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CAN EQUITY BE INCLUDED IN A PERFORMANCE EVALUATION SYSTEM?
SOME EVIDENCES FROM THE TUSCAN HEALTH CARE SYSTEM
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**Can equity be included in a performance evaluation system?
Some evidences from the Tuscan health care system**

SABINA NUTI, SARA BARSANTI

Abstract

Objectives. Can Equity be included in a performance evaluation system? In Italy, the Tuscan Region has tested and now is adopting an integrated model for performance measurement to which the regional administration, the local health authorities, and other stakeholders may refer either in terms of indicators and shared responsibilities. Throughout this performance evaluation system it is now possible to measure also the capacity to pursue equity at a regional and local level.

Methods. In 2005 aspects as equity and access to services, that, in a public system, are very relevant and characterize the political strategy, were included in the performance evaluation system to evaluate the action carried out by the local health authorities, i.e. the operative actors of the system.

This was achieved identifying equity measures and including them in an essential number of indicators, classified in six dimensions and represented in diagram targets.

Results. This comprehensive performance evaluation system helped managers and the regional healthcare system as a whole to learn and to consider equity not only as a political issue but as a management goal.

Conclusions. This system, used continuously and systematically at a regional level, is now a public policy tool and supports the Local Health Authorities in keeping equity in their management goals.

Classification JEL: I14 health and Inequality

Keywords: Performance, Evaluation, Balanced Scorecard, Equity, Health Service Access, Health Targets.

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1. INTRODUCTION

1.1 Equity in healthcare

The WHO's definition of "equity in health" considers two different aspects [1]:

- Equity in health i.e. the attainment by all citizens of the highest possible level of physical, psychological and social well-being;
- Equity in health care achieved when health care resources are allocated according to need and healthcare is provided in response to legitimate expectations regardless of prevailing social attributes or capacity to pay.

Sen A. distinguishes between equity in health and equity in the distribution of health care treatments. For a definition of equity in health in terms of health care treatment units, the tool is not only represented by equal health care treatments for all, but treatments that allow everybody to achieve the same possibility of enjoying good health [2].

Equity in health care depends in first place on access to services.

Equity in health care may be obtained by ensuring the implementation of three main conditions [3]:

1. equal access to available services for equal needs;
2. equal use for equal needs;
3. equal health care quality for all.

Equity and equitable access to health care is a core objective of the Italian Health Care System, both at a national and regional level. Despite having achieved close to universal coverage for nearly all the health services, not all the individuals in equal need are treated equally, with inequalities associated with level of education, which in Italy is significantly associated with income. Equitable access is one of the most relevant goals of the Tuscan Health Care System and this type of issue has been included in the performance evaluation system to assure an adequate effort to be carried out by all the actors of the healthcare system.

1.2 Equity and strategies of the Tuscan Health Care System

Tuscany has about 3,5 million inhabitants. Its health care system employs approximately 50,000 individuals including nurses, physicians and back-office staff, for a total amount of public expenditure of 6,000 million euro.

The regional government works through a network of sixteen public health authorities among which four are university teaching hospitals. Each teaching hospital is entrusted with providing hospital care for citizens resident in their particular town and for a larger geographic scale (more or less a third of the region) for complex acute care.

Local Health Authorities are responsible for providing services to the population living in its area regarding:

- 1 prevention, including the fields of veterinary care, public health and hygiene, sports medicine;
- 2 district healthcare, including primary care and pediatrics, diagnostic and outpatient activities,
- 3 Acute Care Hospital services, community hospitals, hospices, rehabilitation and long care hospitals.

In its 2005-07 Regional Health Plan [4] the Tuscan Region lays down the objectives, values and operative line guides of the Tuscan health model. Among these are the obligatory principles of universality and planning, the former guaranteeing all citizens' access to the Regional Health Service, irrespective of their social class.

In order to sustain, assess and improve the action of its health authorities, since 2002 the Tuscan Region has been planning a system to monitor their performance, involving the measurement of the many important variables in the pursuit of regional strategic objectives. The challenge has been to use a tool, that is usually utilized by private companies to evaluate efficiency, productivity, client satisfaction and profit, for monitoring public goals as equitable access, appropriateness, and health outcomes.

2.MATERIALS AND METHODS

2.1 Premises and goals of the evaluating performance system

In a health system such as Tuscany's one where emphasis is on cooperation between the players of the system rather than on competition, it was important to plan and develop a system that could be shared by the various health authorities themselves and the Regional administration. It needed to be transparent in terms of method and objectives, capable not only of monitoring the health authorities' capacity to maintain financial equilibrium, but also of pursuing the strategic objectives defined at the regional level. It was therefore important to anticipate a system capable of taking into account other types of outcomes, important in order to achieve the objectives of improving the public health and well being, such as the quality of services on offer and the capacity to meet citizens' needs. It was and has been seen as an opportunity for understanding, growing and learning; a tool available not only for the Region, but also for the health authority management, in order to support the government of the health system as a whole and by its specific local authorities; a method of highlighting areas of excellence and of improving areas shown to be critical or weak [5].

Therefore, through the performance evaluation process and the identification of an essential system of indicators, the aim was to start a 'best practices' enhancement process of the local Health Institutions through a benchmarking process [6].

The system proposed is now implemented in all the local health authorities of Tuscany and it showed that it could become a fundamental means for supporting government functions, especially at a regional level.

Some aspects as equity and access to services, that are very relevant and characterize the political strategy of the regional administration in a public system, are usually not considered priorities for health institutions that are managed more like "companies", focused on efficiency and cost control. Aims of the evaluation system in this context were to include equity and access to services and to find a way to link the regional health policy to the action carried

out by the operative actors of the system, i.e. the local health authorities.

2.2 Conceptual Model of the performance evaluation system

Over the last twenty years many performance measurement systems have been developed, each different from the subsequent one [7,8,9]. The one which has become most widespread, however, is the Balanced Scorecard (BSC) system which, although designed for profit-making companies, can also be effectively applied to public bodies providing utilities, as shown by Kaplan and Norton in 2000 and 2001 [10,11]. A fundamental aspect of this system is that there must be cause and effect relations between measures of process and result. Generally speaking, in the case of the public sector the two authors (Kaplan and Norton) propose that the dimensions of performance measurement should be modified and adapted and that the financial perspective, for example, should be replaced with citizens' or users' results.

The focus of the outcome results of the BSC should be linked to the mission of the public non-profit organization. In the case of the healthcare sector, this means the improvement of the state of public health [12]. In fact, if in the case of private companies the objective pursued by managers and monitored with the BSC is that of maximizing shareholder profits, in the case of a regional health system, the main objective common to the system's stakeholders – the general public and politicians – is the improvement of the population's health without any distinctions due to income, education or any other factors. In order to attain this objective, other dimensions in the performance measurement system can be considered, linked to the processes and outputs achieved which act as determining factors.

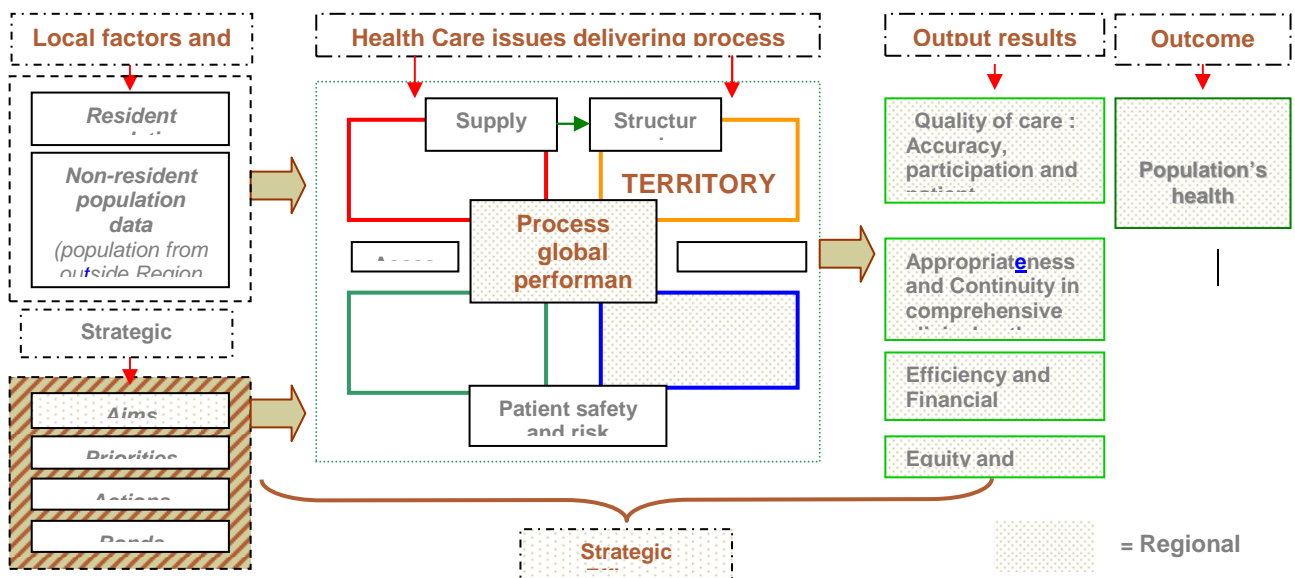
In order to become an efficient tool of strategic management, the BSC should consider financial and non financial measures in a causal relationship so as to highlight that the management of processes leading to outputs capable of improving the final outcomes [10,11,13,14,15,16]. Although the health sector is particularly complex, the BSC can be applied to both a single institution and a regional level. In this latter case the BSC approach is possible where there is a policy with clear strategic objectives for the public and to outputs capable of

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improving the final outcomes [10,11,13,14,15,16]. Although the health sector is particularly complex, the BSC can be applied to both a single institution and a regional level. In this latter case the BSC approach is possible where there is a policy with clear strategic objectives system [17]. Although the field of application of the performance assessment system adopted in Tuscany goes beyond the individual health authority dimension, extending to all the region's health authorities, its role can still be compared to the BSC system in that it is a systematic and coordinated instrument of strategic management, not at company level, but in the sphere of the regional health service. In regional contexts where an integrated policy for the management of public utilities assumes a role of planning and control of the public subject as a guarantee for the citizen, this kind of tool can be both useful and efficient, even at wider levels: it is a means of verifying strategic regional guidelines on the one hand, and of monitoring the capacity of the health authorities to carry out their role in the system and meet local demands on the other.

The research group devised an initial model (figure 1) capable of describing the cause and effect relations in the provision of services by a health authority.

Figure n.1 "The health Care Authority System".



The outcomes, which can only be pursued in the medium to long-term period, refer to the health authority's ultimate aims, or, in other words, to the

improvement of the social well being and state of health of the population.

The diagram shows how the outcomes are preceded by the output results, which play an important role in determining them. These output results are divided into four areas:

- a. user and citizen satisfaction with the standard of services received, including the opportunity to actively participating in the processes surrounding the provision of services, and having a central role in healthcare pathways.
- b. equity and access to services
- c. health and clinical quality of the services provided;
- d. appropriateness and continuity of clinical pathways as strategic results, in line with guidelines laid down by the regional health plan;
- e. capacity to maintain the financial sustainability of the system.

In order to achieve an overall assessment of health authority performance it was essential, in addition to the measurement of output and outcome results, to monitor the conditions for the functioning of the health authority; in other words, the methods employed for managing the organisation.

Six areas were identified for the final representation of the performance measurement results. These were considered capable of highlighting the essential aspects of performance in a complex organisation like the health institutions (table 1). They are:

1. Assessment of the *population's health*. It was considered important to maintain at least three synthetic indicators to keep managers' attention focused on the ultimate aim of every effort made; i.e. the improvement of the population's health.
2. Assessment of the *capacity to follow regional strategies*. Tuscany's health authorities are not only required to demonstrate their ability to function efficiently and effectively as autonomous bodies, but also as units making up the regional health system, working as a team in order to make the most of synergies and to guarantee access and equity to all the region's population.
3. Assessment of *efficiency and financial performance*. This is the

verification of each health authority's capacity to pursue the three conditions of balance in the economic and financial sphere: the income balance, the monetary balance, and the financial balance.

4. *Clinical and health assessment.* This area includes results regarding quality, appropriateness, effectiveness, and the capacity to govern the supply and demand of the health services.
5. *External assessment.* This is citizens and patients evaluation of health services.
6. *Internal assessment.* This area deals with the levels of health authority staff satisfaction.

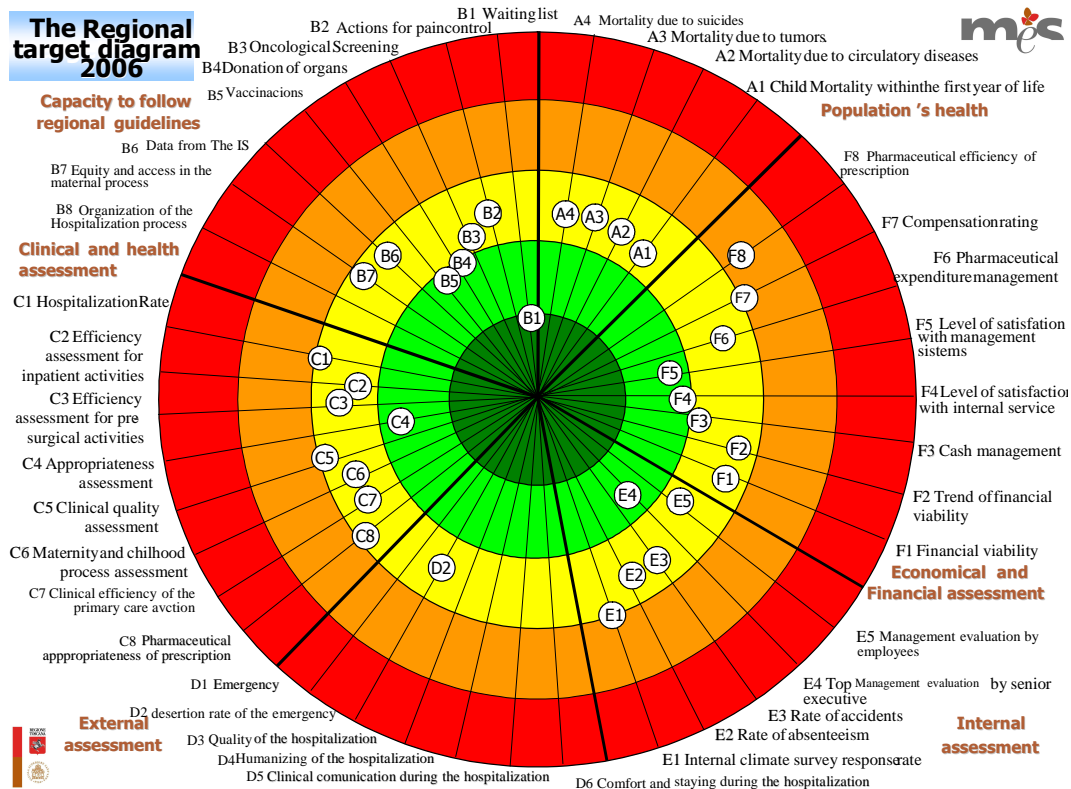
In order to provide an adequate representation of the results reported by the health authorities in each of the areas identified, a "target" diagram was used, divided into five assessment bands. The more a local health authority is capable of reaching objectives and obtaining results in the various performance areas, the nearer the center (the green area) is the performance indicator (figure 2).

Each indicator is represented by a code, as illustrated in table n.1.

Assessment levels were divided into five different bands:

1. *Dark green band*, closest to the centre of the target, corresponding to excellent performance; on a five-band assessment scale, it represents a score of between 4 and 5;
2. *Light green band*, corresponding to good performance and a score of between 3 and 4;
3. *Yellow band*, where assessment is between 2 and 3 and performance, although not negative, leaves ample scope for improvement;
4. *Orange band*, where assessment is between 1 and 2 and shows a worrying situation; performance can and must be improved;
5. *Red band*, where performance assessment is below 1.

Figure n. 2 “The Regional target diagram (2006)”.



In order to be able to classify measurements regarding the indicators in each area, the following reference criteria were taken into consideration:

- Where this exists, a recognised international standard was considered (e.g. the maximum rate of Caesarean sections recommended by the WHO);
- Where no international standard exists, the regional average was considered, corrected with any risk adjustment factors to make it possible to compare the health authorities;
- Where possible, the achievement of a regional goal was considered, especially in the part of the diagram regarding the Assessment of the capacity to follow regional strategies.

Each health authority therefore has its own target which summarises its six-area performance results into overall indicators. In most cases each of these indicators actually represents the synthesis of a “tree” of indicators which feed the synthetic result.

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Table n. 1 “The indicators”.

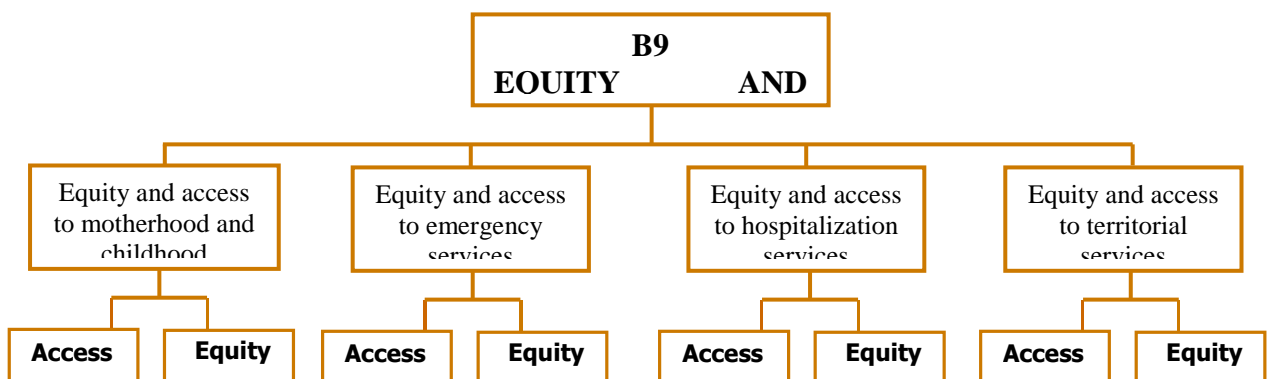
POPULATION ‘S HEALTH (A)	
A1	Child Mortality within the first year of life
A2	Mortality due to tumours
A3	Mortality due to circulatory diseases
A4	Mortality due to suicides
CONSISTENCY VERSUS REGIONAL STRATEGIES (B)	
B1	Waiting lists up to 15 days for outpatients services
B2	Rate of consumption of drugs for pain control
B3	Oncological screening
B4	Donation of organs
B5	Vaccines distribution
B6	Data from the IS
B7	Equity and access
B8	Organization of the hospitalisation
CLINICAL ASSESSMENT (C)	
C1	Rate of hospitalisation
C2	Efficiency assessment for inpatients activities
C3	Efficiency assessment for pre surgical activities
C4	Appropriacy assessment
C5	Clinical quality assessment
C6	Maternity and childhood process assessment
C7	Clinical actions of the territory
C8	Pharmaceutics prescription appropriacy
EXTERNAL ASSESSMENT (D)	
D1	Emergency Room quit rate
D2	Quality of the hospitalisation
D3	Friendly hospitalisation
D4	Clinical communication during the hospitalisation
D5	Comfort and in the hospitalisation
D6	Comfort and staying during the hospitalization
INTERNAL ASSESSMENT (E)	
E1	Internal climate survey response rate
E2	Rate of absenteeism
E3	Rate of accidents (n. accidents/n. of employees)
E4	Top Management evaluation by senior executives
E5	Management evaluation by employees
ECONOMIC AND FINANCIAL ASSESSMENT (F)	
F1	Financial Viability
F2	Trend of financial viability
F3	Cash management
F4	Level of satisfaction with internal services
F5	Level of satisfaction with management systems
F6	Pharmaceutical expenditure management
F7	Compensation rate
F8	Pharmaceutics prescription efficiency

2.3 Equity indicators in the performance evaluation system

Health equity cannot be measured directly [18,19]. Instead, it can be defined in terms of the absence of differences across social strata on important measures of health determinants [1]. Health inequities are, therefore, disparities in health or its determinants that favour more advantaged groups. Key determinants of health includes: income and social status, social support networks and environment; education and employment; physical environments; healthy child development; biological and genetics factors; race and ethnicity; and gender [20]. An equity target should specify a concrete, measurable goal for reducing avoidable, unfair gaps between groups. Equity targets are different from overall targets, which only specify goals measured in terms of averages that mix all groups together [21,22,23,24].

In Tuscany indicators for assessing inequity in health and health care are in their infancy. The challenge has been to incorporate equity indicators in regional and local health multi-dimensional reports, so to encourage the efforts to contain health care costs without compromising prevision of services or health outcomes to all citizens independently of their ability to pay and to eliminate barriers to care.

Figure n.3 “The equity and access indicators”



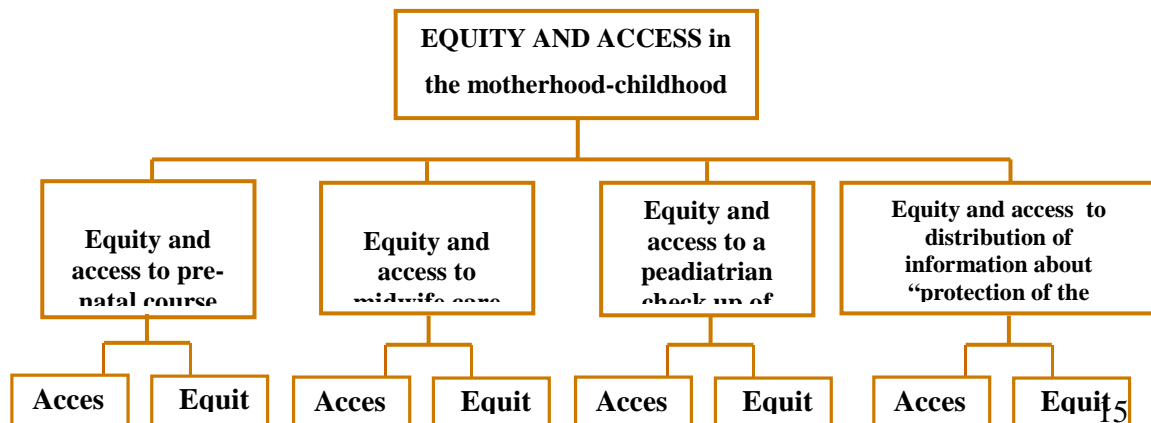
The system uses multiple equity and access indicators. They are summarised in tree B9 (figure n.3) and characterised by the analysis of the results of the Local Health Authorities' actions based on targeted user education levels. In brief, the goal of our analysis is to check not only which results have been achieved, but also to evaluate the capacity of the Local Health Authorities to implement supplemental actions to prevent inequality in access and promote the use of the relevant benefits by the more underprivileged groups of users [25].

3. RESULTS

To provide an example among the indicators shown in the chart above, the indicator concerning the measurement of equity and access in the motherhood-childhood process is particularly interesting.

This indicator is a summary of more indicators and it is done by a tree of determinants (figure n.4).

Figure n.4 "The equity and access indicators in motherhood-childhood pathways".



Each indicator is evaluated from two points of view:

- The access to service, as the total percentage of citizens who used the health services;
- The equitable access to the service, as the distribution of the education degree of the citizens who use the service.

The total score of the indicators is the average of the relative access and equity score. It is possible to construct different types of indicators, assigning various weights to every pointer.

The latter includes the following indicators:

- equity and access to an prenatal course;
- equity and access to visits at home by a midwife;
- equity and access to paediatrics visit in the first 3 months of life of the infant;
- equity and access to distribution of information about “protection of the working women in pregnancy”.

The data of the analysis were collected through the results of a telephone survey (CATI method) of women who had given birth at least 30 days prior to the survey. The aim of the survey was to reconstruct the entire maternity and infant care pathway, from the prenatal to the postnatal phase. The actual sample size totalled 3.720 units composed of :

- 2% of mothers with 5 years schooling (primary school certificate);
- 28% of mothers with 8 years schooling (secondary school certificate);
- 53% of mothers with 13 years schooling (high school diploma);
- 17% of mothers with a degree or other university qualifications.

Such distinction is a faithful picture of the schooling situation of the Region.

The choice to use education levels as a starting point for our study on equity certainly entails some limits, but this seems to be the most practiced approach in Italy for the surveys on inequality in health care [26,27]. Internationally, many approaches have been used to measure the social gradient through education levels for an analysis of health outcomes [28,29,30]. In general, the assumption is confirmed that the higher the number of school years attended, the lower the morbidity and mortality rates. The educational level is considered even by modern theories on the social determinants of health as a discriminating factor for health and access to services [31].

The access to the service is referred to the percentage of the mothers who use the services, not taking into account their educational qualifications. The Local Health Authorities are evaluated by their capacity to offer the service and to transform a potential access in a realized access. With the increase of the services' use rate, the local health authorities' performance evaluation increases.

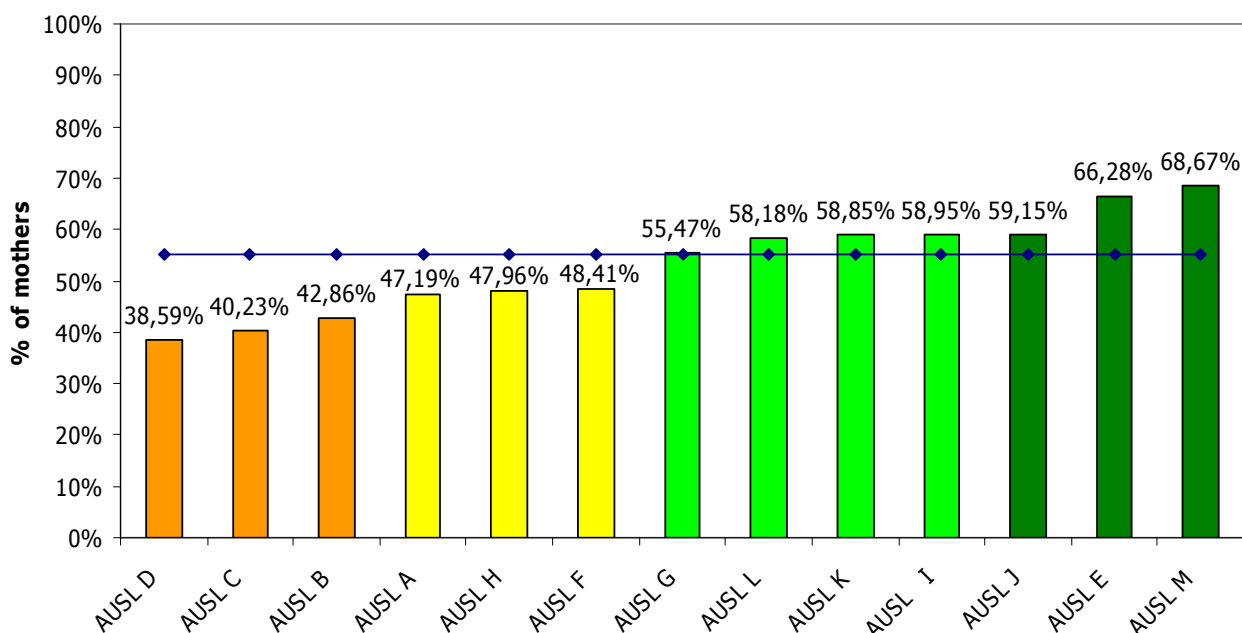
The equity evaluation is calculated on the distribution of the educational qualification of the mothers. The utilization rate of the services is fairly distributed between the mothers when the realized access is not influenced by the educational qualification of the mothers. When the difference between the maximum and minimum service access percentages, distinguished by the mother's educational level, equals zero, the service offered is equally used by graduate mothers and mothers who have only completed their compulsory school years. Conversely, when this difference is over 30%, the system can be assumed not to be ensuring universality and equity of access, as mostly higher-

educated mothers actually use the service.

The main equity-objective of the whole maternal and childhood process is to minimize the difference of access between different educational level.

Figure n.5 shows the performance of the Local Health Authorities in Tuscany regarding the access to the preparation course for childbirth in terms of the percentage of the mothers who attended the course.

Figure n. 5 “The performance of the Local Health Authorities regarding the access to the prenatal course(2005)”.

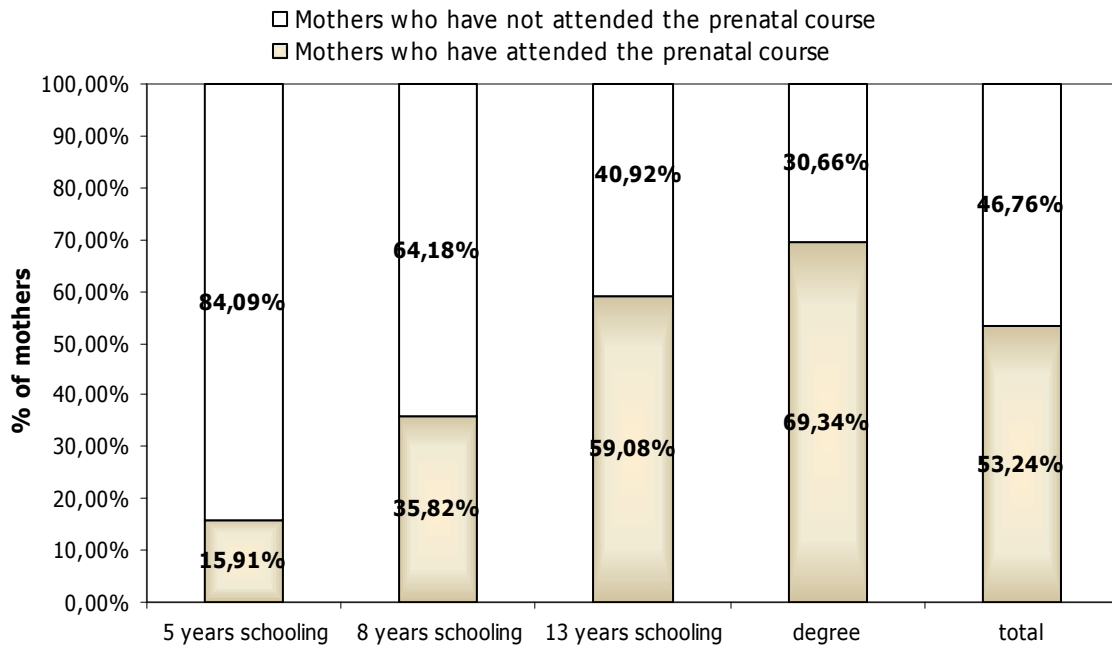


the mothers who have attended the course in the year of the survey, but not the mothers who have already attended to former editions of the course.

Not all women who gave birth attended a prenatal course. The Regional goal is to achieve about 80% of primiparae attending prenatal courses. The interviews showed that less than half of the women attended a course, with variations between authorities of between 33% and 59%. If the analysis is limited to primiparae alone, the percentage attending courses rises to over 60%, but in none of the authorities reaches the goal of 80%.

Figure n.6 shows the regional distribution of the educational qualification of the mothers who attended the pre-natal course.

Figure n.6 “The regional distribution of the educational qualification of the mothers who attended the pre-natal course(2005)”.



The table shows how the education level of the mother influences the participation to the course: as the educational qualification rises so does the participation to the course. This association is also confirmed by the Chi-square statistical index, which shows a value of 52, with a p-value of 0.0001.

4. DISCUSSION AND CONCLUSIONS

Universal health care systems do not seem to suffice to ensure equal access to prompt, appropriate and effective treatment, unless such services are expressly aimed at focusing onto specific, more socially-vulnerable individuals and groups through medical initiatives and physical closeness to the most

difficult subjects to treat. This implies that there is a need for new planning criteria, which consider not only the sustainability of the service, but also its effectiveness in terms of equity of the actual provided access. The same health inequality may lay the basis for such new planning criteria. This, in terms of evaluation of performances, translates into the introduction of the so-called “health determinants” for individuals as benchmarking criteria starting from regional health care systems and individual health care units with self-assessment tools, up to professionals with equity audit techniques.

Tuscany’s health care system pursues equity objectives by implementing centralised planning processes, but also uses local health care organisations as an essential tool for action. An efficiency- and productivity-targeted culture of governance in the local health organisations allows the regional system as a whole to pursue its own financial sustainability.

The assessment system adopted provides an environment where the regional system’s logics meet those of the individual local health organisations that are its component parts.

The peculiarity of this system consists in combining goals like efficacy and efficiency with the objectives of health and access to services, which are often considered as a trade-off for efficiency and as a cause of diseconomies.

The principle of financial sustainability goes hand in hand with the principle of universality, so typical of a public service system. Many of the indicators monitored in the six dimensions considered in Tuscan assessment system have been determined both in global terms and by category of user, so as to detect any problem related to equity. Such an approach allows the users to clearly define actions to implement and inequality to prevent.

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After two years of utilization of the system, some final remarks can be expressed:

1. For the first time, integrating data from the regional information system and field studies, data and measurements have been made available and capable of representing each health authority performance from various dimensions and the regional system as a whole;
2. The information dealt with and represented uniformly has enabled an efficient and constructive comparison between the system's local health authorities; this has made it possible to highlight the aspects of health authority management where problems are of a regional nature, and those which derive from the individual authority. In fact, if a particular indicator showed a negative performance for all the local health authorities surveyed, then this is clearly a general problem that requires attention at a regional level. When, instead, performance varies between authorities, it becomes clear that some authorities could learn from others and that collaboration between them could help to overcome problem areas.
3. Finally, the system offers the regional council a richer and more adequate assessment tool, where equity becomes a true goal to achieve and to measure.

In conclusion, the performance evaluation system proposed in Tuscany seems to have a fair equilibrium between the regional government's need to control the local health institutions and the local institutions' need to control their own performance. "New strategic health authorities should have a coordinating role for performance measurement, and still collect hard data about

performance in healthcare organizations, but also recognize the need to use soft information and not forget the socio-economic context within which health organizations are working" [32].

Health care institutions must be encouraged to measure their performance locally, creating an appropriate culture of evaluation and learning, focusing attention not only on cost control and quality, but also on equity and access. The regional administration can support this process coordinating a benchmarking system to help local organizations learn from other experiences, overcome the self-reference and improve even without the presence of a competitive environment.

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