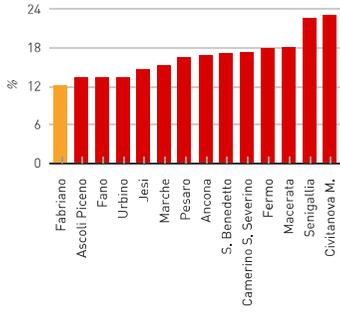


## C9.2 Percentage of statin-treated patients abandoning drug therapy

Statin therapy is effective if taken in the long term by a compliant patient. The indicator measures how many users purchased fewer than 3 packets of statins in a year, signalling potential inappropriate use. Statins are among the drugs with the greatest impact on pharmaceutical expenditure.



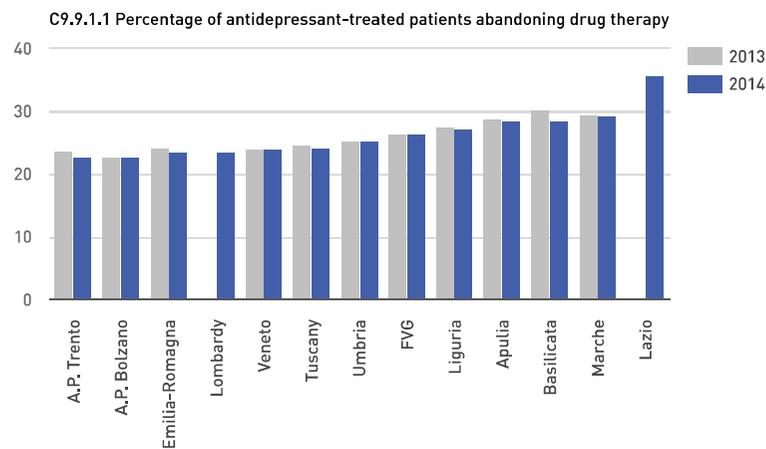
<b>Definition</b>	Percentage of patients taking less than 3 packets of statins (ATC=C10AA) a year, supplied by local pharmacies or through direct/indirect distribution, financed by the National Health System
<b>Numerator</b>	Number of patients taking 1 or 2 packets of statins a year, per 100
<b>Denominator</b>	Statin users
<b>Notes</b>	Statins belong to the ATC (Anatomical Therapeutic Chemical classification) class C10AA. Private purchase excluded. Pharmaceuticals financed by the National Health System and supplied by local pharmacies, direct or indirect distribution were included
<b>Source</b>	Regional pharmaceutical flows





### C9.9.1.1 Percentage of antidepressant-treated patients abandoning drug therapy

Antidepressant therapy is effective if taken in the long term by a compliant patient. The indicator measures how many users purchased fewer than 3 packets of antidepressants in a year, revealing potential inappropriate use of this medication.



<b>Definition</b>	Percentage of antidepressant-treated patients abandoning drug therapy
<b>Numerator</b>	Number of patients taking 1 or 2 packets of antidepressants a year, per 100
<b>Denominator</b>	Antidepressant users
<b>Notes</b>	The indicator refers to the N06AA group (non-selective serotonin reuptake inhibitors), N06AB group (selective serotonin re-uptake inhibitors) and N06AX group (other antidepressants). Pharmaceuticals financed by the National Health System and supplied by local pharmacies, direct or indirect distribution were included
<b>Source</b>	Regional pharmaceutical flows





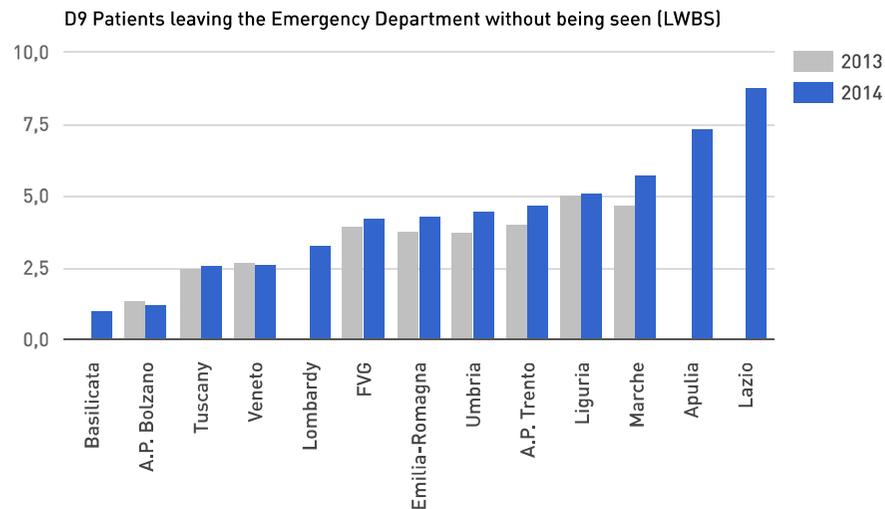
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PATIENT SATISFACTION

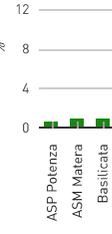
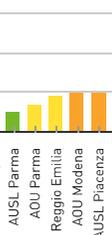
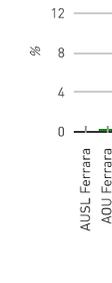
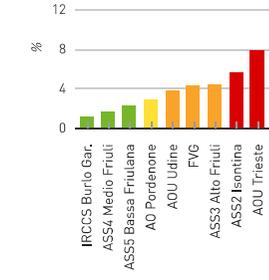
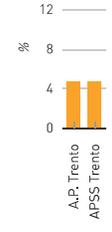
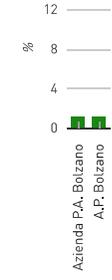
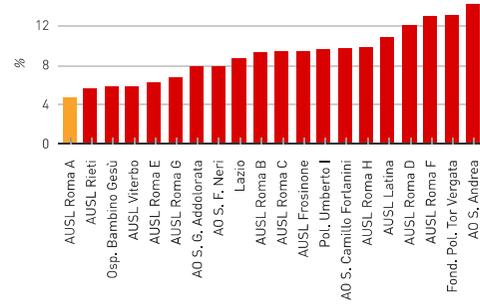
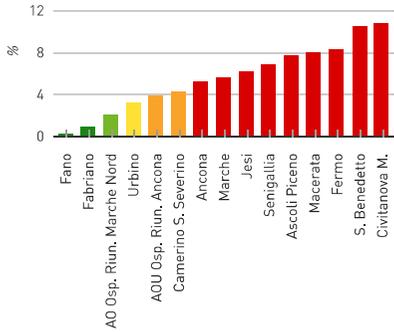
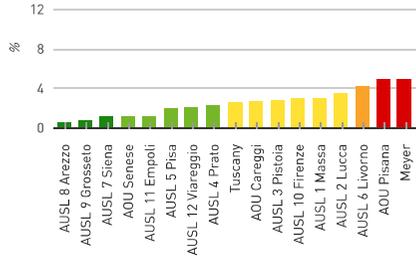
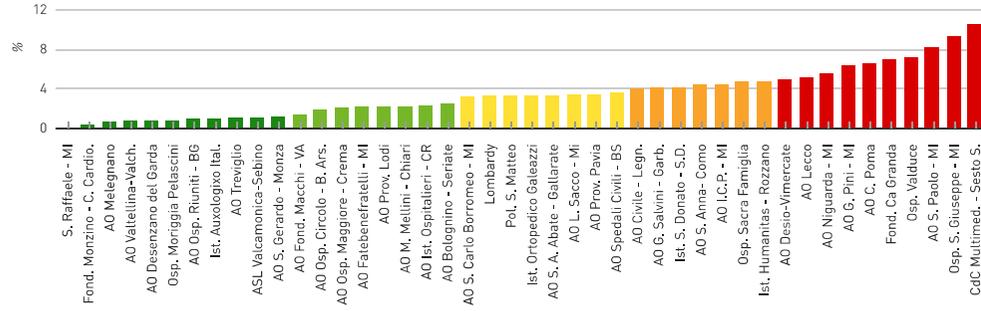
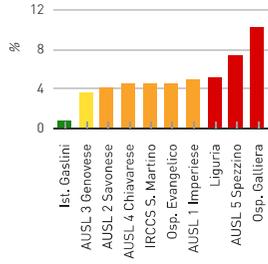


### D9 Patients leaving the Emergency Department without being seen (LWBS)

The indicator provides information on the emergency care delivery system and the implementation of appropriate formalized procedures for people leaving without being seen, with the aim of ensuring that LWBSs do not exceed a certain threshold of total Emergency Department arrivals. The indicator monitors the number of patients who leave the Emergency Department after triage without informing the staff. Data include both patients leaving before being visited by a doctor and those leaving the Emergency Department after or during medical examinations before the closure of their medical record.



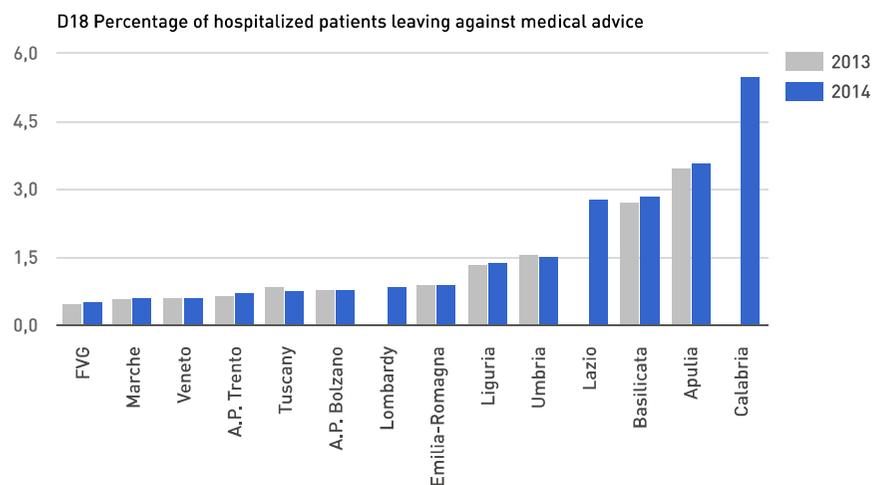
<b>Definition</b>	Percentage of people leaving the ED voluntarily, without being treated and without informing staff
<b>Numerator</b>	Total number of people voluntarily leaving the Emergency Department, without being treated and without informing staff, per 100
<b>Denominator</b>	Total number of people entering the Emergency Department
<b>Notes</b>	Patients leaving the Emergency Department voluntarily after the triage, both before and after being visited by a doctor were considered. Patients leaving against medical advice were excluded. Only EDs directly managed by the Local Health Authorities were attributed to the Local Health Authorities
<b>Source</b>	Emergency Department Flow



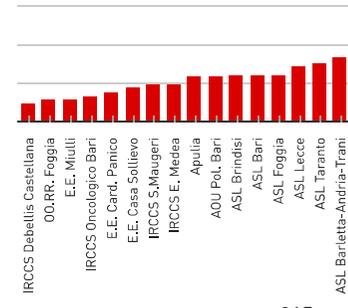
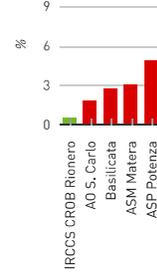
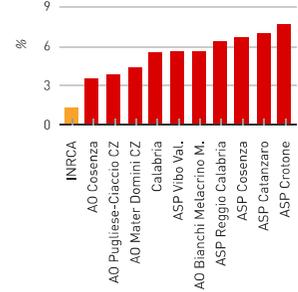
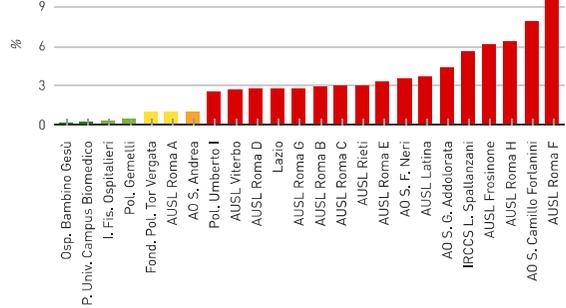
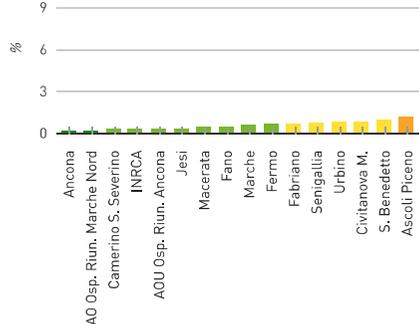
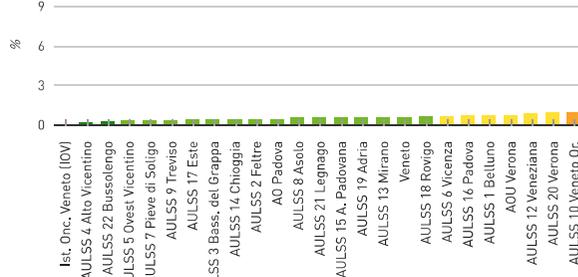
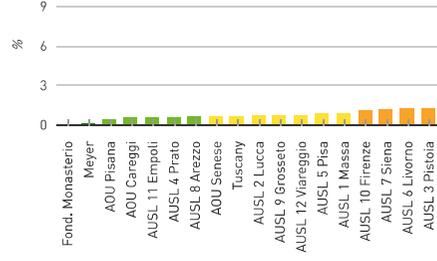
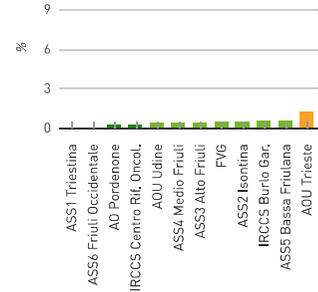
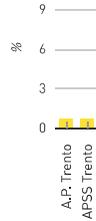
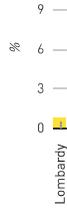
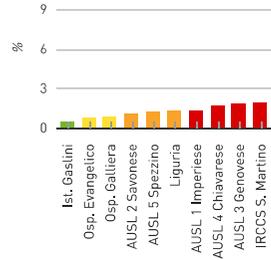


### D18 Percentage of hospitalized patients leaving against medical advice

Article 14 of Presidential Decree (DPR) n. 128 of 27th March 1969 establishes the procedure for medical patient discharge. The decree also provides the possibility for patients or their legal representatives to request discharge despite the reasoned adverse opinion of the health professional in charge and after obtaining a written statement. Except when the exercise of this right is restricted by law (ex Article 5, Section 54, and in the case of compulsory medical treatment), the patient can choose to leave the healthcare facility. The reasons may vary. Assuming that one of the reasons may be a negative perception of service quality, a study of the determinants of patient satisfaction variation (Murante et al., 2013) revealed that hospitals with higher voluntary discharge percentages had more negative patient evaluation of the healthcare service provided. D18 indicator was therefore included in the section on healthcare service patient satisfaction since this can be considered a proxy for it.



<b>Definition</b>	Percentage of hospitalized patients leaving against medical advice
<b>Numerator</b>	Number of hospitalized patients leaving against medical advice, per 100
<b>Denominator</b>	Number of admissions
<b>Notes</b>	<p>"Voluntary" a discharge is when the patient leaves voluntarily.</p> <p>Excluded:</p> <ul style="list-style-type: none"> <li>- pharmacological interruption of pregnancy (RU 486), codes ICD9-CM: - 635.xx (legally induced abortion) in principal diagnosis and V61.7 (other unwanted pregnancy) and/or V58.83 (treatment for therapeutic drug monitoring) in one of the secondary diagnoses and 99.24 (injection of other hormones (first and possible second administration) in any procedure;</li> <li>- 638.9 (failed attempted abortion without complications);</li> <li>- deceased</li> </ul>
<b>Source</b>	Regional Information System - Hospital discharge records







EFFICIENCY  
AND FINANCIAL PERFORMANCE



## F10b Governance of pharmaceutical and medical device expenditure

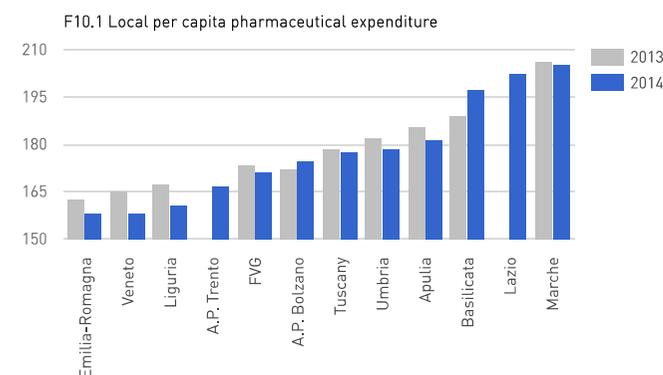
The indicator aims to monitor regional strategies to rationalize and contain pharmaceutical expenditure and public spending on medical devices. Indicator F10.1 shows per capita spending on class A drugs financed by the National Health System. Data include both drugs distributed through local pharmacies, and those delivered through direct and indirect distribution. Hospital pharmaceutical expenditure is monitored by indicator F10.2. Indicator F10.3 monitors the hospital spending on medical devices. The score attributed to the composite indicator F10b is that of indicator F10.1.

### F10b Governance of pharmaceutical and medical device expenditure [evaluated]

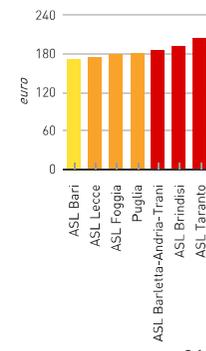
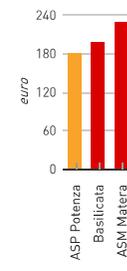
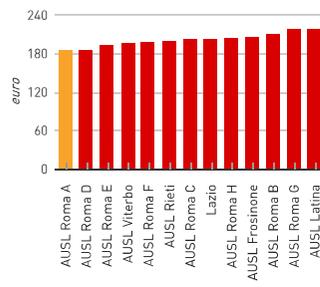
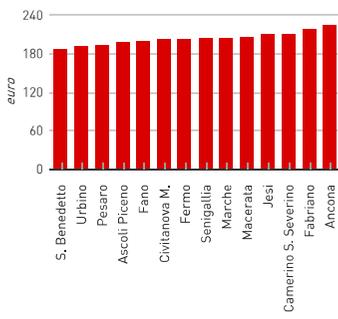
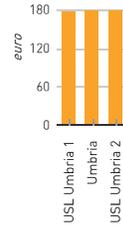
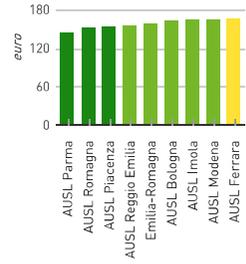
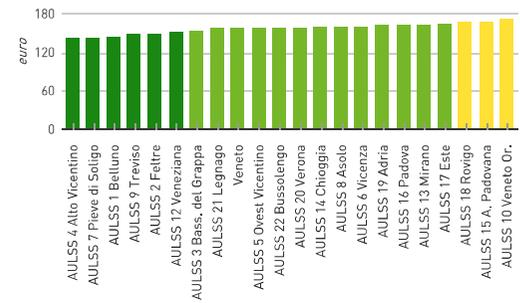
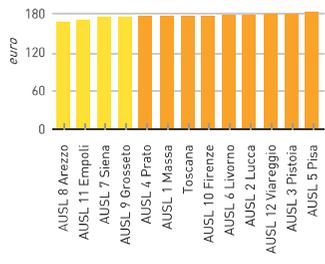
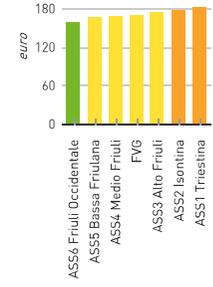
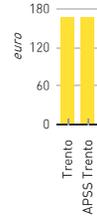
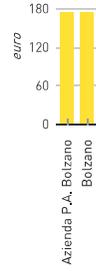
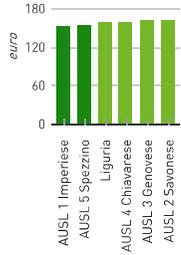
- F10.1 Local per capita pharmaceutical expenditure [evaluated]
- F10.2 Public pharmaceutical expenditure (hospitals) [observational]
- F10.2.2 Average expenditure for TNF-alpha inhibitors [observational]
- F10.3 Public expenditure on medical devices (hospitals) [observational]
  - F10.3.1 Public expenditure on extensively used medical devices [observational]

## F10.1 Local per capita pharmaceutical expenditure

The indicator shows the per capita expenditure on class A pharmaceuticals financed by the National Health System. Data include both the drugs distributed by local pharmacies or supplied by direct and indirect distribution.



<b>Definition</b>	Local per capita pharmaceutical expenditure
<b>Numerator</b>	Net expenditure for pharmaceuticals financed by the National Health System and supplied by local pharmacies, and by direct or indirect distribution
<b>Denominator</b>	Weighted population
<b>Notes</b>	<p>The expenditure is pre-pay back. Spending on supplements was excluded. The indicator is calculated per Local Health Authority of residence and refers to the expenditure for residents. Intra-regional mobility included. Extra regional mobility excluded. Direct supply refers to class-A drugs.</p> <p>The OsMed 2012 Report was referred to for population weighting. Coagulation factors ATC4 B02BD, albumin ATC5 B05AA01 and immunoglobulin ATC5 J06BA02 for intravenous use were not considered being drugs to treat infrequent diseases generating high patient-treatment costs. Spending for class A drugs reclassified in November 2010 was included</p>
<b>Source</b>	Regional pharmaceutical flows





## F12a Drug prescription efficiency

The indicator monitors certain widely used drug categories with significant impact on expenditure. Their inclusion in the PES and their standards have been updated over the years. The indicator especially monitors the use of lower-cost off-patent molecules as against drugs still covered by patent, especially in view of the fact that the latest patented drugs frequently provide no added therapeutic benefits despite their higher cost. The use of generic drugs frees up resources to invest in truly innovative drugs. The score attributed the composite indicator is the average of sub-indicators F12a.2, F12a.6, F12a.7, F12a.9, F12.11a and F12a.14.

### F12a Drug prescription efficiency [evaluated]

- F12a.2 Prescription of off-patent statins [evaluated]
- F12a.6 Prescription of off-patent dihydropyridine derivatives (antihypertensives) [evaluated]
- F12a.7 Prescription of off-patent ACE inhibitors (antihypertensives), in combination with other drugs [evaluated]
- F12a.9 Prescription of off-patent fluoroquinolones (antibiotics) [evaluated]
- F12.11a Prescription of off-patent sartans (alone or in combination with other drugs) [evaluated]
- F12a.14 Prescription of off-patent drugs [evaluated]

- Lombardia**
- ASL Bergamo
  - ASL Brescia
  - ASL Como
  - ASL Cremona
  - ASL Lecco
  - ASL Lodi
  - ASL Mantova
  - ASL Milano
  - ASL Milano 1
  - ASL Milano 2
  - ASL Monza-Brianza
  - ASL Pavia
  - ASL Sondrio
  - ASL Varese
  - ASL Valcamonica-Sebino



- Liguria**
- AUSL 1 Imperiese
  - AUSL 2 Savonese
  - AUSL 3 Genovese
  - AUSL 4 Chiavarese
  - AUSL 5 Spezzino



- Bolzano**
- Azienda P.A. Bolzano



- Trento**
- APSS Trento



- Friuli Venezia Giulia**
- ASS1 Triestina
  - ASS2 Isoncina
  - ASS3 Alto Friuli
  - ASS4 Medio Friuli
  - ASS5 Bassa Friulana
  - ASS6 Friuli Occidentale



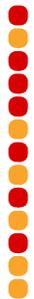
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  - AULSS 2 Feltre
  - AULSS 3 Bass. del Grappa
  - AULSS 4 Alto Vicentino
  - AULSS 5 Ovest Vicentino
  - AULSS 6 Vicenza
  - AULSS 7 Pieve di Soligo
  - AULSS 8 Asolo
  - AULSS 9 Treviso
  - AULSS 10 Veneto Or.
  - AULSS 12 Veneziana
  - AULSS 13 Mirano
  - AULSS 14 Chioggia
  - AULSS 15 A. Padovana
  - AULSS 16 Padova
  - AULSS 17 Este
  - AULSS 18 Rovigo
  - AULSS 19 Adria
  - AULSS 20 Verona
  - AULSS 21 Legnago
  - AULSS 22 Bussolengo



- Emilia-Romagna**
- AUSL Piacenza
  - AUSL Parma
  - AUSL Reggio Emilia
  - AUSL Modena
  - AUSL Bologna
  - AUSL Imola
  - AUSL Ferrara
  - AUSL Romagna



- Marche**
- Pesaro
  - Urbino
  - Fano
  - Senigallia
  - Jesi
  - Fabriano
  - Ancona
  - Civitanova M.
  - Macerata
  - Camerino S. Severino
  - Fermo
  - S. Benedetto
  - Ascoli Piceno



- Toscana**
- AUSL 1 Massa
  - AUSL 2 Lucca
  - AUSL 3 Pistoia
  - AUSL 4 Prato
  - AUSL 5 Pisa
  - AUSL 6 Livorno
  - AUSL 7 Siena
  - AUSL 8 Arezzo
  - AUSL 9 Grosseto
  - AUSL 10 Firenze
  - AUSL 11 Empoli
  - AUSL 12 Viareggio



- Lazio**
- AUSL Roma A
  - AUSL Roma B
  - AUSL Roma C
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  - AUSL Roma E
  - AUSL Roma F
  - AUSL Roma G
  - AUSL Roma H
  - AUSL Viterbo
  - AUSL Rieti
  - AUSL Latina
  - AUSL Frosinone



- Basilicata**
- ASP Potenza
  - ASM Matera



- Puglia**
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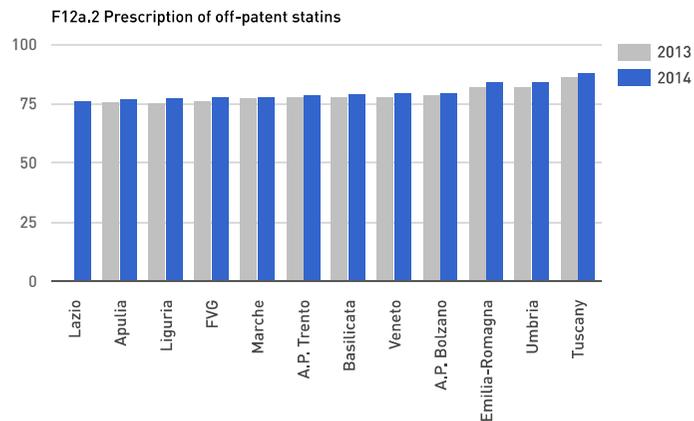
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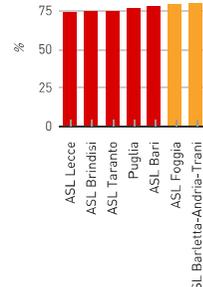
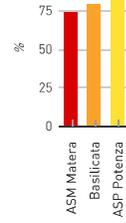
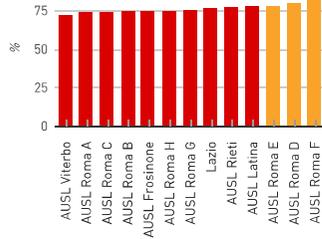
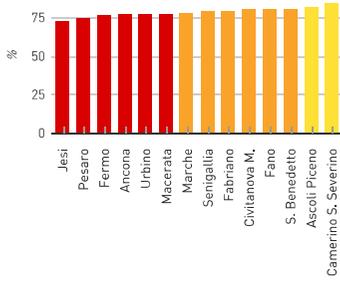
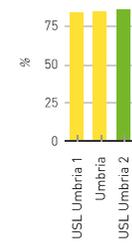
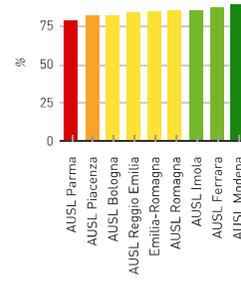
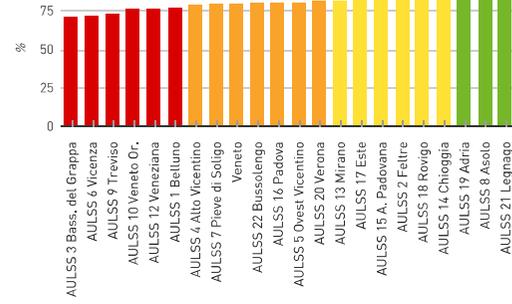
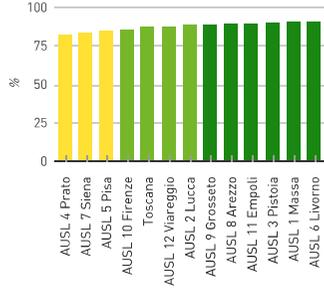
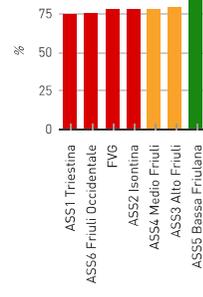
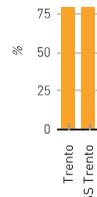
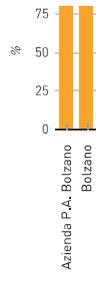
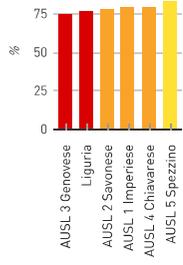


## F12a.2 Prescription of off-patent statins

Dyslipidaemia is one of the major modifiable risk factors for cardiovascular diseases in general, and for coronary disease, stroke, heart failure and kidney failure in particular. Since cardiovascular diseases are the first cause of death worldwide, as well as the major direct and indirect cost in terms of healthcare provision, early pharmacological treatment is essential when efforts to change inappropriate lifestyles are unsuccessful. The latest OsMed Report (AIFA, 2015) highlights that different pharmacoeconomic studies reveal the favourable cost-effectiveness of lipid-lowering drugs, both in primary and secondary prevention of cardiovascular diseases. However, pharmacological benefit is closely related both to subject profile and patient compliance. HMG CoA reductase inhibitors (statins) are the lipid-lowering drugs accounting for the highest expenditure of their category. Indicator F12a.2 monitors the prescription of off-patent statins.



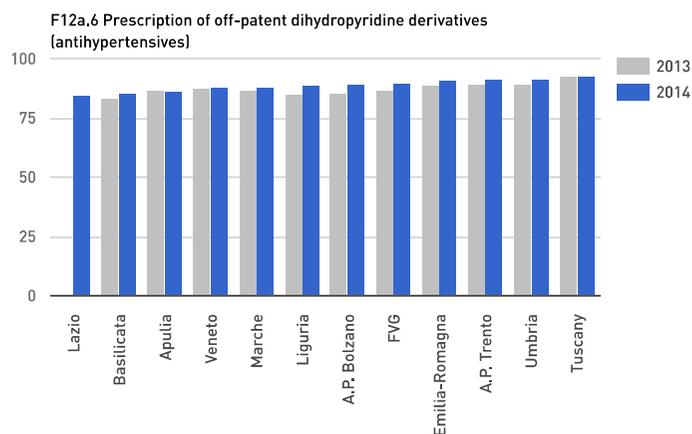
<b>Definition</b>	Percentage of off-patent statins distributed by pharmacies and financed by the National Health System
<b>Numerator</b>	Number of unit doses of off-patent statins distributed by pharmacies and financed by the National Health System, per 100
<b>Denominator</b>	Total number of unit doses of statins distributed by pharmacies and financed by the National Health System
<b>Notes</b>	Statins belong to the ATC (Anatomical Therapeutic Chemical classification) class C10AA
<b>Source</b>	Regional pharmaceutical flows



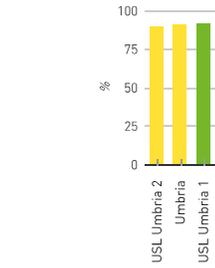
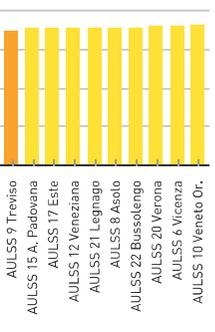
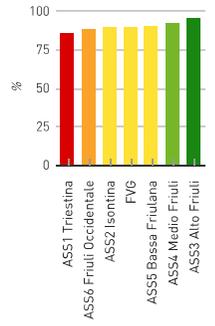
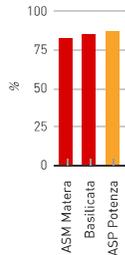
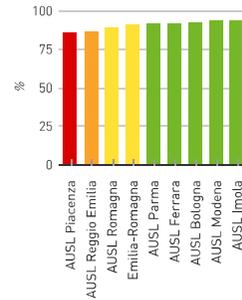
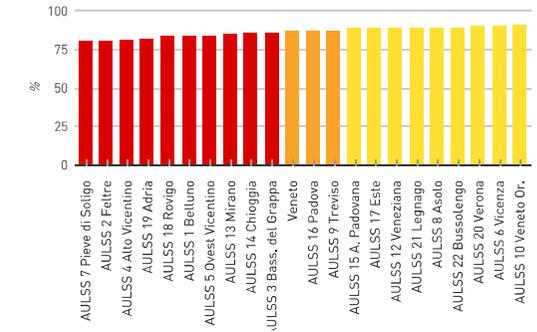
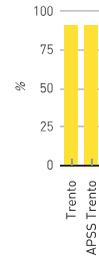
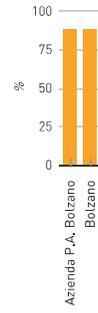
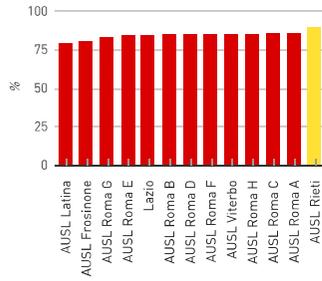
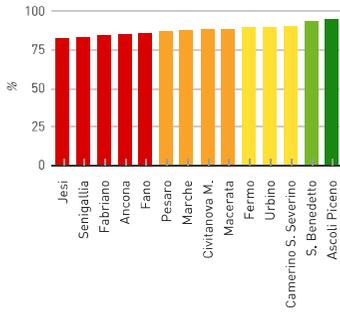
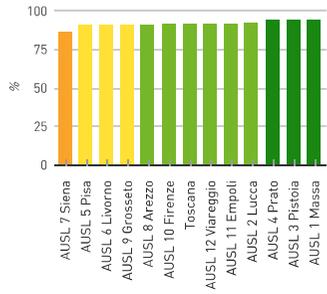
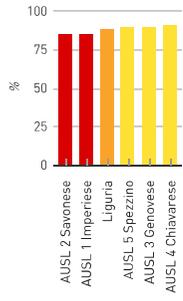


### F12a.6 Prescription of off-patent dihydropyridine derivatives (antihypertensives)

Arterial hypertension is the main modifiable risk factor for cardiovascular diseases. In 2014, drugs managing cardiovascular diseases were the first item of drug expenditure for the National Health System. At a national level, 2014 saw an increase in expenditure and use of antihypertensives (AIFA, 2015). This is even more relevant both clinically and economically, if we consider potential inappropriateness of prescription and use of this class of drug. The F12a.6 indicator monitors the prescription of off-patent antihypertensive dihydropyridine derivatives.



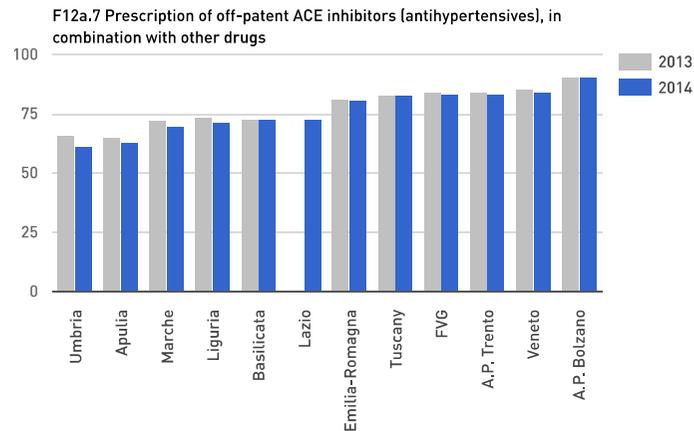
<b>Definition</b>	Percentage of off-patent dihydropyridine derivatives distributed by local pharmacies and financed by the National Health System
<b>Numerator</b>	Number of unit doses of off-patent dihydropyridine derivatives, distributed by pharmacies and financed by the National Health System, per 100
<b>Denominator</b>	Total number of unit doses of dihydropyridine derivatives distributed by local pharmacies and financed by the National Health System
<b>Notes</b>	Dihydropyridine derivatives belong to the ATC (Anatomical Therapeutic Chemical classification) class C08CA
<b>Source</b>	Regional pharmaceutical flows



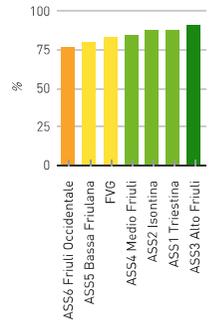
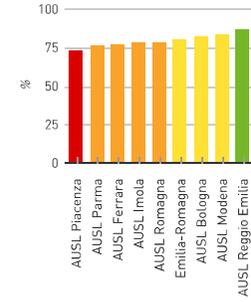
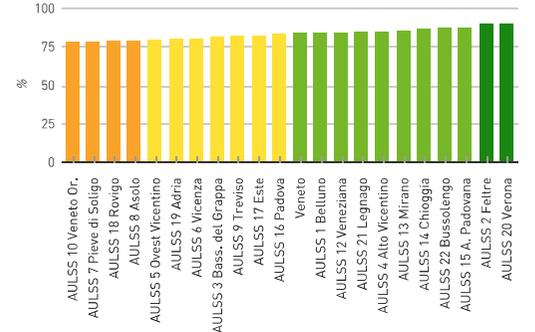
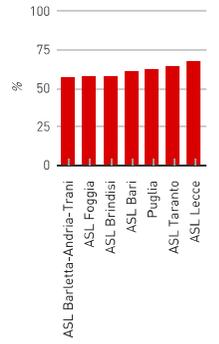
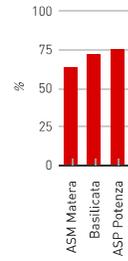
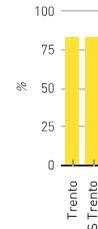
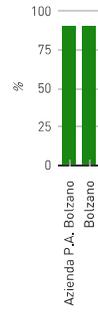
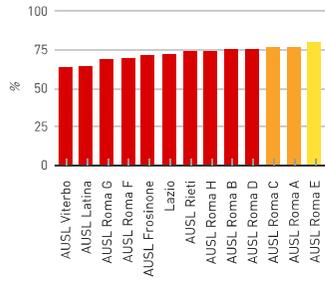
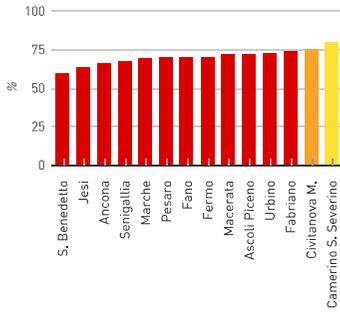
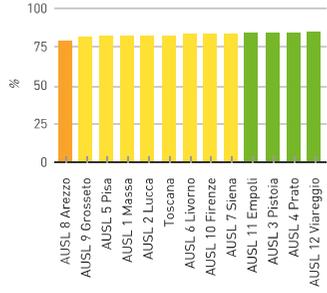
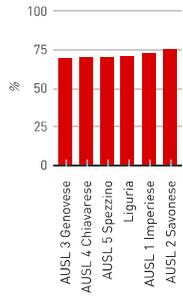


### F12a.7 Prescription of off-patent ACE inhibitors (antihypertensives), in combination with other drugs

Arterial hypertension is the main modifiable risk factor for cardiovascular diseases. In 2014, drugs managing cardiovascular diseases were the first item of drug expenditure for the National Health System. At a national level, 2014 saw an increase in expenditure and use of ACE inhibitors combined with calcium antagonists (AIFA, 2015). Indicator F12a.7 monitors the prescription of off-patent ACE inhibitors combined with calcium antagonists.



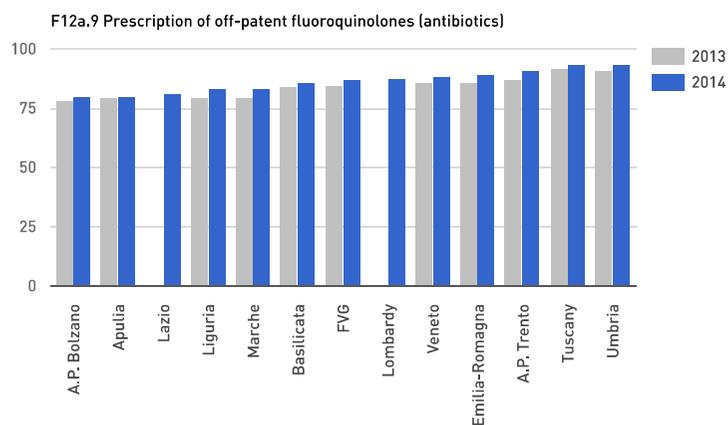
<b>Definition</b>	Percentage of off-patent ACE inhibitors combined with other drugs distributed by local pharmacies and financed by the National Health System
<b>Numerator</b>	Number of unit doses of off-patent ACE inhibitors combined with other drugs distributed by local pharmacies and financed by the National Health System, per 100
<b>Denominator</b>	Total number of unit doses of ACE inhibitors combined with other drugs, distributed by local pharmacies and financed by the National Health System
<b>Notes</b>	ACE inhibitors combined with other drugs belong to the ATC (Anatomical Therapeutic Chemical classification) class C09BA
<b>Source</b>	Regional pharmaceutical flows



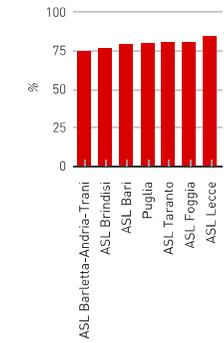
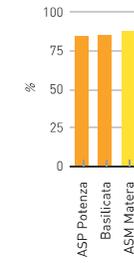
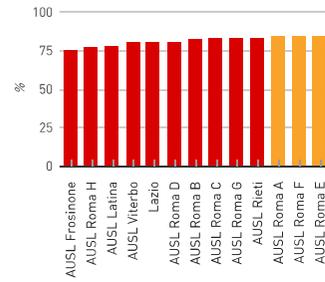
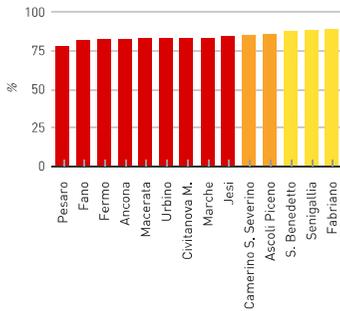
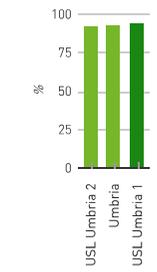
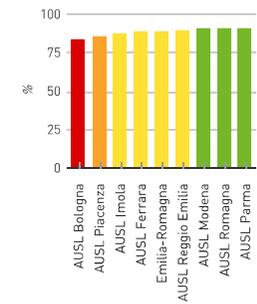
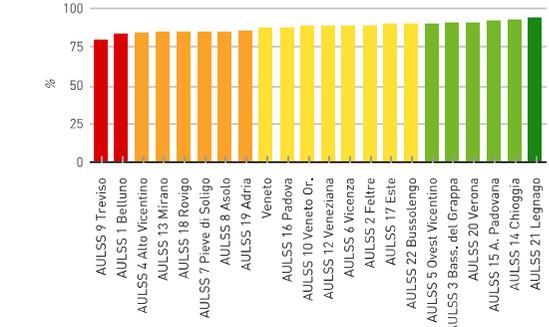
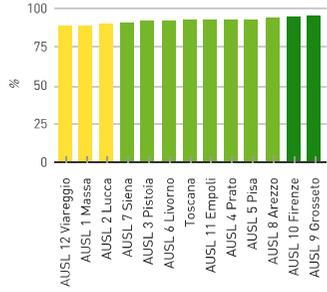
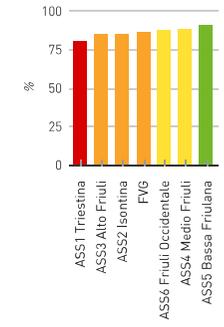
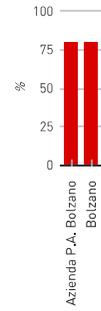
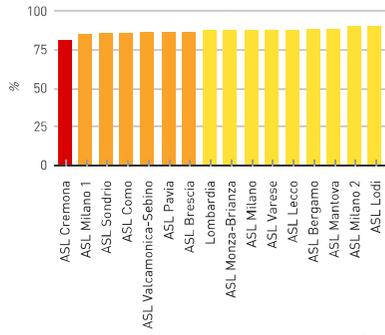
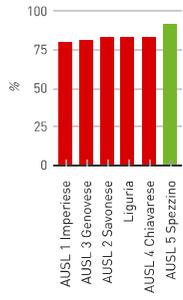


## F12a.9 Prescription of off-patent fluoroquinolones (antibiotics)

The fluoroquinolones are synthetic antibiotics developed in response to growing bacterial resistance to antibiotics. The molecules available today are all structural derivatives of the nalidixic acid. The second-generation fluoroquinolones have favourable properties, such as broad spectrum of action, excellent bioavailability, tissue penetration, prolonged half-lives and limited side effects. Optimistic forecasts predicted they would be one of the most interesting classes of antibiotics for the antibacterial spectrum they addressed. However, evidence has shown that the speed of bacterial resistance to this class of antibiotics is today one of their greatest disadvantages, together with their high cost. The F12a.9 indicator monitors the prescription of off-patent fluoroquinolones.



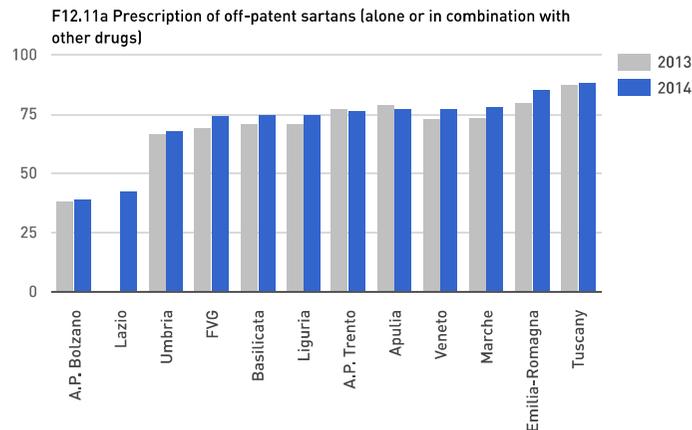
<b>Definition</b>	Percentage of off-patent fluoroquinolones distributed by local pharmacies and financed by the National Health System
<b>Numerator</b>	Number of defined daily doses of off-patent fluoroquinolones distributed by local pharmacies and financed by the National Health System, per 100
<b>Denominator</b>	Total number of defined daily doses of fluoroquinolones distributed by local pharmacies and financed by the National Health System
<b>Notes</b>	Fluoroquinolones belong to the ATC3 (Anatomical Therapeutic Chemical classification) class J01MA
<b>Source</b>	Regional pharmaceutical flows



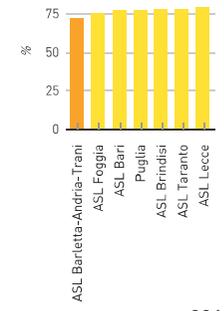
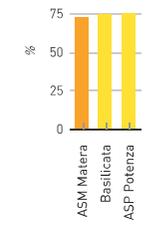
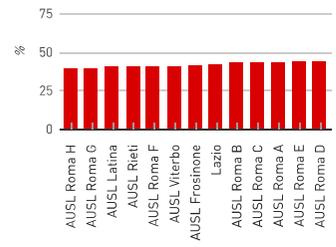
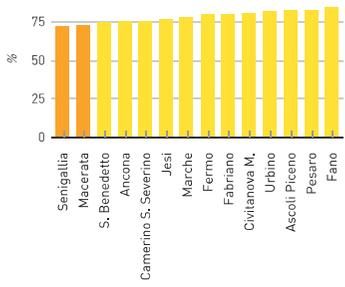
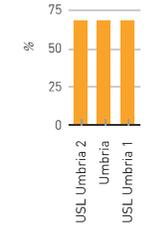
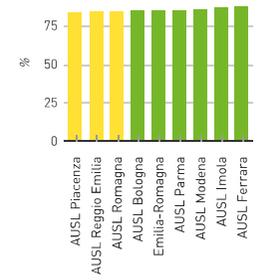
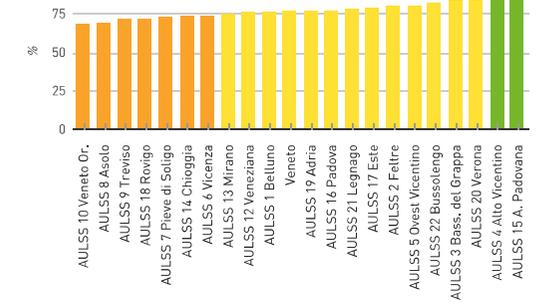
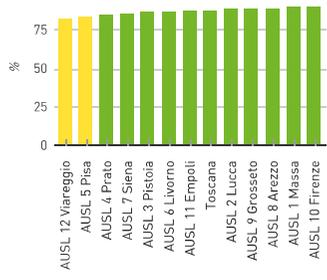
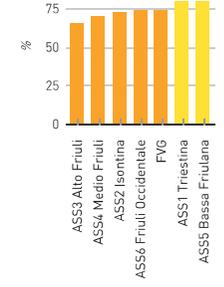
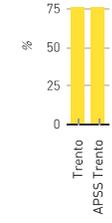
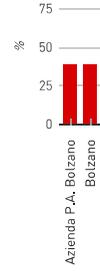
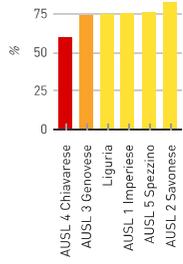


### F12.11a Prescription of off-patent sartans (alone or in combination with other drugs)

Angiotensin II receptor antagonists, more commonly known as 'sartans', represent a class of antihypertensive drugs acting on the renin-angiotensin system with a different mechanism of action to ACE inhibitors. Angiotensin II receptor antagonists directly block the angiotensin II receptor, irrespective of the metabolic pathway involved in peptide formation. Sartans are of interest especially for their high specificity, which should help overcome problems of bioactive peptides accumulation observed with ACE inhibitors. Current recommendations suggest the use of Angiotensin II receptor antagonists in the treatment of heart failure in ACE inhibitor-intolerant patients, when ACE inhibitors provide unsatisfactory outcomes or are contraindicated. Current recommendations also emphasize that cost-benefit considerations must be an integral part of the therapeutic decision, where individual tolerability and clinical efficacy of drugs are equal. Priority should therefore be given to off-patent drugs. The F12.11a indicator monitors the prescription of off-patent sartans (alone or in combination with other drugs).



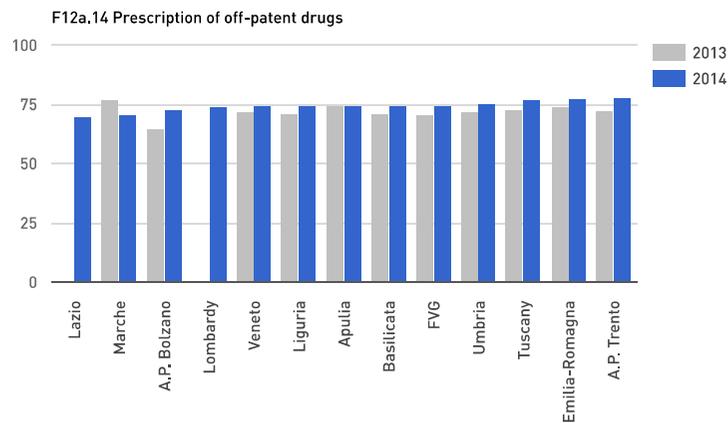
<b>Definition</b>	Incidence of off patent drugs out of all angiotensin II antagonists (sartans alone or in combination with other drugs)
<b>Numerator</b>	Number of unit doses of off-patent angiotensin II antagonists distributed by local pharmacies and financed by the National Health System, per 100
<b>Denominator</b>	Total number of defined daily doses of angiotensin II antagonists (sartans alone or with other drugs), distributed by local pharmacies and financed by the National Health System
<b>Notes</b>	<p>Sartans belong to the ATC (Anatomical Therapeutic Chemical classification) classes C09D (sartans in combination with other drugs) and C09C (sartans alone).</p> <p>Drugs not covered by patent include Losartan (C09CA01), Candesartan (C09CA06), Valsartan (C09DA03), Irbesartan (C09CA04), Telmisartan (C09CA07).</p> <p>Numerator: 5th level ATCs, with value "s" in the expired/not expired column, were selected.</p> <p>Denominator: the total sum ("s" and "n") or everything that is coded C09C and C09D at 4th ATC level.</p> <p>Drugs distributed and financed by the National Health System were considered</p>



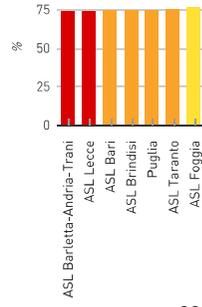
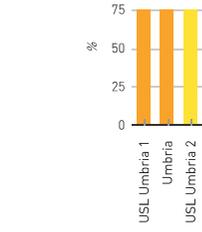
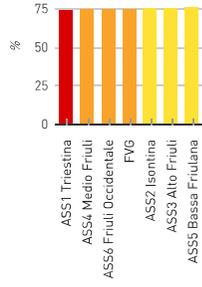
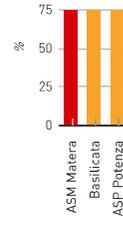
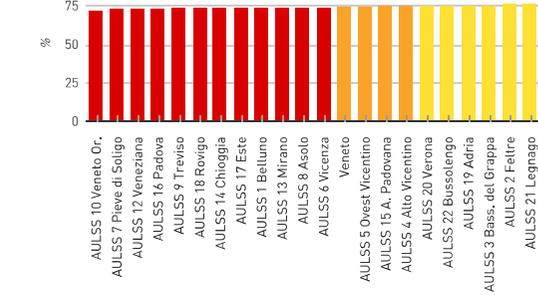
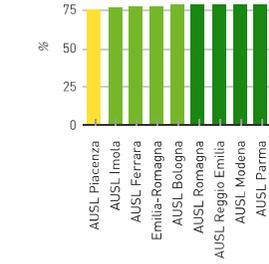
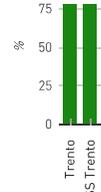
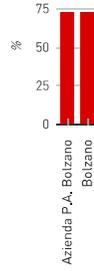
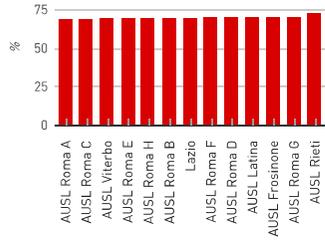
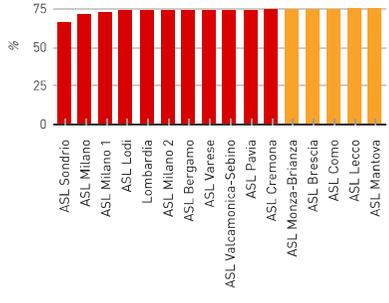
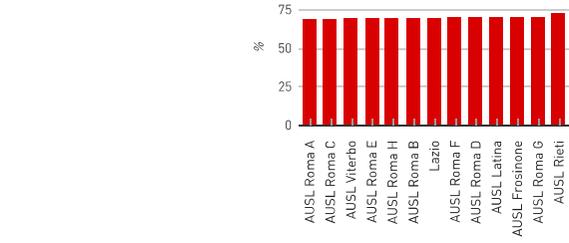
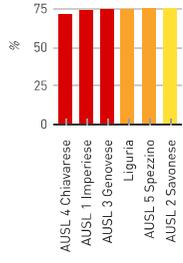
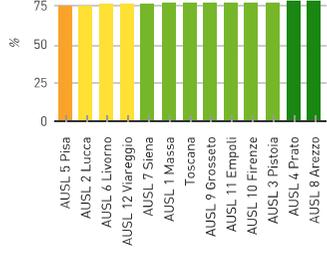
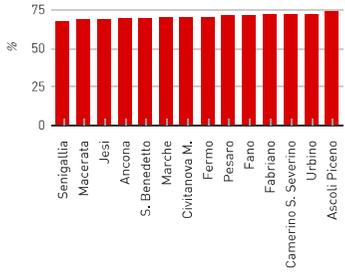


### F12a.14 Prescription of off-patent drugs

This indicator allows indirectly monitoring of the annual cost saving by prescribing equivalent off-patent molecules. The F12a.14 indicator monitors the prescription of off-patent drugs.



<b>Definition</b>	Percentage of off-patent molecules distributed by local pharmacies and financed by the National Health System
<b>Numerator</b>	Number of packets of off-patent molecules, distributed by local pharmacies and financed by the National Health System, per 100
<b>Denominator</b>	Total number of packets distributed
<b>Notes</b>	The latest Ministerial list for the year, retroactively applied, was considered to select off-patent molecules
<b>Source</b>	Regional pharmaceutical flows





## F15 Health and Safety at the workplace

The indicator comprises two macro-indicators looking at key aspects of Health and Safety in workplaces: local coverage and efficiency.

In addition to these, two outcome indicators (F15.1.1 and F15.1.2) are monitored too.

The aim of F15 is, on the one hand, analysing the determinants producing a given performance and, on the other, identifying opportunities for improvement. The indicators on health and safety at the workplace are already consolidated and shared at a national level by the different working groups of sector experts. The supervision of Health and Safety in the A.P. of Bolzano is divided between the Local Authority (occupational medicine inspection service) and the Province (Labour Inspectorate). For this reason, data on labour inspections provided by the Local Health Authority are not exhaustive since further investigations are carried out by the Bolzano Labour Inspectorate. The score attributed to the composite indicator is the average of sub-indicators F15.2 and F15.3.

### F15 Health and Safety at the workplace [evaluated]

- *F15.1.1 Number of accident investigations with findings of infringements/number of accident investigations* [observational]
- *F15.1.2 Number of occupational disease investigations with findings of infringements /number of occupational disease investigations* [observational]
- F15.2 Inspection coverage [evaluated]
  - F15.2.1 Number of companies inspected /number of companies with employees [evaluated]
  - F15.2.2 Number of construction companies inspected /number of registered construction companies [evaluated]
  - F15.2.3 Number of construction sites inspected /number of registered construction sites [evaluated]
- F15.3 Productivity [evaluated]
  - F15.3.1 Number of companies inspected /number of Health and Safety at the workplace and Judicial Police operators [evaluated]
  - F15.3.2 Number of inspections/ number of Health and Safety at the workplace and Judicial Police operators [evaluated]

- Lombardia**
- ASL Bergamo ●
  - ASL Brescia ●
  - ASL Como ●
  - ASL Cremona ●
  - ASL Lecco ●
  - ASL Lodi ●
  - ASL Mantova ●
  - ASL Milano ●
  - ASL Milano 1 ●
  - ASL Milano 2 ●
  - ASL Monza-Brianza ●
  - ASL Pavia ●
  - ASL Sondrio ●
  - ASL Varese ●
  - ASL Valcamonica-Sebino ●

- Liguria**
- AUSL 1 Imperiese ●
  - AUSL 2 Savonese ●
  - AUSL 3 Genovese ●
  - AUSL 4 Chiavarese ●
  - AUSL 5 Spezzino ●

- Friuli Venezia Giulia**
- ASS1 Triestina ●
  - ASS2 Isontina ●
  - ASS3 Alto Friuli ●
  - ASS4 Medio Friuli ●
  - ASS5 Bassa Friulana ●
  - ASS6 Friuli Occidentale ●

- Veneto**
- AULSS 1 Belluno ●
  - AULSS 2 Feltre ●
  - AULSS 3 Bass. del Grappa ●
  - AULSS 4 Alto Vicentino ●
  - AULSS 5 Ovest Vicentino ●
  - AULSS 6 Vicenza ●
  - AULSS 7 Pieve di Soligo ●
  - AULSS 8 Asolo ●
  - AULSS 9 Treviso ●
  - AULSS 10 Veneto Or. ●
  - AULSS 12 Veneziana ●
  - AULSS 13 Mirano ●
  - AULSS 14 Chioggia ●
  - AULSS 15 A. Padovana ●
  - AULSS 16 Padova ●
  - AULSS 17 Este ●
  - AULSS 18 Rovigo ●
  - AULSS 19 Adria ●
  - AULSS 20 Verona ●
  - AULSS 21 Legnago ●
  - AULSS 22 Bussolengo ●

**Trento**  
APSS Trento ●



- Lazio**
- AUSL Roma A ●
  - AUSL Roma B ●
  - AUSL Roma C ●
  - AUSL Roma D ●
  - AUSL Roma E ●
  - AUSL Roma F ●
  - AUSL Roma G ●
  - AUSL Roma H ●
  - AUSL Viterbo ●
  - AUSL Rieti ●
  - AUSL Latina ●
  - AUSL Frosinone ●

- Basilicata**
- ASP Potenza ●
  - ASM Matera ●

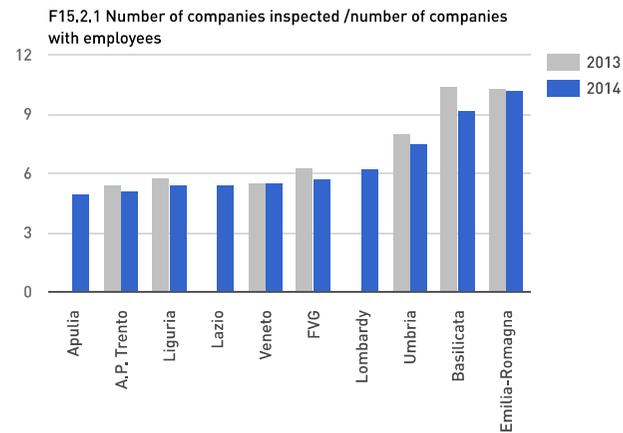
- Emilia-Romagna**
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  - AUSL Parma ●
  - AUSL Reggio Emilia ●
  - AUSL Modena ●
  - AUSL Bologna ●
  - AUSL Imola ●
  - AUSL Ferrara ●
  - AUSL Romagna ●

- Umbria**
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  - USL Umbria 2 ●

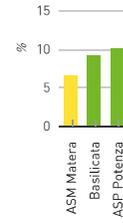
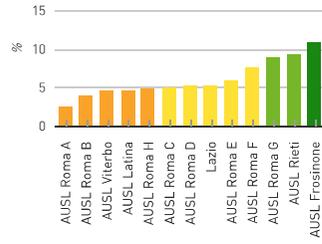
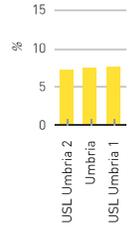
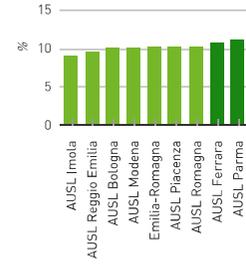
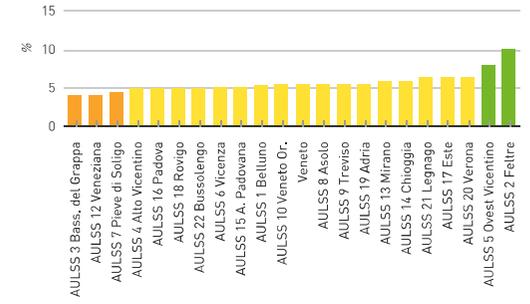
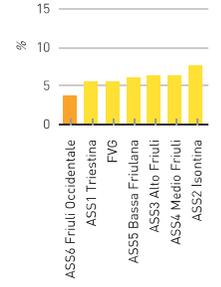
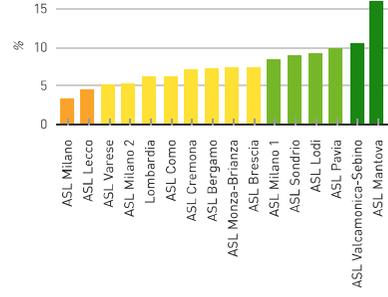
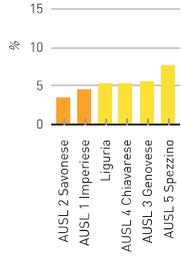


### F15.2.1 Number of companies inspected /number of companies with employees

The indicator assesses local inspection coverage by measuring the number of companies inspected compared to the number of companies with employees.



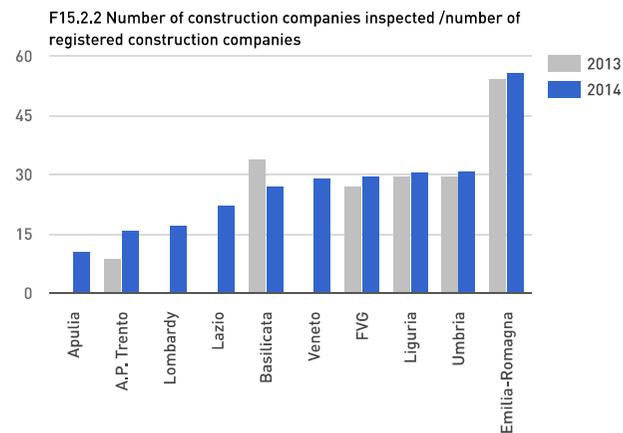
<b>Definition</b>	Number of companies inspected /number of companies with employees
<b>Numerator</b>	Number of companies inspected, per 100
<b>Denominator</b>	Number of companies with employees
<b>Notes</b>	<p>Number of companies inspected: total number of primary, secondary (including construction) and tertiary sector companies inspected in the year (included those inspected for the expression of opinions); entry 2.5 A, B, C (+entry 6.2 activity statement).</p> <p>Number of companies with employees: number of PATs (Territorial Insurance Position) in the industrial or services sector operational at December 31st of the last year available at the time of the annual goal setting (e.g., for the 2014 Report, 2012 was the reference year used) with the total number of staff (employees + other staff) 1 or with the number of artisans 2</p>
<b>Source</b>	Numerator: the National Health and Safety at the workplace data collection system Denominator: INAIL Regional Information Flows, whose database is updated with a two year delay



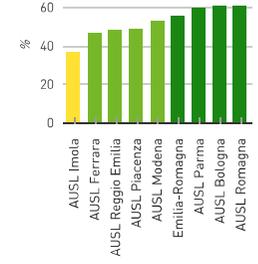
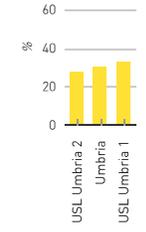
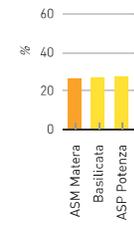
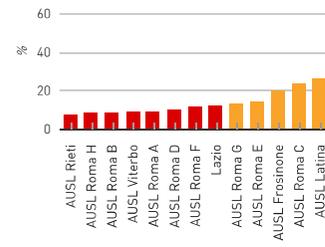
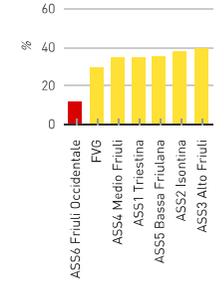
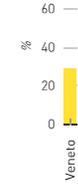
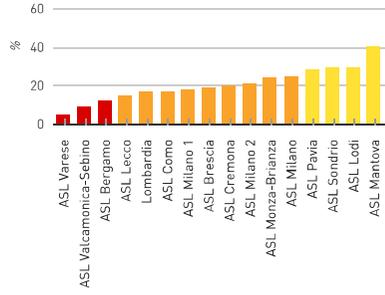
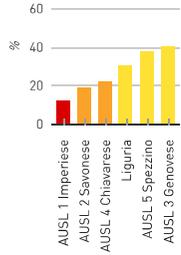


### F15.2.2 Number of construction companies inspected /number of registered construction companies

The indicator evaluates local inspection coverage expressed as the ratio between the number of construction companies inspected and the number of registered construction companies.



<b>Definition</b>	Number of construction companies inspected /number of registered construction companies
<b>Numerator</b>	Number of construction companies inspected, per 100
<b>Denominator</b>	Number of registered construction companies
<b>Notes</b>	<p>Number of construction companies inspected: total number of construction companies inspected during the year (entry 2.3, activity statement).</p> <p>Number of construction companies: Number of PATs (Territorial Insurance Position) in the industrial or services sector on the INAIL database, using the ATECO F code, and operational at December 31st of the last year available at the time of the annual goal setting (e.g., for the 2014 Report, 2012 was been used) with the total number of staff (employees + other staff) 1 or with the number of artisans 2.</p> <p>Territorial Insurance Position (PAT): INAIL code for its member companies from which demographic and descriptive information on the company can be obtained.</p> <p>ATECO: An international classification that ensures data comparability. This alphanumeric code is attributed (not by the Italian INAIL) when a company is formed</p>
<b>Source</b>	<p>Numerator: the National Health and Safety at the workplace data collection system</p> <p>Denominator: INAIL Regional Information Flows, whose database is updated with a two year delay</p>



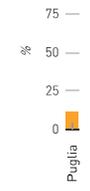
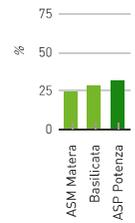
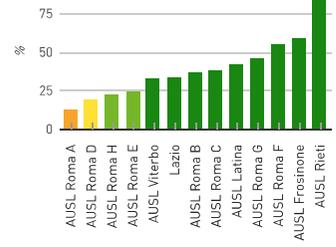
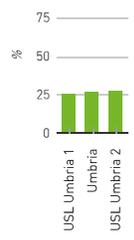
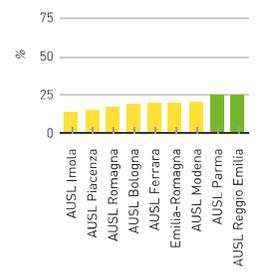
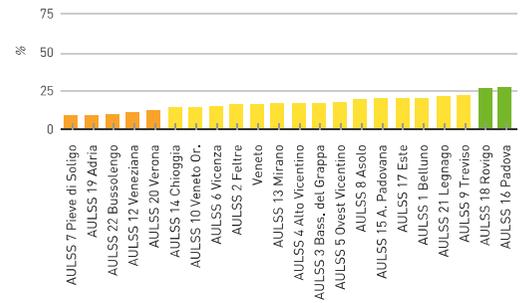
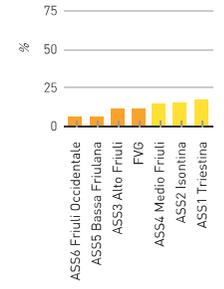
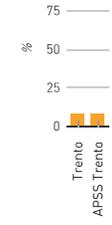
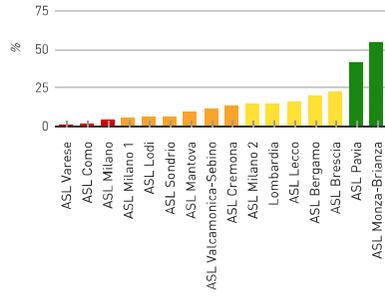
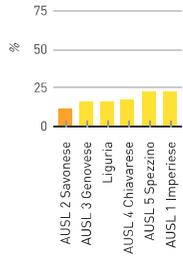


### F15.2.3 Number of construction sites inspected /number of registered construction sites

The indicator evaluates local inspection coverage and is expressed as the ratio between the number of inspections carried out and the number of construction companies registered. The indicator measures the activity based on registered worksites.



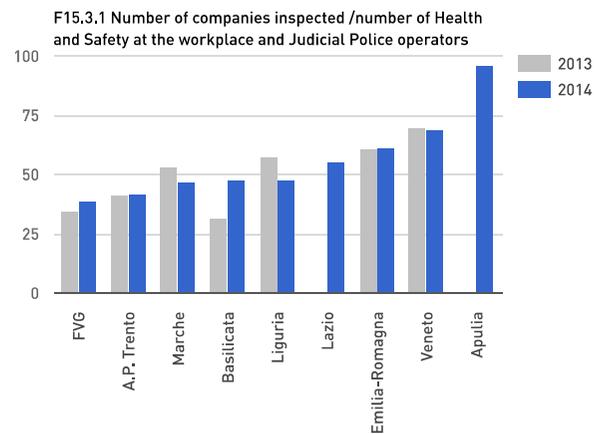
<b>Definition</b>	Number of construction sites inspected /number of registered construction sites
<b>Numerator</b>	Number of construction sites inspected, per 100
<b>Denominator</b>	Number of registered construction sites
<b>Notes</b>	Number of construction sites inspected: entry 2.2 Number of construction sites registered: entry 2.1
<b>Source</b>	Ministry Activity File. National Health and Safety at the workplace data collection system



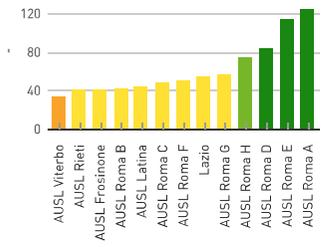
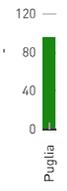
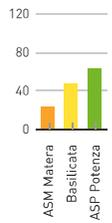
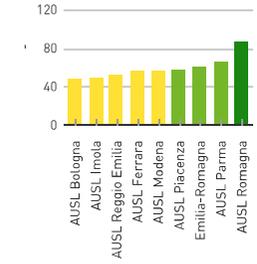
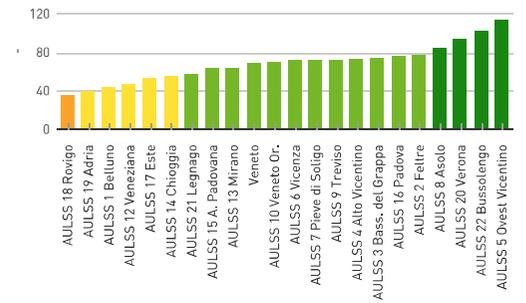
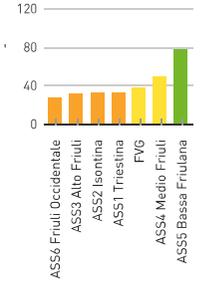
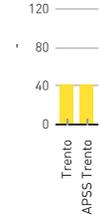
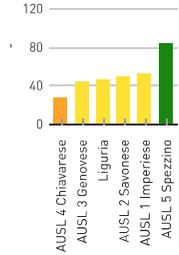


### F15.3.1 Number of companies inspected /number of Health and Safety at the workplace and Judicial Police operators

The indicator assesses the efficiency of the service measuring the number of companies inspected compared to the Judicial Police and Health and Safety at the workplace operators.



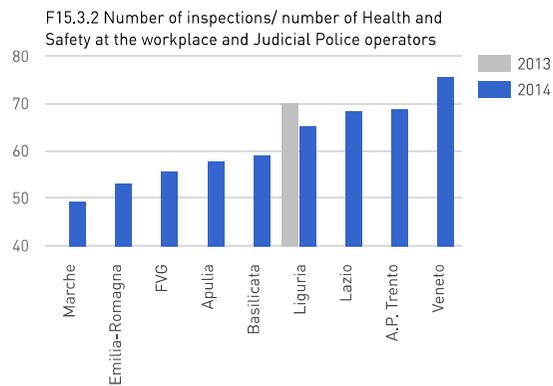
<b>Definition</b>	Number of companies inspected /number of Health and Safety at the workplace and Judicial Police operators
<b>Numerator</b>	Number of companies inspected
<b>Denominator</b>	Number of Health and Safety at the workplace and Judicial Police employees
<b>Notes</b>	Number of companies inspected: total number of primary, secondary (including construction) and tertiary sector companies inspected in the year (included those inspected for the expression of opinions); entry 2.5 A, B, C (+ entry 6.2). Number of Health and Safety at the workplace and Judicial Police employees: column F, table 15 Ministry Activity File A
<b>Source</b>	Ministry File A - Database of companies inspected



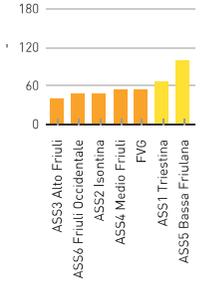
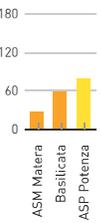
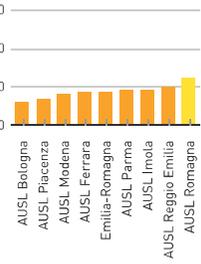
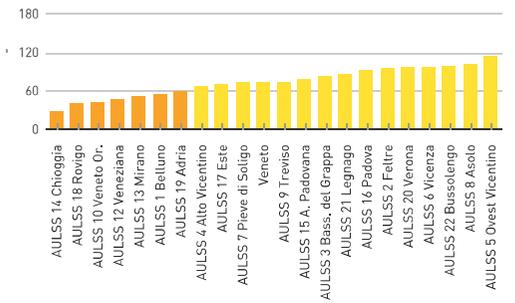
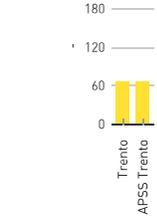
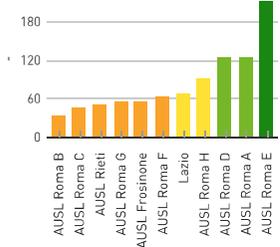
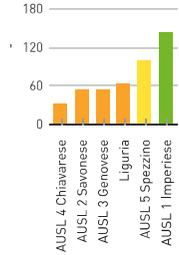


### F15.3.2 Number of inspections/ number of Health and Safety at the workplace and Judicial Police operators

The indicator assesses the efficiency of the service measuring the number of inspections compared to the Judicial Police and Health and Safety at the workplace operators.



<b>Definition</b>	Number of inspections/ number of Health and Safety at the workplace and Judicial Police operators
<b>Numerator</b>	Number of inspections (item 2.4 D activity file)
<b>Denominator</b>	Number of Health and Safety at the workplace and Judicial Police employees
<b>Notes</b>	Number of inspections: item 2.2 A, Ministry File B Number of Health and Safety at the workplace employees: Ministry File A, column F, entry 15.6
<b>Source</b>	Ministry Files A and B

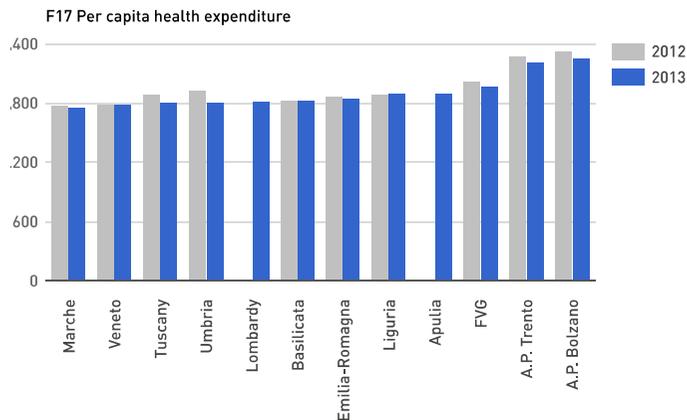




## F17 Per capita health expenditure

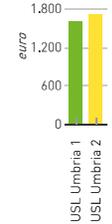
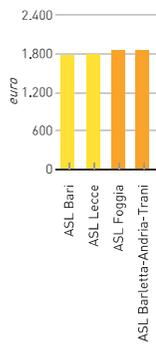
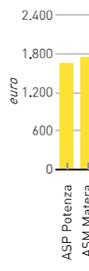
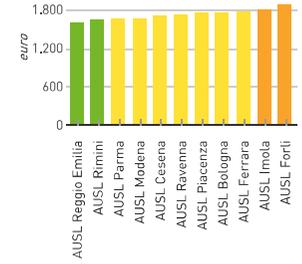
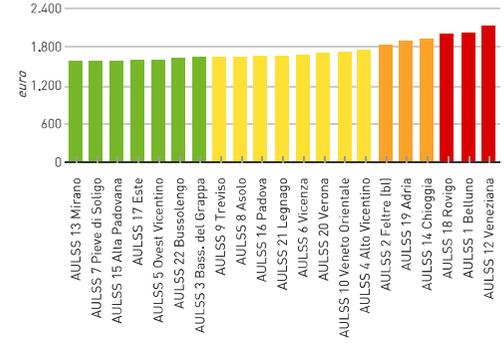
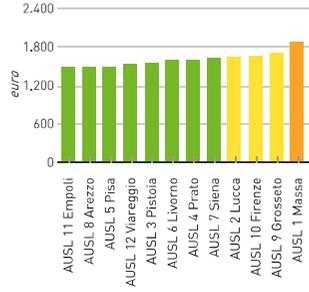
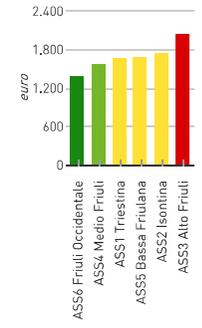
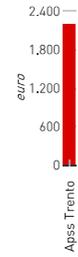
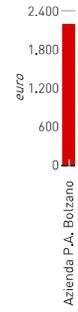
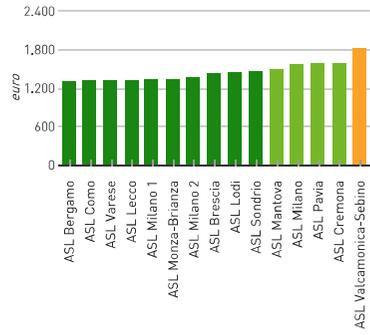
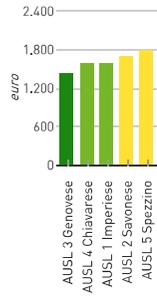
The indicator expresses the ratio between the total costs incurred by Local Health Authorities for their residents and the resident population, weighted according to national allocation criteria (CIPE resolution 2013). Costs are calculated as the difference between the total costs and the revenue accruing on account of patient mobility from other Regions, on the assumption that the costs incurred by the Local Health Authorities for the services provided to non-residents equate with the revenue accruing for such patient mobility. The indicator does not take into account the overall costs incurred by Local Health Authorities but only the value of the services provided to residents in the area of each Local Health Authority. Local Health Authorities are therefore assessed on their capacity to govern the cost of services delivered to their residents, not considering the cost of facilities coming under other Authorities (such as Teaching Hospitals).

Calculation of the overall costs of the health services delivered must, of course, include the costs of Teaching Hospitals and those of the other regional health system authorities. This information is included in the overall regional data, which are not the sum of the costs of Local Health Authorities but the overall cost incurred at regional level for residents, and which is on average higher on account of the fact that there are likely to be centralised management functions at the regional level. For this reason, two different score bands were calculated: one for the Regions and one for all Local Health Authorities. The data source is the 2013 "CE flow" (profit and loss account). The overall indicator (F17) is integrated with observation indicators offering details on the costs incurred to provide essential levels of care to residents. Further details for hospital and primary care are also provided. Data refer to 2013.



<b>Definition</b>	Per capita health expenditure
<b>Numerator</b>	Total expenditure per resident population - revenue and other adjustments
<b>Denominator</b>	Weighted population
<b>Notes</b>	<p>Numerator includes:</p> <p>Total expenditure:</p> <ul style="list-style-type: none"> <li>B) Total production costs (code BZ9999)</li> <li>C.3) Interest payable (code CA0110)</li> <li>C.4) Other expenses (code CA0150)</li> <li>E.2) Extraordinary charges (code EA0260)</li> <li>Y) Total taxes (code YZ9999)</li> </ul> <p>Active mobility:</p> <ul style="list-style-type: none"> <li>A.4.A) Revenue from public health and social services (code AA0330)</li> <li>A.4.C) Revenue from private health and social services (code AA0660)</li> <li>A.4.B) Revenue from private health and social services to patients residing outside the Region (active mobility) (code AA0610)</li> </ul> <p>Other adjustments:</p> <ul style="list-style-type: none"> <li>A.4.D) Revenue for "intra moenia" services (code AA0670)</li> <li>A.5.B) Competitions, recoveries and reimbursements from the Region (code AA0770)</li> <li>A.5.C) Competitions, recoveries and reimbursements from Local Health Authorities (code AA0800)</li> <li>A.5.D) Competitions, recoveries and reimbursements from other public bodies (code AA0840)</li> </ul> <p>Expenses for extra-ELC services and undocumented immigrants (LA Flow all.5 code A5999 col. TS013, all.6 codes A6002 and A6003 col. TS013).</p> <p>For the Region, code 999 was applicable (regional consolidated financial statement), including values referred both to Local Health Authorities and Teaching Hospitals. For the denominator, the population was weighted according to national healthcare fund allocation criteria (CIPE resolution 2013)</p>

**Source** LA Flow and CE Flow. Population: ISTAT



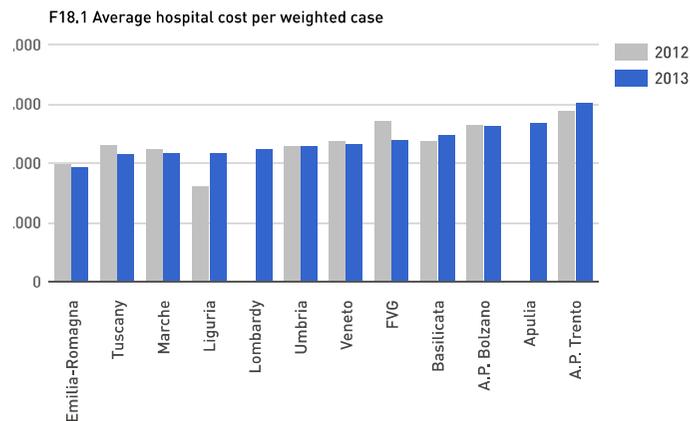


## F18 Average cost for hospital care

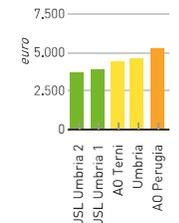
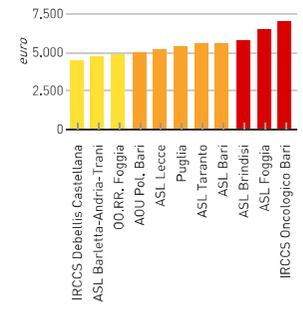
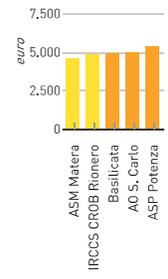
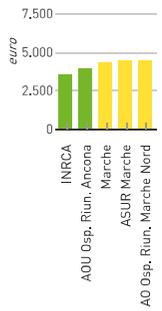
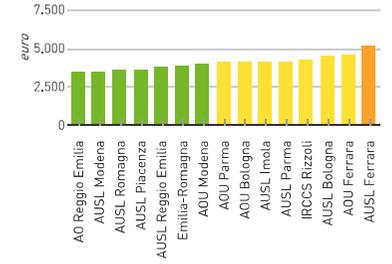
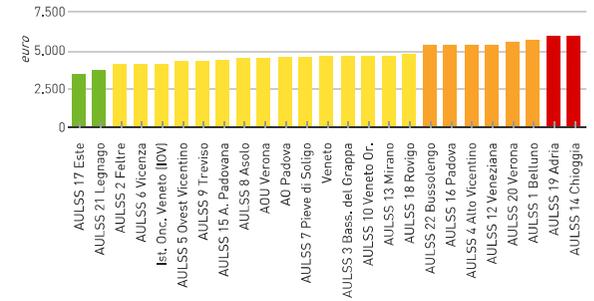
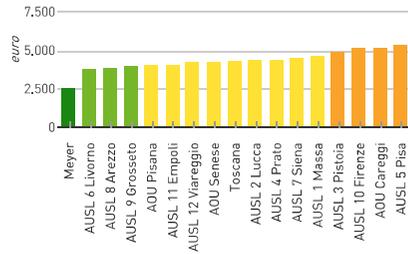
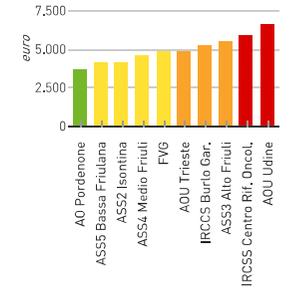
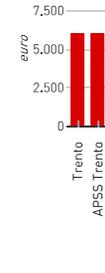
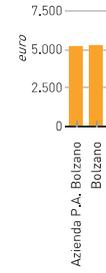
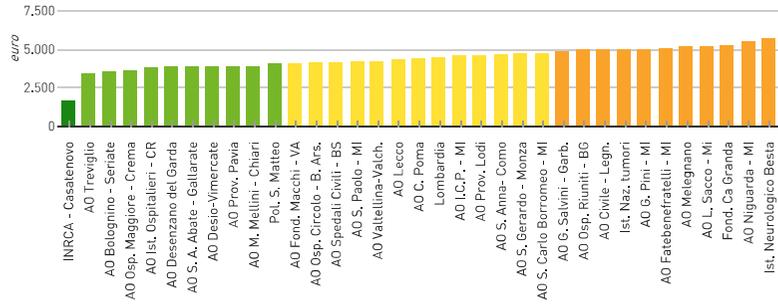
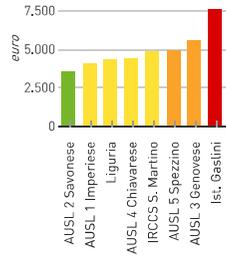
The indicator monitors the average cost of hospital care. The final score attributed is that of indicator F18.1. Data refer to 2013.

### F18.1 Average hospital cost per weighted case

The indicator measures the production cost of acute hospitalizations assessed according to their complexity (expressed by DRG points). The indicator is the ratio between the cost of acute hospital care (both inpatients and day hospitals) incurred by Health Authorities and the DRG points produced. Health Authority production costs for acute admissions and acute hospital care, net of costs incurred for passive mobility (i.e. costs incurred by Health Authorities for services provided to their residents by other Authorities) were considered.



<b>Definition</b>	Average hospital cost per weighted case
<b>Numerator</b>	Average expenditure for acute inpatient admissions/Day Hospital/Day Surgery - cost of healthcare services (passive mobility)
<b>Denominator</b>	Ministerial DRGs for acute inpatient admissions/Day Hospital/Day Surgery
<b>Notes</b>	For the cost of acute inpatient admissions: LA Flow (code 30200 column TS013). For costs of active mobility of acute inpatient admissions: LA Flow (code 30200 column TS013). For DRG points, inpatient admissions/Day Hospital/Day Surgery provided by public hospitals were considered. Private practice was excluded from the calculation of the denominator
<b>Source</b>	LA Flow - Hospital discharge records

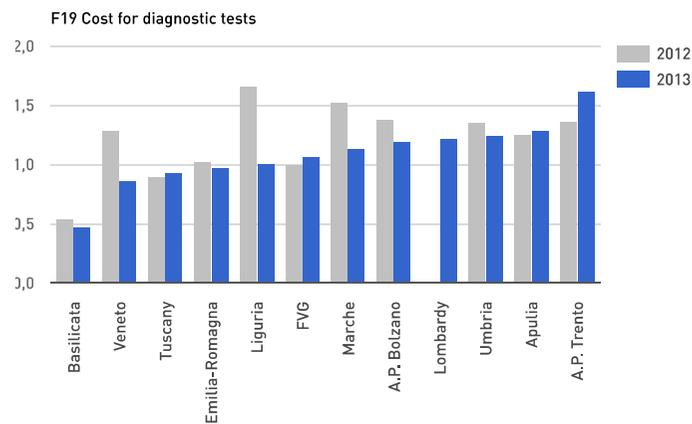




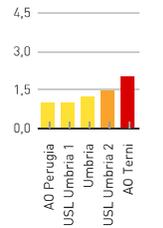
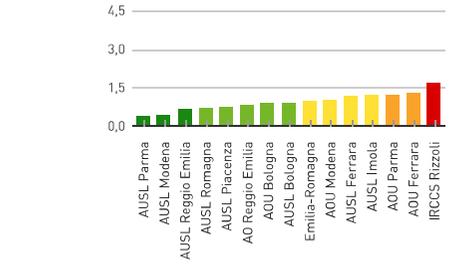
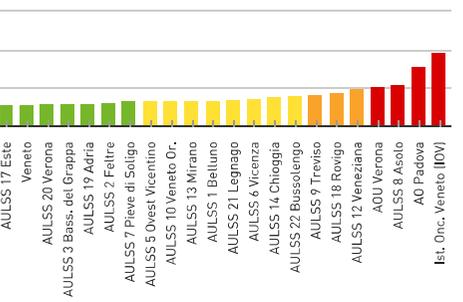
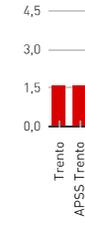
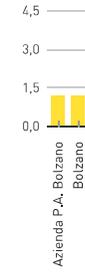
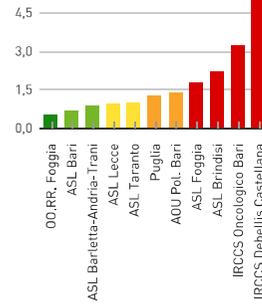
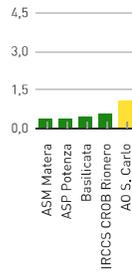
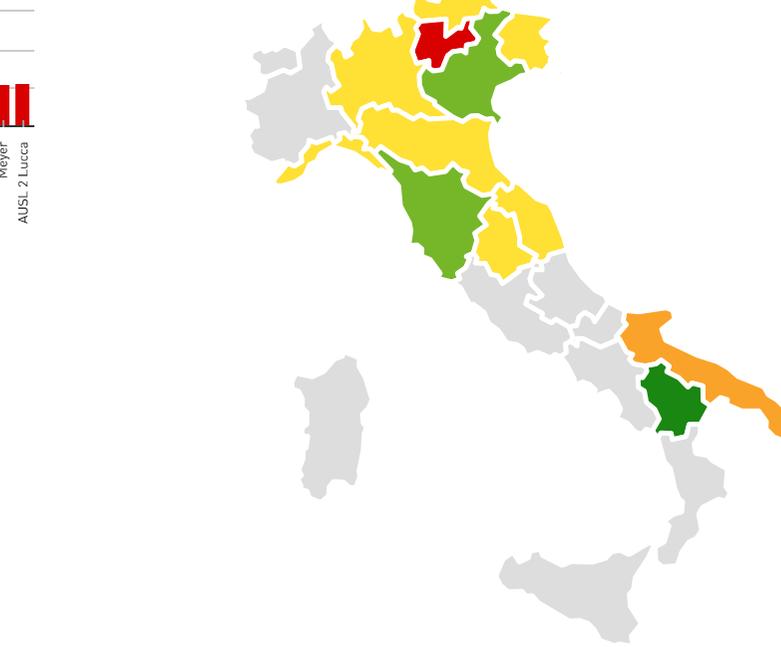
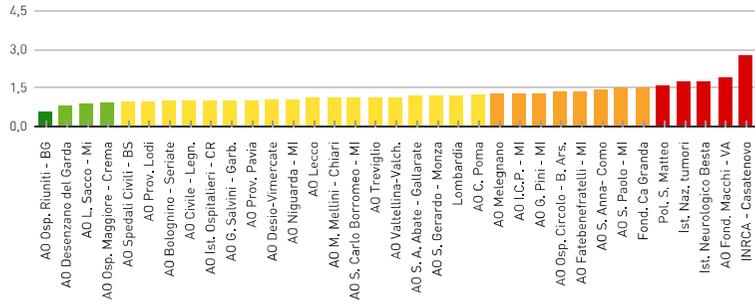
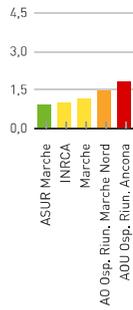
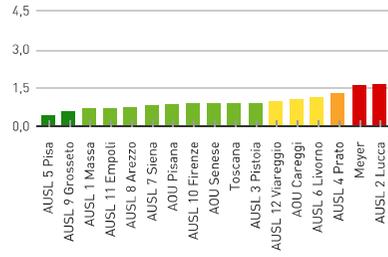
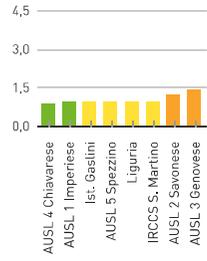
## F19 Cost for diagnostic tests

The indicator measures the production cost for imaging and instrumental diagnostics. Acute care services may differ in complexity and cost. Service complexity was therefore considered by calculating not the services provided, but their tariffs. Therefore, the indicator expresses the ratio between the cost for diagnostic procedures and the regional fees associated to them.

Health Authority production costs for diagnostic services, net of costs incurred for passive mobility (i.e. costs incurred by Health Authorities for this type of service provided to their residents by other Health Authorities), were considered. Data refer to 2013.



<b>Definition</b>	Cost for diagnostic tests
<b>Numerator</b>	Cost for diagnostic services - costs of passive mobility
<b>Denominator</b>	Regional tariffs of the diagnostic procedures
<b>Notes</b>	Cost of diagnostic procedures: LA Flow (code 20603 column TS013). Cost of passive mobility provision of diagnostic procedures: LA Flow (code 20603 column TS013). Outpatient diagnostic services were considered. Services were assessed according to the regional tariffs in force. Private practice was excluded from the calculation of the denominator
<b>Source</b>	Numerator: LA Flow Denominator: Regional outpatient flow





# 4

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