6th annual Research Meeting of the Wennberg International Collaborative

Geographic variation of access and outcome of health care in Italy: estimating the role of hospital and primary care

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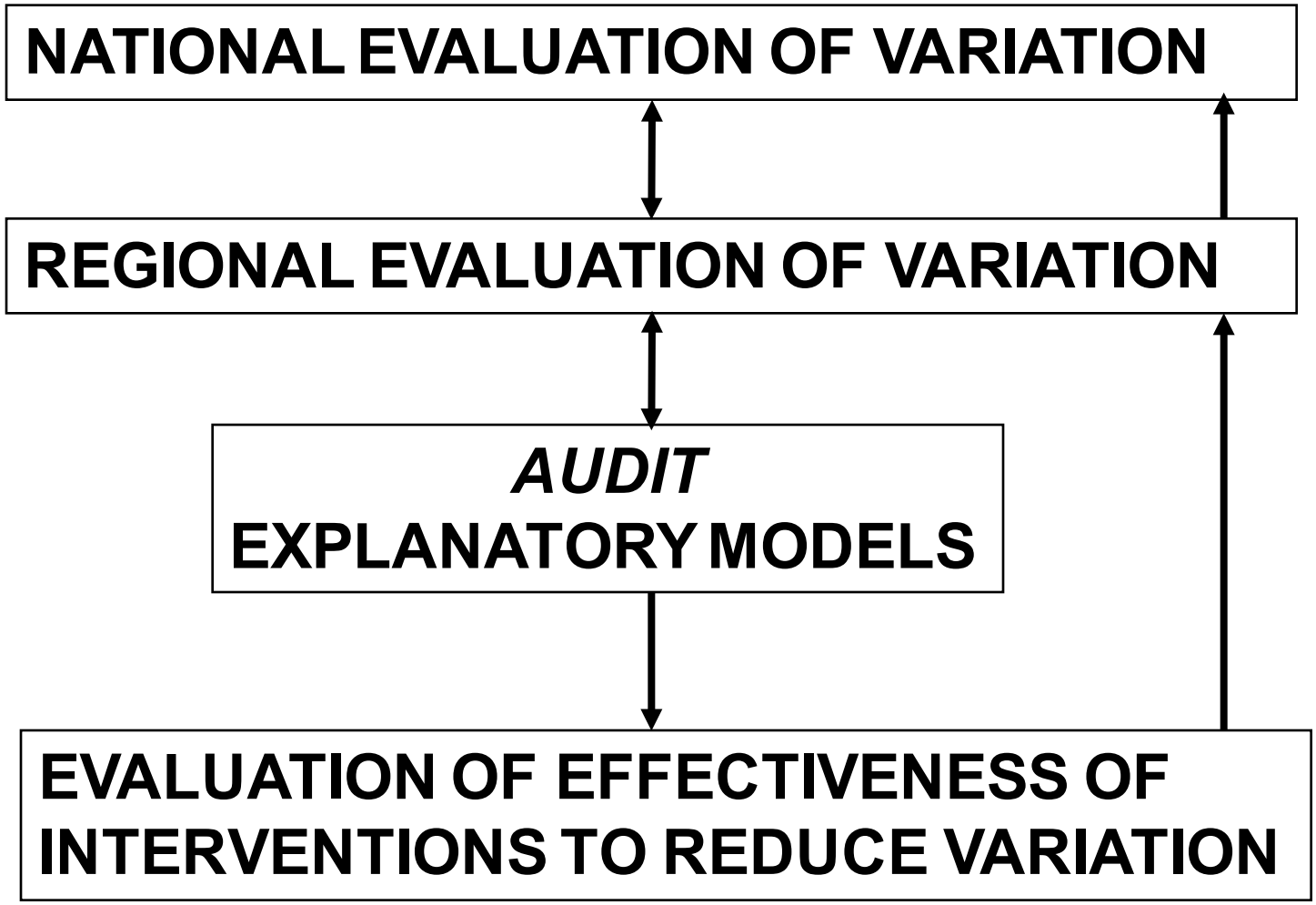
London, September 2 - 4, 2015

SUMMARY


NATIONAL EVALUATION OF VARIATION
REGIONAL EVALUATION OF VARIATION
AUDIT
EXPLANATORY MODELS
EVALUATION OF EFFECTIVENESS OF INTERVENTIONS TO REDUCE VARIATION

The National Outcome Evaluation Programme measures the outcome variability among providers and/or health care local units in Italy

National Health Service (NHS) universal coverage

-By central government
-By regions
-By local health authorities

≡ Change the clinical area » Cardiovascular diseases » Myocardial Infarction (MI)

Outcome measures by Hospital/ Local Health Unit

Back

volume of admissions

30-day mortality

treated with PCI within 2 days

PCI within 7 days

without PCI: 30-day mortality

PCI within 2 days: 30-day mortality

PCI after 2 days: 30-day mortality

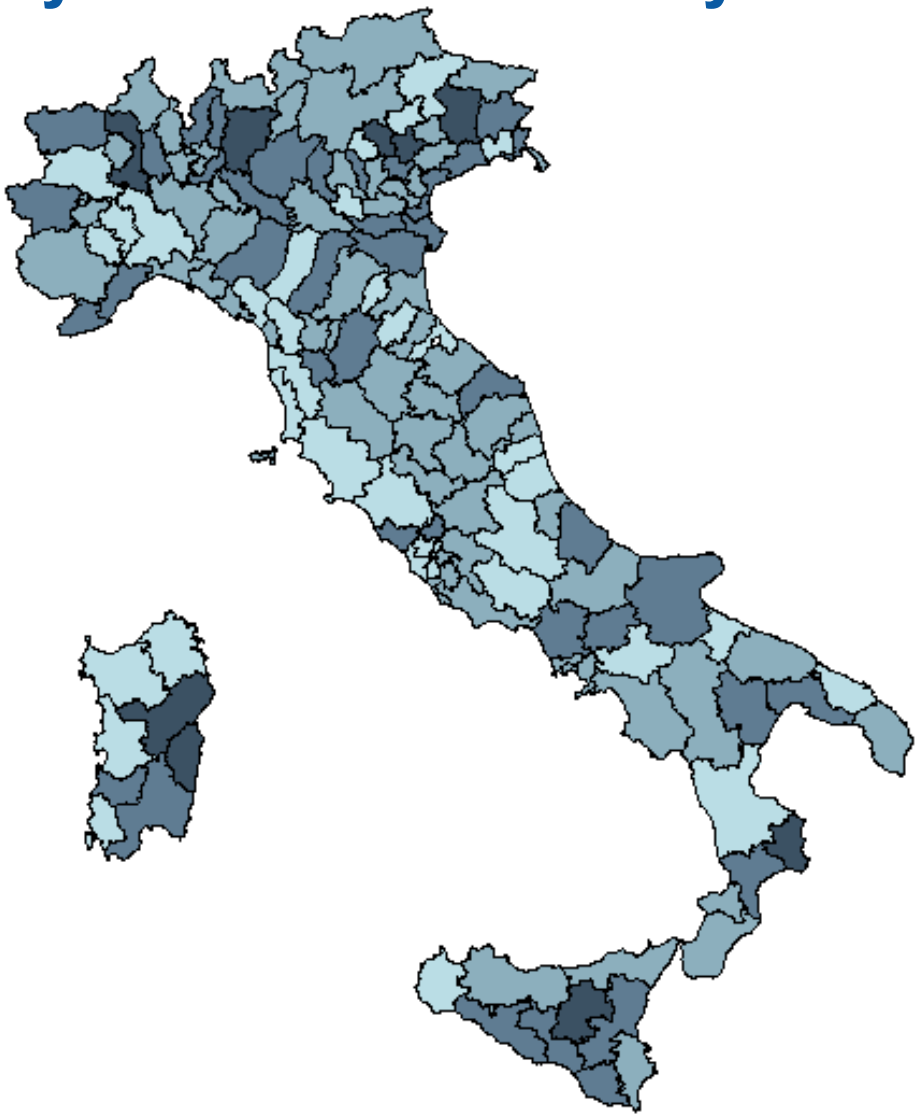
1-year mortality

1-year MACCE

admissions within 2 days

Select an indicator

Major adverse cardiac and cerebro-vascular event (MACCE) after myocardial infarction by local health unit; Italy, 2013



One-year adjusted * risk (%)

- < 20.2
- 20.3 - 24.5
- 24.6 - 29.4
- 29.5 - 36.7

** Adjusted for patients' demographic and clinical characteristics.*

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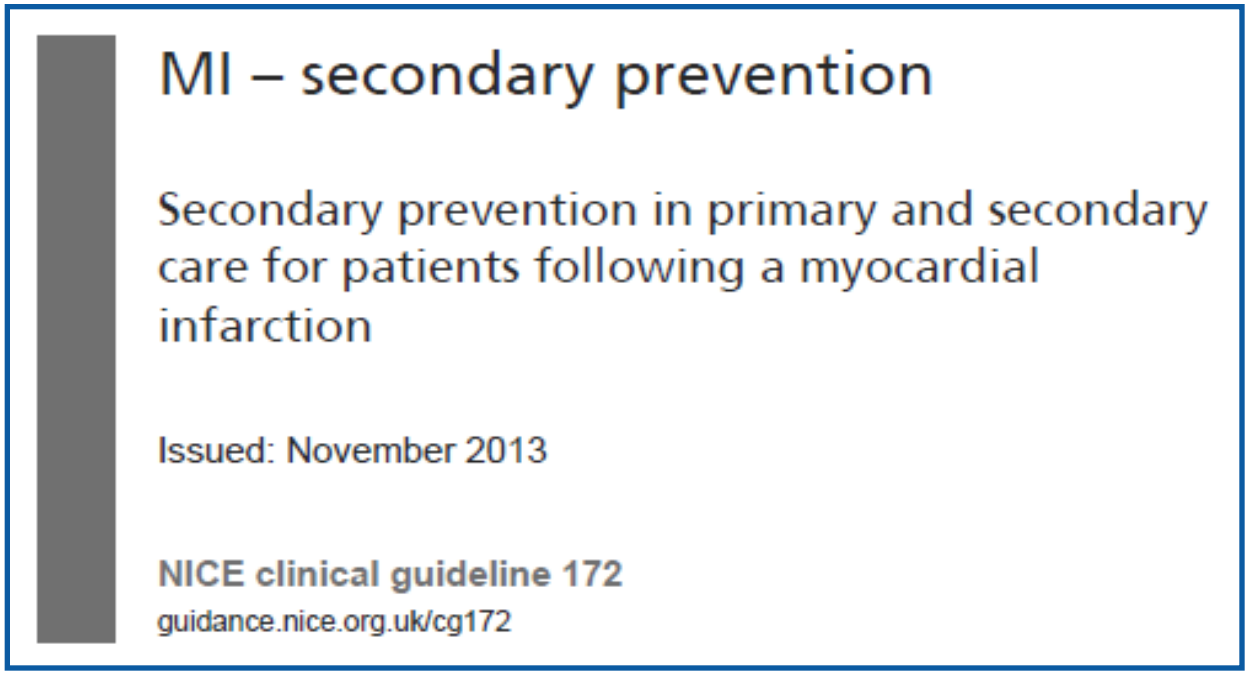
PNE

An effective management of myocardial infarction

Clinical guidelines recommend combined treatment with antiplatelets, beta blockers, agents acting on the renin-angiotensin system and statins for secondary prevention after Myocardial Infarction (MI).



PHARMACOEPIDEMIOLOGY AND DRUG SAFETY 2011; **20**: 169–176
Published online 9 December 2010 in Wiley Online Library (wileyonlinelibrary.com) **DOI**: 10.1002/pds.2079

ORIGINAL REPORT

Definition of patients treated with evidence based drugs in absence of prescribed daily doses: the example of acute myocardial infarction

Valeria Belleudi*, Danilo Fusco, Ursula Kirchmayer, Nera Agabiti, Mirko Di Martino, Silvia Narduzzi, Marina Davoli, Massimo Arcà and Carlo Alberto Perucci

Department of Epidemiology, Lazio Region, Italy

Journal of Clinical Pharmacy and Therapeutics

Journal of Clinical Pharmacy and Therapeutics (2011) doi:10.1111/j.1365-2710.2010.01242.x

ORIGINAL ARTICLE

Socio-demographic differences in adherence to evidence-

PHARMACOEPIDEMIOLOGY AND DRUG SAFETY 2013; **22**: 649–657
Published online 26 March 2013 in Wiley Online Library (wileyonlinelibrary.com) **DOI**: 10.1002/pds.3430

ORIGINAL REPORT

Effect of evidence-based drug therapy on long-term outcomes in patients discharged after myocardial infarction: a nested case–control study in Italy†,‡,§

Ursula Kirchmayer[1]*, Mirko Di Martino[1], Nera Agabiti[1], Lisa Bauleo[1], Danilo Fusco[1], Valeria Belleudi[1], Massimo Arcà[1], Luigi Pinnarelli[1], Carlo Alberto Perucci[2] and Marina Davoli[1]

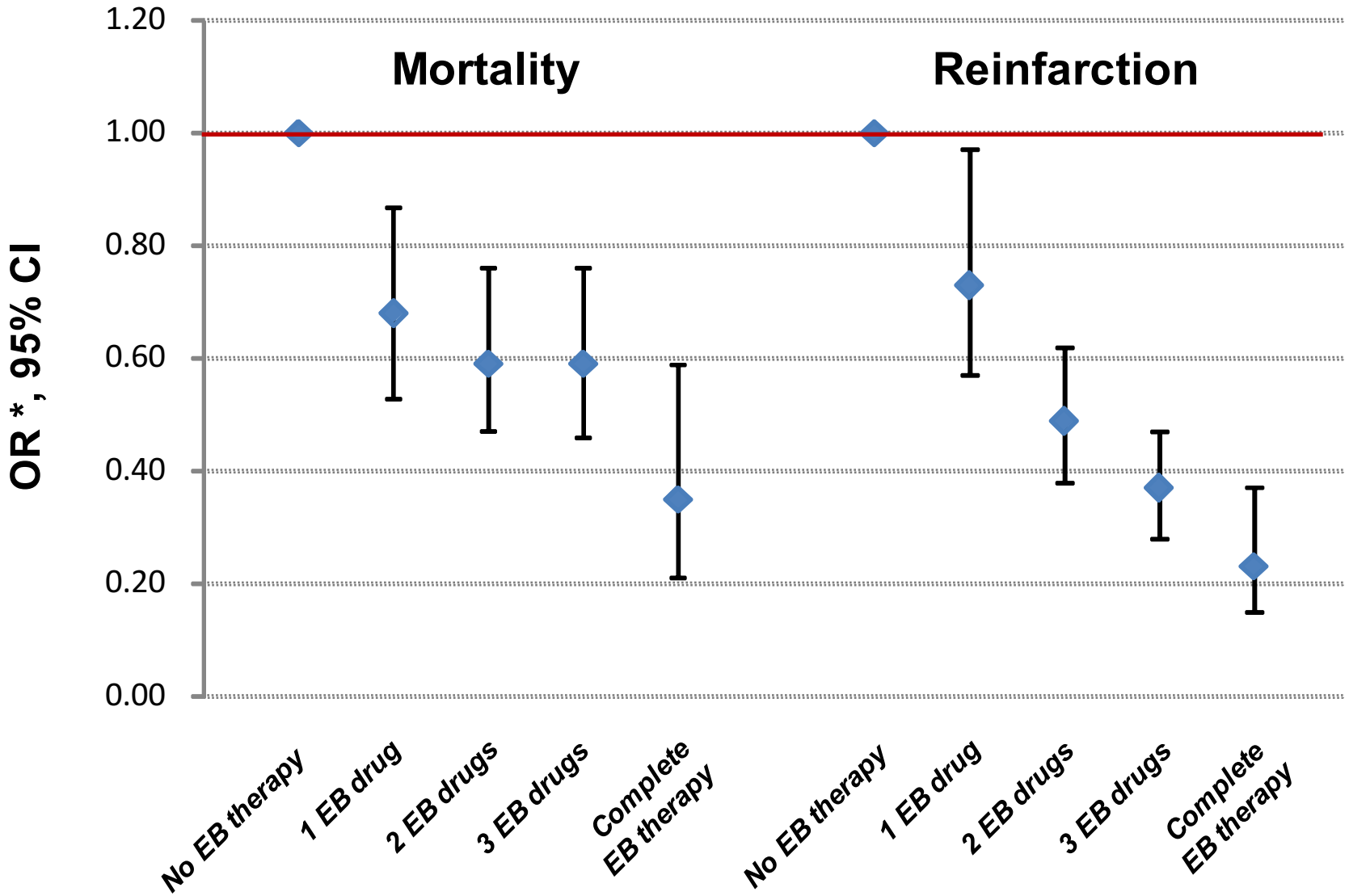
[1]*Department of Epidemiology, Lazio Regional Health Service, Rome, Italy*
[2]*National Agency for Regional Health Services, Rome, Italy*

Effectiveness of polytherapy for patients with previous MI

EB drug therapy	Mortality			Reinfarction		
	OR *	CI 95%	P-value	OR *	CI 95%	P-value
No EB therapy	1.00	-	-	1.00	-	-
1 EB drug	0.68	0.53 - 0.87	0.003	0.73	0.57 - 0.97	0.018
2 EB drugs	0.59	0.47 - 0.76	< 0.001	0.49	0.38 - 0.62	< 0.001
3 EB drugs	0.59	0.46 - 0.76	< 0.001	0.37	0.28 - 0.47	< 0.001
4 EB drugs	0.35	0.21 - 0.59	< 0.001	0.23	0.15 - 0.37	< 0.001

Source: Kirchmayer U, Di Martino M, Agabiti N et al. Pharmacoepidemiol Drug Saf. 2013; 22(6): 649-57.
** Adjusted for patients' socio-demographic and clinical characteristics.*
EB: evidence based. ***Lazio, 2006-2009****.*

Effectiveness of polytherapy for patients with previous MI



- *Adjusted for patients' socio-demographic and clinical characteristics. EB: evidence based.* ***Lazio, 2006-2009.*** *Kirchmayer U et al. Pharmacoepidemiol Drug Saf. 2013; 22(6): 649-57.*

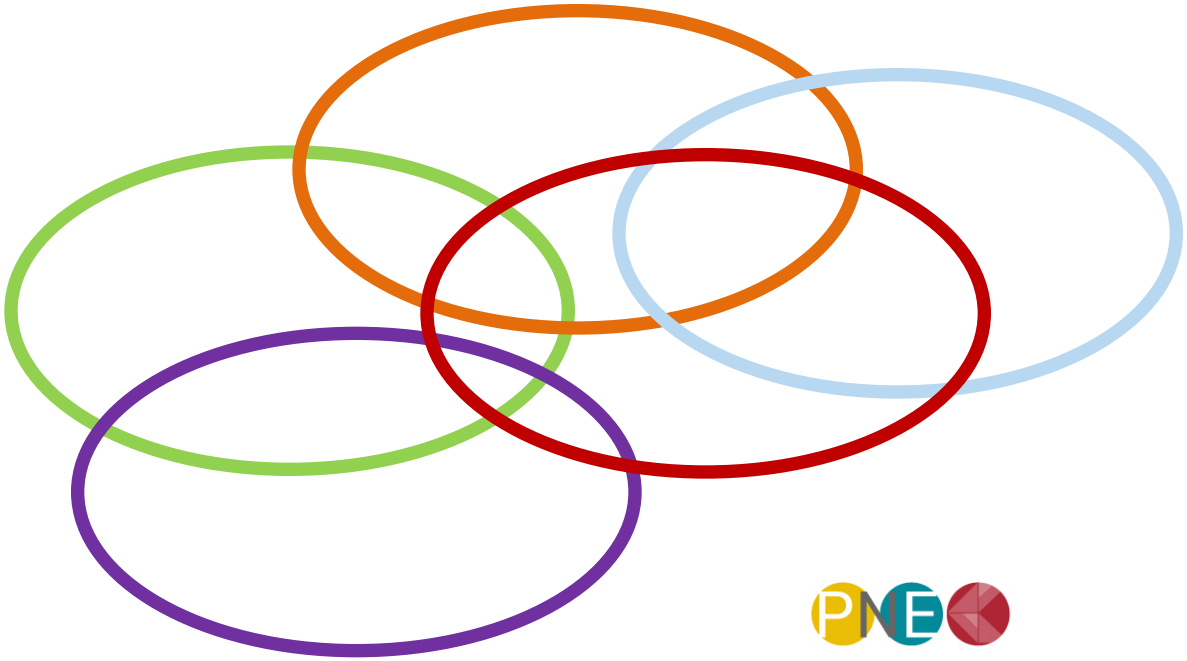
Indicatori territoriali

- Corticosteroidi inalatori in pazienti dimessi per broncopneumopatia cronica ostruttiva
- Broncodilatatori a lunga durata d'azione in pazienti dimessi per broncopneumopatia cronica ostruttiva
- Antibiotici in età pediatrica prescolare
- Antibiotici in età pediatrica
- Cefalosporine in età pediatrica prescolare
- Cefalosporine in età pediatrica
- Farmaci per la prevenzione secondaria dell'infarto miocardico acuto
- Ospedalizzazione per broncopneumopatia cronica ostruttiva (BPCO) in pazienti con BPCO
- Ospedalizzazione per complicanze a breve e lungo termine in pazienti diabetici
- Emoglobina glicata in pazienti diabetici

Integrated use of HIS

- ✓ **HIS** - HOSPITAL
  - *CEDAP (birth / delivery)*
- ✓ **HEIS** - EMERGENCY
- ✓ **OSSIS** – OUTPATIENT (specialistic care)
- ✓ **PHARM** - DRUGS DISPENSATION
- ✓ **EXEMPTIONS**
- ✓ **MIS** – MORTALITY
- ✓ .....

All information systems use a personal code that allows a subject to be identified in different registries



The geographic variation: proportions of adherence to polytherapy by area of

From the current scientific evidence it is not possible to quantify how much of the "distance from clinical guidelines" is attributable to the patient behavior, to the therapeutic approach recommended at hospital discharge or to the primary care providers

Study population: cohort of patients discharged from the hospital with an incident diagnosis of MI between 2007-2010.

Follow-up. Patients were followed-up for two years, starting from the day of discharge.

Adherence to medication. Adherence to chronic polytherapy was defined as a medication possession ratio ≥ 0.75 for at least three of the four evidence-based drugs, according to the defined daily doses.

Methods: the variance components

Analysis of variation. Cross-classified multilevel models were performed to analyze geographic variation, by measuring and comparing the proportions of variability attributable to hospitals of discharge and primary care providers.

The Median Odds Ratio. The variance components were expressed in terms of Median Odds Ratios (MORs). The MOR quantifies the variation between clusters.

This measure is always greater than or equal to 1. If the MOR is 1, there is no variation between clusters. If there is considerable between-cluster variation, the MOR will be large.

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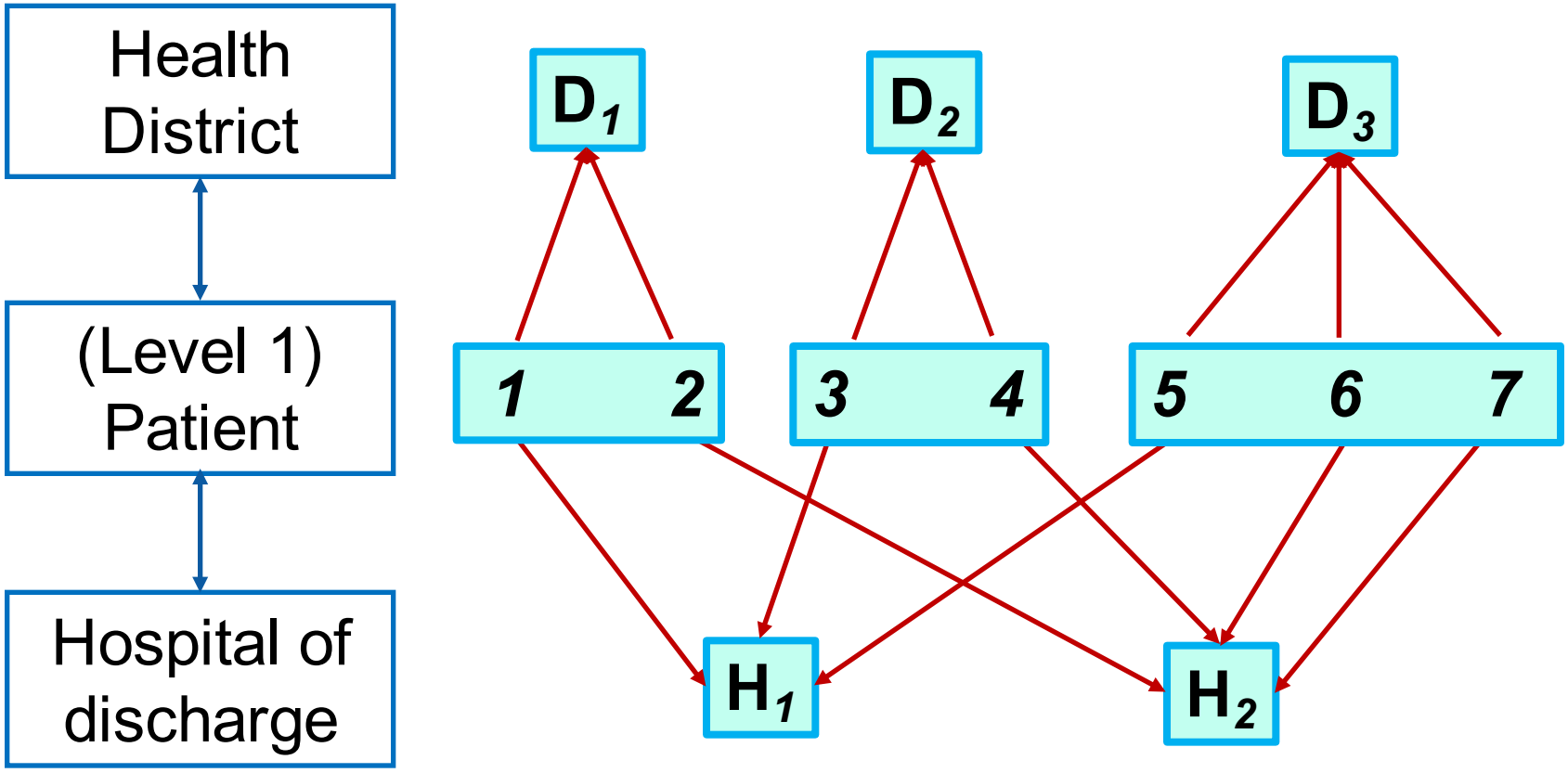
Methods: the cross-classified structure



Results: the hierarchical system and the study population

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The "hierarchical" system. The hierarchical healthcare system was composed as follows: 9606 patients, 2156 general practitioners, 55 health districts, 12 local health units, and 93 cross-classified hospitals of discharge.

About 68% of patients were male, the mean age was 67 ± 13 years. More than 55% of patients had at least one concomitant disease. Hypertension (21%), arrhythmia (16%), vascular diseases (14%), and heart failure (10%) were the most common comorbidities.

About 63% of MI patients were adherent to chronic polytherapy.

Determinants of adherence to chronic polytherapy

Determinants	Reference	Odds Ratio	P-value
Gender of patient	(male)	0.81	<0.001
Age group (years)	(35-54)	55-69 1.15 70-84 0.99 85+ 0.42	0.031 0.904 <0.001
Discharge ward: cardiology	(other)	1.56	<0.001
Length of stay	(≤ 7 days)	1.11	0.043
PCI	(assenza)	2.60	<0.001
EB drug use 12 months before admission (≥ 2 prescriptions)			
Beta blockers	(absence)	1.63	<0.001
ACE-inhibitors / Sartans	(absence)	1.87	<0.001
Statins	(absence)	1.30	<0.001
Antiplatelet	(absence)	1.03	0.702

PCI: percutaneous coronary intervention. EB: evidence based.

Determinants of adherence to chronic polytherapy

Determinants	Reference	Odds Ratio		P-value
Malignant neoplasms	(absence)	0.85		0.062
Disorders of lipoid metabolism / obesity	(absence)	0.91		0.352
Hematologic diseases	(absence)	0.69		0.001
Heart failure	(absence)	0.89		0.115
Other cardiac diseases	(absence)	0.85		0.050
Cardiac dysrhythmias	(absence)	0.71		<0.001
Cerebrovascular disease	(absence)	0.87		0.102
Diseases of arteries and arterioles	(absence)	0.88		0.090
Chronic obstructive pulmonary disease	(absence)	0.71		0.001
Chronic nephropathies	(absence)	0.83		0.074
Gastroesophageal hemorrhage	(absence)	0.54		0.011
General practitioner characteristics				
Gender	(male)	1.01		0.923
Age group (years)	(34-49)	50-54	0.99	0.853
		55-59	0.85	0.026
		60+	0.86	0.074
Organizational arrangement	(none)	association	1.05	0.485
		network	1.13	0.095
		group practice	1.14	0.042

The cross-classified variance components

Primary care providers effect

When analyzing variation among primary care providers, after controlling for patients' and general practitioners' characteristics, *a relevant variation between health districts* was detected (MOR=1.24, p<0.001).

The variability among general practitioners belonging to the same health district was instead not statistically significant (MOR=1.06, p=0.458).

Hospital of discharge effect

When introducing the hospital of discharge as a cross-classified level, the variation between health districts decreased (MOR=1.13, p=0.020), whereas the variability among hospitals was higher (MOR=1.37) and statistically significant (p<0.001).

Study limitation

- Our pharmaceutical database does not contain information on the prescribed daily doses, therefore the adherence to polytherapy was estimated on the basis of the defined daily dose. Although this is a useful instrument for comparing results from different studies, misclassification of adherence may have occurred.

- However, *the defined daily doses were reviewed by a panel of cardiologists*, in order to make them more suitable for the drug regimens commonly used for secondary prevention of MI.

Health policy and evaluation perspective

- Poor adherence to chronic polytherapy after MI and high geographic variation.

- The *reduction of the variability among health districts after entering the hospital level* shows that the differences we observe in primary care may reflect the clinical and organizational approach of the hospital of discharge, whose aims are both the correct setting of drug therapy, and the planning of the subsequent visits for patient monitoring.

- We believe that this methodology may help to identify the priority lines of action to improve adherence and define areas for more targeted health-care interventions.

- Long term outcome evaluation should be evaluated also at the provider level

Curr Cardiol Rep (2013) 15:322
DOI 10.1007/s11886-012-0322-6

NEW THERAPIES FOR CARDIOVASCULAR DISEASE (K MAHAFFEY, SECTION EDITOR)

Impediments to Adherence to Post Myocardial Infarction Medications

Nihar R. Desai · Niteesh K. Choudhry

Abstract Non-adherence to evidence-based medicatio
a major public health problem. Less than 50 % of pati
with coronary artery disease adhere to their prescribed t
apies and this has important implications for morbi
mortality, and health care spending. Like most com
behaviors, medication non-adherence is not solely the re
of poor patient choices. Rather, there are myriad pote
contributors attributable to patients, health care provi
and, more broadly, the health care system. Intervent
including patient education and behavioral modificat
improving patient-physician communication, and elimina
copayments for preventive pharmacotherapy have all
studied. Clinicians play a critical role in helping imp
adherence and assessment of adherence must become a stan- dence of beta-blockers statins

Ultimately, given the various etiologies that contribute to non-adherence, achieving meaningful gains will undoubtedly require payors, providers, and policymakers to develop, rigorously evaluate, and systematically deploy strategies that address key patient, clinician, and health system factors.

agena.s. AGENZIA NAZIONALE PER I SERVIZI SANITARI REGIONALI

PNE

National Health Service (NHS) universal coverage

-By c
-By r
-By l *s*

the sanitary card

According to a National Law (2012!) all health information systems should be integrated at national level to evaluate health care access and outcome….»provisionally» approved by the privacy authority in june 2015

The possible “plans of action” for health policies

- To improve the organizational processes within the hospital, in order to discharge MI patients from specialist wards and plan the subsequent visits for patient monitoring.
- To organize training sessions for general practitioners, focusing on the most recent clinical guidelines.
- To promote education on doctor-patient relationships, underlining the effectiveness of systematic motivational support.
- To stimulate association for primary care physicians, in order to improve the continuity of care.

Multi-regional controlled before after study

- To analyse adherence to EB treatment across different regions
- To evaluate the effectiveness of prescribing upskilling sessions for primary care physicians
- To evaluate the effectiveness of motivational interventions

Ministry of health young research grant: Di Martino Mirko