Performance Evaluation System in the Italian Regional Health Collaborative Network: What is the impact on the quality of care delivered?

Berlin 6th june 2019

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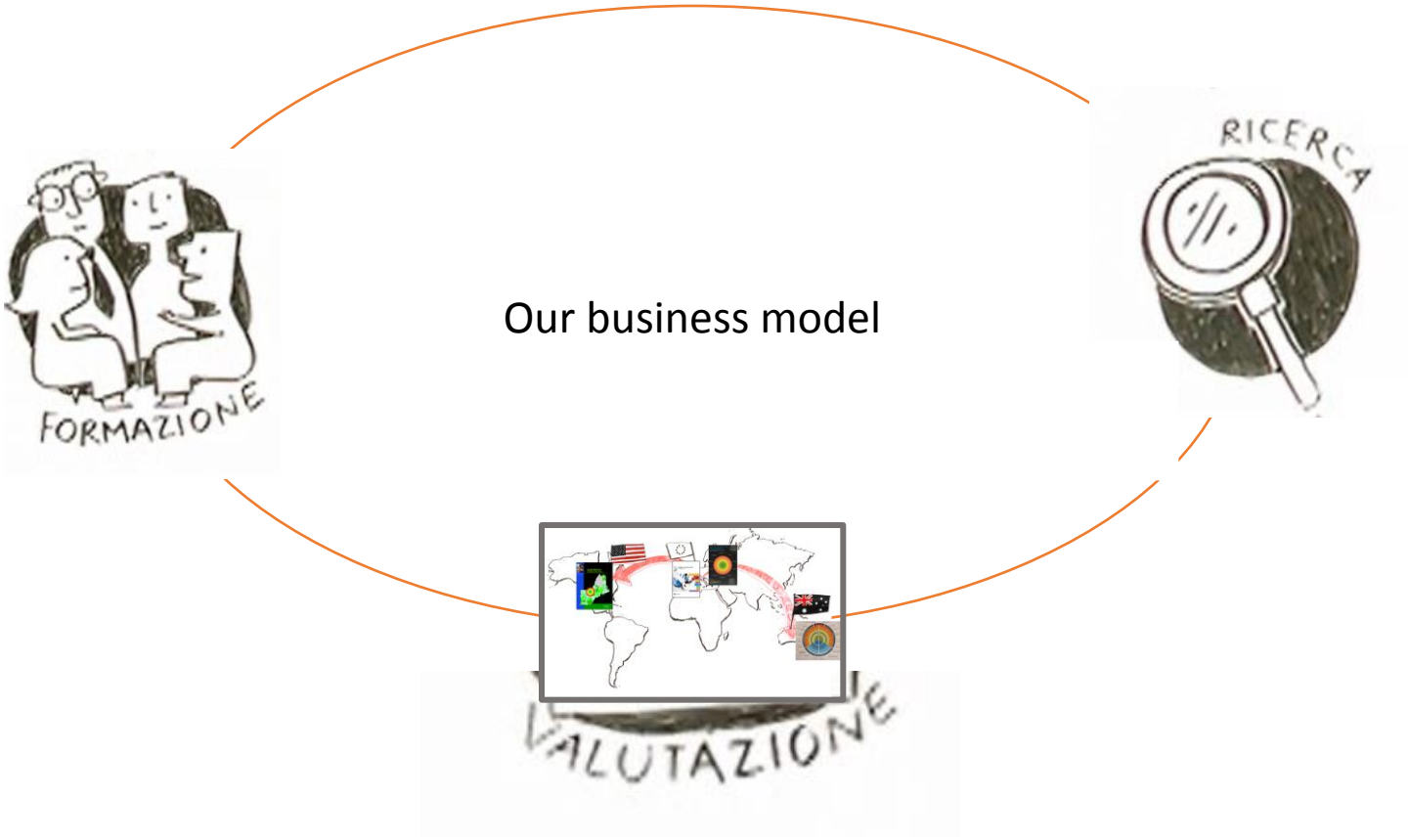
MeS Lab – Management e Sanità

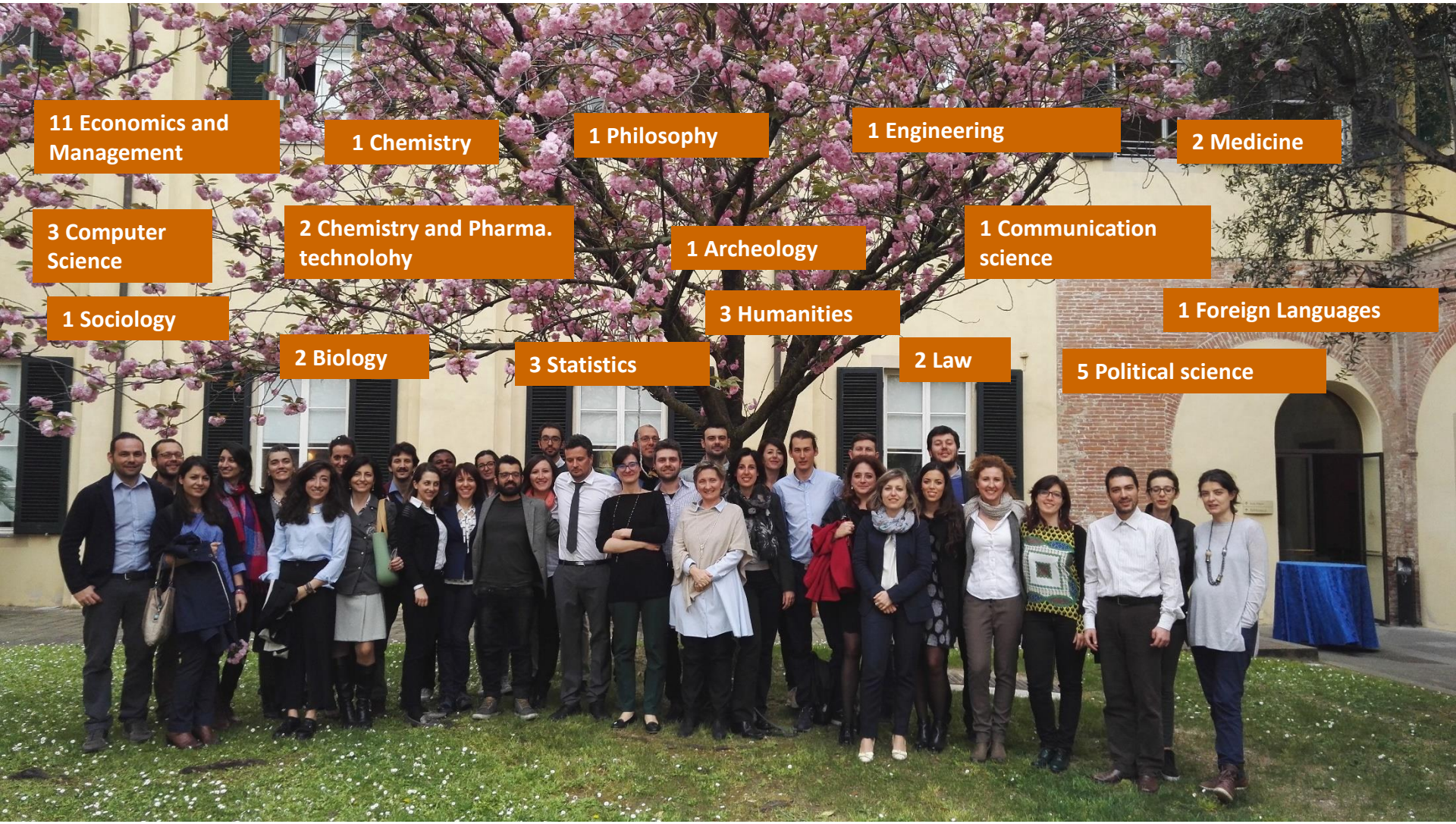
Health and management lab born in December 2004. Actually it is the third area of the Institute of Management at Sant'Anna School for Advanced Study of Pisa

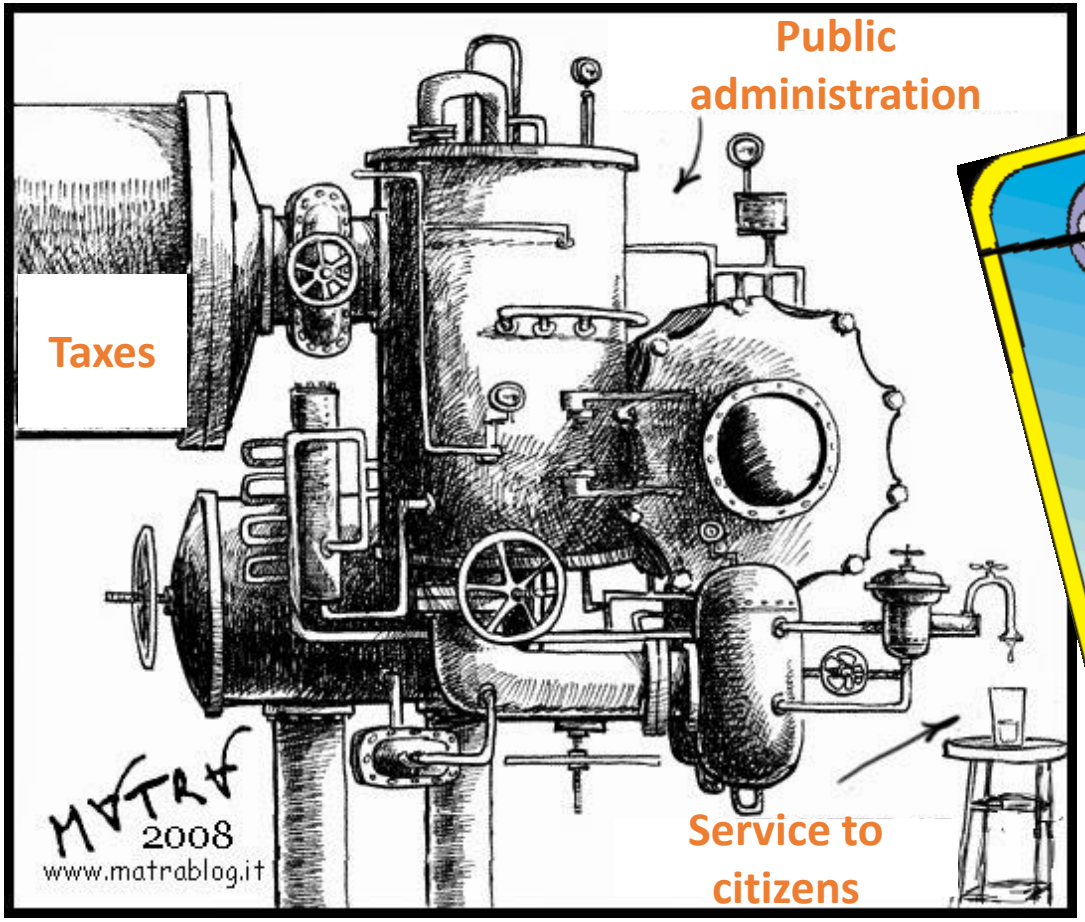


Our business model

Laboratorio Management e Sanità

Istituto di Management, Scuola Superiore Sant'Anna di Pisa





MANAGERIAL SECTOR TOOLS

The Italian healthcare system

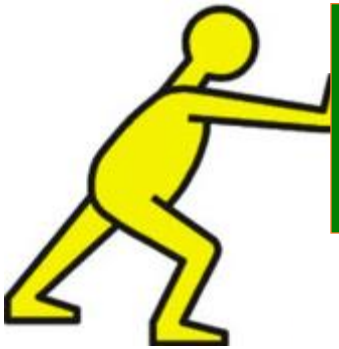
It's a *Beveridge-like model*: Universal, Comprehensive (almost), Free, Financed by general taxation.

It is organized in three levels:

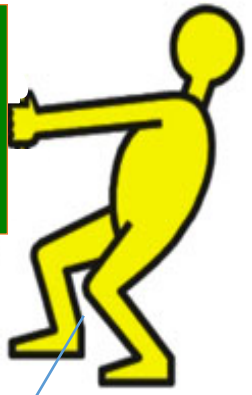
- The national level is responsible for national health planning, including general aims and annual financial resources and for ensuring a uniform level of services, care and assistance (LEA).
- The regional level has the responsibility for planning, organizing and managing its health care system through LHA's activities in order to meet the needs of their population.
- The local level (Local Health Authorities): provides care through public and/or private hospitals, primary care and prevention services.

The **national level** duty is granting that essentials levels of care are uniformly guarateed across the country.

It should therefore monitor that each Region reaches minimum thresholds in terms of quality and appropriateness.

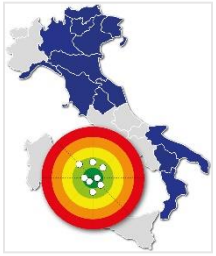


Performance



The **regional level** is responsible for organizing healthcare provision in order to maximize value for money.

Performance evaluation is therefore aimed at detecting best practices, in order to spread the most effective organizational solutions, trought target setting, public disclosure, reward system, **working on employees motivation and comunication** to assure system improvement



Improving performance at the Italian national level: "the push strategy"

- National Healthcare Monitoring System (Nuovo Sistema di Garanzia PDTA by MoH)

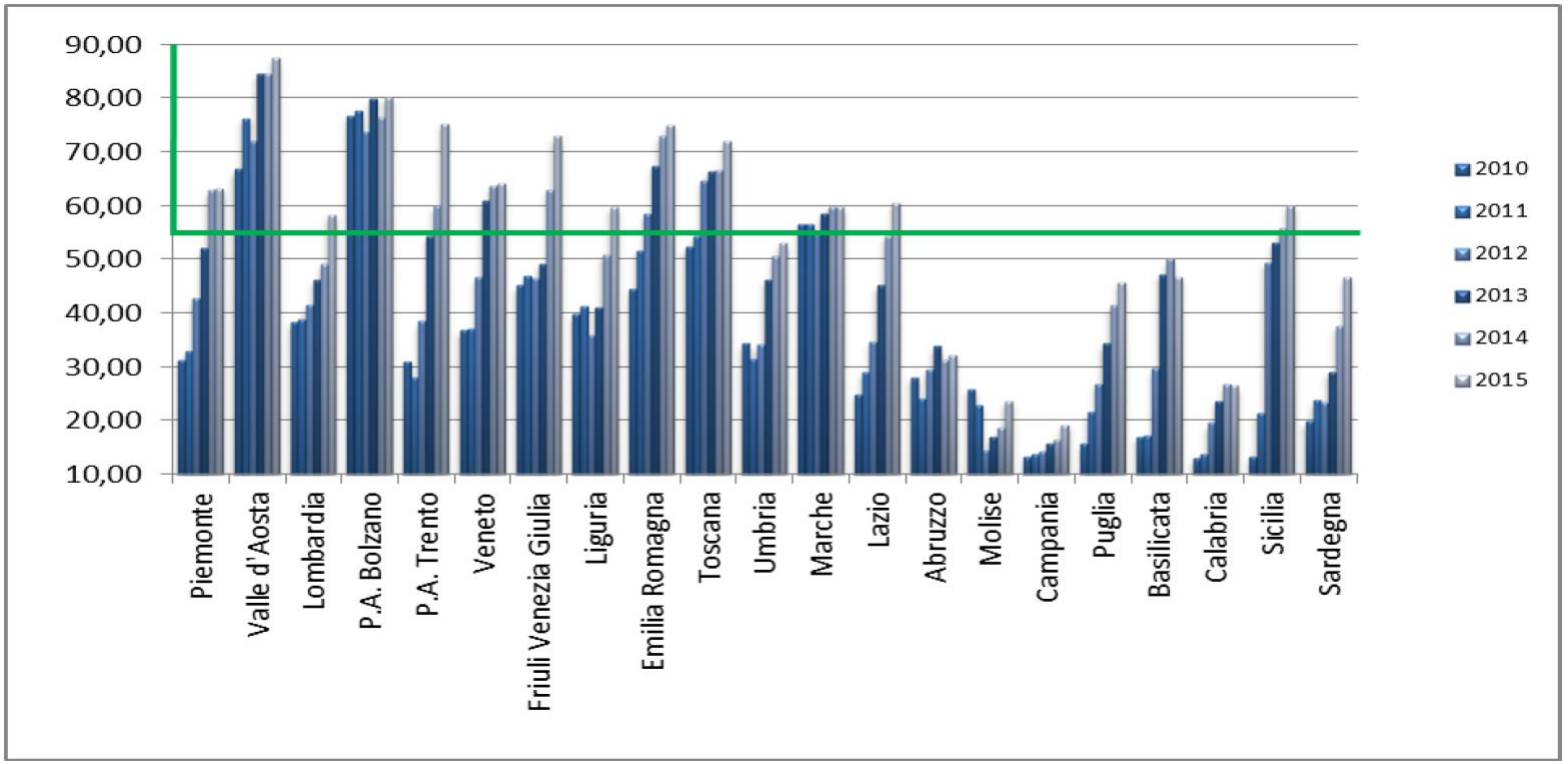
  →STANDARDS FOR ESSENTIAL LEVELS OF CARE (30 national indicators) set a minimum level 55%

  80% gold standard for femur fracture operated within 48 hours,

- National Program Outcomes (Piano Nazionale Esiti promoted by AGENAS http://pne2017.agenas.it/)

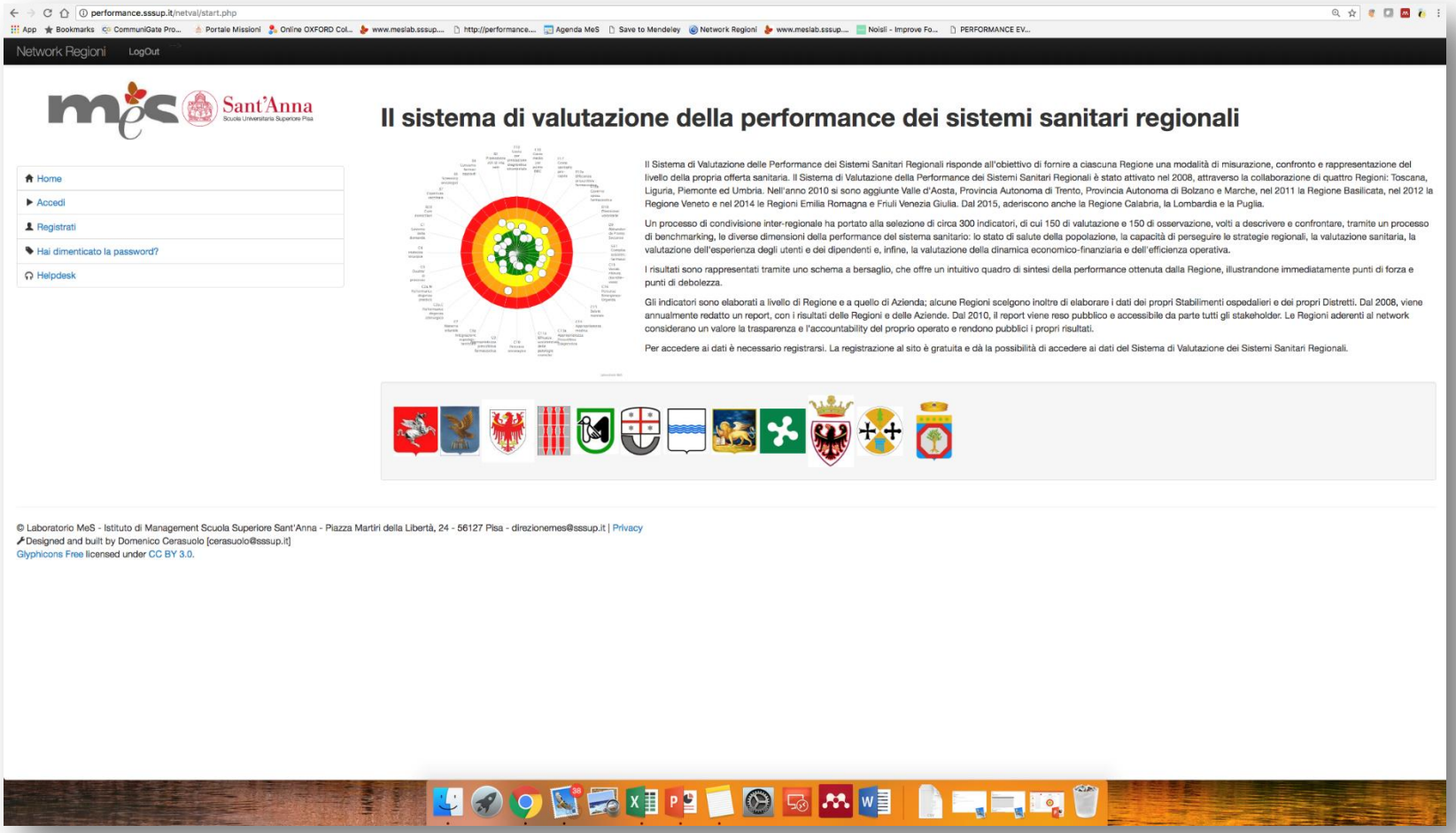
  → OUTCOME MEASURES FOR SINGLE PROCEDURES

“the push strategy” - % femure fracture operated within 2 days for elderly



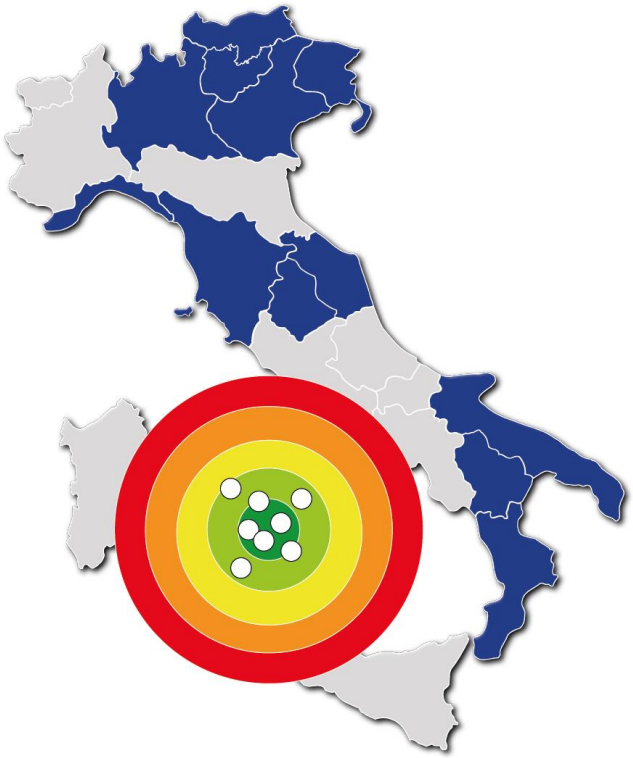
Since the use of the indicator into the ELC grid more and more regions improved their performance

The pull strategy: Inter Regional Performance Evaluation System (IRPES)



http://performance.sssup.it/netval

The multidimensional reporting system shared by the network of the Italian regions



1. Measuring and benchmarking performance among Regions and Health Authorities…

on a voluntary basis …

2. With data public disclosure…

with a Public University guaranteeing the benchmarking process…

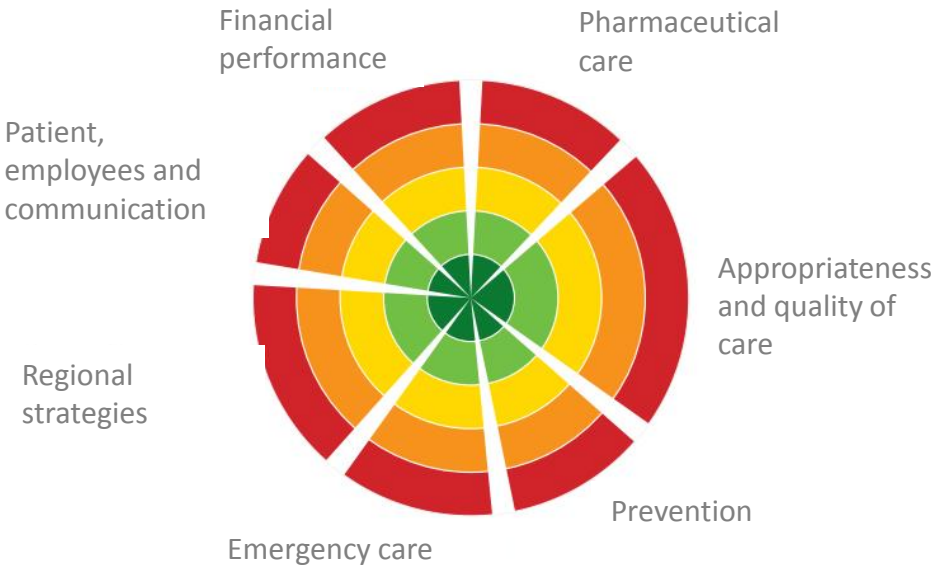
3. Engaging health professionals in a peer process…

Sharing the evolution from measuring to assessing

PUTTING REPUTATION AT WORK

The multidimensional reporting system shared by the network of the Italian regions

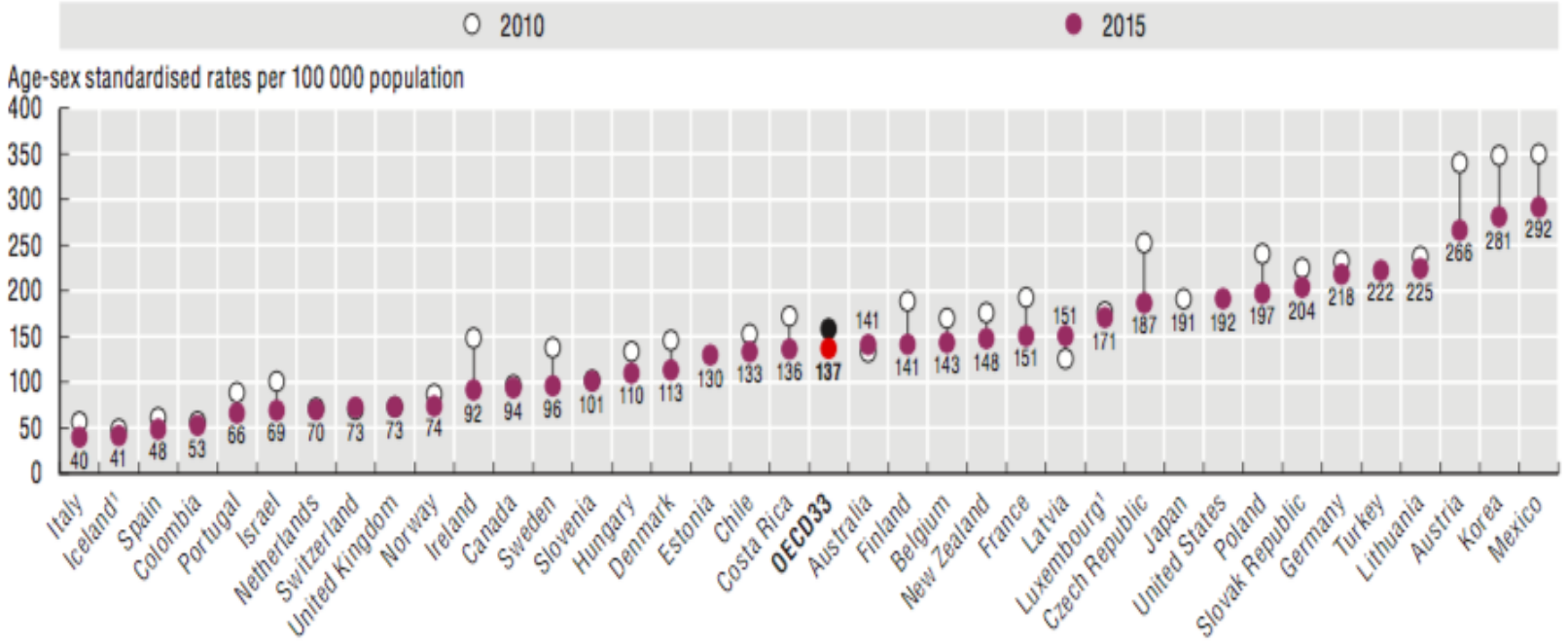
In order to describe the performance evaluation system, **seven** areas have been identified to highlight the core results of the regional healthcare system. About **300** indicators, **+100** indicators are assessed.



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

Quality indicators on primary care

6.11. Diabetes hospital admission in adults, 2010 and 2015 (or nearest year)

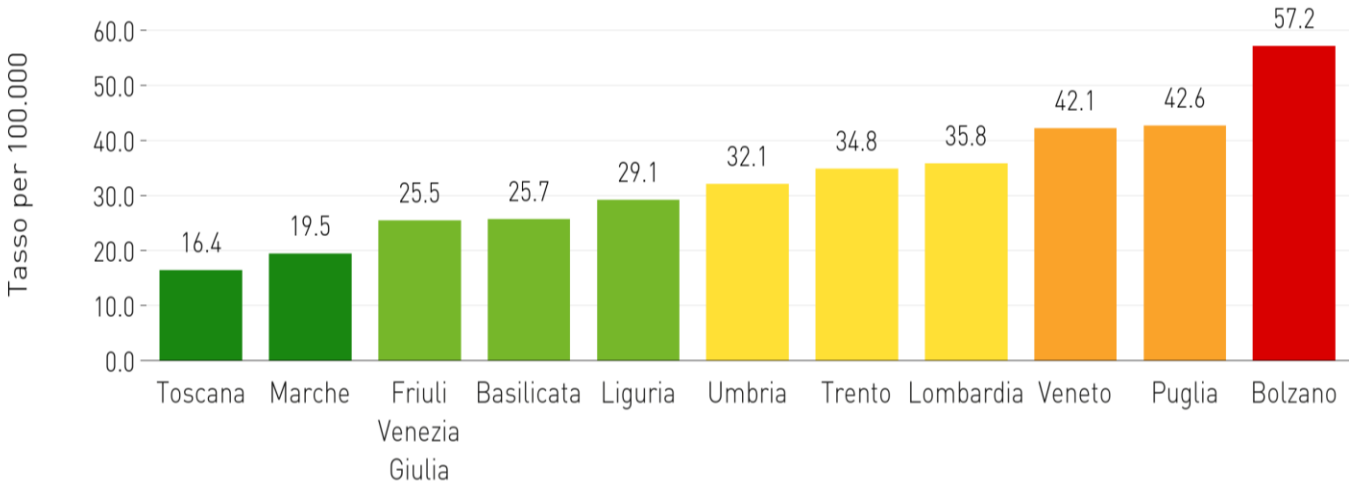


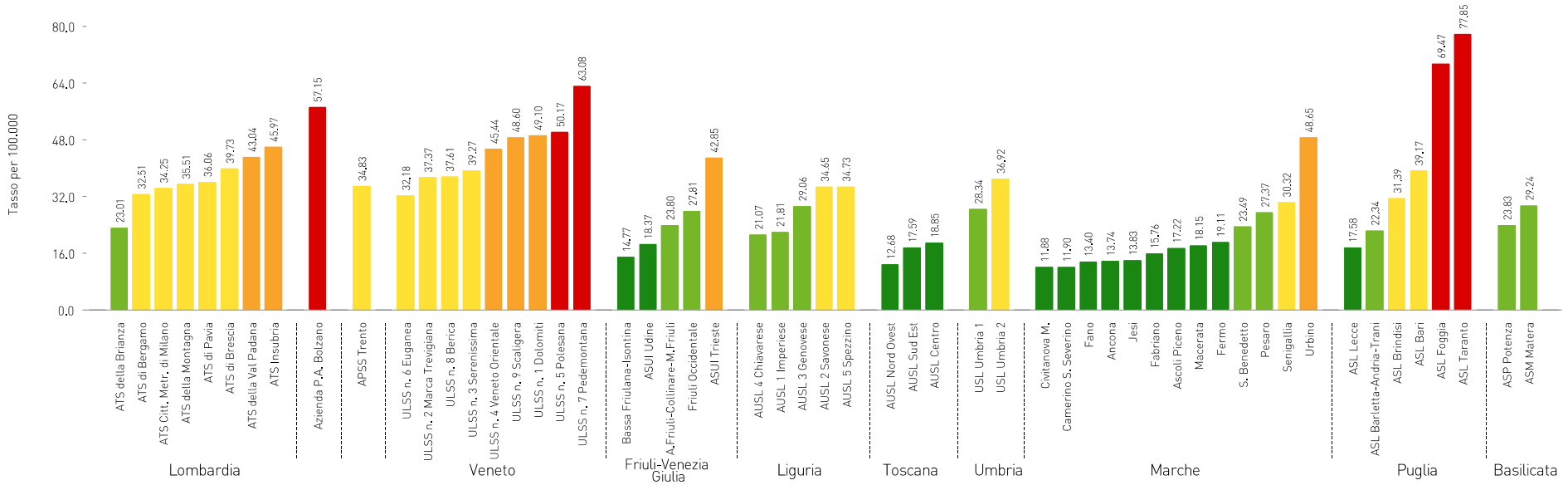
1. Three-year average.

Source: OECD Health Statistics 2017.

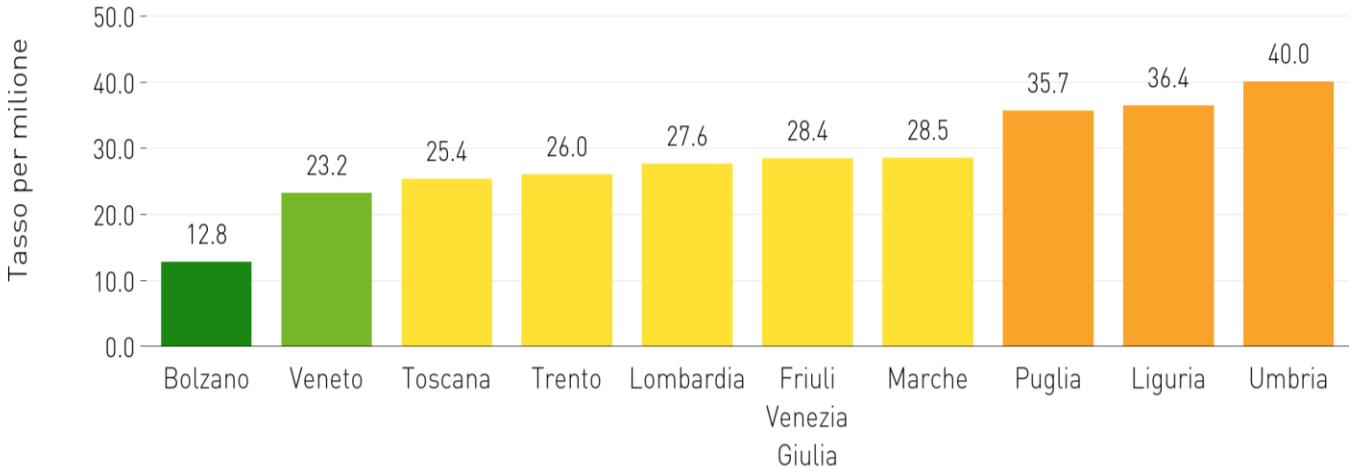
StatLink http://dx.doi.org/10.1787/888933603545

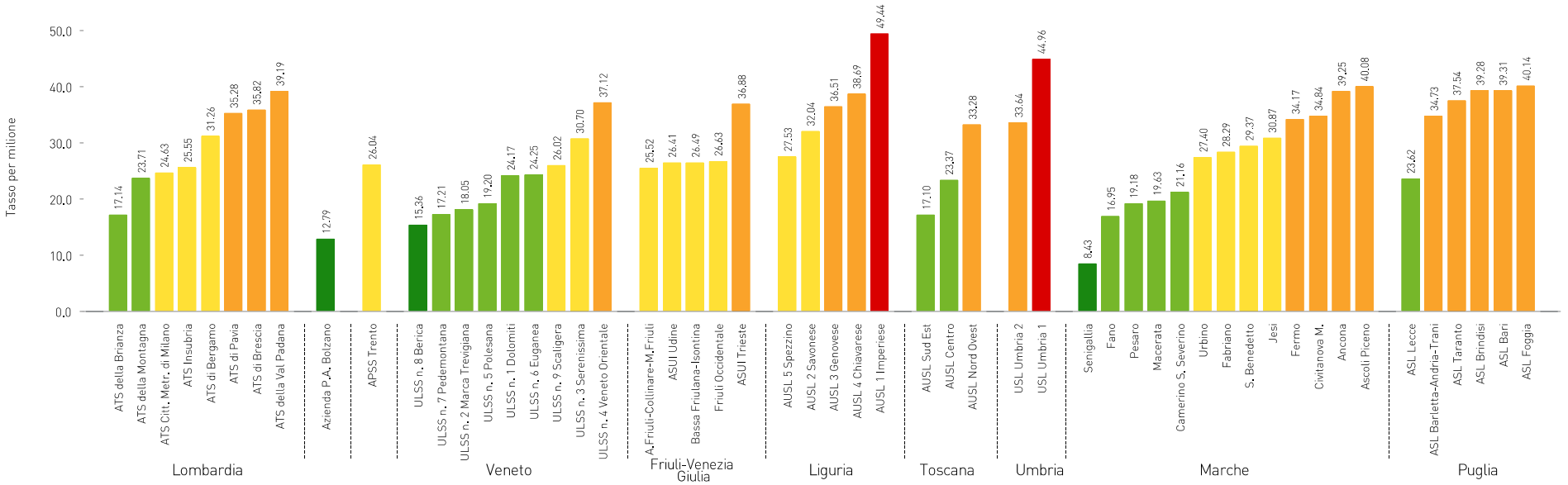
Diabetes hospitalization rate (35-74 years) 2017



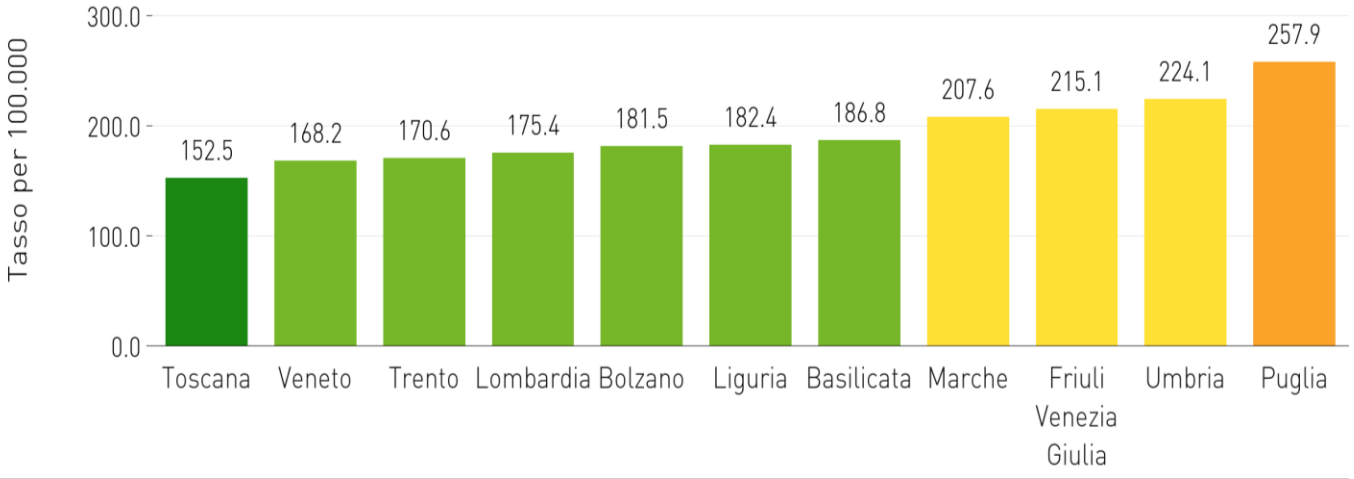


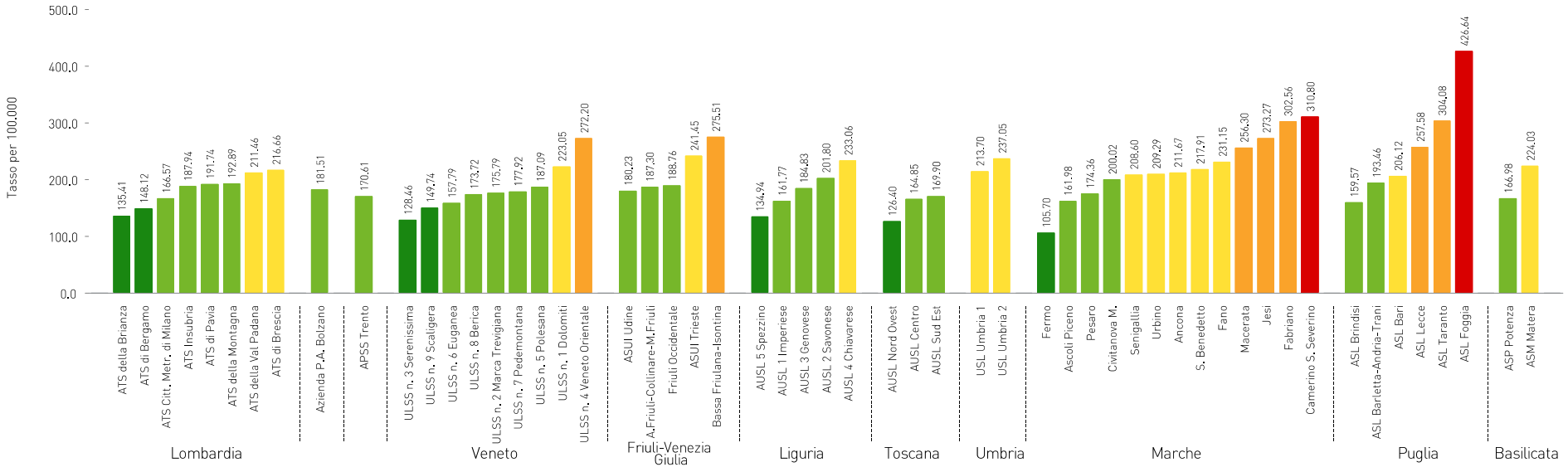
Major amputation rate for diabetes, 2017



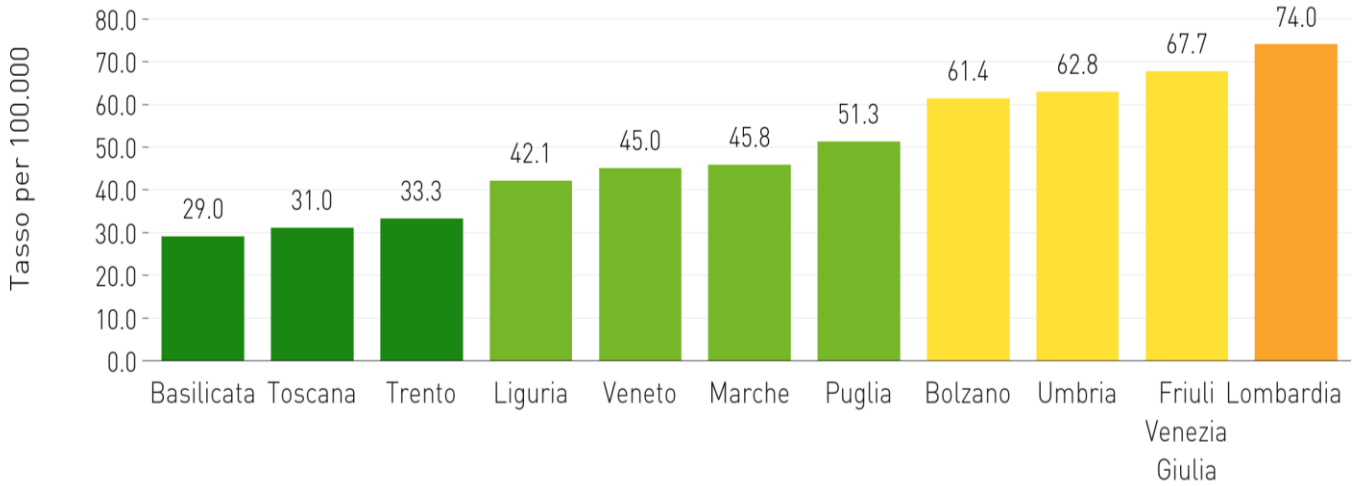


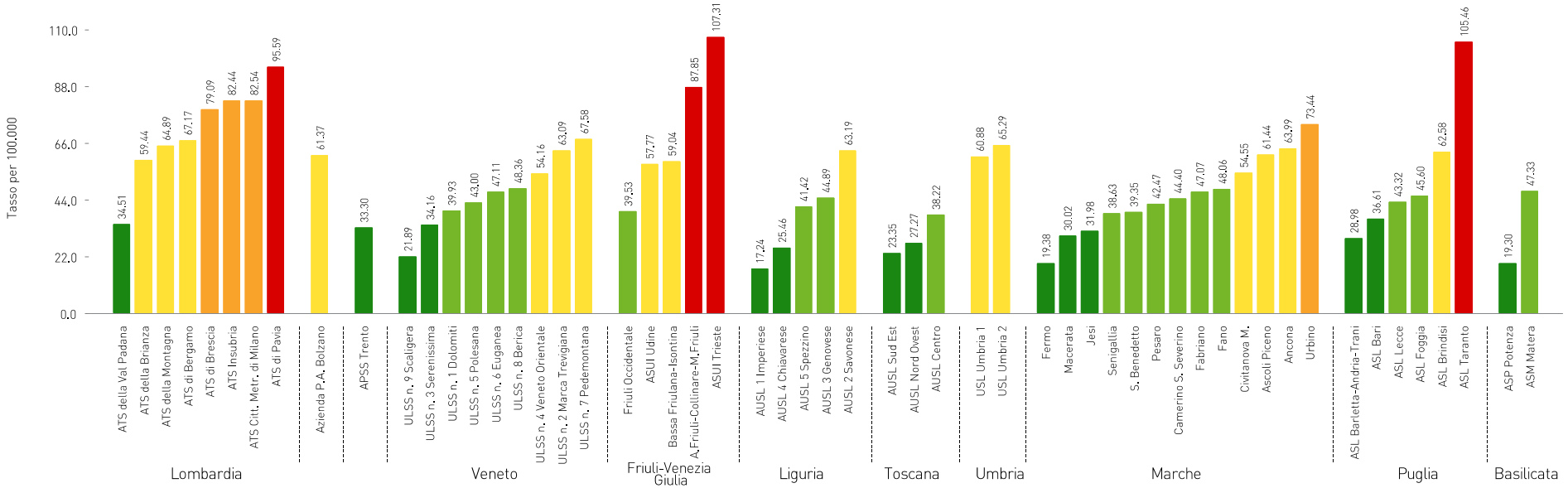
Chronic Heart Failure hospitalization rate (50-74 years) 2017



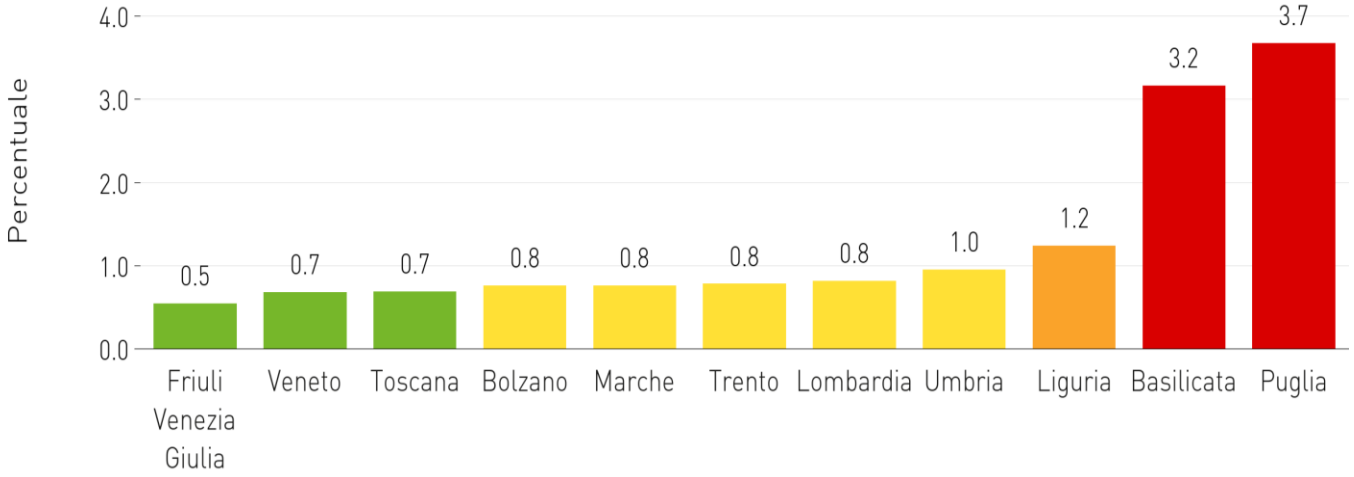


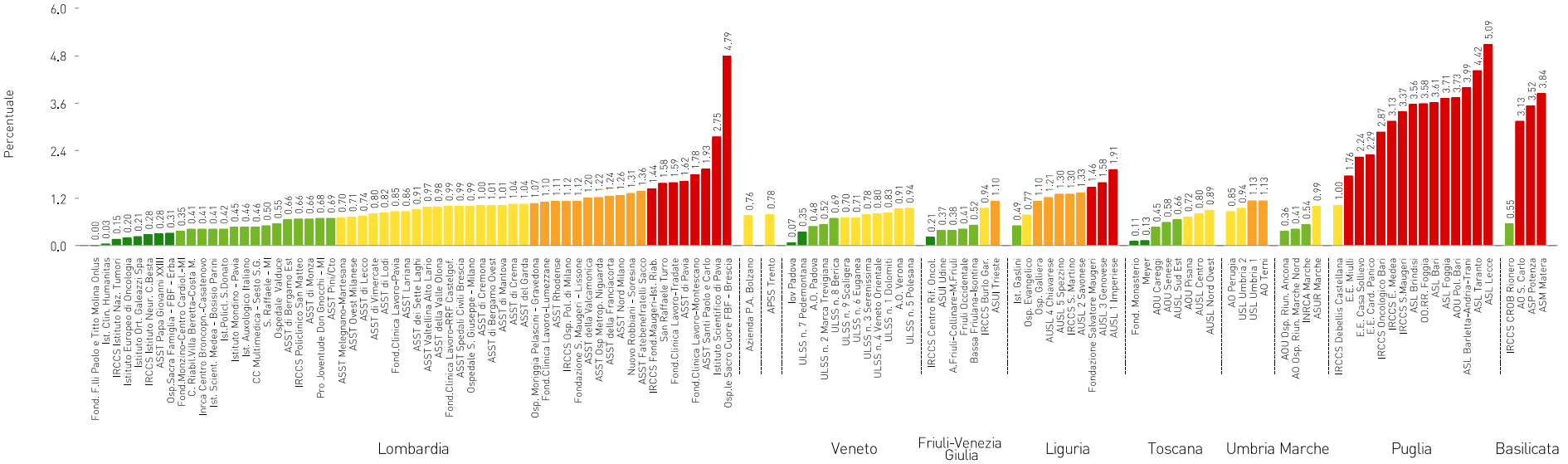
COPD hospitalization rate (50-74 years), 2017





Percentage of patients leaving hospital against medical advice (PLHAMA), 2017





The visualization tools

Valutazione dello stato di salute della popolazione (anni 2013-2015)

A1 Mortalita' infantile

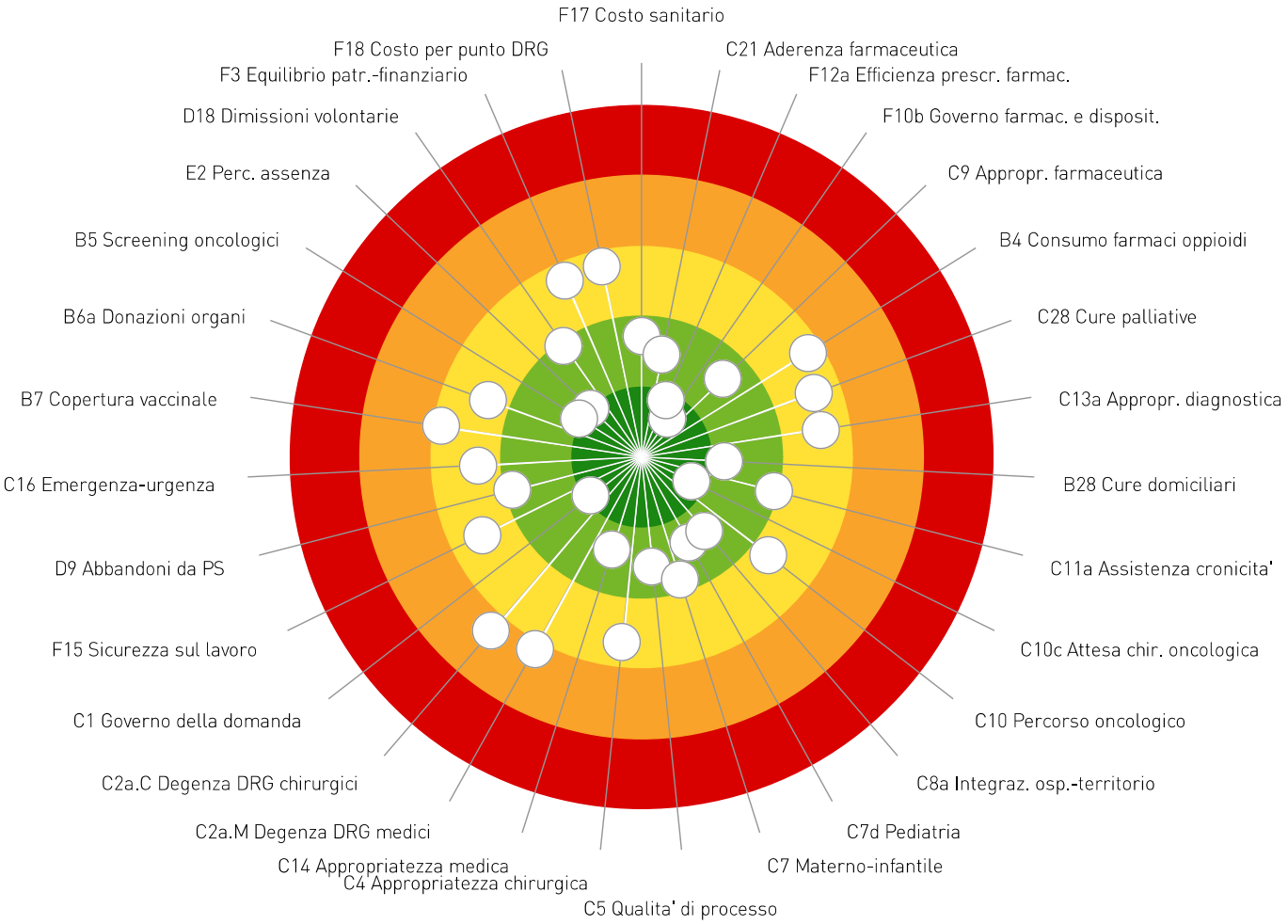
A2 Mortalita' per tumori

A3 Mortalita' per malattie circolatorie

A4 Mortalita' per suicidi

A10 Stili di vita (PASSI)

Bersaglio 2017
Veneto



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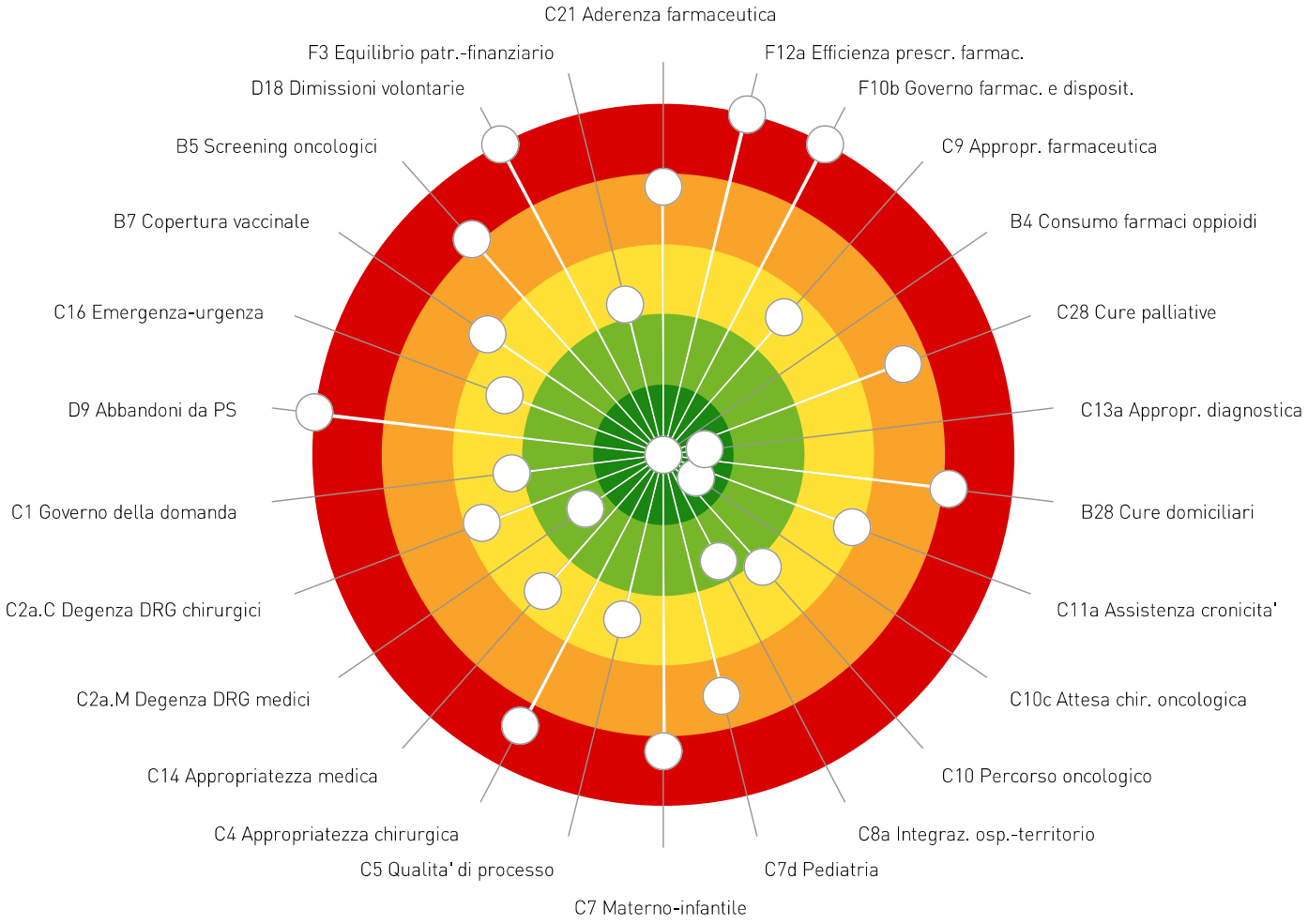
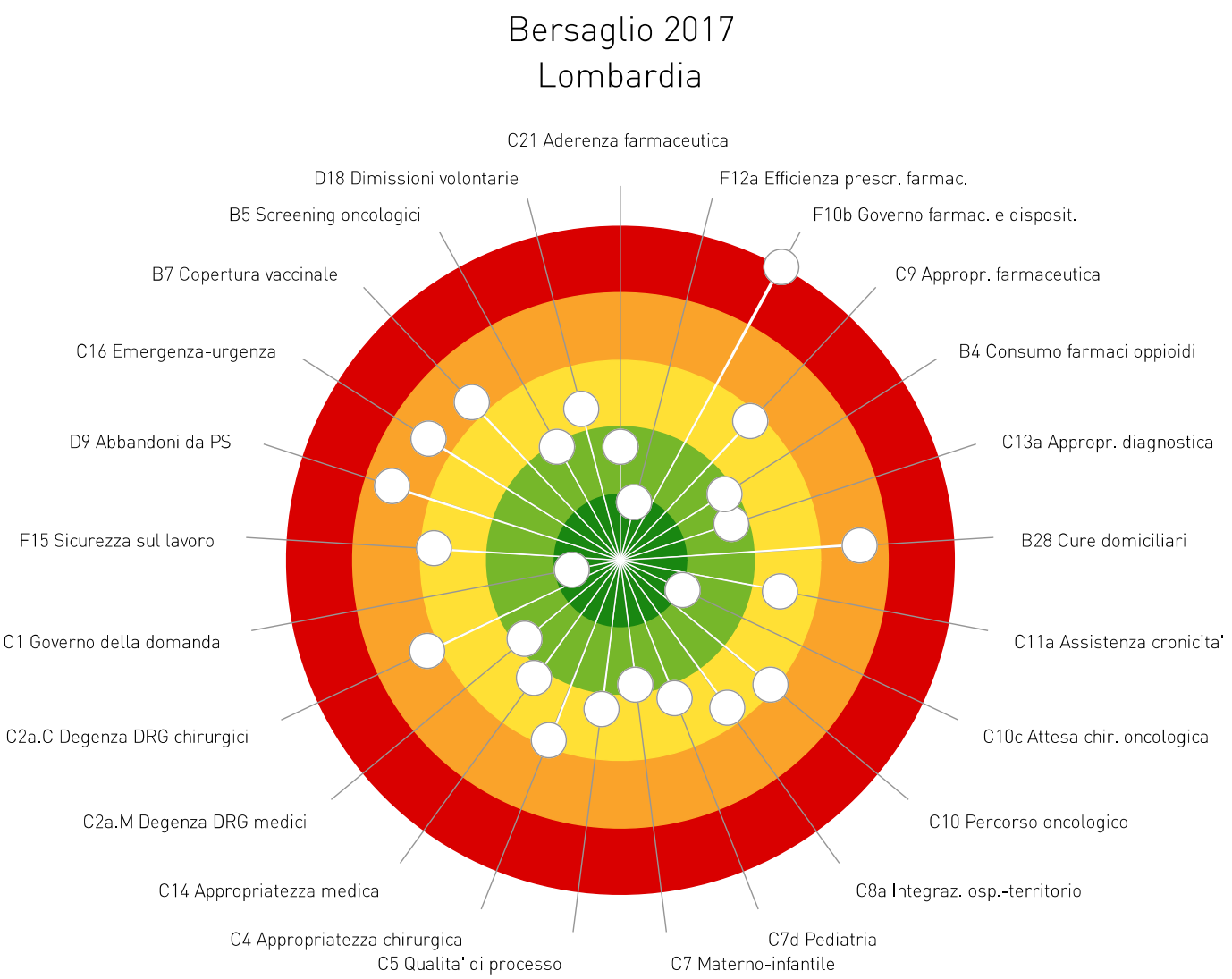
Bersaglio 2017
Puglia



Valutazione dello stato di salute della popolazione (anni 2013-2015)

A1
Mortalita' infantile



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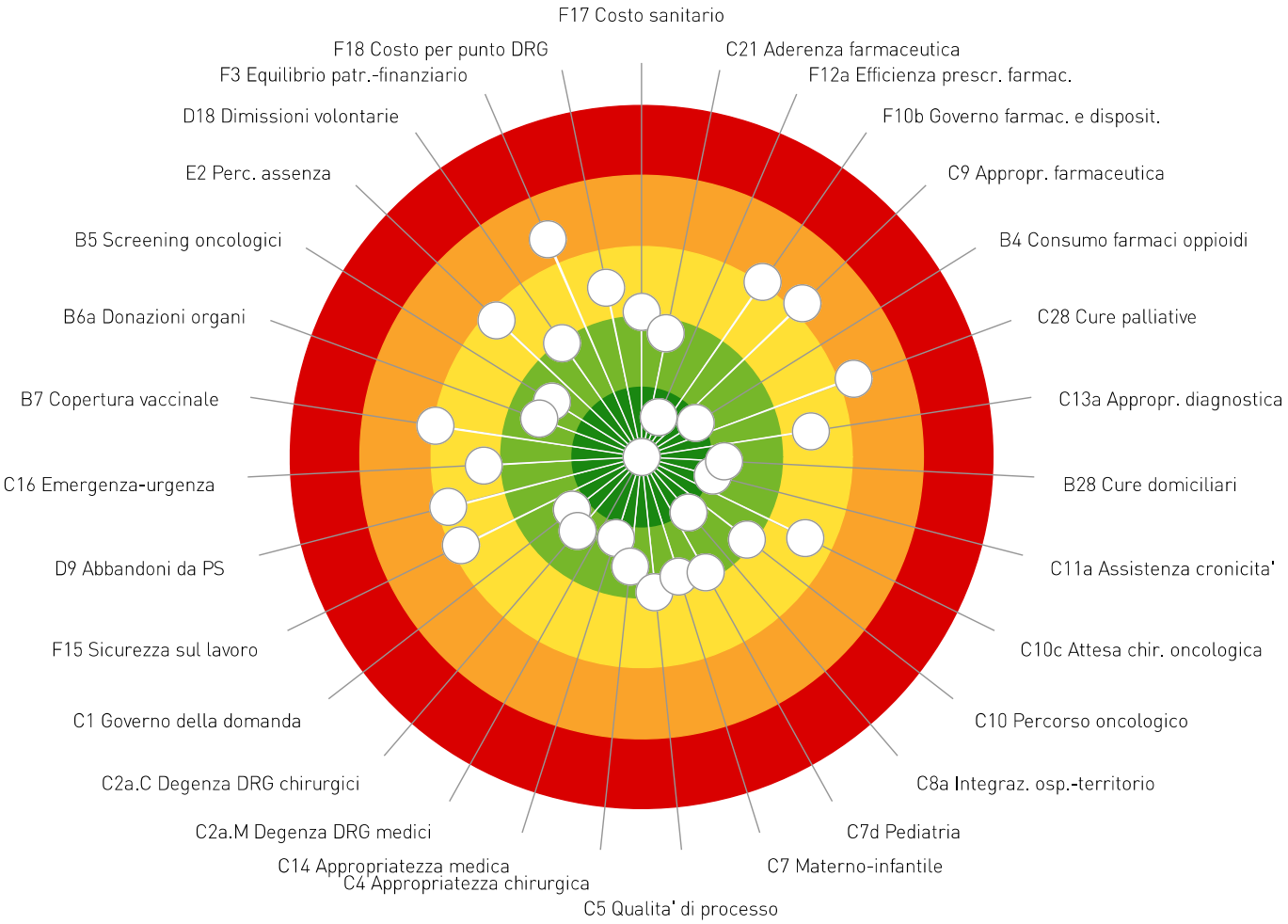
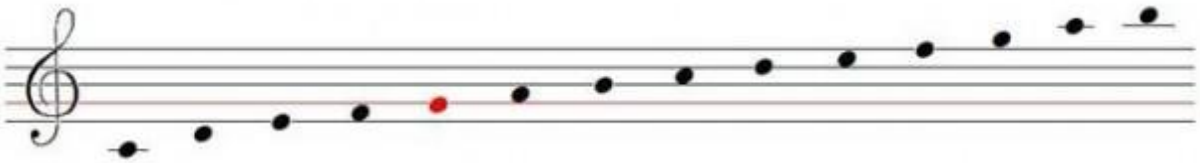
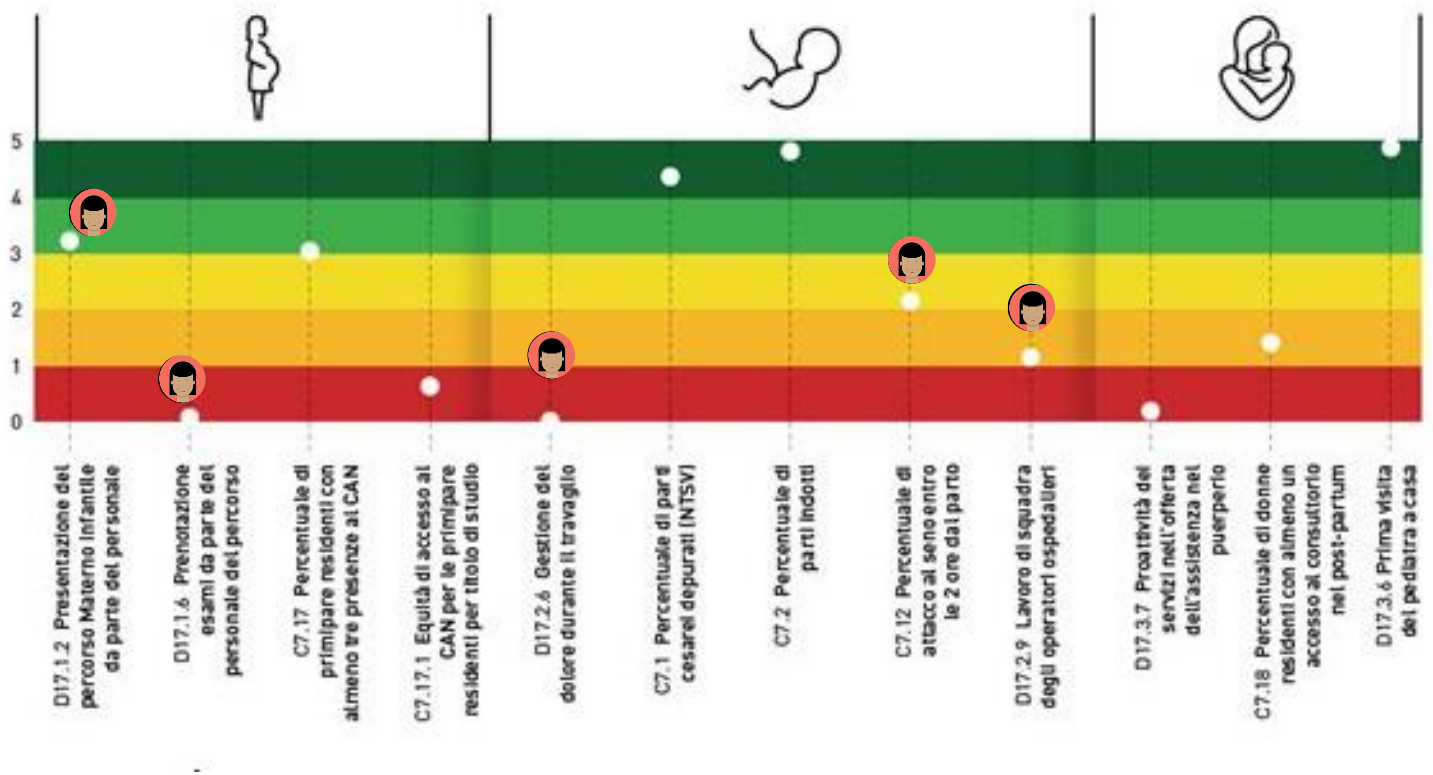


An integrated perspective playing the patient's music….

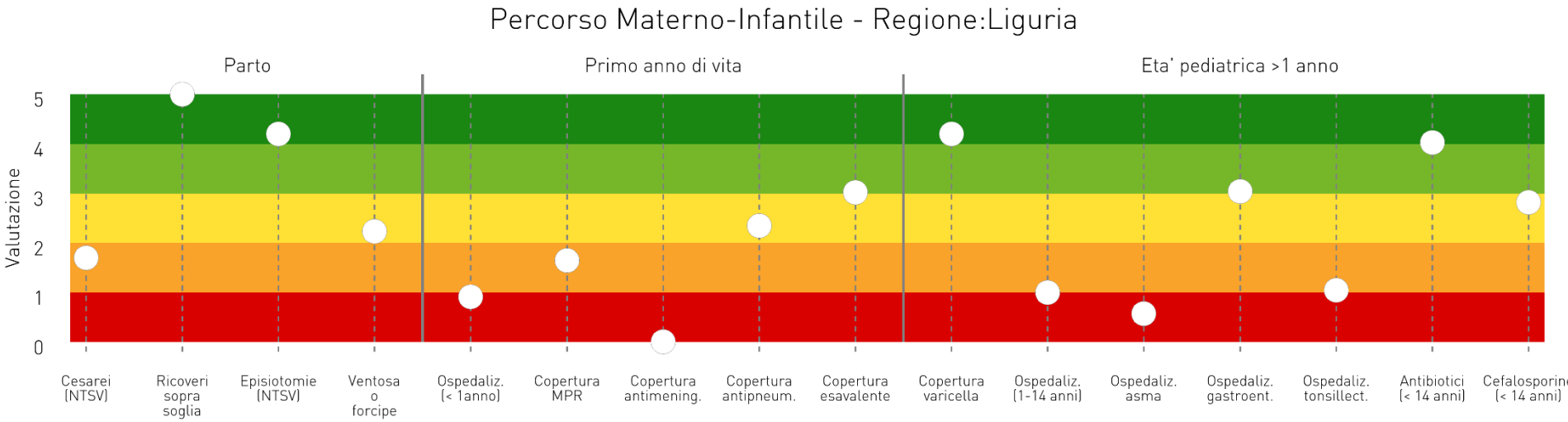




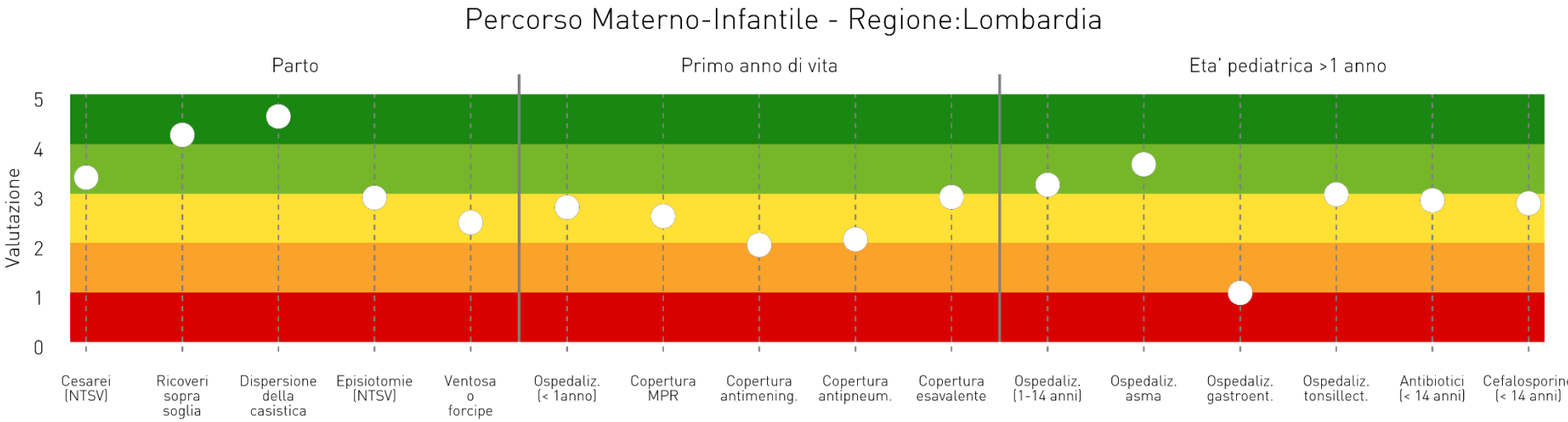
Introducing PROMs and PREMs routinary collected

Nuti et al. 2018 Let's play the patient's music. Management Decision

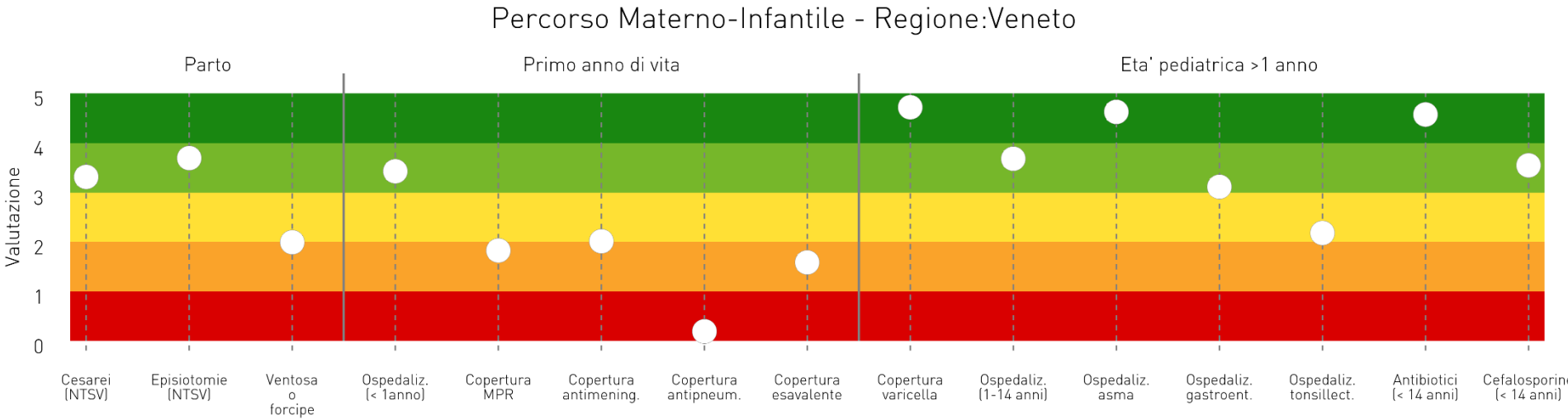
Performance 2017



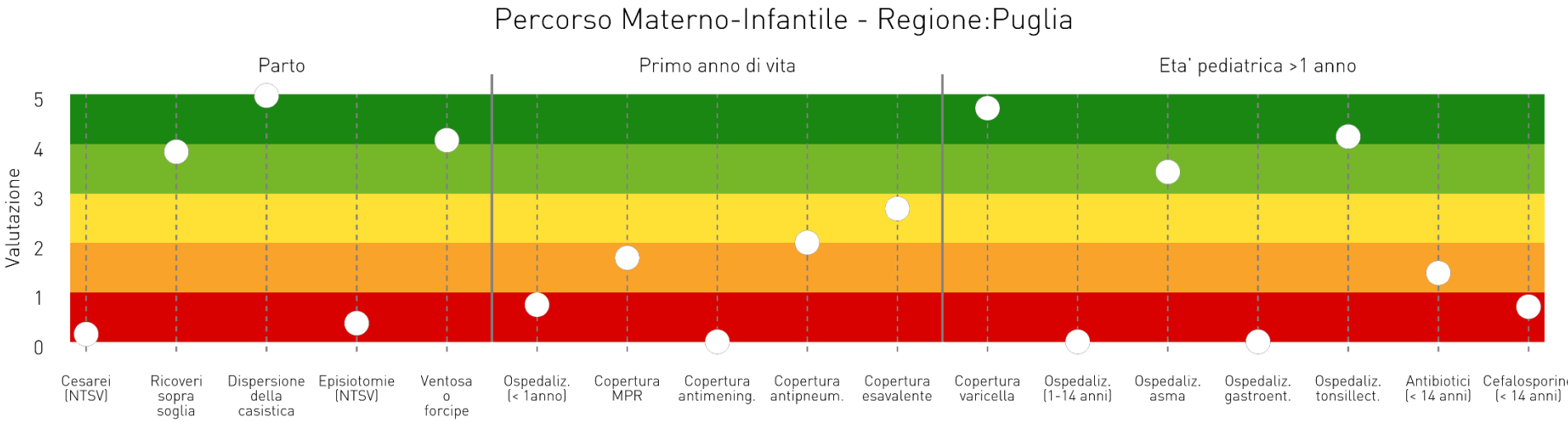
Performance 2017



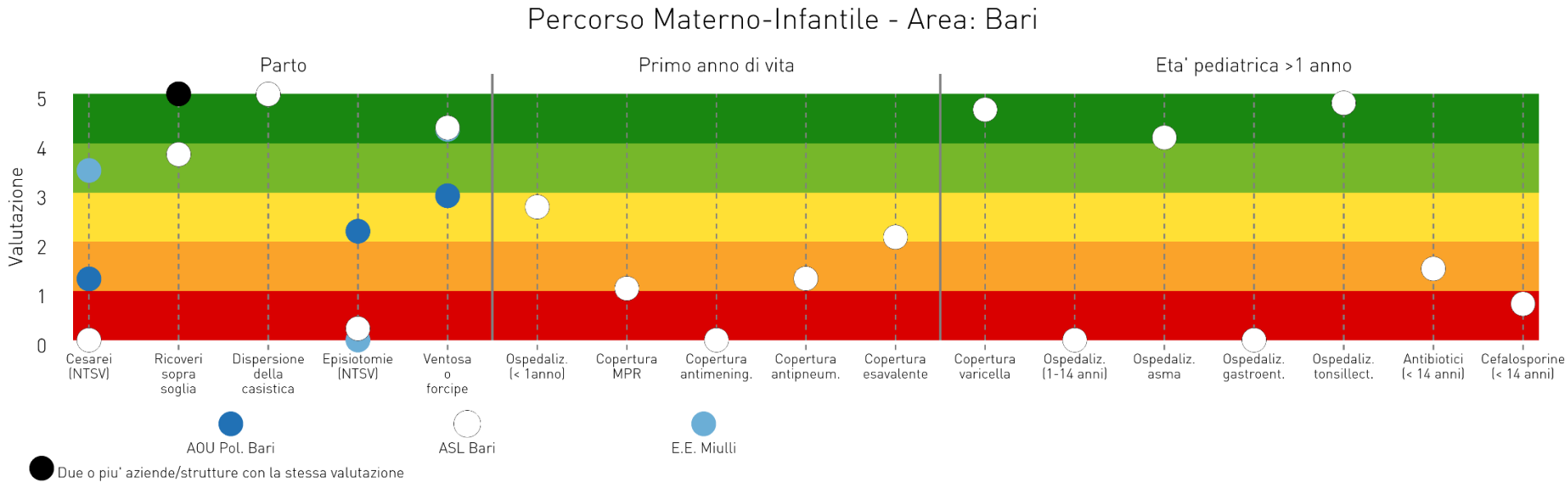
Performance 2017



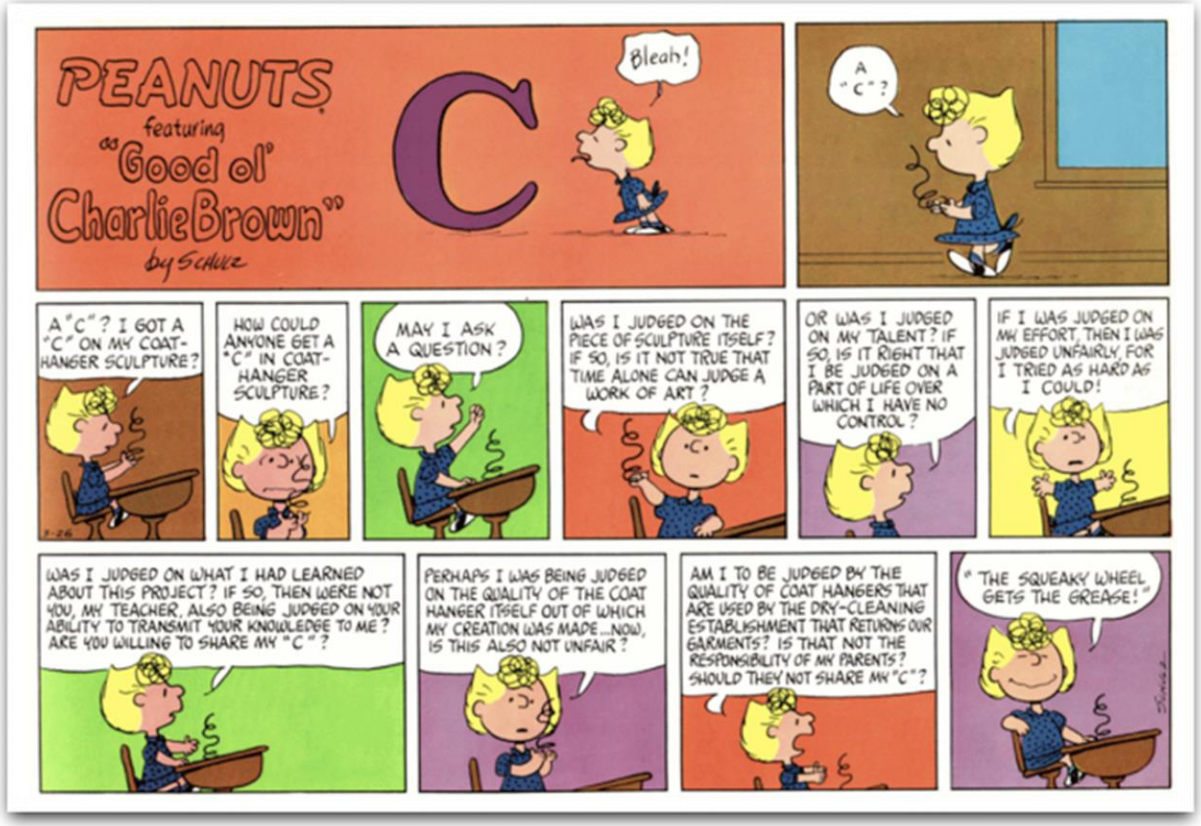
Performance 2017



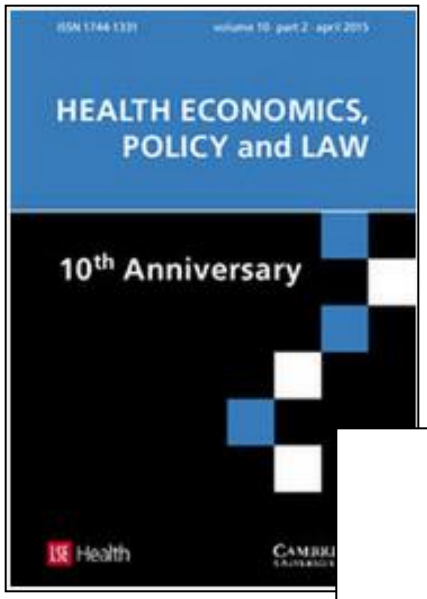
Performance 2017



THE IMPACT OF IRPES INTRODUCTION…



Some initial resistance towards evaluation… that could be overcome thanks to regional policy maker commitment and the use of the IRPES as a dynamic governance tool



TO PARTICIPATE IN THE COLLABORATIVE NETWORK DOES NOT MEAN TO REALLY USE THE TOOLS.

WHEN THE PERFORMANCE **EVALUATION** SYSTEM BECOMES A PERFORMANCE **MANAGEMENT** SYSTEM THEN THERE WILL BE IMPROVEMENT

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doi:10.1017/S1744133115000067

Making governance work in the health care sector: evidence from a 'natural experiment' in Italy

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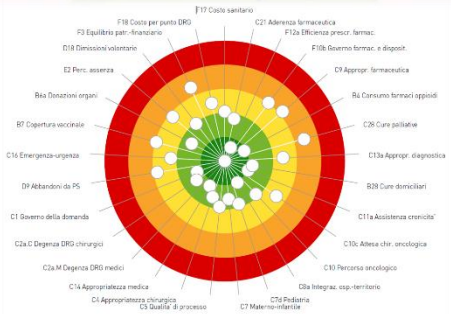
THE FRUITS OF IRPES



Through performance indicators

Through proxy of professionals engagement

Thorugh a story

Through performance indicators

Strategies and results, the Tuscan case vs Lazio Region.

Table 4 Adjusted proportion of hospitalisations for hip fractures in patients aged ≥65 years in whom surgery was performed within 48 h of admission, 2006–2007 vs 2008–2009

	2006–2007		2008–2009				
Region	N	Adjusted proportion	N	Adjusted proportion	RR	p	Absolute difference
Lazio	12585	11.8	12469	16.7	1.42	0.000	4.9
Tuscany	11486	30.2	11122	45.2	1.49	0.000	15.0
Other Italian regions	113436	29.5	112222	28			

PES integrated with other management tools led to higher improvement

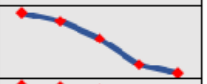
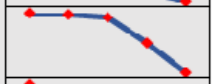
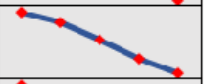
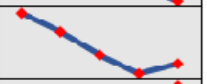
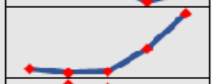
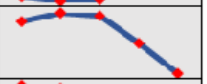
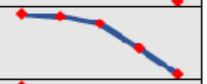
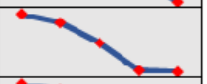
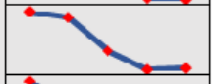
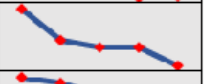
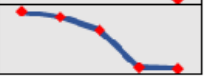
Table 5 Proportion of hip operations performed within 48 h of admission in
in Lazio and Tuscany hospitals

	Increased		No change			
	N (%)	Median change (IQR)	N (%)	Median change (IQR)	N (%)	Median change (IQR)
Lazio hospitals	11 (26.2)	+10.6 (4.8)	30 (71.4)	+0.2 (2.8)	1 (2.3)	NE
Tuscany hospitals	17 (65.4)	+23.3 (14.3)	8 (30.8)	+0.4 (6.3)	1 (3.8)	NE
Other Italian hospitals	43 (11.7)	+12.2 (12.9)	260 (70.6)	−0.3 (5.4)	65 (17.7)	−11.8 (8.6)

NE, not evaluable.

Pinnarelli L., Nuti S,Sorge C, Davoli M.Fusco D,Agabiti N, Vainieri M, Perucci CA, 2012 ***What drives hospital performance? The impact of comparative outcome evaluation of patients admitted for hip fracture in two Italian regions,*** *BMJ Quality and Safety Vol.2*

The use and results of Basilicata Region

Codice Indicatore	Indicatore	2009	2010	2011	2012	2013	p-value	Trend
H1	Tasso ospedalizzazione ricoveri ordinari acuti per 1.000 residenti std età e sesso	116,11	114,53	111,10	105,95	104,34	*0,004**	
H3	Percentuale di dimessi da reparti chirurgici con DRG medici per i ricoveri ordinari	39,01	38,55	37,88	32,05	25,40	*0,001*	
H5	Drg LEA Medici: tasso di ospedalizzazione std per 10.000 residenti	462,60	428,20	365,80	299,00	252,50	*0,000**	
H9	Proporzione di parti con taglio cesareo primario	38,56	34,18	29,13	24,88	26,92	*0,042**	
H11	Frattura del collo del femore: % intervento chirurgico entro 2 giorni	22,62	20,70	21,11	31,33	47,80	*0,001*	
H13	Degenza media pre-operatoria interventi chirurgici programmati	1,46	1,52	1,49	1,31	1,10	*0,010*	
H14	% ricoveri ordinari medici brevi	17,59	17,37	16,58	14,29	11,84	*0,056**	
T2	Tasso ospedalizzazione scompenso per 100.000 residenti (50-74 anni)	450,44	420,56	343,57	243,44	242,37	*0,036**	
T3	Tasso ospedalizzazione diabete per 100.000 residenti (20-74 anni)	82,04	76,77	45,04	27,79	29,27	*0,039**	
T4	Tasso ospedalizzazione BPCO per 100.000 residenti (50-74 anni)	120,33	80,45	70,79	70,95	48,77	*0,046**	
AF5	Spesa farmaceutica territoriale pro-capite	294,26	282,32	259,97	190,17	188,46	*0,024**	

* Valore corretto di Greenhouse-Geisser

Vainieri, Gallo, Montagano, Nuti (2016) Per migliorare la performance quanto conta l'integrazione tra gli strumenti di governance regionali ed aziendali? Un esperimento naturale in Basilicata. Mecosan 98

Virtuous circle

To what extent can public disclosure of patient experience data among professionals be associated with a better experience for patients?

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Does feedback influence patient - professional communication? Empirical evidence from Italy☆

Anna Maria Murante*, Milena Vainieri, Diana Rojas, Sabina Nuti

Scuola Superiore Sant'Anna, Istituto di Management, Laboratorio Management e Sanità, Piazza Martiri della Libertà 24, 56127 Pisa, Italy

Results show a better experience in terms of patient-physician communication for those hospitals where employees report an higher level of knowledge about patient experience survey data (+ 0.35 point per each 1% more in knowledge)

Through professionals' engagement

PAR PUBLIC ADMINISTRATION REVIEW

Kimberley R. Isett
Diana M. Hicks
Georgia Institute of Technology

Viewpoint
Stephen E. Condrey, Associate Editor

Providing Public Servants What They Need: Revealing the "Unseen" through Data Visualization

Abstract: *Electronic media has enabled new forms of communication with the potential to provide more effective means of conveying evidence to public servants. This article explores what is known about the use of these new capacities in public affairs to visualize the results of research. The authors first explore the value of visual engagement for increasing comprehension. Then, they examine what is known of studies of the effectiveness of visualization and offer basic design principles that underpin effective visualization. Finally, two original public affairs examples are presented to illustrate what is possible.*

Information is cheap, meaning is expensive.

—George Dyson

If we desire evidence-informed policy, we must attend to the gap between the time frames and approaches of scholars and public servants. Scholars are rewarded for clever design and sophisticated statistical analysis and so take the time required to produce high-quality results. In contrast, public servants need to make decisions quickly, with the best available information (Isett, Head, and VanLandingham 2016). As Trautman (2016) points out, sometimes that best available information is only one part data and other parts constituent voice. Although some authors have recently declared the divide between the "two communities" overstated (Newman, Cherney, and Head 2016), the incompatibilities of their professional realities are well established.

Despite knowing the challenges related to using empirical evidence in practice, scholars still do not effectively communicate their research, rendering it ineffectual (Huber 2016). Arguably, the problem has intensified in recent years. In many areas, methods and data have become more sophisticated, meaning that the substance of what needs to be conveyed is more arcane and more difficult for stakeholders to understand. Anne-Marie Slaughter, former dean of Princeton University's Woodrow Wilson School of Public and International Affairs, was quoted in a *Washington Post* opinion piece as saying that the research coming out of public policy schools is "less and less accessible to the lay reader. The jargon has become more and more specialized" (Pierson and Riley 2013). As the *Post* writers note, if policy makers cannot understand policy school research, what can scholars hope to accomplish?

The cognitive inaccessibility of empirical research is compounded by the daily operating realities of public servants and other professionals who are subject to information overload. They have no time to read, can spend less than 10 minutes on any piece they do manage to read, and do not have the luxury of pondering the implications of the material (Huber 2016). Exacerbating these constraints is the fact that policy makers and public servants operate in a knowledge-centric field and are bombarded with information regularly. Because of limits on the capacity to absorb and process large amounts of information, public servants rely on prepackaged solutions and heuristics when encountering routine situations (Jones 2003; Ostrom 1998). Thus, it is unclear whether the demands and constraints surrounding the use of evidence in policy making are compatible with actually using it (Cairney, Oliver, and Wellstead 2016; Head 2016).

The disappointing uptake of policy research has concerned the scholarly community for several decades (Weiss 1979). The area of policy evaluation exemplifies the problem. Thinking about the problem of getting evaluation results used has led evaluators to investigate facilitative factors, to expand their perspective on what counts as use, and to encourage participatory evaluation to induce stakeholder engagement (Teirlinck et al. 2013). Although somewhat lower in profile, communication requires

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Diana M. Hicks specializes in metrics for S&T policy. She was the first author on the Leiden Manifesto for research metrics published in *Nature*, which has been translated into 17 languages She has advised the Organisation for Economic Co-operation and Development, Flanders, the Czech Republic, and Sweden on national research evaluation systems. She co-chairs the Atlanta Conference on Science and Innovation Policy and is an editor of *Research Evaluation*. She earned her master's and doctoral degrees from the Science Policy Research Unit, University of Sussex.
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Information visualizations for knowledge acquisition: The impact of dimensionality and color coding

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Available online 26 February 2005

Abstract

Information visualizations – interactive graphical representations of large amounts of abstract data which do not have a natural visual representation – have mainly been used to support information retrieval. This article investigates whether information visualizations are also suitable for fostering knowledge acquisition as well as how information visualizations, from a cognitive perspective, have to be designed to be efficient learning tools. An experimental study provided evidence that information visualizations support knowledge acquisition. In addition, with regard to the appropriate design, the empirical results showed that two-dimensional information visualizations are better suited for supporting processes of knowledge acquisition than three-dimensional ones and that color-coded information visualizations slightly increase performance in a knowledge test compared to monochromatic ones.
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Keywords: Information visualization; Knowledge acquisition; Dimensionality; Color coding

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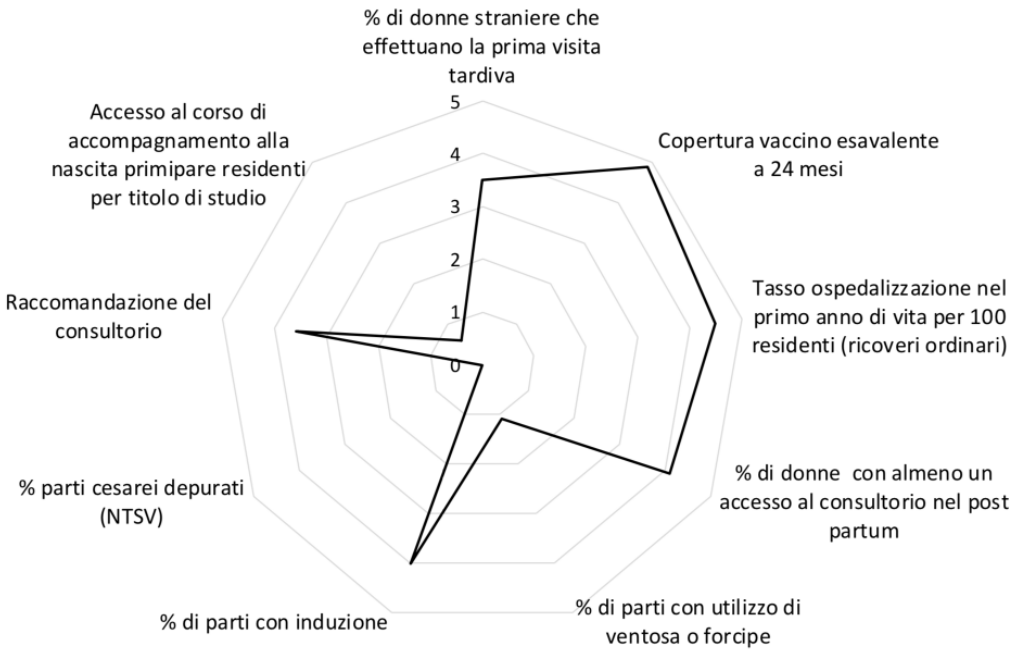
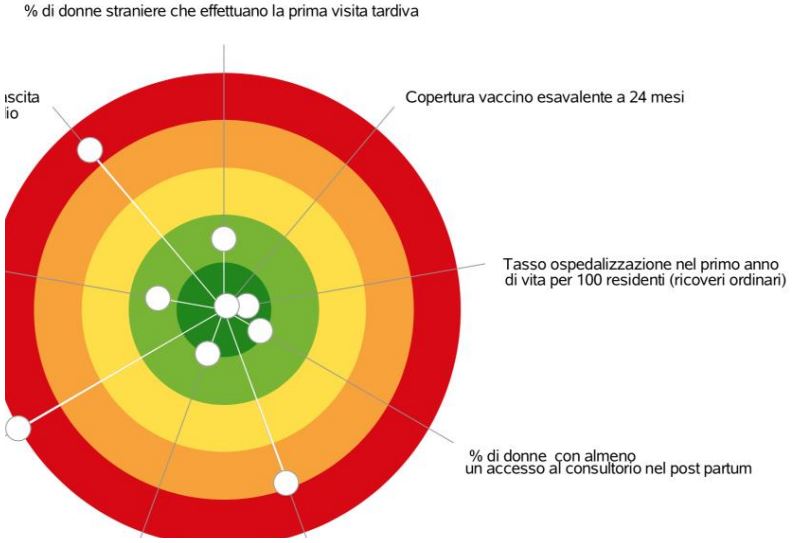
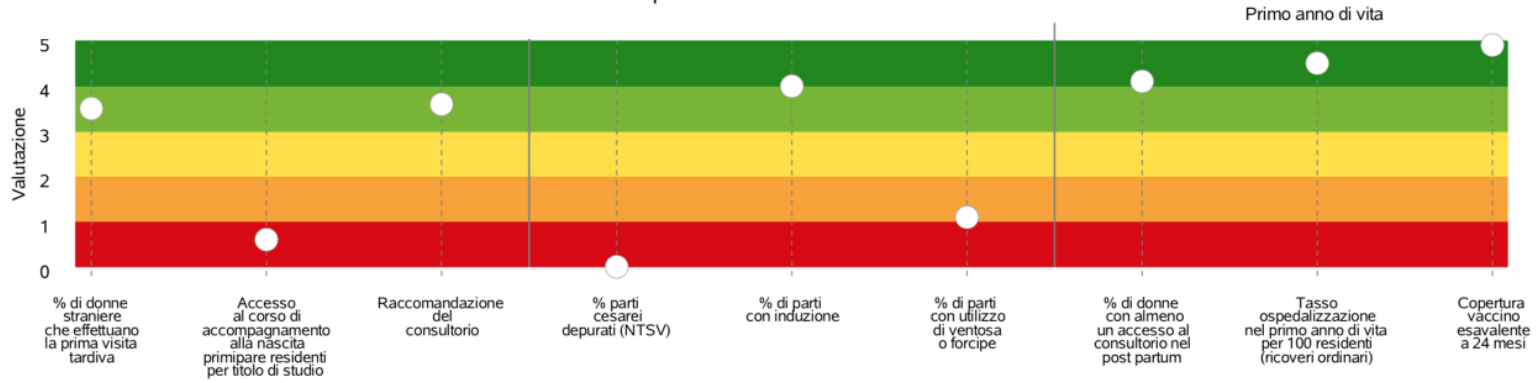
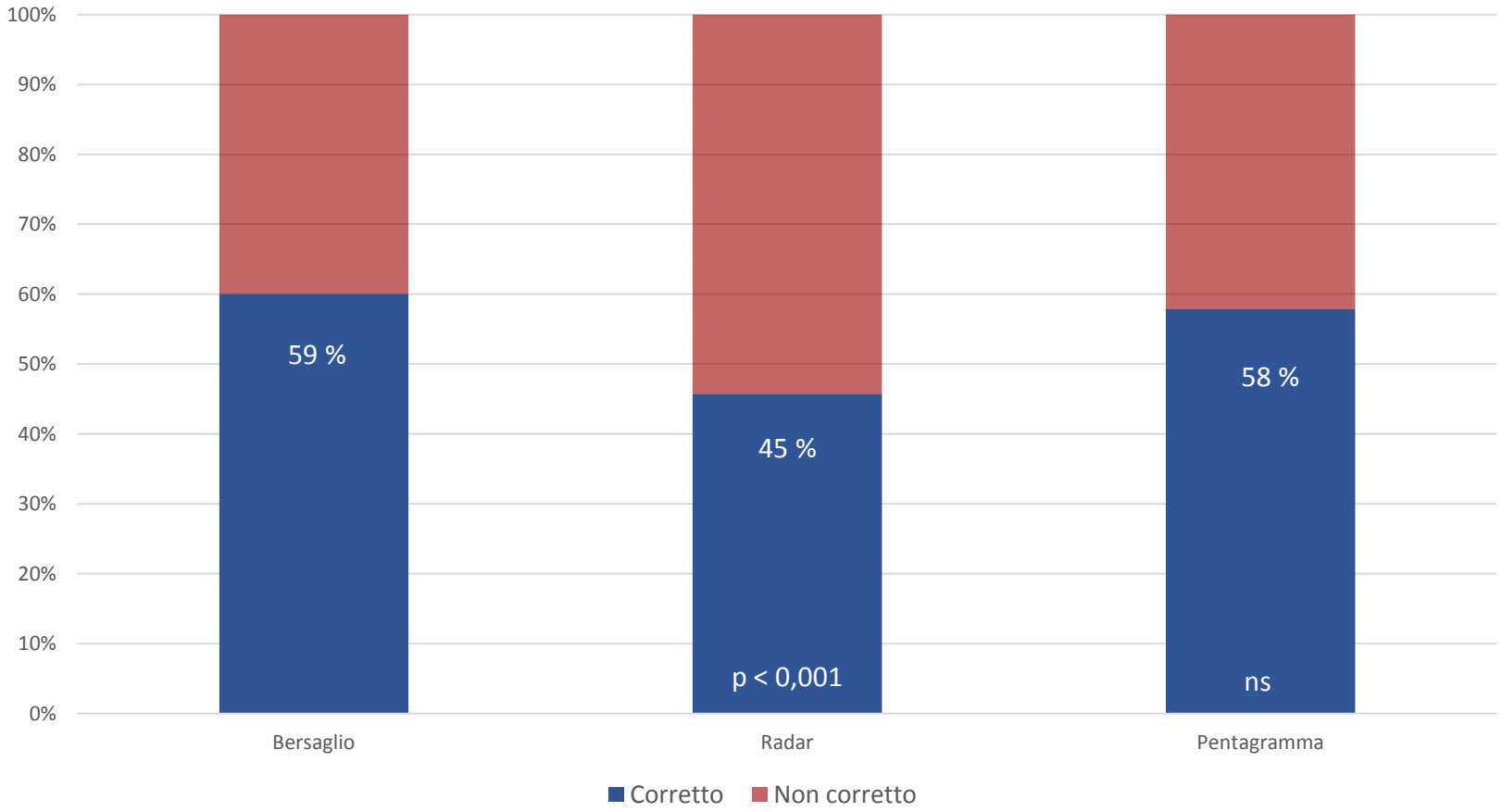
The effectiveness of the visualization tools







Objective understanding
% respondents that identified the correct worst performing indicator of the maternal care performance



Objective understanding
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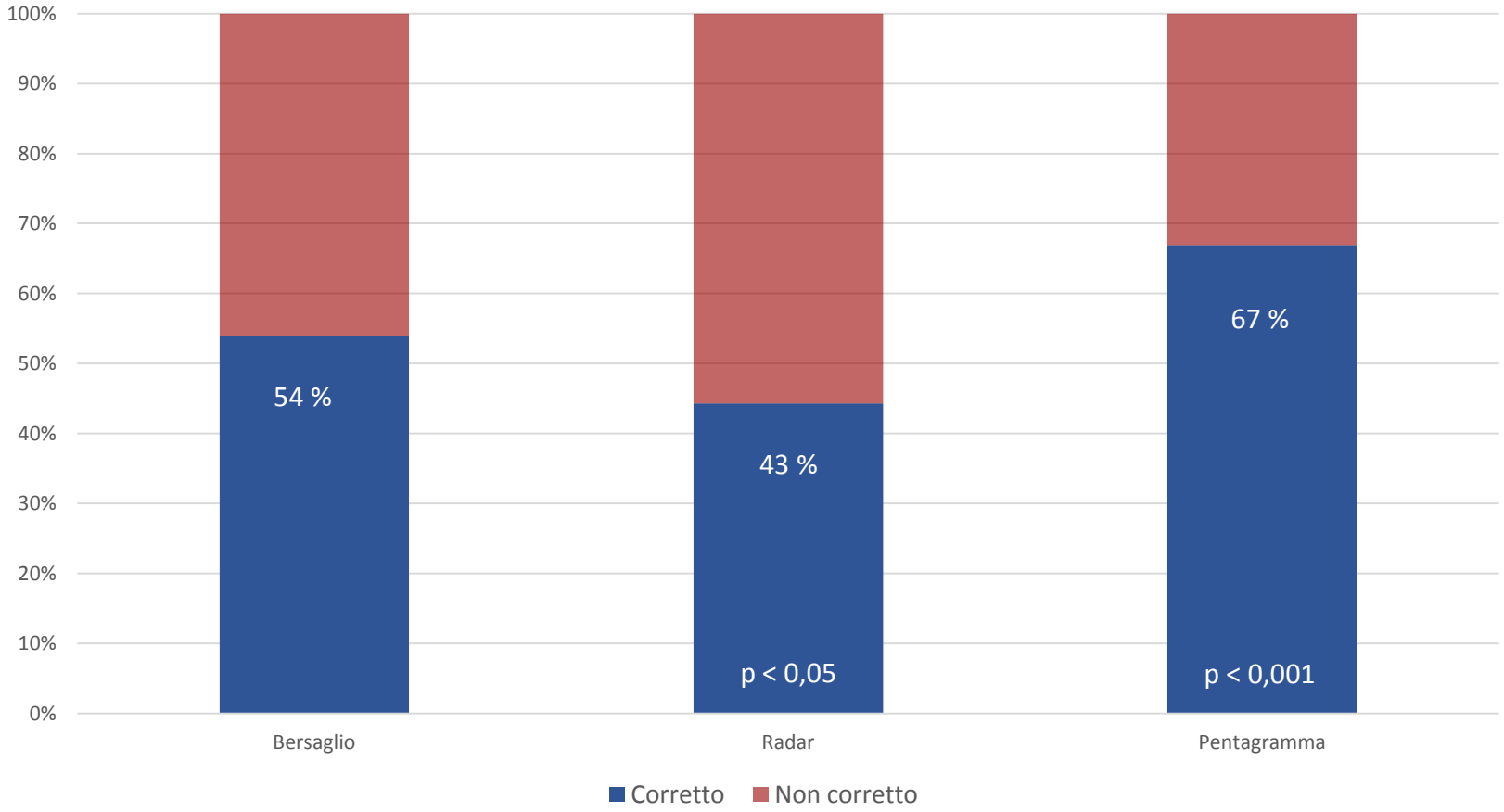
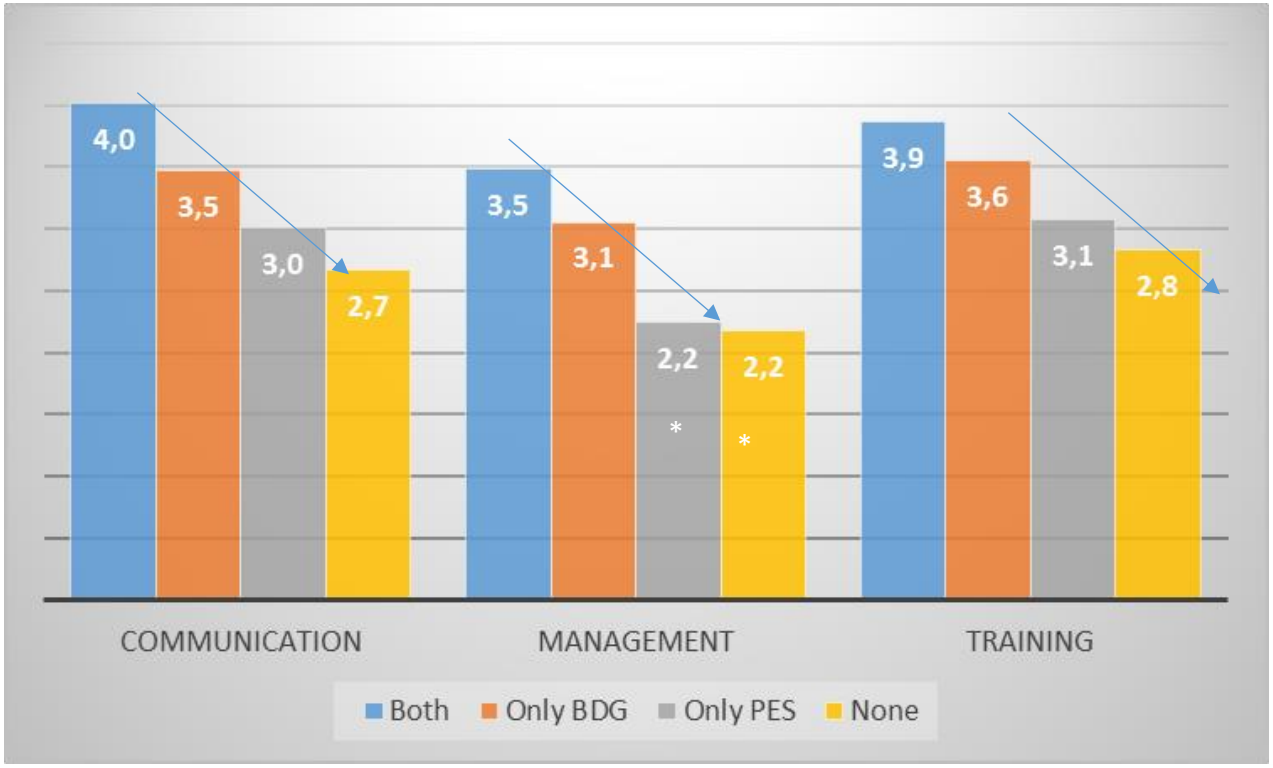


The *meso* PES eases the communication at the *micro* level

Using 2014 organizational climate survey we divided Heads of Departments that declare to be aware of the existence of local budget (BDG) and performance evaluation system (PES) as follow:

1. BDG + PES
2. ONLY BDG
3. ONLY PES
4. NOTHING

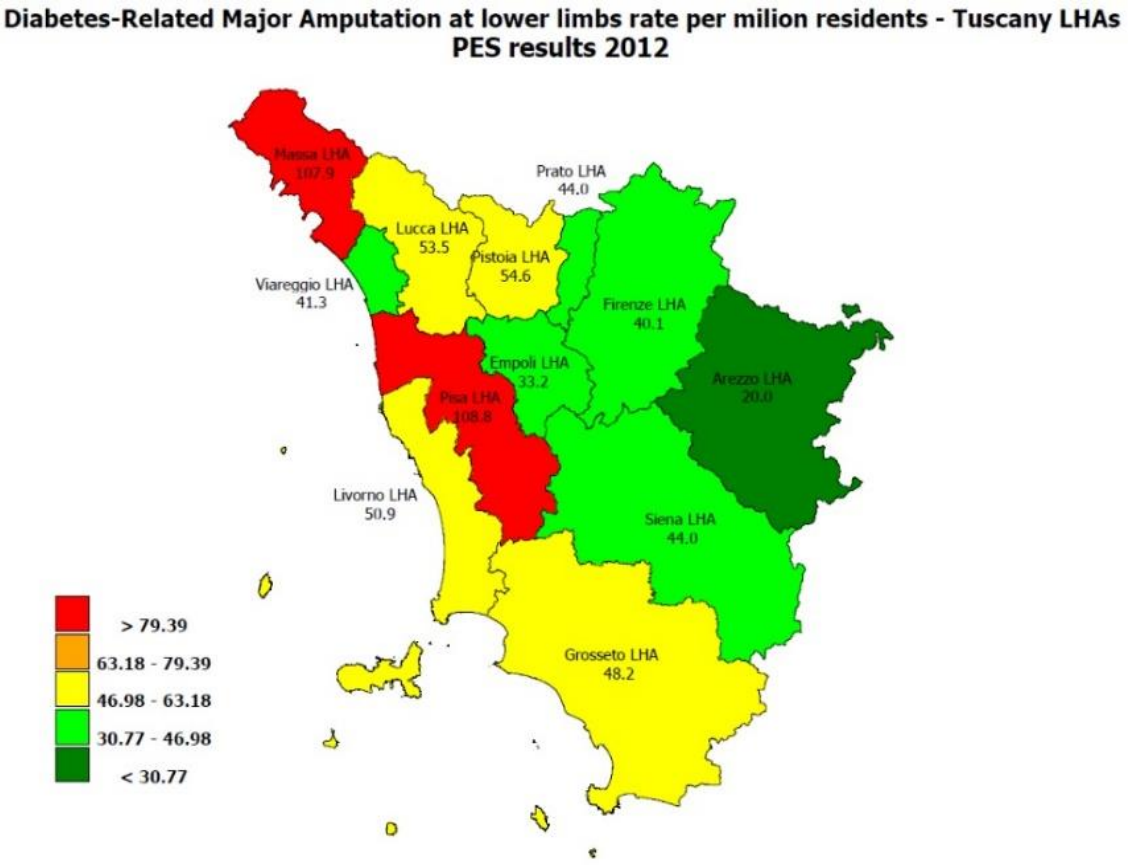
Scale:
1 totally disagree
2…
3…
4…
5 totally agree



ttest $p<0.01$
with the exception of management for categories PES and None

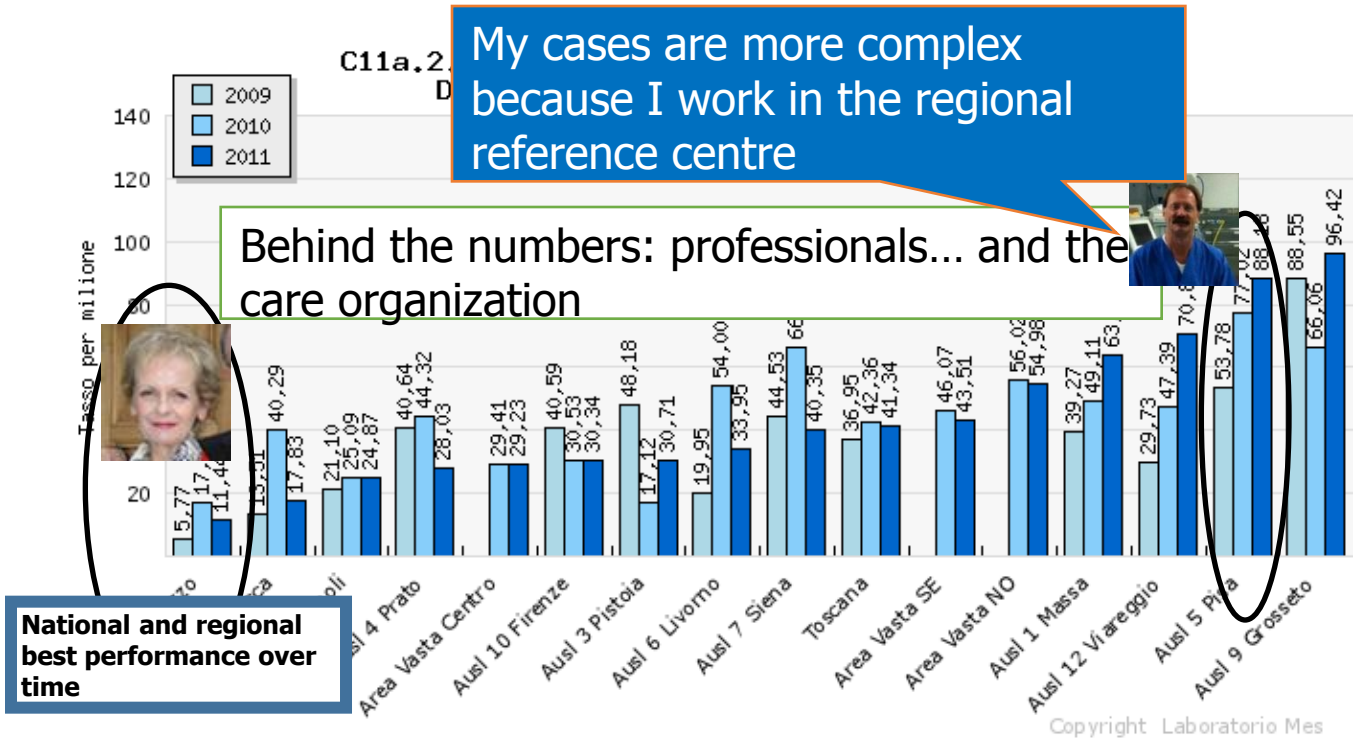
Through a story

Improvement process in the large Regions: the story of the diabetic foot in Tuscany…



Diabetes-Related Major Amputation at lower limbs Rate per million residents – MeS-Lab Tuscany PES results, 2012.
Source: MeS-Lab

Diabetes-related major amputation rate per million residents in Tuscan Local Health Authorities (LHAs), 2009-2011



Differences could not be fully explained by the diabetes prevalence across LHAs

A shared proposal from professionals to regional health department

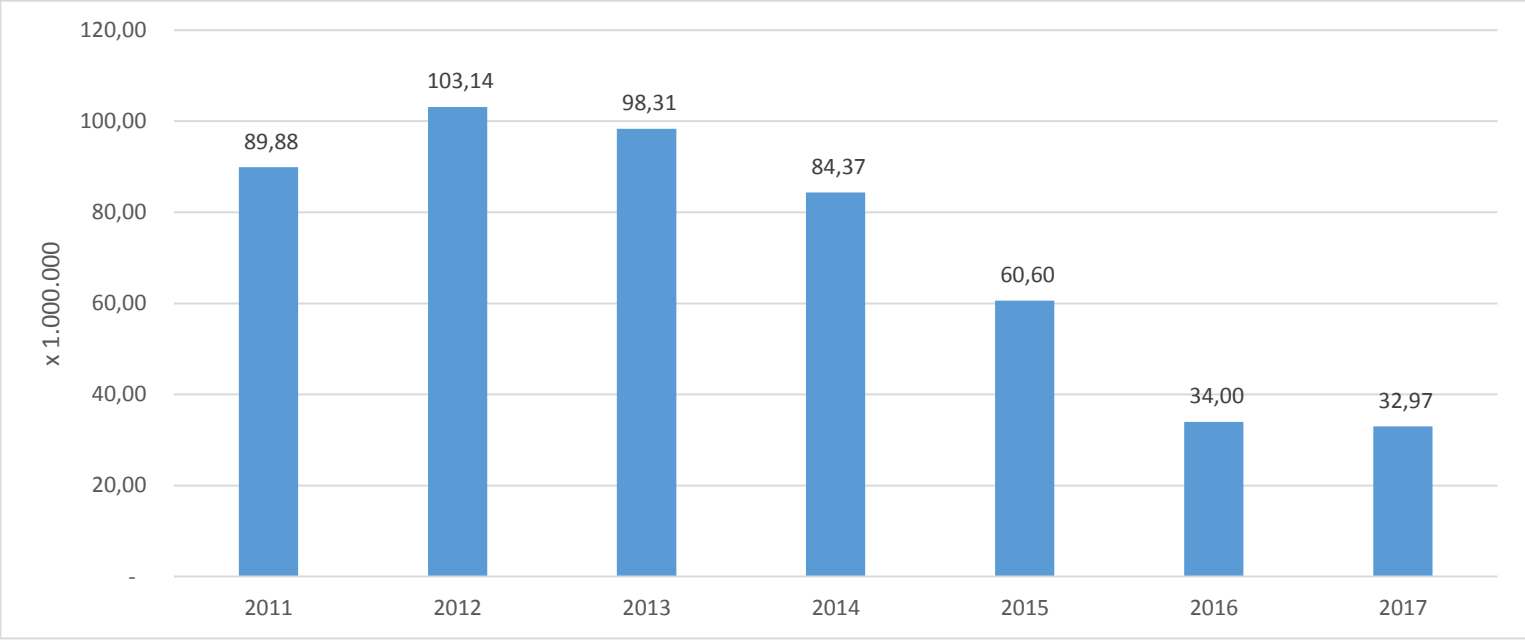
A REGIONAL PROTOCOL FOR DIABETIC PATHWAY (focusing on integration between PC and H)

AND A SPECIFIC DOCUMENT FOR THE DIABETIC FOOT PATH

*I always do my best for my patients and I thought to be on the right way. The population based perspective helped me to have a look at the **entire** path of the patients. I realized that our integration with the other professionals (namely PC) has to be boosted. Moreover this analysis allowed me to have data and results that I can use to reorganize the pathway within the hospital wall.*

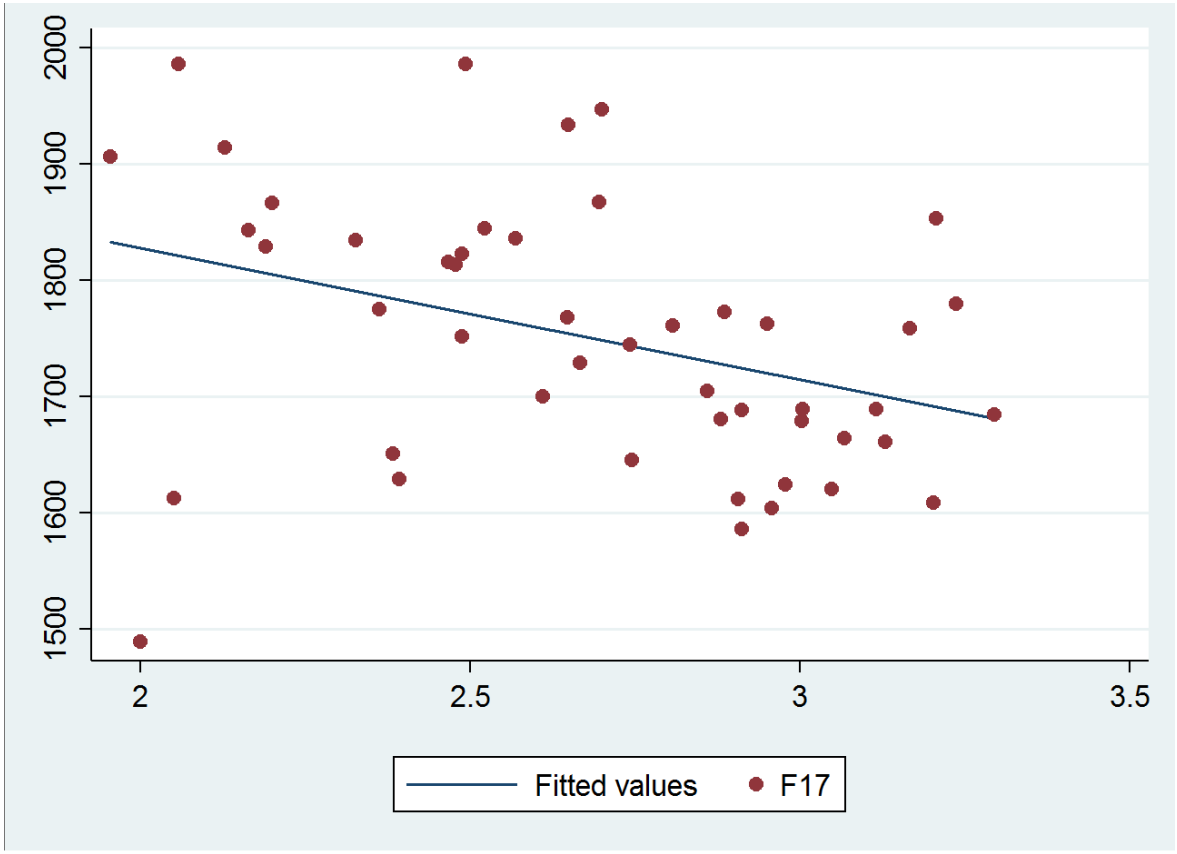
Improving results

Diabetes-related major amputation rate per million residents in Pisa LHA, 2011-2017



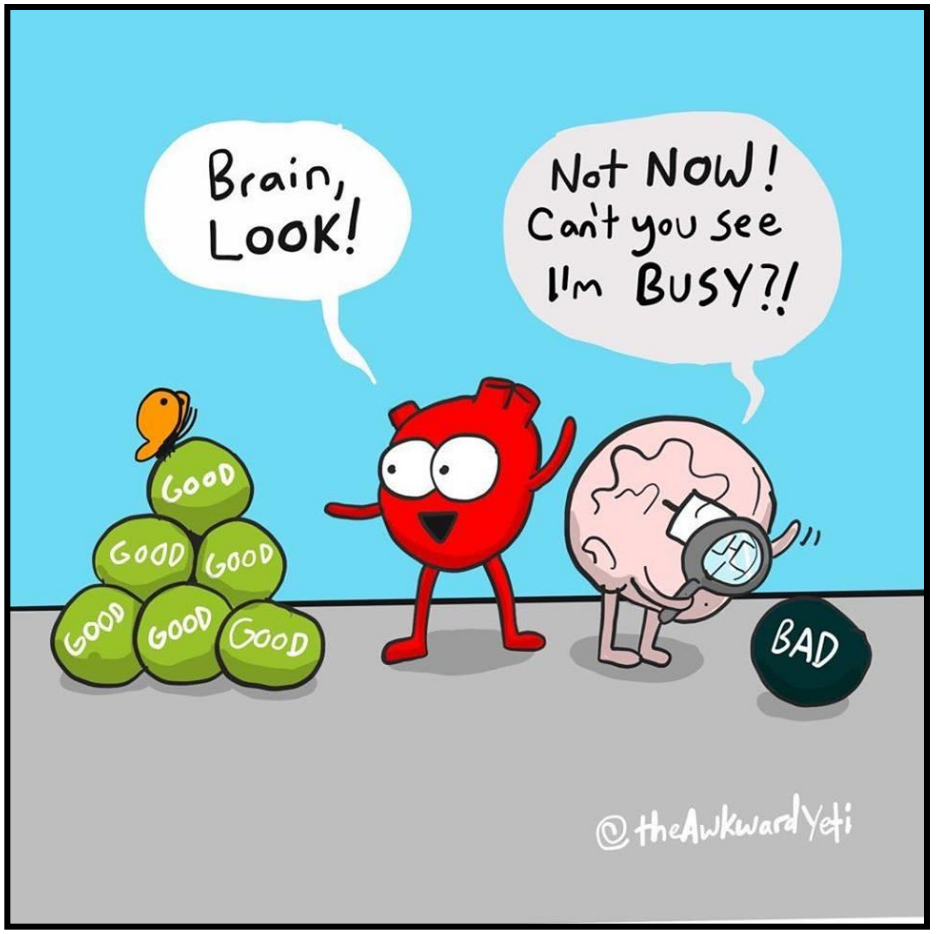
Relationship between per capita cost and global perfomance

Relazione	Indice di correlazione di Pearson	P value
F17 – Performance	- 0.3638	P=0.0110



Learning by excellence

We are discovering the best practice using the evidence from the Performance Evaluation System to understand what there is behind numbers…



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