Health Inequalities in Italy: Comparing Prevention, Community Health Services, and Hospital Assistance in Different Regions

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Regions are likely to face health care and aging problems (as well as other socioeconomic challenges) by adopting different measures and strategies that may lead to further differentiation in health care provision in the long run. In the short term, the essential levels of assistance/care (livelli essenziali di assistenza [LEA]) assessment grid shows how regional performance in three areas of the health care sector (prevention, community health services, and hospital assistance) proceed at different speeds. Contrary to expectations, the north-south divide is not the only territorial divide that exists. Strong differences exist even among regions in the north-east, north-west, and center of Italy. The results depict a four-speed ranking in LEA performance.

Keywords*: national health system, health inequalities, Italian regions, essential levels of care, monitoring*

Introduction

Italy adopted a national health service (Servizio Sanitario Nazionale [SSN]) in 1978. Significant transformations in health policy took place from the late 1940s onwards when Italy's health policy was first designed as a social insurance system. Then further transformations took place at the end of the 1970s, when a Beveridgean health care service was developed. Health policy again entered the institutional agenda when the SSN underwent two major reforms in 1992–1993 and 1999, aiming to increase the system's cost-effectiveness and decentralization. The SSN is decentralized and regionally based: the central government channels

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general tax revenues for publicly financed health care, defines the service package, and exercises overall stewardship. Each region is responsible for the organization and delivery of health services through local health structures and via public and accredited private hospitals. From the 2000s onwards, significant innovations in health policy-making have concerned state–region relationships and have led to the adoption of new governance tools for joint management of health expenditure. According to many observers, the degree of autonomy at the regional level has been partly called into question by measures taken at the national level since the onset of economic and financial crisis in 2008.

The pandemic outbreak led to partial recentralization in order to face the emergency. The national Ministry of Health was the main authority for the health system response, coordinating with regional ministries in the procurement of pharmaceuticals, medical devices, human resources, and infrastructure. The regions set up crisis management units with regional health authorities, directors of local health enterprises, and the prefectures as the central state representatives (Organization for Economic Cooperation and Development [OECD] & European Observatory on Health Systems and Policies, 2021). Differentiated approaches are reflected by performance scores of essential levels of assistance/care (*livelli essenziali di assistenza* [LEA]) across different regions. The LEA assessment grid provides a multidimensional evaluation of health care services in each region of Italy.

This paper aims at illustrating regional differences across LEA performance scores. The study depicts the uneven Italian context in the field of regional performance with respect to a set national threshold. The study is divided into five sections. Section 2 introduces historical background of regionalization of the health care system in Italy. Section 3 introduces definition of the essential levels of care and new indicators to measure them. Section 4 proposes a comparison within and between regions with reference to LEA grid scores. Section 5 concludes with some remarks about the past and future challenges in the field of health care and LEA assessment.

The Regionalization of the Health Care System in Italy

Law No. 833/1978 transformed health care from a workers' entitlement to a citizens' entitlement. By universalizing insurance coverage to the entire population, access to publicly financed care became a function of residence and not of patients' contribution record. The 1978 legislation established a new uniform structure for service provision based on regions and local health units; it introduced a new model of administration based on three distinct levels: (1) central government, responsible for national planning and overall financing through compulsory contributions and taxes; (2) regional governments, responsible for local planning and for the organization of services within their jurisdictions; and (3) local health units, responsible for the provision of services through their own structures (ambulatories and hospitals) or through contracts with private providers. The 1978 reform planned to shift health care funding from social

contributions to a tax-based financing system to guarantee higher equity and alleviate financial pressure on families. However, this shift did not occur during the 1980s, and mandatory health care contributions continued to account for around 50 percent of Italy's health service revenues until the SSN reform in 1992–1993. This reform established that regions had to substitute health contributions with a regional tax by 1998.

During the 1980s, alarmed by increase in expenditures, the government introduced a financial management policy for the health care system aimed at curbing demand for services by imposing expenditure ceilings on regions and making users contribute copayments. At the same time, the reform of the health care sector was included in the agenda of different governments and discussed in the Parliament. The main goal was to rationalize and reorganize the structure and financing mechanisms of the SSN.

The 1992–1993 health legislation (known as "the reform of the reform") extended the powers and responsibilities of the regions on the revenue side (compulsory health contributions returned to regions of residence). The state's contribution to funding health care was fixed prospectively. The Ministry of Health set a per capita allowance (*quota capitaria*) sufficient to guarantee a citizen in any part of the country access to the so-called essential levels of care. Any care provided but not covered by the *quota capitaria* has to be paid for by the regions, as well as additional costs due to lower levels of efficiency than those assumed by the Ministry of Health in calculating the financial resources necessary to provide essential levels. Within limits established by the national legislation, regions acquired the power to increase contribution rates, to apply higher patient copayment rates, to introduce copayments for services so far exempted, and to spend untied revenues on health care (Maino, 2001).

In order to stimulate greater efficiency and more attention to the quality of services, measures were taken to separate purchasers and providers and to encourage competition. In order to reduce bureaucracy and improve management, the existing local health units were transformed into local health enterprises with more operating autonomy, commercial accounting procedures, performance auditing, and administered by senior managers appointed by the region for 5 years with performance-related salaries. In addition, large hospitals were transformed into hospital enterprises, independent from local health enterprises and administered by contracted senior managers. The new hospital enterprises have to operate with balanced budgets: budgetary surplus can be used for investments and staff incentives, while unjustified deficits result in the loss of autonomy. Thus, the task of implementing and administrating quasi markets was attributed to the regions, which have the right to organize the health offer as they want, redistributing or centralizing the local health enterprises, ruling the accreditation mechanism of private structures, and, in the case of wealthier regions, supplying citizens with services in addition to those ensured by the state within the national health service (Maino, 2001). The national legislation limits itself to the definition of a broad legislative framework within which each region is free to adopt the form

of managed competition that is more consonant with its particular situation and with the preferences of its residents, as expressed through their elected representatives at the regional level.

In 1999, a new health care reform strengthened the operational autonomy of local health enterprises and hospitals, increased the powers of the central government and the regions in determining qualitative service standards and quality controls, and provided a legislative framework for the establishment of integrative mutual funds to improve the provision of treatments exceeding the essential levels stated by the National Health Plan (Maino, 2001).

The "reform of the reform" intended to confront all the problems generated by the conflict between the state and the regions and improve the health system's efficiency and responsiveness. The solution consisted of making regions more responsible for funding their health services by introducing and implementing mechanisms of managed competition within their jurisdiction. The emphasis on managerialization to be implemented at the regional level in the 1992–1993 reform has, therefore, strengthened health decentralization and brought about different health care models (Maino, 2001; Maino & Razetti, 2021).

From the mid-1990s onwards, a crucial issue has been funding the SSN and the connection between health care and fiscal federalism. Since the 1992–1993 reform, the mechanism of financing the SSN has seen further modification following the introduction of the Imposta Regionale sull'Attività Produttiva (regional tax on productive activities [IRAP]) from January 1998, a regional tax to be levied on all production and professional activities. The regions directly collect the new tax, replacing compulsory health contributions. IRAP links health care funding to GDP, giving more fiscal autonomy, more management power, and more control over taxes to regions, and substitutes a set of taxes, including the health tax (*tassa sulla salute*) and health contributions paid by employers (and a small share by employees).

However, the most crucial stage in the development of fiscal federalism is represented by Legislative Decree No. 56/2000, which established the gradual devolution of power from the central state to the regions by abolishing the National Health Fund and the earmarked grant for the health care sector based on a *quota capitaria* defined by the National Health Plan on a 3-year basis. By sharing part of the revenue of some taxes, regions have new resources at their disposal: additional regional tax, excise duties on petrol, and VAT. An equalization fund also guarantees resources to those regions with a low fiscal capacity. Regions able to ensure savings from health care expenditures can be rewarded and could keep those savings within their regional health fund. At the same time, the earmarked grant has been gradually substituted by monitoring and evaluating the quality and quantity of health care assistance provided by each region. Within this context, the settlement of previously accumulated regional deficits and the setting of annual per capita health expenditure represented the pivot of the new funding mechanism (France, 2001). Following the August 2000 agreement between the national government and the regions, the regions were responsible for financing

health expenditure exceeding the agreed threshold by resorting to the following alternatives: streamlining measures, increase in copayments, introduction of a regional addition to personal income taxes, and/or further increase to IRAP.

In 2001, an amendment to the Constitution (Reform of the 5th Chapter) consolidated the power of the regions, which were given legislative power for a number of matters concurrently with the state. The amendment also constitutionalized the guaranteed entitlement of essential services to all citizens (set by the state), backed by an equalization transfer program to ensure that all regions have the resources to provide this entitlement.

To sum up, after both Legislative Decree 56/2000 and the 2001 Constitutional reform, the state retained the functions of planning, coordination, and control, responsibility for health care research, and experimentation activities of national and international relevance as well as responsibility for the definition of essential levels of care to ensure benefits accruing from social rights throughout the country. The center also has to monitor, supervise, and evaluate the quality and the quantity of the health care assistance provided by each region. The regions that cannot keep the budget balanced are able to use the national equalization fund, which is created to avoid conflicts among regions and sustain the less resourceful ones.

Owing to all these reforms, development of the Italy's SSN is strongly connected to the decentralization process. Public expenditure containment remains high on the agenda. Decentralization might threaten the national interest in health care if it were to create downward pressure on national standards of provision or encourage significant regional diversity. This has happened with pharmaceutical care, several regions using their autonomy to redefine pharmaceutical coverage or set copayments. As France and Taroni (2005) underlined, regions are powerful veto points in the formulation of national policies because of their increased autonomy.

Moreover, health care policy is now made less in the Parliament and at the central ministries and more through negotiation between the national government and the regions (Maino & Razetti, 2021). One has to pay more attention to the capacity of the regions, as opposed to that of central government, to tackle special interest groups, which may vary between regions. Therefore, regions are likely to face the health care and ageing problem (and other socioeconomic challenges) by adopting different measures and strategies that may lead to further differentiation of health care provision in the long run.

Definition of Essential Levels of Care and New Indicators

The SSN provides universal and automatic coverage to the resident population. Opting out of the public system is not allowed: private insurance plans and mutual aid societies may provide complementary and additional health coverage but they cannot be chosen as an alternative to the public scheme whose funding is compulsory (Maino & Razetti, 2021). The public system includes health services

consistent with the principles of appropriateness, evidence-based efficacy, and cost-effectiveness.

These services, which the Italy's SSN must provide homogeneously throughout the country, refer to three "essential levels of care" (as detailed in the Decree of the President of the Council of the Ministers of January 12, 2017), subdivided into "collective prevention and public health" (comprising vaccinations, primary and secondary prevention activities, occupational health services, food safety controls, and veterinary hygiene); "community health services" (encompassing primary care by general practitioners and pediatricians, emergency care, specialist outpatient care, pharmaceuticals, prosthesis care, ambulatory and home care, residential and semi-residential care, and thermal therapies); and "hospital services" (including emergency rooms, ordinary hospitalization for acute patients, day surgery, day hospitals, post-acute rehabilitation, long-term care, transfusions, transplants, and poison control centers). In addition, twenty regions of Italy can provide residents with extra services as long as the region can finance them.

Despite the breadth of the services embraced under the national health scheme, dental care is not covered by the SSN, except for highly vulnerable categories, and that to a limited extent for children aged less than 16 years. As to pharmaceuticals, existing legislation groups them into three classes (A, C, and H), regularly updated by the National Pharmaceutical Agency (AIFA). Class A includes medicines which, being considered essential for health or necessary in case of chronic diseases, should be free of charge, although any single region is allowed to ask for copayments on them (as it is virtually always the case); class C includes drugs (both subject and not subject to medical prescription) classified as nonessentials: their cost is entirely charged to patients; and class H refers to pharmaceuticals that, by law, can only be administered within the structures of the SSN.

In order to monitor the maintenance of these essential levels of care, a grid (the LEA grid) was defined by the Ministry of Health, consisting of thirty-three indicators measuring the three dimensions (collective prevention and public health, community health services, and hospital services). Despite the importance of this grid, the Ministry of Health has often published the annual monitoring results with considerable delay—21 months on average (GIMBE, 2022, p. 44), thus compromising monitoring effectiveness. This delay is an obstacle to regional health planning, but it encourages political instrumentalization during regional political elections. Moreover, the capacity of the LEA grid to capture tangible outcomes has diminished over time for two main reasons: how it is collected (with regions required to self-certify), and the substantial stability of the indicators used.

As a result, in 2019, only two regions (Molise and Calabria) were at default (see Figure 1 in Section 4), while other independent reports showed a general deterioration in the quality of health care (Aceti, Del Bufalo, Nardi, & Ruggieri, 2022; Cittadinanzattiva, 2020; GIMBE, 2022).

In order to overcome these critical issues, as of January 1, 2020 (as stipulated in Ministerial Decree of March 12, 2019), the LEA grid was replaced by the CORE subset of indicators of the New System of Guarantee (NSG). In the next section,

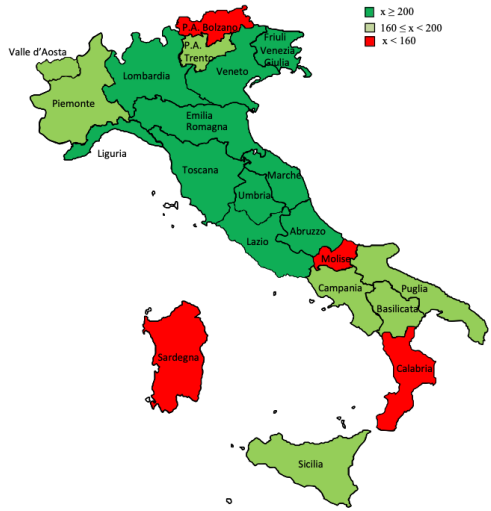

Figure 1 Regional LEA performance, 2019.
Source: Ministero della Salute (2021, p. 29).

we discuss main results on regional basis; however, it is worthwhile to present briefly the main new features and possible critical issues connected with the new LEA-monitoring system.

The scope of the NSG is to provide a multidimensional assessment of quality of care (safety, effectiveness, clinical and organizational appropriateness, equity, citizen and patient participation, and efficiency) through eighty-eight indicators. These are related to three macro-levels of care (seventy-three indicators)—namely collective prevention and public health (sixteen indicators), community health services (thirty-three indicators), and hospital services (twenty-four indicators); the context for health needs estimation (four indicators); social equity (one indicator); and to the monitoring and evaluation of diagnostic and therapeutic care pathways (ten indicators).

However, at the start of the pilot phase (January 1, 2020), only twenty-two indicators were used (defined as CORE), mainly ascribable to the three macro-levels of care (prevention, community, and hospital). The weighted average gives the score for each area, and it can vary between a minimum of 0 and a maximum of 100 points. For each area analyzed, the minimum goal for reaching the threshold is 60 points.

Therefore, unlike the previous LEA grid, the new assessment does not synthesize the three macro-level assessments into a single score but measures each of them independently. As a consequence, results change at the regional level. As we see below, results of the 2019 experiment flag six regions as noncompliant in at least one of the three macro areas of care.

Regarding the critical issues, some analysts point out that although the complete set of eighty-eight indicators can offer a multidimensional assessment of the quality of care, the CORE indicators used do not seem satisfactory (GIMBE, 2022). Indeed, to assess LEA compliance, only twenty-two indicators are used, which were even lower than that in the LEA grid (equal to thirty-three indicators). For this reason, the 2020 grid could constitute an inadequate tool.

Moreover, technical committee (established within the LEA Committee to test the methodology of monitoring LEAs through NSG) never disclosed the criteria for selecting CORE indicators. In addition, absence of a planned rotation among the indicators is a risk, leading to a crystallization of assessment tool, as happened with the LEA grid. Finally, the choice of a threshold of sixty points risks legitimizing a deficient level of performance and a flattening of different regional performances.

Across the LEA. Against the odds: Beyond the North-South Inequality

The LEA assessment depicts a country marching at four speeds. As said, the benefits and services that fall under this umbrella are those that the SSN must (should) provide to all citizens free of charge or upon payment of a participation fee (citizens' copayment). This provision, guaranteed through public tax revenues, is considered the cornerstone of Italy's health care services. The assessment, following the introduction of federalism in health care, has so far been considered an indicator of the efficiency of individual regional health services.

With reference to 2019, assessment of the overall score shows seventeen regions being positively evaluated (achieving a score of 160 points or higher according to the grid). The ten regions that achieved a score above 200 points are Veneto, Tuscany, Emilia Romagna, Lombardia, Marche, Umbria, Liguria, Friuli Venezia Giulia, Abruzzo, and Lazio. Seven other regions scored between 200 and 160 points (minimum acceptable level): Puglia, Piedmont, Autonomous Province of Trento, Sicily, Basilicata, Campania, and Valle d'Aosta. The Autonomous Province of Bolzano, Molise, Calabria, and Sardinia are characterized by scores below the acceptable threshold (lower than 160 points). Figure 1 summarizes the regional points attributed for the essential levels of care. The regions colored light green (mid-performer) are almost equally distributed in the north (Valle d'Aosta, P.A. Trento, and Piedmont on the one side, and Campania, Basilicata, Puglia, and Sicilia on the other). The worst performers are concentrated in the south (Molise, Calabria, and Sardinia). The same can be stated for P.A. Bolzano in the north-east of Italy.

However, as stated in Section 2, the revised LEA grid proposes measurement of each of the three macro-level assessments. The output shows greater variance at the regional level. The results flag six regions as noncompliant in at least one of the three macro areas (prevention, community, and hospital), where the minimum threshold is set at 60 points (Table 1).

For the purpose of comparisons within and between regions, we considered twenty-two CORE indicators across the three macro areas (prevention,

Table 1 Noncompliant regions by area, 2019

Region	Prevention area	Community health services area	Hospital area
Valle d'Aosta	72.16	48.09	62.59
P.A. di Bolzano	53.78a	50.89	72.79
Molise	76.25	67.91	48.73
Basilicata	76.93	50.23	77.52
Calabria	59.9	55.5	47.43
Sicilia	58.18	75.2	70.47

Source: Ministero della Salute (2022).

community, and hospital). The remaining sixty-six indicators were defined as NO CORE indicators.

The first area to be assessed was prevention (Appendix A). Out of twenty-one regions, only three regions performed overall below the set threshold: P.A. Bolzano (53.78 points), Calabria (59.9 points), and Sicilia (58.18 points). However, six southern regions (Molise, Campania, Puglia, Basilicata, Calabria, and Sicilia) registered low results in indicator 5 (composite lifestyle index), and seven regions (Molise, Campania, Puglia, Basilicata, Calabria, Sicilia, Sardegna) registered low results in indicator 6 (proportion of people who have had first-level cervix, uterus, breast, and colorectum screening tests in an organized program). Among the northern regions, Valle D'Aosta (48.21 points) and P.A. Bolzano (3 points) reported low scores in vaccination coverage of children at 24 months for the first dose of measles, mumps, rubella (MMR) vaccine (indicator 2). Moreover, the final score for Valle D'Aosta (56.67 points) and Friuli (55.55 points) was below the average with respect to the coverage of major activities related to the control of animal registries, livestock feeding, and drug administration (indicator 3).

The area of community health services was evaluated through nine indicators (Appendix B). In this case, the snapshot of regions' performance was much more differentiated. The overall score was below the threshold for only four regions of Italy: Valle D'Aosta (48.09 points), P.A. Bolzano (50.89 points), Basilicata (50.23 points), and Calabria (55.50 points). Nine regions—central and southern ones—performed below the threshold for indicator 11, being the percentage of priority class B services (in relation to total class B services) guaranteed within time: B services must be performed within 10 days, as they are a mid-urgent class of health services. These regions were Umbria (35.24 points), Marche (50 points), Lazio (56.11 points), Abruzzo (26.61 points), Molise (39.08 points), Campania (31.55 points), Puglia (32.40 points), Basilicata (39.15 points), and Sicilia (48.29 points). None of the northern areas registered the same result for indicator 11.

Among low performers, eight southern and central regions performed below the threshold in indicator 14 (percentage of repeat psychiatric hospitalizations out of total psychiatric hospitalizations): Umbria (50.70 points), Marche (47.64 points), Lazio (1.73 points), Abruzzo (44.49 points), Molise (14.84 points),

Basilicata (47.62 points), Calabria (17.12 points), and Sicilia (48.08 points). The same was observed for four northern regions: Piemonte (49.59 points), Valle D'Aosta (34.82 points), P.A. Bolzano (36.05 points), and Friuli Venezia Giulia (31.32 points). Again, eight southern and central regions achieved below the set threshold in indicator 15 (number of deaths because of cancer assisted by the Palliative Care Network as a proportion of the number of deaths because of cancer): Lazio (44.33 points), Abruzzo (45.75 points), Molise (25.99 points), Campania (9.05 points), Puglia (38.22 points), Basilicata (21.77 points), Calabria (48.18 points), and Sicilia (43.19 points). The same outcome was registered in one northern region, Valle d'Aosta (34.82 points).

Concerning regions' performance across the seven indicators included in the hospital area (Appendix C), the overall score was insufficient to achieve the threshold for Molise (48.73 points) and Calabria (47.43 points). As with the previous areas, the underachievers were concentrated in the southern regions. More particularly, ten southern and central regions recorded a score below the acceptable threshold for indicators 21 (percentage of primary cesarean delivery sections in facilities with less than 1,000 deliveries per year) and 22 (percentage of primary cesarean delivery sections in facilities with 1,000 deliveries and more per year), whose performances were computed together: Marche (40.66 points), Lazio (28.70 points), Abruzzo (40.60 points), Molise (26.24 points), Campania (6.76 points), Puglia (26.35 points), Basilicata (55.59 points), Calabria (19.97 points), Sicilia (24.50 points), and Sardegna (18.06 points). Four southern regions—Molise, Basilicata, Calabria, and Sardegna—scored below the threshold for indicator 20 (proportion of patients aged 65+ diagnosed with femoral neck fracture operated within 2 days in an ordinary regimen). Five scored below the threshold for indicator 17 (proportion of surgeries for malignant breast cancer performed in departments with a volume of activity greater than 135 surgeries per year): Lazio, Molise, Campania, Calabria, and Sicilia. Three scored below the threshold for indicator 19 (proportion of laparoscopic cholecystectomies with a hospital stay of less than 3 days): Molise, Basilicata, and Calabria. Among northern regions, Valle D'Aosta underscored for indicators 19, 20, and 21/22, and Liguria for indicators 20 and 21/22.

As shown below, overall performance is differentiated even among geographical areas. We observed four different speeds among them. Owing to high differences, we couldn't offer a unique ranking to Italy's regional performances. The differences are suggested in Table 2, where the colors indicate regional performance, ranging from red (the worst performance) to green (the best performance).

The twenty-one regions of Italy proceed at different speeds. The scores presented above depicted a highly differentiated context across the three areas of prevention, community health services, and hospital. The overall scores are the result of strong differentiation in the individual scores of their component indicators. We consider Italy to be delimited by four dials: north-west (Valle d'Aosta, Liguria, Lombardia, and Piemonte); north-east (Trentino-Alto Adige, Veneto, Friuli-Venezia Giulia, and Emilia-Romagna); center (Toscana, Umbria, Marche, and Lazio);

Table 2 Overall regional performance by area, 2019

Region	Prevention area	Community health services area	Hospital area
Piemonte	91.72	88.83	85.78
Valle D'Aosta	72.16	48.09	62.59
Lombardia	91.95	89.98	86.01
P.A. Bolzano	53.78	50.89	72.79
P.A. Trento	78.63	75.06	96.98
Veneto	94.13	97.64	86.66
Friuli Venezia Giulia	80.39	78.35	80.62
Liguria	82.09	85.48	75.99
Emilia Romagna	94.41	94.51	94.66
Toscana	90.67	88.5	91.39
Umbria	95.65	69.29	87.97
Marche	89.45	85.58	82.79
Lazio	86.23	73.51	72.44
Abruzzo	82.39	79.04	73.84
Molise	76.25	67.91	48.73
Campania	78.88	63.04	60.4
Puglia	81.59	76.53	72.22
Basilicata	76.93	50.23	77.52
Calabria	59.9	55.5	47.43
Sicilia	58.18	75.2	70.47
Sardegna	78.3	61.7	66.21

Source: Own elaboration based on Ministero della Salute (2022).

Table 3 Average performance by geographical area, 2019

	Prevention area	Local area	Hospital area
North-west	84.48	75.88	80.26
North-east	86.89	86.39	89.73
Center	90.50	78.74	87.38
South	74.05	63.31	64.60

Source: Own elaboration based on Ministero della Salute (2022).

and south (Abruzzo, Molise, Campania, Puglia, Basilicata, Calabria, Sicilia, and Sardegna). Let us consider the range 85–100 as the best performance among areas, range 75–84 as the mid-range performance, and range 60–74 as the lowest performance. The north-east area is the best performer across the three fields of evaluation.

However, the north shall not be considered a homogeneous territory: the north-west is a mid-performer in the areas of community services and hospital. Alongside the north-west, the center registers mid-performance in the community services area. The south performs worst in the areas of community services and hospital whereas it is a mid-performer in the area of prevention. The over- and under-performances of single regions have been shown above. Table 3, therefore, enforces the initial assumption: the north-south divide is endorsed by a north-west–north-east divide. Also, regions in the center of Italy show differences in the final score.

Conclusion

The regionalization of the Italy's health system has engendered numerous differences between and within its regions. The new set of LEA indicators depicts a more complex and differentiated dynamics among areas (prevention, community services, and hospital) and regions. We attempted to show how the twenty-one regions of Italy proceed at different speeds, with highly differentiated contexts and performances. The north-south divide is endorsed by a north-west and north-east divide. Also, regions in the center of Italy show differences in the final score. The COVID-19 pandemic hit these pre-existing differentiated systems, affecting each local area. It will be further interesting to monitor the evolution of LEA scores in the coming years to grasp the potential impact of the pandemic on regional and national health systems. Moreover, significant resources are to be invested in the next years. The resources—retrieved by the National Recovery and Resiliency Plan (funded by the Next Generation EU funds)—require massive investment in Italy's entire health system as a major response to the pandemic. The National Recovery and Resiliency Plan has allocated €20.23 billion to its Mission 6 (devoted to health care system) with the aim of addressing the services in relation to patient care requirements in every area of the country, improving infrastructure and technological endowments, promoting research and innovation, and developing staff's technical–professional, digital, and managerial skills. The Italian government allocated an additional €3.7 billion in 2020 and €1.7 billion in 2021 to the SSN, increasing health expenditure by 3.3 percent and 1.7 percent, respectively, over the original funding plan (Court of Audit, 2020).

The SSN faces at least four main challenges. The first challenge is the current framework of demographic changes. Italy has the oldest population in Europe, 24 percent of the population being aged 65 years and over in 2022, and a declining fertility rate (Istat, 2022). Owing to the ageing population, the health care service are to face financial and sustainability challenges that cannot be underestimated. Health care expenditure for Italy's increasingly older population is to be a major challenge in the future. The second challenge concerns quality and equity improvement of the health care services in every region of Italy, aiming to reduce regional differentiation and inequality at the same time. The SSN has to improve health care services' appropriateness under the supervision of national agency (the National Agency for Regional Health Services) to guarantee the quality and equity of the provided services. The third challenge is related to understaffing and

the need to invest in hospital staff (doctors and nurses, overall). More particularly, public debate is focused on reforming the methods and processes through which social and health workers are trained, with registration on a regional register and the introduction of figures, such as school nurses and family nurses, to improve health care services' proximity. The fourth challenge is that at the regional level, the best-performing regions—Lombardia, Veneto, and Emilia Romagna—require greater autonomy. This is a direct result of major variations in regional performance, with the aim, at the national level, of reaching greater equity across low- and high-performers.

To conclude, we assume that this last point is going to be the focus of public debate in the coming months. This boosts interest in further research to analyze the future LEA trends, studying gaps among regions and performances in the different areas of health care.

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Appendix A. Regions' performance across core indicators in the prevention area (by Region, 2019)

	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5	Indicator 6	Total
Piemonte	100	100.00	81.41	93	68.06	96.03	91.72
Valle D'Aosta	75.47	48.21	56.67	83.77	65.58	100	72.16
Lombardia	100.00	100.00	100.00	99.76	77.07	67.41	91.95
P.A. Bolzano	—	3	65.83	100.00	88.97	82.49	53.78
P.A. Trento	100.00	100.00	69.69	18	89.56	100.00	78.63
Veneto	100.00	100.00	81.06	99.28	74.79	100.00	94.13
Friuli Venezia Giulia	79.16	69.54	55.55	100.00	75.83	100.00	80.39
Liguria	100.00	76.64	62.23	100.00	61.93	81.69	82.09
Emilia Romagna	100.00	100.00	89.03	100.00	60.44	100.00	94.41
Toscana	100	100.00	70.61	99.36	66.25	95.57	90.67
Umbria	100	100.00	97.01	99.04	66.63	96.72	95.65
Marche	96.30	85.76	87.79	100	72.90	85.68	89.45
Lazio	100.00	100.00	72.66	100	60.93	71.13	86.23
Abruzzo	100.00	100.00	69.77	76.38	64.25	74.88	82.39
Molise	100.00	81.59	72.45	94.64	51.30	45.03	76.25
Campania	100.00	98.60	81.57	97.44	58.65	26.92	78.88
Puglia	93.84	94.78	96.13	100	59.11	34.44	81.59
Basilicata	97	70.65	70.36	100	53.42	58.41	76.93
Calabria	100.00	77.39	26.04	95.28	56.14	2.68	59.90
Sicilia	31	65.56	64.72	98.88	51.98	33.82	58.18
Sardegna	100.00	84.18	71.43	98.64	67.70	42.53	78.30

Source: Ministero della Salute (2022).
Note: The dark gray tones represent the regional performance below the minimum LEA threshold for quality of care. The light gray tones represent the ones above the minimum.

Appendix B. Regions' performance across core indicators in the local area (by Region, 2019)

	Indicator 7 and 8	Indicator 9	Indicator 10	Indicator 11	Indicator 12	Indicator 13	Indicator 14	Indicator 15	Total
Piemonte	100.00	100.00	73.21	100.00	85.88	79.63	49.59	100.00	88.83
Valle D'Aosta	100.00	0.00	94.29	100.00	1.05	—	50.73	34.82	48.09
Lombardia	100.00	97.00	84.68	100.00	87.95	61.84	71.29	100.00	89.98
P.A. Bolzano	73.73	95.56	n.c.	100.00	0.00	34.27	36.05	—	50.89
P.A. Trento	100.00	79.22	0.00	100.00	73.79	49.72	68.66	100.00	75.06
Veneto	100.00	100.00	100.00	100.00	100.00	82.32	94.10	100.00	97.64
Friuli Venezia Giulia	100.00	100.00	n.c.	100.00	77.55	74.62	31.32	100.00	78.35
Liguria	100.00	100.00	96.65	100.00	74.33	21.78	62.00	100.00	85.48
Emilia Romagna	100.00	97.00	98.62	93.94	95.20	81.16	82.14	100.00	94.51
Toscana	100.00	100.00	94.60	81.94	90.71	58.10	69.39	90.29	88.50
Umbria	100.00	25.89	97.00	35.24	84.38	73.79	50.70	100.00	69.29
Marche	100.00	100.00	98.83	50.00	92.24	67.06	47.64	100.00	85.58
Lazio	100.00	97.00	100.00	56.11	52.82	86.12	1.73	44.33	73.51
Abruzzo	100.00	95.56	100.00	26.61	92.46	90.01	44.49	45.75	79.04
Molise	77.75	85.22	100.00	39.08	97.96	75.30	14.84	25.99	67.91
Campania	100.00	82.22	81.42	31.55	86.78	57.17	-	9.05	63.04
Puglia	100.00	100.00	78.55	32.40	65.93	78.16	72.03	38.22	76.53
Basilicata	100.00	0.00	0.00	39.15	94.49	99.24	47.62	21.77	50.23
Calabria	100.00	28.89	99.62	42.42	6.97	82.96	17.12	48.18	55.50
Sicilia	100.00	92.56	65.95	48.29	90.04	71.31	48.08	43.19	75.20
Sardegna	100.00	82.22	83.20	90.77	n.c.	78.61	—	—	61.70

Source: Ministero della Salute (2022).
Note: The dark gray tones represent the regional performance below the minimum LEA threshold for quality of care. The light gray tones represent the ones above the minimum.

Appendix C: Regions' performance across core indicators in the hospital area (by Region, 2019)

	Indicator 16	Indicator 17	Indicator 18	Indicator 19	Indicator 20	Indicators 21 and 22	Total
Piemonte	100.00	66.83	99.48	86.51	82.93	79.96	85.78
Valle D'Aosta	85.34	0.00	98.69	39.05	59.25	30.60	62.59
Lombardia	100.00	68.85	92.21	79.49	83.32	94.18	86.01
P.A. Bolzano	95.78	18.83	92.34	67.38	77.21	86.21	72.79
P.A. Trento	100.00	100.00	100.00	83.88	100.00	100.00	96.98
Veneto	100.00	65.57	97.43	96.25	78.30	83.41	86.66
Friuli Venezia Giulia	100.00	74.73	70.80	72.48	74.74	91.96	80.62
Liguria	99.64	84.25	92.96	83.17	55.28	41.62	75.99
Emilia Romagna	100.00	100	87.41	90.96	95.44	95.15	94.66
Toscana	100.00	100	100.00	90.82	90.10	67.40	91.39
Umbria	100.00	100	98.33	81.92	66.29	82.27	87.97
Marche	100.00	95.64	100.00	82.12	79.34	40.66	82.79
Lazio	100.00	42.96	98.85	86.39	79.76	28.70	72.44
Abruzzo	100.00	72.28	100.00	57.54	73.63	40.60	73.84
Molise	100.00	0.00	100.00	46.76	19.41	26.24	48.73
Campania	100.00	32.03	94.04	71.16	60.41	6.76	60.40
Puglia	100.00	64.87	100.00	76.51	69.59	26.35	72.22
Basilicata	100.00	83.66	96.10	73.29	58.51	55.59	77.52
Calabria	100.00	0.00	100.00	45.54	22.09	19.97	47.43
Sicilia	100.00	39.00	100.00	90.71	72.62	24.50	70.47
Sardegna	100.00	58.92	89.76	75.53	57.98	18.06	66.21

Source: Ministero della Salute (2022).
Note: The dark gray tones represent the regional performance below the minimum LEA threshold for quality of care. The light gray tones represent the ones above the minimum.