



A quantitative method for detecting priorities and setting targets to reduce unwarranted variations

Insights from the Italian regional experience

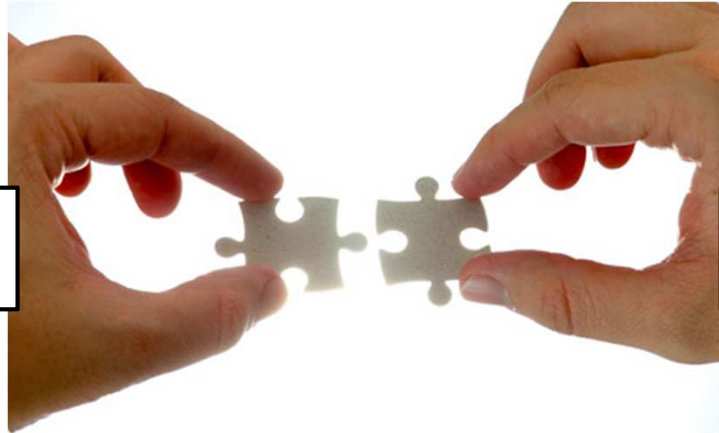
Sabina Nuti
Federico Vola





From evaluation to governance support

Evaluation

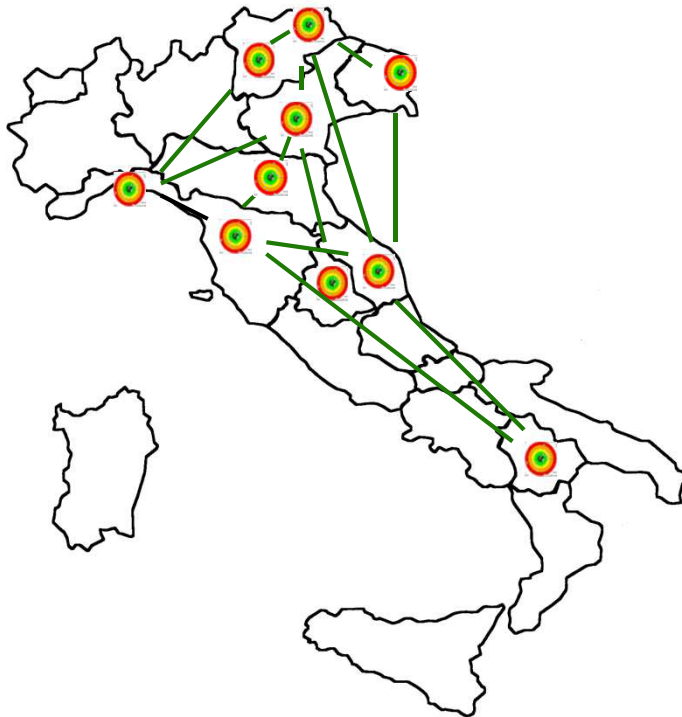


Governance





The Inter-regional Performance Evaluation System



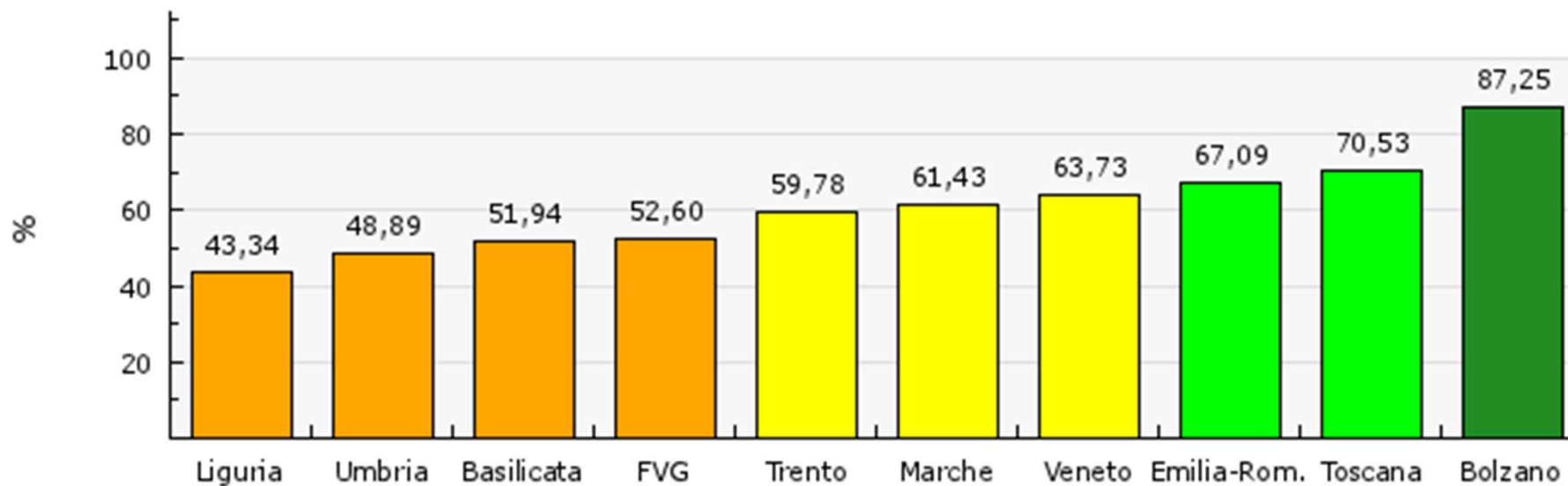
- 10 Regions
- Around 160 indicators
- 6 areas: a) population health's status, b) ability to pursue regional strategies, c) clinical evaluation, d) patient satisfaction, e) working climate survey, f) operational efficiency and economic performance
- 5 band evaluation
- Regular reporting & Open access (<http://performance.sssup.it/network>)
- Frequent meetings & spread of best practices





The graphic representation of one of the 160 indicators

Indicator C5.2: Femur fractures operated within 2 days from admission - 2013

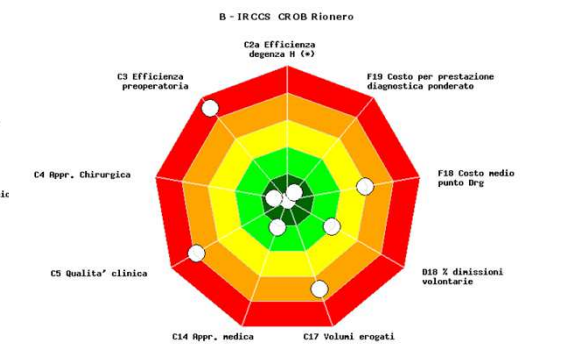
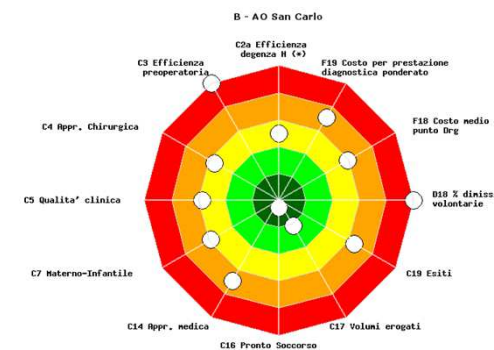
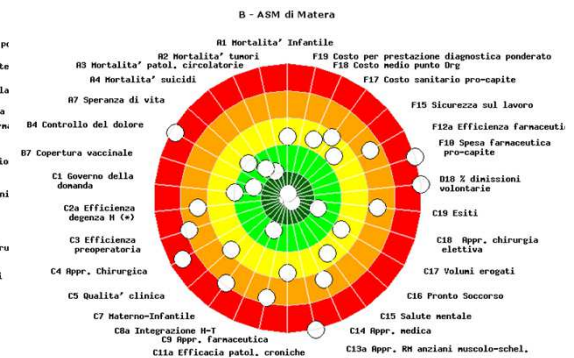
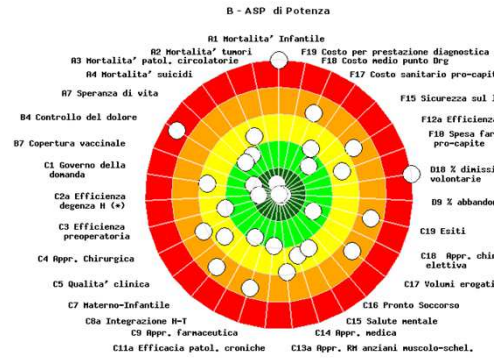
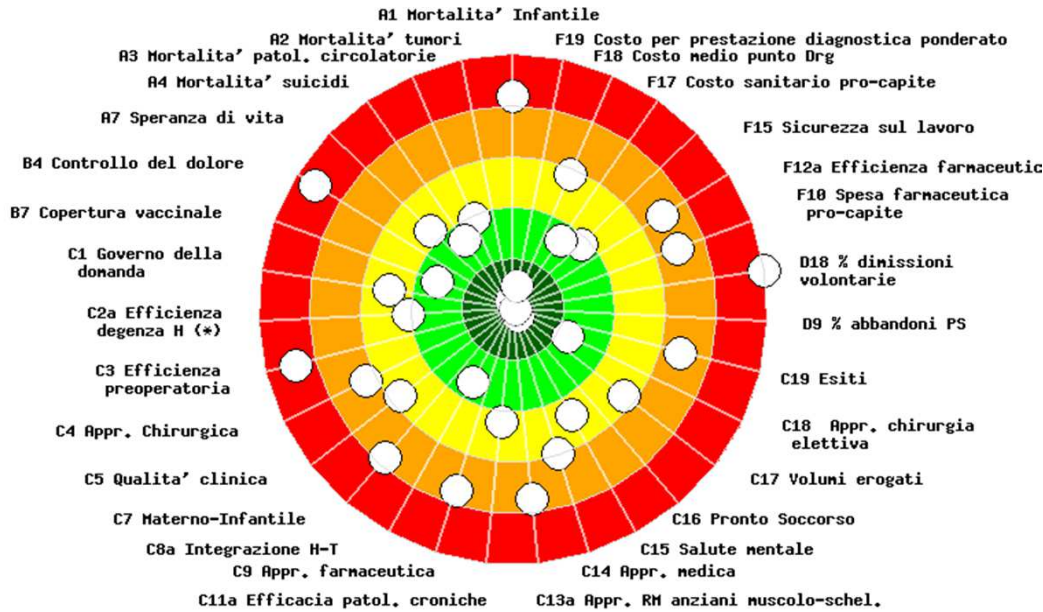




The Inter-regional Performance Evaluation System

2013

Basilicata





Does evaluation work?

Drives performance improvement

- AM. Murante, M. Vainieri, D. Rojas, S. Nuti, Does feedback influence patient - professional communication? Empirical evidence from Italy. *Health Policy*, doi:10.1016/j.healthpol.2014.02.001
- S. Nuti, M. Vainieri, S. Zett, C. Seghieri. Assessment and improvement of the Italian Healthcare system: first evidence from a pilot national performance evaluation system. *Journal of Healthcare Management* 2012 May-Jun;57(3):182-98
- S. Nuti, C. Seghieri e M. Vainieri. Assessing the effectiveness of a performance evaluation system in the public health care sector:
 - some novel evidence from the Tuscany Region experience. *Journal of Management and Governance* 2012 DOI: 10.1007/s10997-012-9218-5
- L. Pinnarelli, S. Nuti, C. Sorge, M. Davoli, D. Fusco, N. Agabiti, M. Vainieri e CA Perucci. What drives hospital performance? The impact of comparative outcome evaluation of patients admitted for hip fracture in two Italian regions, *Bmj Quality & Safety* Vol 21, p127-134, 2012

Supports the budgeting process through reallocation

- S. Nuti, A. Bonini, M. Vainieri "Disinvestment for reallocation: a process to identify priorities in healthcare" *Health Policy*, Vol 95 pp137-143, 2010.

Supports variation management

- Nuti S., Seghieri C. (2014), "Is variation management included in regional healthcare governance systems? Some proposals from Italy", *Health Policy*, pp. 71-78.





Including variation management in the governance tools...





A three-dimensional methodology



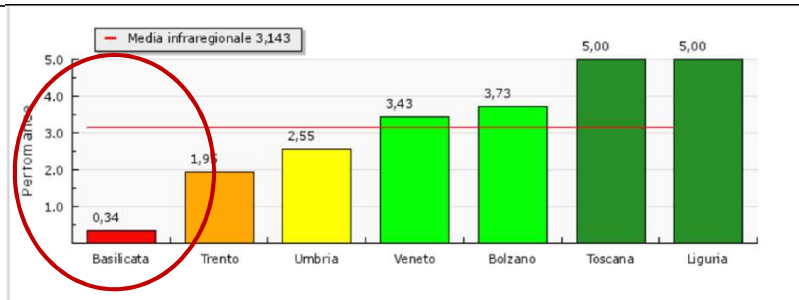
Performance



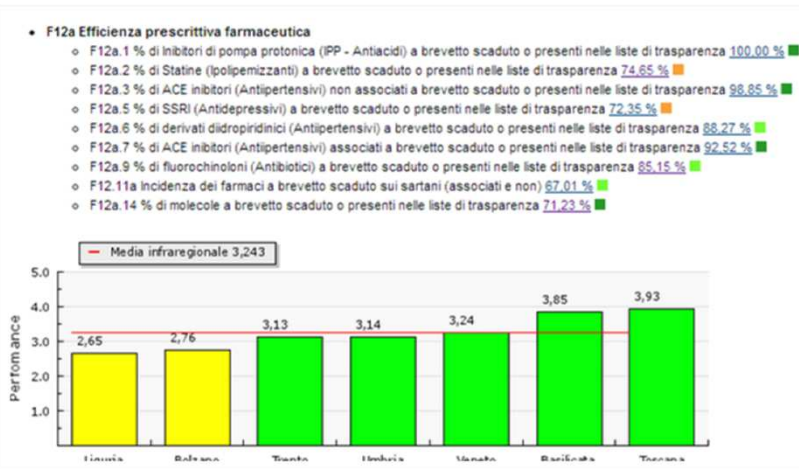


1) Performance

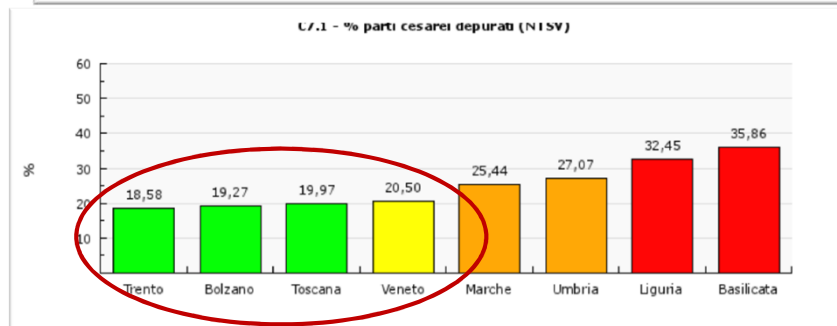
a) Overall performance



b) Sub-indicators

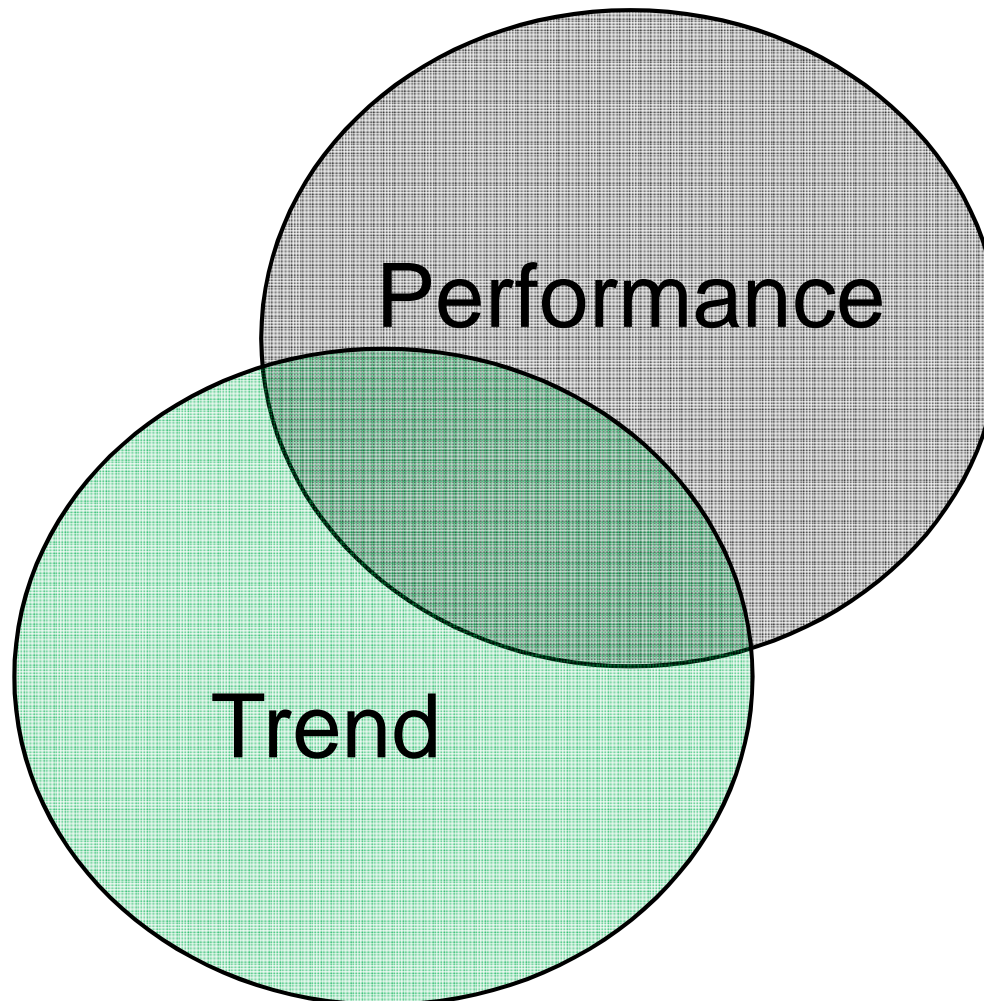


c) Cluster performance





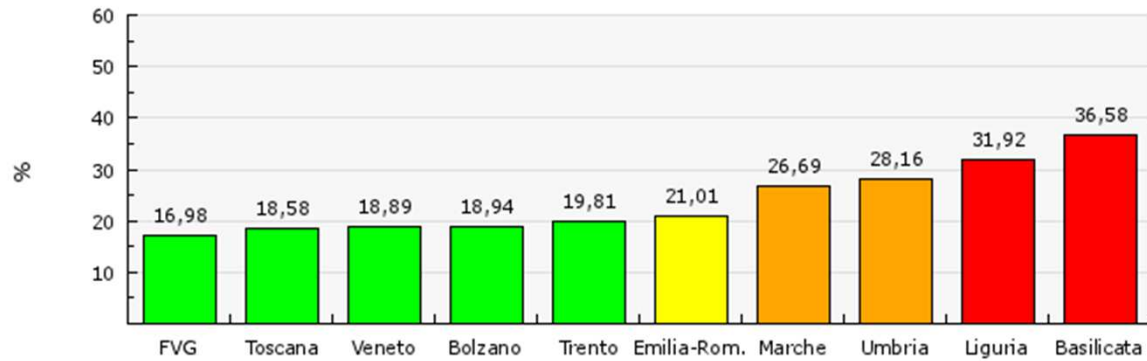
A three-dimensional methodology



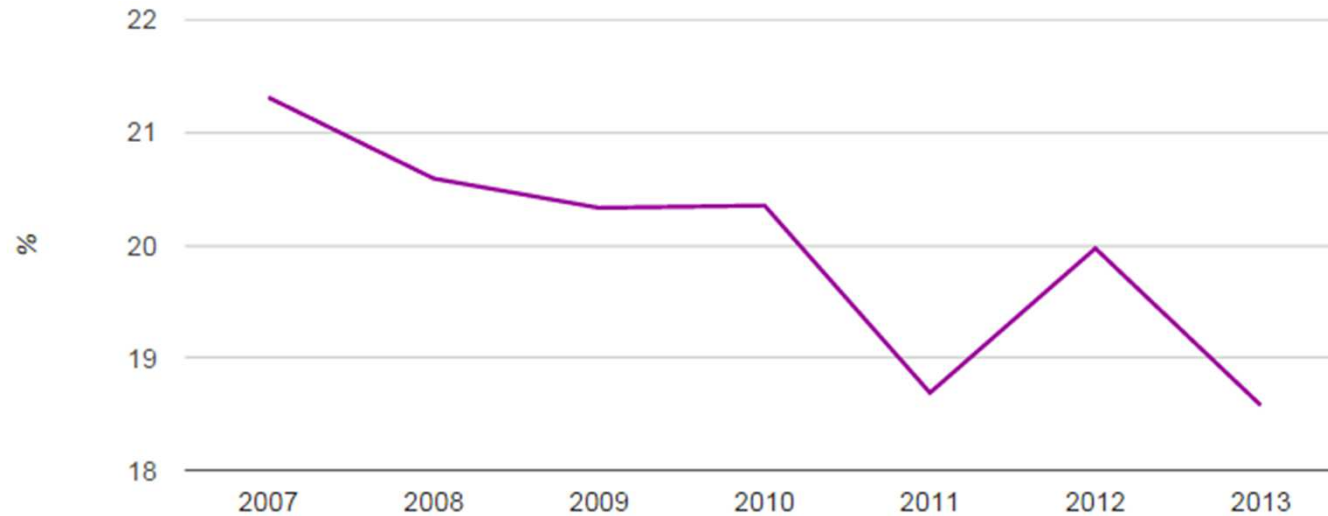


2) Trend

C7.1 - % parti cesarei depurati (NTSV)

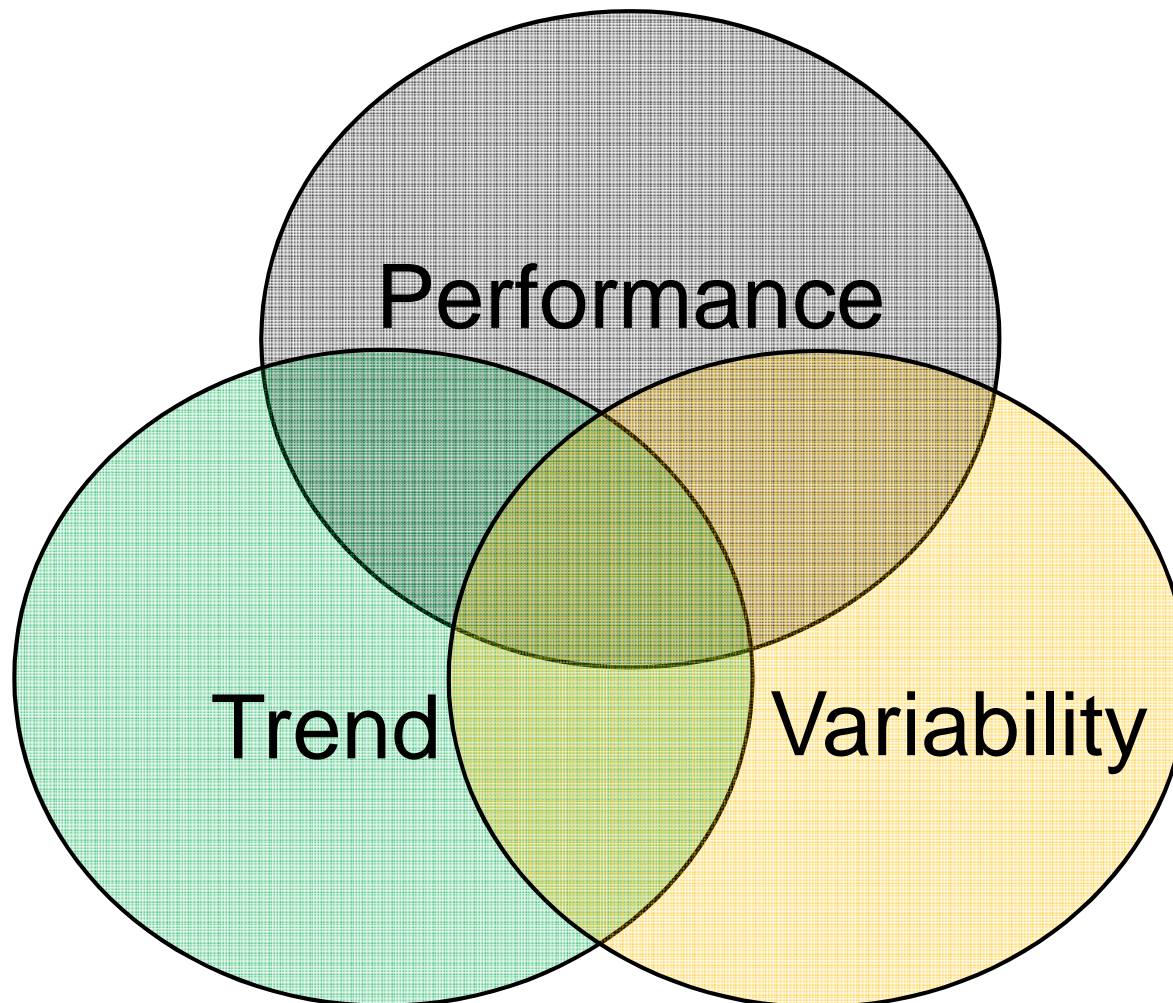


Toscana - Indicatore C7.1 % di parti cesarei depurati (NTSV) - 2013





A three-dimensional methodology



Inter – regional variability

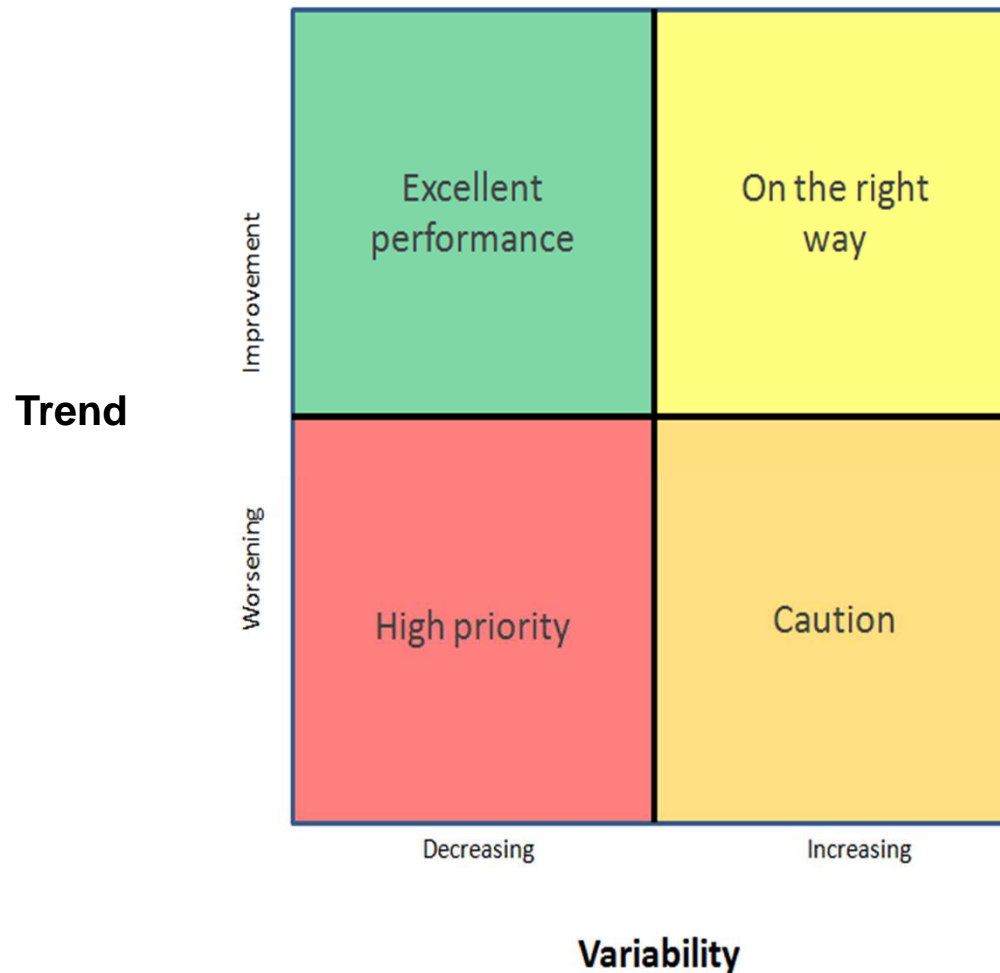
Indicatore	Coeff var 2012	Coeff var 2011	Delta coeff. var.
C14.2 % ricoveri in DH medico con finalita' diagnostica (Patto per la salute 2010-2012)	0,235	0,295	-20,3%
C14.4 % ricoveri medici oltre soglia per pazienti >= 65 anni (Patto per la salute 2010-2012)	0,235	0,291	-19,4%
C11a.1.1 Tasso di ospedalizzazione per scompenso per 100.000 residenti (50-74 anni)	0,164	0,203	-19,1%
C1.1.2.1 Tasso di ospedalizzazione standardizzato DH medico acuti per 1.000 residenti std per eta' e sesso	0,340	0,417	-18,5%
C8a.19.1 Tasso di ospedalizzazione pediatrico per asma per 100.000 residenti (2-17anni)	1,277	1,508	-15,3%
C3 Degenza media pre-operatoria interventi chirurgici programmati (Patto per la salute 2010-2012) - RO > 1 gg	0,228	0,264	-13,8%
C7.1 % cesarei depurati (NTSV)	0,262	0,300	-12,6%
C5.2 % fratture femore operate entro 2 giorni dall'ammissione (Patto per la salute 2010-2012)	0,307	0,340	-9,8%
C5.8 % di pazienti sottoposti a ventilazione meccanica non invasiva	0,310	0,339	-8,6%
C11a.4.1 Tasso di ospedalizzazione per polmonite per 100.000 residenti (20-74 anni)	0,202	0,219	-7,9%
C4.1.2 % DRG medici dimessi da reparti chirurgici: day hospital	0,462	0,495	-6,7%
C4.7 Drg LEA Chirurgici: % ricoveri in Day Surgery (Patto per la salute 2010-2012)	0,211	0,225	-6,4%
C4.8 Drg LEA Medici: tasso di ospedalizzazione standardizzato per 10.000 residenti (Patto per la Salute 2010-2012)	0,221	0,233	-5,2%
C4.1 % DRG medici dimessi da reparti chirurgici	0,345	0,348	-0,9%
C4.1.1 % DRG medici dimessi da reparti chirurgici: ricoveri ordinari	0,307	0,309	-0,7%
C8b.2 Tasso di ospedalizzazione dei ricoveri oltre 30 gg per 1000 residenti	0,255	0,249	2,5%
C1.1.1 Tasso ospedalizzazione ricoveri ordinari acuti per 1.000 residenti standardizzato per eta' e sesso	0,130	0,127	2,7%
C14.3 % ricoveri ordinari medici brevi (Patto per la salute 2010-2012)	0,214	0,207	3,3%
C5.3 % prostatectomie transuretrali	0,150	0,145	3,5%
D9 Abbandoni da Pronto Soccorso (escluse Umbria e Bolzano)	0,557	0,523	6,5%
D18 Percentuale dimissioni volontarie	0,609	0,571	6,7%
C11a.3.1 Tasso di ospedalizzazione per BPCO per 100.000 residenti (50-74 anni)	0,513	0,446	14,9%
C5.11 % Appendicectomie urgenti in laparoscopia per donne 15-49 anni	0,268	0,228	17,5%
C8a.19.2 Tasso di ospedalizzazione pediatrico per gastroenterite per 100.000 residenti (0-17 anni)	0,523	0,441	18,7%
	Media 2012	Media 2011	Delta
	0,347	0,363	-4,6%

Variation within the regions

Indicatore	Coeff var 2012	Coeff var 2011	Delta coeff
C5.7 % interventi di riparazione della valvola mitrale (AOU) (escluse Basilicata e Marche)	0,205	0,391	-47,60%
C11a.1.1 Tasso di ospedalizzazione per scompenso per 100.000 residenti (50-74 anni)	0,158	0,213	-25,92%
D18 Percentuale dimissioni volontarie	0,490	0,583	-16,00%
C5.2 % fratture femore operate entro 2 giorni dall'ammissione (Patto per la salute 2010-2012)	0,259	0,299	-13,34%
C5.3 % prostatectomie transuretrali	0,208	0,231	-9,79%
C11a.4.1 Tasso di ospedalizzazione per polmonite per 100.000 residenti (20-74 anni)	0,164	0,175	-6,42%
C11a.3.1 Tasso di ospedalizzazione per BPCO per 100.000 residenti (50-74 anni)	0,316	0,331	-4,63%
C1.1.1 Tasso ospedalizzazione ricoveri ordinari acuti per 1.000 residenti standardizzato per eta' e sesso	0,046	0,048	-3,68%
C14.4 % ricoveri medici oltre soglia per pazienti >= 65 anni (Patto per la salute 2010-2012)	0,410	0,421	-2,63%
C4.1.2 % DRG medici dimessi da reparti chirurgici: day hospital	0,614	0,626	-2,02%
C4.1.1 % DRG medici dimessi da reparti chirurgici: ricoveri ordinari	0,335	0,338	-0,76%
C4.1 % DRG medici dimessi da reparti chirurgici	0,336	0,335	0,15%
C4.7 Drg LEA Chirurgici: % ricoveri in Day Surgery (Patto per la salute 2010-2012)	0,240	0,236	1,83%
C8a.19.1 Tasso di ospedalizzazione pediatrico per asma per 100.000 residenti (2-17anni)	0,688	0,675	1,91%
C8a.19.2 Tasso di ospedalizzazione pediatrico per gastroenterite per 100.000 residenti (0-17 anni)	0,553	0,542	2,06%
C5.8 % di pazienti sottoposti a ventilazione meccanica non invasiva	0,688	0,673	2,24%
C8b.2 Tasso di ospedalizzazione dei ricoveri oltre 30 gg per 1000 residenti	0,302	0,294	2,65%
C14.2 % ricoveri in DH medico con finalita' diagnostica (Patto per la salute 2010-2012)	0,566	0,551	2,67%
C5.11 % Appendicectomie urgenti in laparoscopia per donne 15-49 anni	0,517	0,492	5,11%
C4.8 Drg LEA Medici: tasso di ospedalizzazione standardizzato per 10.000 residenti (Patto per la Salute 2010-2012)	0,134	0,127	5,70%
C7.1 % cesarei depurati (NTSV)	0,241	0,225	6,97%
C14.3 % ricoveri ordinari medici brevi (Patto per la salute 2010-2012)	0,309	0,287	7,61%
C3 Degenza media pre-operatoria interventi chirurgici programmati (Patto per la salute 2010-2012) - RO > 1 gg	0,303	0,272	11,54%
C1.1.2.1 Tasso di ospedalizzazione standardizzato DH medico acuti per 1.000 residenti std per eta' e sesso	0,259	0,232	11,84%
	Media 2012	Media 2011	Delta
	0,348	0,358	-2,98%



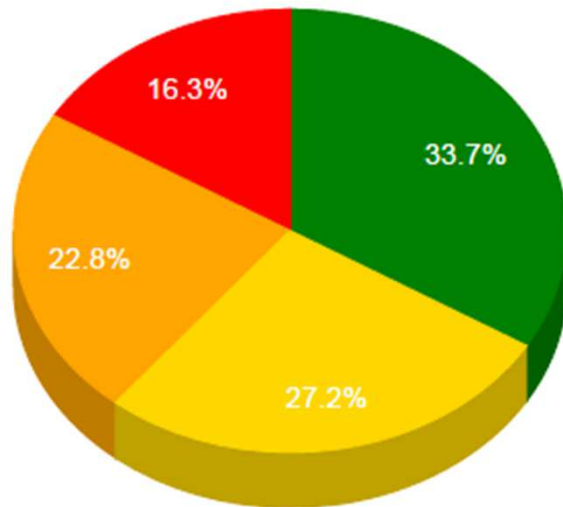
In a dynamic perspective variability should be evaluated together with trend...



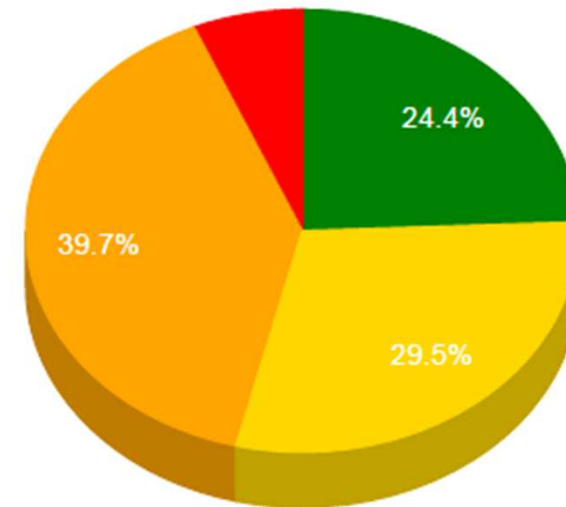


Trend & variability joint analysis

Liguria: 92 indicators



Marche: 78 indicators



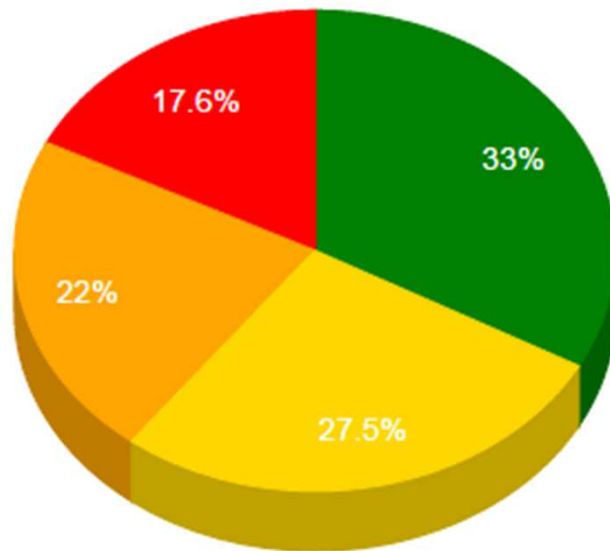
- Excellent performance: improved trend, decreased variability
- On the right way: improved trend, increased variability
- Caution: worsened trend, increased variability
- High priority: worsened trend, decreased variability



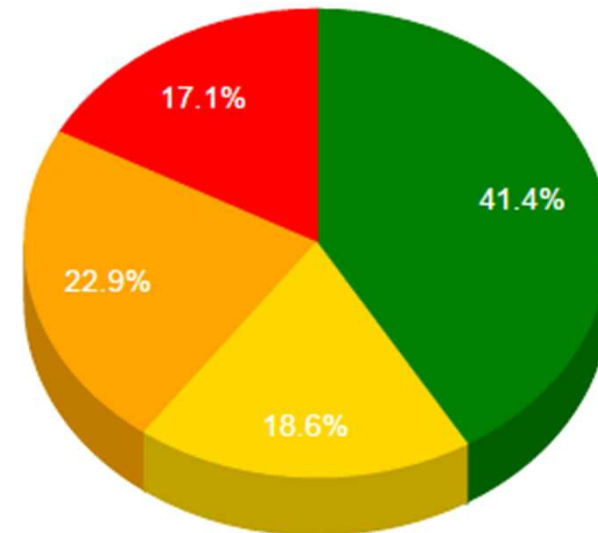


Trend & variability joint analysis

Umbria: 91 indicators



Basilicata: 70 indicators



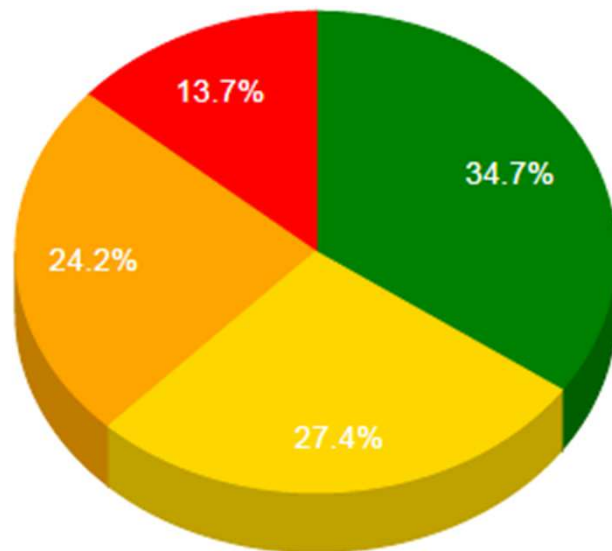
- Excellent performance: improved trend, decreased variability
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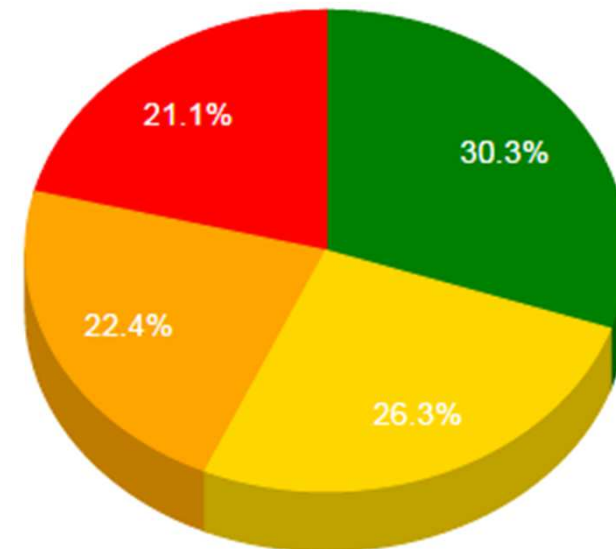






Trend & variability joint analysis

Emilia-Romagna: 95 indicators



Veneto: 76 indicators



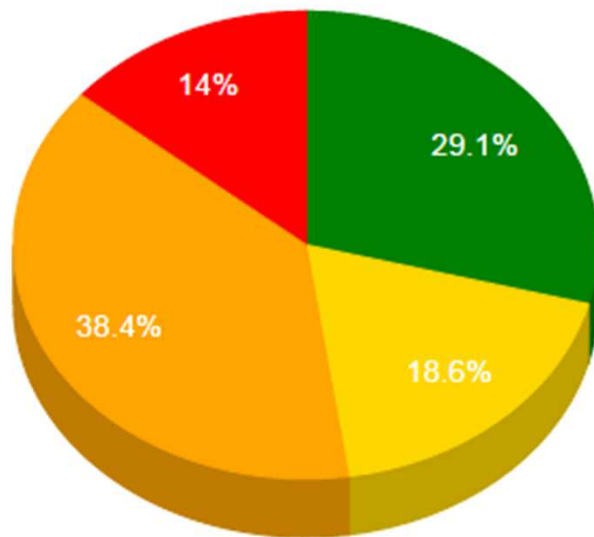
-  Excellent performance: improved trend, decreased variability
-  On the right way: improved trend, increased variability
-  Caution: worsened trend, increased variability
-  High priority: worsened trend, decreased variability



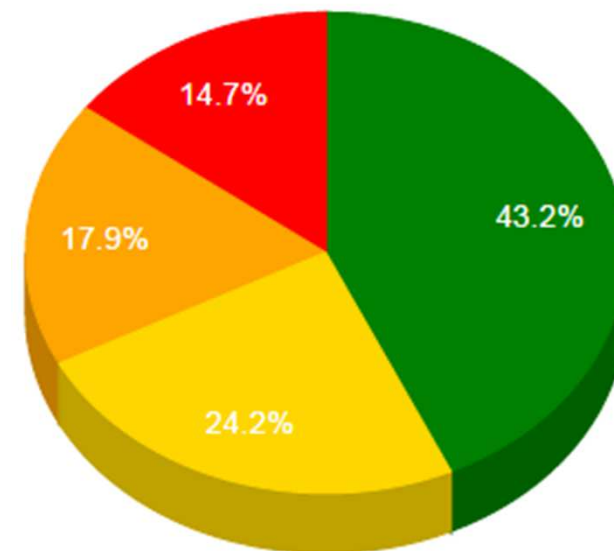


Trend & variability joint analysis

Friuli-Venezia Giulia: 86 indicators



Tuscany: 95 indicators

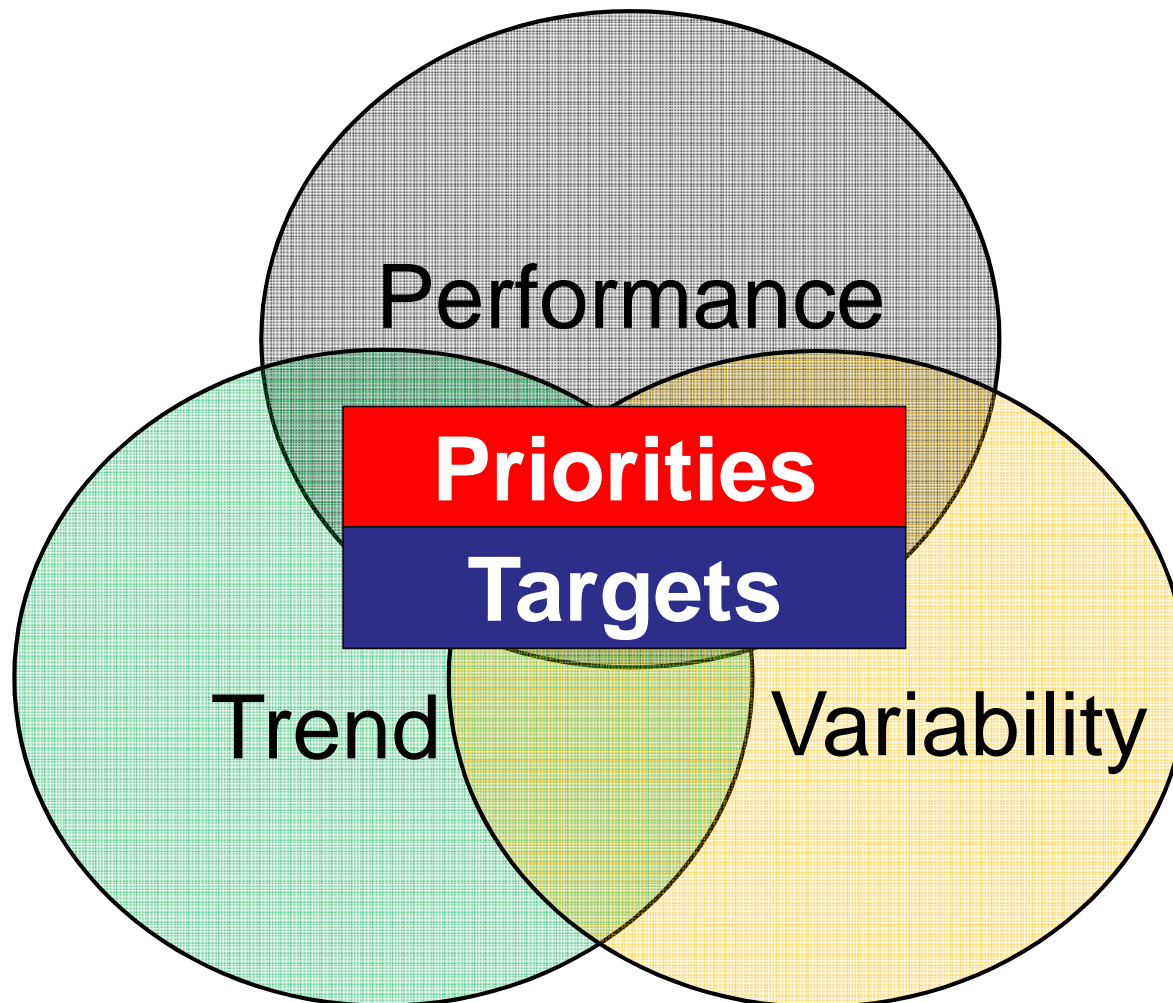


- Excellent performance: improved trend, decreased variability
- On the right way: improved trend, increased variability
- Caution: worsened trend, increased variability
- High priority: worsened trend, decreased variability





A three-dimensional methodology





The tool

Within each area: population health's status, ability to pursue regional strategies, clinical evaluation, patient satisfaction, staff satisfaction, efficiency and financial performance, an indicator is deemed to deserve high priority if it shows criticalities on all the three dimensions performance, trend, variability

Policy makers and managers need appropriate graphic representation to detect high priority issues: colours are quite effective!





Code	Indicator definition	Monitored at the inter-regional level	Monitored at the regional level	2013 Regional Evaluation (based on the Network average)	The Cluster Evaluation	The Trend and Variability analysis	Jan-May 2014 Monitoring (if available)
# 1	Indicator # 1	X		2,17	2,78	Improved trend and decreased variab.	Target achieved
# 2	Indicator # 2	X		2,4	2,74	Improved trend and decreased variab.	
# 3	Indicator # 3		X	3,08	2,04	Improved trend and decreased variab.	
# 4	Indicator # 4	X		2,66	2,71	Improved trend and decreased variab.	Worsening
# 5	Indicator # 5	X		2,12	2,15	Improved trend and decreased variab.	Stable
...

Indicators that are assessed at the inter-regional level are eventually integrated by regional-level computed ones





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# 5	Indicator # 5	X		2,12	2,15	Improved trend and decreased variab.	Stable
...

GREEN



The regional evaluation is **better** that the cluster's one

RED

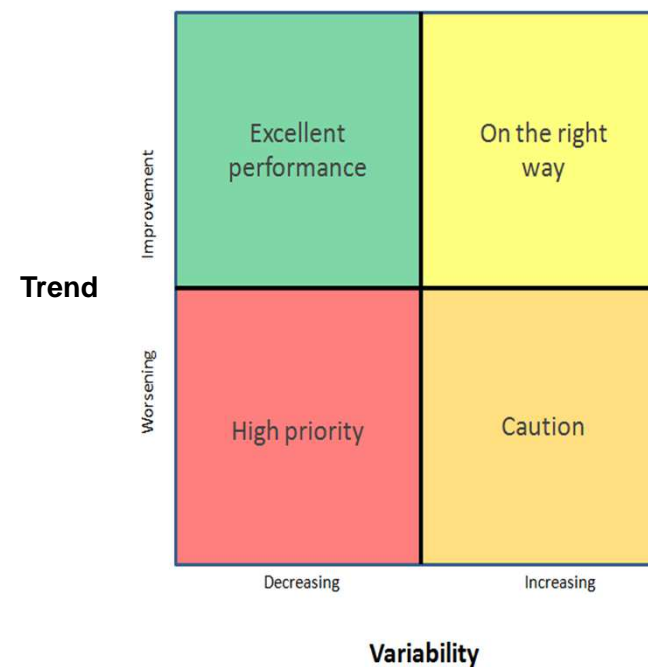


The regional evaluation is **worse** that the cluster's one



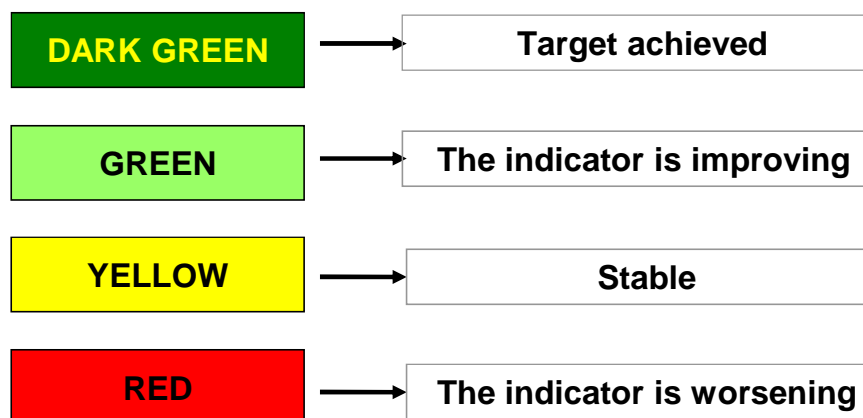


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# 5	Indicator # 5	X		2,12	2,15	Improved trend and decreased variab.	Stable
...





Defining 2015 priorities - Tuscany

180 indicators are
jointly assessed

	Indicators	Monitored at the inter-regional level	Monitored the region level					
Medical appropriateness	C14.2 Percentage of medical outpatient admissions for diagnostic purposes	X	X	2,07	2,06	Improved trend and increased variab.	Worsening	X
	C14.3 % ricoveri ordinari medici brevi (Patto per la salute) Percentage of short medical inpatient admissions for diagnostic	X	X	1,90	2,34	Improved trend and increased variab.	Improving	X
Emergency Department	C16.1 Percentage of yellow code patients visited within 30 minutes	X	X	2,21	2,74	Worsened trend and increased variab.	Worsening	X
	C16.2 Percentage of green code patients visited within 1 hour	X	X	2,77	2,19	Worsened trend and decreased variab.	Worsening	
	C16.3 Percentage of green code patients not referred to hospital with lenght of stay <= 4h	X	X	2,57	3,41	Worsened trend and increased variab.	Stable	X
	C16.4 Percentage of patients referred to hospital with lenght of stay <= 8h	X	X	3,24	4,25	Worsened trend and increased variab.	Worsening	
Elective surgery variability	B25.1a.5 Std. hospitalization rate for tonsillectomies per 100,000 residents	X	X	3,22	2,30	Improved trend and increased variab.	Improving	
	B25.1a.7 Std. hospitalization rate for vein stripping per 100,000 residents	X	X	2,61	2,92	Improved trend and increased variab.		X
Appropriateness of drug prescription	C9.1 Consumption of proton pump inhibitors	X	X	2,46	2,55	Worsened trend and increased variab.		X
	C9.2 Percentage of statin-treated patients abandoning drug therapy	X		2,03	3,15			
	C9.3 Incidence of sartans	X	X	0,50	3,63	Worsened trend and decreased variab.		X
	C9.4 Consumption of selective serotonin reuptake inhibitors (antidepressants)	X	X	0,00	2,47	Worsened trend and increased variab.		X
	C9.8.1.1 Consumption of antibiotics	X	X	1,31	2,55	Worsened trend and decreased variab.		X
	C9.9.1.1 Percentage of antidepressant-treated patients abandoning drug therapy	X	X	2,50	2,67	Improved trend and increased variab.		





Defining 2015 priorities - Tuscany

	Indicators	Monitored at the inter-regional level	Monitored at the regional level	2013 Tuscany Evaluation (based on the Network average)	The 2013 Cluster Evaluation (Emilia and Veneto)	The Trend and Variability analysis (Tuscany)	Jan-May 2014 Monitoring	High priority indicators
Medical appropriateness	C14.2 Percentage of medical outpatient admissions for diagnostic purposes	X	X	2,07	2,06	Improved trend and increased variab.	Worsening	X
	C14.3 % ricoveri ordinari medici brevi (Patto per la salute) Percentage of short medical inpatient admissions for diagnostic	X	X	1,90	2,34	Improved trend and increased variab.	Improving	X
Emergency Department	C16.1 Percentage of yellow code patients visited within 30 minutes	X	X	2,21	2,74	Worsened trend and increased variab.	Worsening	X
	C16.2 Percentage of green code patients visited within 1 hour	X	X	2,77	2,19	Worsened trend and decreased variab.	Worsening	
	C16.3 Percentage of green code patients not referred to hospital with lenght of stay <= 4h	X	X	2,57	3,41	Worsened trend and increased variab.	Stable	X
	C16.4 Percentage of patients referred to hospital with lenght of stay <= 8h	X	X	3,24	4,25	Worsened trend and increased variab.	Worsening	
Elective surgery variability	B25.1a.5 Std. hospitalization rate for tonsillectomies per 100,000 residents	X	X	3,22	2,30	Improved trend and increased variab.	Improving	
	B25.1a.7 Std. hospitalization rate for vein stripping per 100,000 residents	X	X	2,61	2,92	Improved trend and increased variab.		X
Appropriateness of drug prescription	C9.1 Consumption of proton pump inhibitors	X	X	2,46	2,55	Worsened trend and increased variab.		X
	C9.2 Percentage of statin-treated patients abandoning drug therapy							
	C9.3 Incidence of sartans					Worsened trend and decreased variab.		X
	C9.4 Consumption of selective serotonergic reuptake inhibitors (antidepressants)					Worsened trend and increased variab.		X
	C9.8.1.1 Consumption of antibiotics					Worsened trend and decreased variab.		X
	C9.9.1.1 Percentage of antidepressants abandoning drug therapy					Improved trend and increased variab.		

About 30 of them are suggested to deserve special attention





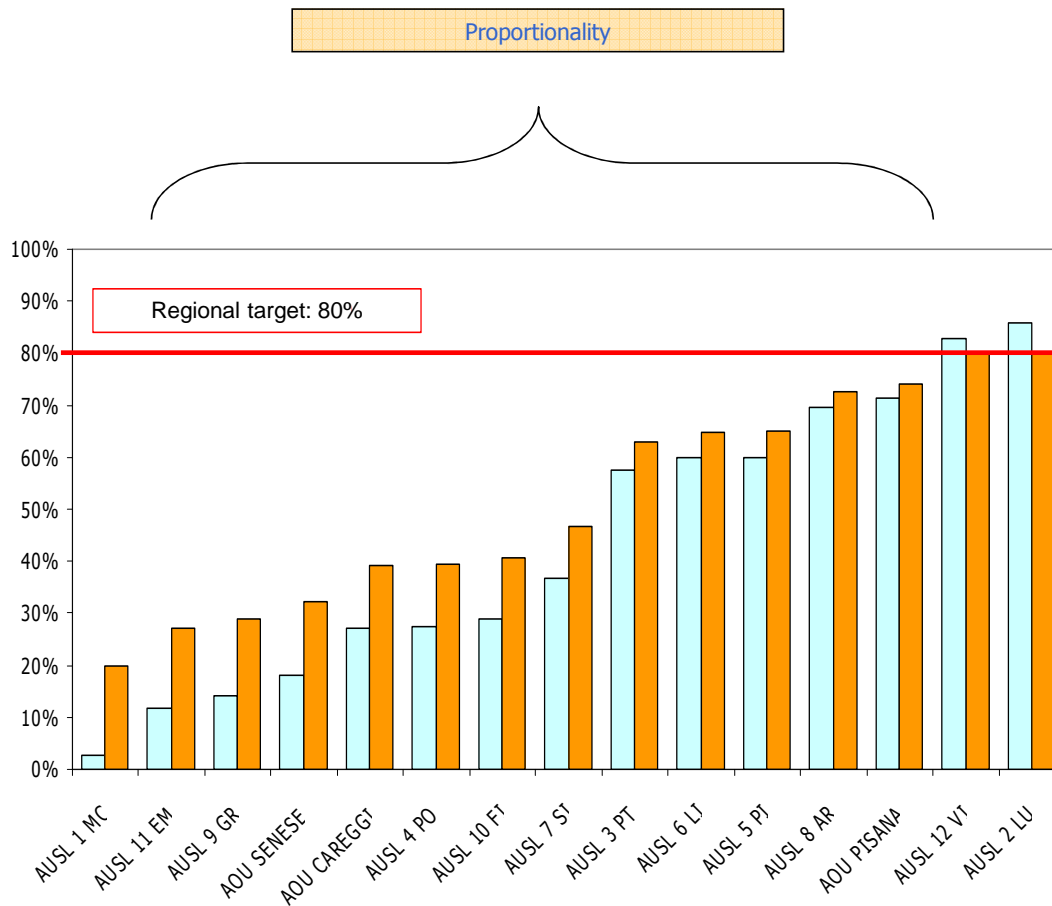
Reduce variation in the management agenda:
tailored target setting





Defining tailored targets

Proportionality



Regional target: 80%

Low performing LHAs are asked for a more relevant improvement

Better performing LHAs are asked for maintaining their performance or slightly improving it



Reward system in the Tuscany Region

INTRINSIC
HEALTH PROFESSIONALS



Professional reputation
public disclosure of results
Enabling peer review
mechanism



EXTRINSIC
CEO (managers)



Financial incentives that
can achieve the 20% of
the salary

CEO's rewarding system added emphasis on the Tuscan PES: **incentivized** indicators **improve 2.7** times than other PES indicators. Moreover the results of a second model on 2008-2010 data show that incentivized indicators that keep into account the **baseline performance and are tailored improve more than the others (OR 1.5)**.

Due to this empirical evidence, in 2011 every Health Authority receives personalized target for each indicator of the Tuscan PES in order to gather the financial reward related to the overall indicator.

32

S.Nuti, M.Vainieri: Do CEO reward system drive performance in the public health sector? Evidence from Italy., 2014, Under Review

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Scuola Superiore
Sant'Anna



Thank you for your attention

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