

# Does economic crisis affect prevention services? An Italian region as a case study

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## ABSTRACT

**BACKGROUND:** The Latium Region in Italy is currently under pressure from national government to achieve economic consolidation of regional health services and is subject to a formal regional recovery plan.

**METHODS:** Using recognized health indicators together with a government assessment tool, we evaluate the impact of the economic downturn on the health of the Latium Region population.

**RESULTS:** We find that healthcare spending in the Latium Region needs to become more efficient by improving primary healthcare and by restoring efficiency in hospitals.

**CONCLUSIONS:** Prevention activities should not only be defended in the current financial and economic crisis, but also streamlined and strengthened.

*Key words: prevention, healthcare expenditure, Italian Regions*

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## INTRODUCTION

The dramatic effects of the global financial crisis in 2008 resulted in a decline in gross domestic product (GDP) per capita of 4.5% across the WHO European Region in 2009 and a general slowdown in economic activity [1]. Since health needs tend to increase when unemployment rises and household incomes fall, policy responses to economic crisis must be carefully considered, as they may themselves affect population health. It is important that any health policy response ensures that both

access to and quality of services are protected. In Greece, one of the European countries hardest hit, the incidence of infectious diseases (particularly HIV) has increased sharply because preventive programs and early treatment services have been scaled back due to budget cuts [2,3], thus demonstrating the importance of protecting preventive services for which the demand increases during times of economic crisis. In this context, it is essential to properly focus the debate on public healthcare expenditure, stressing that financing preventive services is not merely a cost, but an investment

in citizen wellbeing, as well as in economic stability and development.

In Italy, there is widespread agreement on three priorities for health policy: i) strengthening prevention activities; ii) reorganization of hospital care; and iii) reinforcement of primary care. Given that a solid evidence base should drive health policies, it is important to assess the available data to determine whether these priorities are justified, particularly at a time of continuing economic crisis. Authoritative reports have been published recently in Italy and provide a rich source of data for such an assessment. Here, we chose as a case-study the Latium Region, which is particularly under pressure since it is one of the regions with a formal regional recovery plan (Piano di Rientro).

## METHODS

To describe the health status of the Latium Region population, health indicators from the following authoritative reports were used: 10<sup>th</sup> Report “OsservaSalute”, 2013 [4]; 9<sup>th</sup> Healthcare Report, 2013 [5]; Report OASI (Observatory on the Health System and the Italian Enterprises), 2013 [6]; Report “Meridiano Sanità”, 2013 [7]; Report on avoidable mortality (MEV), 2013 [8]. Data from the 2013 “Health for All” and “Noi Italia” databases of the Italian Statistical Institute (Istat) were used as well [9,10].

To analyze the delivery of the basic levels of medical assistance – the so-called “Livelli Essenziali di Assistenza” (LEA) – that the Italian Health System provides to all citizens, the “LEA grid” was applied. This grid is implemented by the Italian Ministry of Health to monitor and verify the level of delivery of the basic levels of medical assistance through a set of annually revised indicators. In the last report, published in 2013 for the year 2011, 29 indicators were used. Threshold values, assessment scores and weights were assigned to each indicator, allowing a calculation to be performed that assigned each Italian Region to one of three categories (“Region in compliance”, “Region in compliance with a commitment to some indicators”, “Region critical”) as an overall assessment of how well the region fulfils the LEA [11].

## RESULTS

In the Latium Region, public healthcare expenditure is particularly high overall, but expenditure on prevention activities is among the lowest of the Italian Regions. Primary healthcare seems to be underfinanced, while public expenditure for hospital care is higher compared to the national average and most of the Italian Regions [4,12].

In 2011 the Latium Region was classified, based on a final score calculated using the LEA grid assessment tool, as a Region “in compliance with a commitment to some indicators”. Among the 29 indicators considered, 14 (48.3%) lie in the expected range, one (3.4%) has a slightest deviation from the reference value, five (15.2%) have the designation “significant deviation but improving”, and nine (31.0%) show an unacceptable deviation from the reference. It is noteworthy that six of the nine indicators for which there is an unacceptable deviation from the standard reference relate to prevention (66.7%). Of the indicators with an unacceptable deviation from the standard reference or with “significant deviation but improving”, stratified by LEA category, most relate to prevention (7 out of 11, 63.7%), an intermediate number to hospital healthcare (4 out of 8, 50.0%), and the smallest number to primary healthcare (3 of 10, 30.0%).

Table 1 shows the values of all indicators of the Latium Region relating to prevention and of some selected indicators relating to primary care and hospital healthcare. With regard to prevention, vaccination coverage for mandatory vaccinations lies within the required range, but neither coverage of highly recommended vaccinations nor adherence to screening programs for cervical, breast and colorectal cancer meet expectations. While hospitalization rates – including those for preventable conditions in primary health settings – are within the mandated range, there is a clear problem with hospital efficiency, since the average length of stay is higher than in most Italian Regions.

The LEA indicators are mostly process indicators. For a more comprehensive description of the health status of Latium Region citizens, it is appropriate to take into account output and especially outcome indicators. In the Latium Region, rates of infant mortality and life expectancy at birth are slightly worse than the national average

TABLE 1

| LEA INDICATORS ABOUT LATIUM REGION, YEAR 2011 [11]  |   |  |  |
|---|---|--|--|
| INDICATOR   | VALUE LATIUM  | RANKING LATIUM (*)                           | NOTES  |
| <b>PREVENTION</b>   |   |  |  |
| Vaccination coverage among children at 24 months per basic cycle (3 doses) (polio, diphtheria, tetanus, hepatitis B, pertussis, Hib)  | 96.6% (POL)<br>96.6% (DT-DTP)<br>99.9% (EpB)<br>96.8% (Hib) | 9 (POL)<br>12 (DT-DTP)<br>1 (EpB)<br>7 (Hib) | Value in the range   |
| Vaccination coverage among children at 24 months to one dose of vaccine against measles, mumps, rubella (MMR)   | 90.0%   | 14   | High deviation from the reference                          |
| Flu seasonal vaccination coverage in the elderly (> 65 years)   | 62.2%   | 9  | High deviation from the reference                          |
| Percentage of people screened in an organized program for cervical, breast or colorectal cancer (score) (**)  | 3   | 15   | High deviation from the reference                          |
| Expenditures per capita on prevention activities (euro)   | 70.45   | 18   | High deviation from the reference but on the upgrade (***) |
| Percentage of units controlled in the workplace on the total  | 5.40%   | 8  | Value in the range   |
| Zoonoses - Percentage of herds tested for bovine TB prevalence and trends (***)   | 115.6% ↓ (°)  | 1  | Value in the range   |
| Zoonoses - Percentage of herds tested for brucellosis in small ruminants, cattle and buffalo and reduction of the prevalence (***)  | 93.5% ↓ (°)   | 20   | High deviation from the reference                          |
| Animal registries - Percentage of companies controlled (above 3%) for sheep and goat registry   | 86.0%   | 17   | High deviation from the reference                          |
| Food contamination - Percentage of food samples analysed on the total samples scheduled by the National Residue Plan  | 152.6%  | 1  | Value in the range   |
| Health surveillance on foodstuffs in the process of marketing and administration: percentage of the total number of scheduled sampling  | 41.3%   | 20   | High deviation from the reference                          |
| <b>Primary health care</b>  |   |  |  |
| Weighted sum of normalized condition-specific hospitalization rates/preventable diseases: pediatric asthma, complications of diabetes, heart failure, urinary tract infections, bacterial pneumonia in the elderly, COPD. (Index weighted by age) | 468.5   | 3  | Value in the range   |
| Percentage of elderly ≥ 65 years treated at home (ADI)  | 4.8%  | 6  | Value in the range   |
| Number of beds for elderly healthcar e in residential facilities, per 1,000 elderly residents   | 4.08  | 13   | High deviation from the reference                          |
| Number of beds in residential facilities per 1,000 elderly residents  | 4.60  | 13   | High deviation from the reference but on the upgrade (***) |
| Number of equivalent beds in residential and semi-residential facilities that provide assistance to disabled persons, per 1,000 residents   | 0.46  | 14   | High deviation from the reference but on the upgrade (***) |
| Number of beds in residential and semi-residential that provide assistance to disabled persons, per 1,000 residents   | 0.88  | 12   | Value in the range   |
| <b>Hospital healthcare</b>  |   |  |  |
| Age-standardised hospitalization rate (ordinary and daytime), per 1,000 residents   | 166.3   | 9  | Value in the range   |

TABLE 1 (CONTINUED)

| LEA INDICATORS ABOUT LATIUM REGION, YEAR 2011 [11]  |              |                    |   |
|---|--------------|--------------------|---|
| INDICATOR   | VALUE LATIUM | RANKING LATIUM (*) | NOTES   |
| <b>PREVENTION</b>   |              |                    |   |
| Diurnal hospitalization rate for diagnosis, per 1,000 residents   | 15.8         | 14                 | High deviation from the reference but on the upgrade(***) |
| Percentage of hospital admissions with surgical DRGs in the ordinary regime on total inpatient admissions                         | 40.1%        | 9                  | Value in the range  |
| Standardised rate of inpatient admissions (2 or more days) assigned to DRG at high risk of inappropriateness, per 1,000 residents | 22.9         | 15                 | Value in the range  |
| Trimmed average length of stay (ALOS) standardized for case-mix (days)  | 6.30         | 19                 | High deviation from the reference                         |

(\*) The ranking refers to the 21 Italian Regions/Autonomous Provinces, ranked from the most to the least virtuous based on the value of the indicator.

(\*\*)The total score of the indicator is calculated by summing the scores of individual screening programs to which it is attributed a score ranging from 0 to 5.

| SCORE                  | 0       | 1        | 3         | 5     |
|------------------------|---------|----------|-----------|-------|
| MAMMOGRAPHIC SCREENING | 0% - 5% | 6% - 34% | 35% - 59% | ≥ 60% |
| CERVICAL SCREENING     | 0% - 5% | 6% - 24% | 25% - 49% | ≥ 50% |
| COLORECTAL SCREENING   | 0% - 5% | 6% - 24% | 25% - 49% | ≥ 50% |

(\*\*\*)The evaluation refers to the period 2009-2011.

(°) Decreasing prevalence trend.

(Table 2). Regarding days lost per capita due to preventable causes in subjects aged 0-74 years, the Latium Region compares unfavorably with most other Italian regions: in 2010, males lost an average of 22.9 and females 12.4 days of life, compared to national average values of 21.2 days and 11.9 days, respectively (Table 2). The prevalence of some risk factors is high, particularly smoking, physical inactivity, and consumption of fruit and vegetables. Values of income inequalities appear high compared to most Italian Regions (Table 2).

## DISCUSSION

The notion that prevention is a key component of the health and wellbeing of populations is largely rooted in Europe. The Regional Office for Europe of the WHO has recently drafted the policy document “Health 2020” [13], in which it is stated that the objectives of European countries should include the improvement of health and wellbeing

of their populations, the reduction of health inequalities, the strengthening of public health systems and a guarantee of the universal availability of such systems, which should be the guarantee of health systems universalistic, equitable, sustainable and of high quality [14].

The analysis of the available data allows us to draw the following conclusions: i) healthcare spending in the Latium Region needs to become more efficient; ii) primary healthcare needs to be strengthened, in particular with regard to residential care for the elderly and disabled; iii) there is a need to restore efficiency in the hospital healthcare setting; iv) prevention activities should be streamlined and strengthened. Overall, the data on the health status of the population of the Latium Region, when compared with those of the other Italian Regions, show much room for improvement in health and prevention activities.

In the public debate on public health and prevention, it is sometimes assumed that preventive interventions are by definition cost-effective. Prevention activities in many cases

TABLE 2

| HEALTH AND PREVENTION INDICATORS OF LATIUM REGION AND ITALY   |      |                     |             |                           |
|---|------|---------------------|-------------|---------------------------|
| INDICATOR   | YEAR | LATIUM REGION VALUE | ITALY VALUE | LATIUM REGION RANKING (*) |
| <b>INFANT MORTALITY AND LIFE EXPECTANCY</b>   |      |                     |             |                           |
| Infant mortality rate (per 10,000 live births) (**)   | 2011 | 32,2                | 30,1        | 14                        |
| Life expectancy at birth in years (males) (**)  | 2011 | 79,1                | 79,4        | 15                        |
| Life expectancy at birth in years (females) (**)  | 2011 | 84,5                | 84,5        | 13                        |
| <b>AVOIDABLE MORTALITY</b>  |      |                     |             |                           |
| Days lost due to preventable causes per capita (0-74 years) - males (***)   | 2010 | 22,9                | 21,2        | 15                        |
| Days lost due to preventable causes per capita (0-74 years) - males – Primary prevention (***)                        | 2010 | 13,6                | 12,5        | 18                        |
| Days lost due to preventable causes per capita (0-74 years) - males – Early diagnose and therapy (***)                | 2010 | 1,70                | 1,50        | 18                        |
| Days lost due to preventable causes per capita (0-74 years) - males – Hygiene and healthcare (***)                    | 2010 | 7,60                | 7,20        | 11                        |
| Days lost due to preventable causes per capita (0-74 years) - females (***)   | 2010 | 12,4                | 11,9        | 16                        |
| Days lost due to preventable causes per capita (0-74 years) - females – Primary prevention (***)                      | 2010 | 4,60                | 4,00        | 18                        |
| Days lost due to preventable causes per capita (0-74 years) - males – Early diagnose and therapy (***)                | 2010 | 3,40                | 3,60        | 9                         |
| Days lost due to preventable causes per capita (0-74 years) - males – Hygiene and healthcare (***)                    | 2010 | 4,40                | 4,40        | 11                        |
| <b>BEHAVIORAL RISK FACTORS</b>  |      |                     |             |                           |
| Prevalence of smoking (per 100) of people in the age group 14 years and over (°)                                      | 2011 | 27,2                | 22,3        | 21                        |
| Prevalence (per 100) of consumers of alcohol at risk (°°) in the age group 11-18 years (°)                            | 2010 | 10,5                | 12,8        | 4                         |
| Prevalence (per 100) of consumers of alcohol at risk (°°) in the age group 19-64 years (°)                            | 2010 | 11,8                | 13,4        | 5                         |
| Prevalence (per 100) of consumers of alcohol at risk (°°) in the age group 65-74 years (°)                            | 2010 | 25,3                | 28,7        | 16                        |
| Prevalence (per 100) of consumers of alcohol at risk (°°) in the age group over 75 years (°)                          | 2010 | 20,7                | 21,7        | 8                         |
| Prevalence (per 100) of people overweight in the age group 18 years and over (°)                                      | 2011 | 34,0                | 35,8        | 6                         |
| Prevalence (per 100) of people obese in the age group 18 years and over (°)   | 2011 | 9,20                | 10,0        | 9                         |
| Prevalence (per 100) in the class of people ages 3 years and over who do not practice sports or physical activity (°) | 2011 | 44,9                | 39,8        | 15                        |
| Percentage of people 3 years of age and over (°°°) consumed 5 daily servings of fruits and vegetables (°)             | 2011 | 3,90                | 4,90        | 16                        |

TABLE 2 (CONTINUED)

| HEALTH AND PREVENTION INDICATORS OF LATIUM REGION AND ITALY                              |      |                     |             |                           |
|--|------|---------------------|-------------|---------------------------|
| INDICATOR  | YEAR | LATIUM REGION VALUE | ITALY VALUE | LATIUM REGION RANKING (*) |
| <b>DEPRIVATION INDICATORS</b>  |      |                     |             |                           |
| Population aged 25-64 that has achieved a level of at most lower secondary education (^) | 2011 | 33,9%               | 44,3%       | 1                         |
| Youngs NEET (Not in Education, Employment or Training) of 15-29 years (^)                | 2011 | 21,6%               | 22,7%       | 14                        |
| Unemployment rate (^)  | 2011 | 8,90%               | 8,40%       | 14                        |
| Inactivity rate (women) (^)  | 2011 | 45,6%               | 48,5%       | 13                        |
| Population density (people per km2) (^)  | 2011 | 333,7               | 201,5       | 19                        |
| Incidence of relative poverty (x 100 households) (^)                                     | 2011 | 7,10                | 11,1        | 11                        |
| Income inequality (^) (^)  | 2010 | 0,324               | 0,319       | 18                        |
| Synthetic indicator of deprivation (per 100 households) (^) (^)                          | 2011 | 19,0                | 22,4        | 12                        |

(\*) The ranking refers to the 21 Italian Regions/Autonomous Provinces, ranked from the most to the least virtuous based on the value of the indicator.

(\*\*) Source: Istat. Sistema informativo territoriale su sanità e salute. Health for All - Italia, December 2013 [9].

(\*\*\*) Source: Rapporto MEV (i) 2013 [8].

(°) Source: 10° Rapporto Osservasalute [3].

(°°) Consumers at risk: women who consume more than 20 grams of alcohol per day (1-2 Units of Alcohol-UA1), men who consume more than 40 grams of alcohol per day (2-3 UA), young people aged <16 years taking any amount of alcoholic beverages, young people aged 16-18 who consume more than 1 UA per day, over 65 that exceed the consumption of 1 UA per day, individuals who take on a single occasion more than 6 UA of any beverage (binge drinking).

(°°°)The indicator is calculated on people aged 3 years and over who reported eating at least one serving of fruit and vegetables.

(^ ) Source: Istat. Noi Italia 100 statistiche per capire il Paese in cui viviamo. [Noi Italia. 100 statistics to understand the country we live in]. 2013 [10].

(^^) The indicator is a summary measure of the degree of inequality of income distribution and is calculated on equivalent household incomes, that is made comparable through the application of an equivalence scale that takes into account the different composition of households. This index is zero in the case of a perfect equality of income distribution, assuming that all families receive the same income, is equal to one in the case of total inequality, assuming that the total income is perceived by a single family.

(^^^ ) The synthetic indicator of deprivation is the proportion of households who report at least three of the nine deprivations following: not being able to support unexpected expenses, have arrears in payments (mortgage, rent, bills, debts other than the mortgage), they cannot afford a week of vacation a year away from home, a proper meal (protein) at least every two days, the proper heating of the house, buying a washing machine or a television or a phone or a car.

represent an excellent investment of resources, but it is a mistake to compare the overall primary or secondary prevention interventions with the totality of curative interventions. In other words, as clearly stated more than twenty years ago by Milton Weinstein [15], economic evaluation of preventive and curative interventions must be made separately with full economic evaluations, given that some preventive interventions have more favorable cost-effectiveness ratios than curative interventions, and vice versa.

## CONCLUSION

Although prevention measures should be strengthened, particularly in a time of economic crisis, evidence of effectiveness and cost-effectiveness must drive the selection of prevention activities.



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