A research method for locating community healthcare facilities in Italy: how to guarantee healthcare for all

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Abstract

Purpose – The new Italian National Recovery and Resilience Plan (NRRP) has prioritised a new healthcare model that will establish the additional community healthcare facilities (CHFs). The paper proposes a methodology for supporting decision-making on location of the future facilities according to new parameters that consider how proximity to healthcare benefits communities. Rethinking the spatial parameters for locating future CHFs, focusing on fragile areas, creates a novel decision support system.

Design/methodology/approach – The methodology is based on multifactor analysis and on geographic information system (GIS) mapping to simulate the potential and risks associated with the proposed location of CHFs, focusing on territorial contexts of metropolitan cities, medium-sized cities, and Inner Areas, characterized by different fragilities. This method aims to innovate urban planning practices by updating the practice of per-capita urban planning standards and promoting implementation of the 15-minute city model.

Findings – The method defines new spatial parameters useful to inform the appropriate location of CHFs in Italy’s Inner Areas. This offers a new integrated approach to spatial design mixing urban planning and healthcare dimensions.

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Originality/value – The methodology will bring about an integrated urban planning approach, which guides both transformative urban choices and health services’ implementation according to the needs of communities.

Keywords Urban planning, Citizens’ health status, Community health centers, Community hospitals, Equity of the access to health services, Fragile and internal territories

Paper type Research paper

Introduction: Italian Inner Areas and healthcare system context
Italy is characterized by 66% of mountain areas and is administratively fragmented with approximately 80% of municipalities with less than 10,000 inhabitants; moreover, it is poorly accessible except through private mobility. There are geographic differences in digitalisation—the gap between North and South Italy is about 10%, given the lower availability of adequate devices and efficient connections in the southern part of the country (Tinto, 2023).

Barca (2009) introduced the concept of Inner Areas: places characterized by fragility, such as remote and rural areas. Italy’s Inner Areas are rural depopulated areas characterized by their distance from the main service centres of education, health and mobility, as classified by the National Strategy for Inner Areas (SNAI) in 2014–2020. This Italian public policy is a way to tailor natural resources and EU funds to the territorial specificities of disadvantaged areas of each Italian region. Initially, 72 areas were selected by SNAI, including 1,077 municipalities with 2,072,718 inhabitants (ACT, 2018). In 2022, with further analysis by the Italian Institute of Statistics (ISTAT, 2022), almost 4,000 municipalities fall within the Inner Areas. These cover 58.8% of the national surface area and were inhabited by about 13.4 million people in 2021. The analyses of Inner Areas have seen changes over the six years of the survey: “Pole municipalities” and “Inter-municipal poles” have decreased from 339 to 241 units (ISTAT, 2022), largely due to the significant contraction of hospitals with an emergency department.

It is well-known that the impact of chronic pathologies, population ageing and environmental emergencies stimulate the quest for resilient systems in which well-being of communities is a key (Fior et al., 2022; Miano, 2020; Toppetti and Ferretti, 2020). Proximity healthcare represents a “social infrastructure”: a gateway to accessible public service for territories that addresses the fragility described above and offers solid resilience and support in emergencies (VV.AA, 2021a; UN-HABITAT and World Health Organization, 2020).

For about 15 years, the Italian National Health System (NHS) has supported the development of Community Health Centres (CHCs), commonly known as “Case della Salute”, as a reference point for responding to the community’s public health needs (Capolongo et al., 2023; Brambilla et al., 2023). Despite this, there are significant disparities across the country regarding the implementation of CHFs. The proximity healthcare model, envisaged by Law no. 296/2006 which instituted the CHCs, has been implemented in only a few Italian regions (i.e. Emilia-Romagna, Tuscany and Piedmont) (VV.AA, 2021b; Fattore et al., 2021). Moreover, Italian urban planning has never considered the health dimension to urban planning, development or regeneration (Capasso et al., 2018), except for the quantification of per-capita urban standards (MD no.1444/1968) or the urban-scale realization of big hospitals.

In addition, the current logic with which healthcare facilities are located responds more to the managerial strategies of regional institutions and the Local Health Authorities (LHAs) than to the needs of communities. The definition of the minimum healthcare provision has only started being included in urban planning tools for health and safety surveillance of homes, schools, health facilities and environmental risks. There is a lack of integration between health programming and urban planning. The LHAs do not have adequate tools to select the most appropriate locations of new facilities (Dell’Ovo et al., 2020) and the regions operate with overall autonomy in their programming. Effective integration is critical for responding to the National Recovery and Resilience Plan (NRRP) and the Complementary
National Plan (CNP) and for achieving the 15-minute city (Moreno, 2021a). The concept of the 15-minute city is the basis of the functioning of the city, proposed in the last century when decision-makers rethought cities around an idea of efficiency based on specialization and the economy of scale, and by introducing the “urban planning standard” concept. In other words, the minimum number of public spaces and services that every citizen needs to live well.

**An integrated approach to planning for a proximity healthcare model**

In 2021 the Italian Government approved the NRRP and health’s proposals to strengthen prevention and care through a proximity healthcare model integrated with the support of telemedicine (Italian Government, 2021). By 2026, the NRRP programs will have established 1,288 CHCs, 381 community hospitals (CHs) and 602 local operational centers (LOCs) (Mantoan, 2021; Geoportale PNNR Salute, 2023), well-known as the community health facilities (CHFs) (for more information, refer to Supplementary Materials), to which will be added further facilities that the individual regions are planning. The LOCs support coordination between services and the healthcare professionals involved in the various healthcare settings (Capolongo et al., 2023). The programme is supported by additional resources allocated by the CNP (Law no. 101/2021) and by plans to monitor its implementation every six months (MD no. 77/2022).

Reflecting on the UK experience, which has a well-established history of CHFs (Longo et al., 2023), 2026 seems too short a timeline for the activation of almost 2,300 facilities. The difficulties encountered in the nationwide implementation of this innovative healthcare model are evident, even without the finance required for the recruitment of the personnel necessary for their launch (Pesaresi, 2021a, b). The lack of a precise branding identity and specific national guidelines about the location of CHFs was the basis of the failure of the previous “Case della Salute” experience because they were not able to establish themselves as the reference healthcare facility at the level of the “health district”. Therefore, the recognition and accessibility of future CHFs within the local context are crucial for ensuring their proper functioning.

These conditions suggest that the location of CHFs should be planned over a longer period. To guarantee cohesion and inclusive accessibility to services, as well as the capillarity of the healthcare network, it is essential to carefully evaluate the location of CHFs according to place and with reference to fragile territories and Inner Areas (Faroldi et al., 2019). Densely populated metropolitan areas, medium-sized cities, islands and dispersed rural territories present different fragilities and require a site-specific approach to determine the current and future accessibility and equitable distribution among the local population. It is necessary to define the best location of CHFs going beyond the mere quantitative logic of the maximum number of users. The NRRP’s parameter of around 40/50,000 inhabitants without spatial specifications (Capolongo et al., 2023) may not be optimal to ensure equity of access to health services for fragile and the Inner Areas.

The location of CHFs is capable of directly and indirectly influencing the functioning of the healthcare model and affecting the state of citizens’ well-being (Dell’Ovo et al., 2020). Hence, the location requires a careful approach to territorial, quantitative/qualitative and intrinsic/extrinsic performances. For CHFs, the NRRP supports “health-proximity” which, to be effective and efficient, must be related to the entire healthcare network and planned in coherence with urban, infrastructure and environmental characteristics as well as with the users. Therefore, it is crucial to underpin a health program with involvement of urban planning.

However, in Italy, there is a gap that has never been bridged between health programming and urban planning. The NRRP confirms the “district” as a privileged area for the organisation and management of the territorial social–health services (Zanella, 2022). These “health districts” will operate in agreement with the municipalities through the formulation of specific tools aimed at guaranteeing basic services for all the citizens. The gap is the lack of an urban planning tool that implements the concept of “proximity” in the health system (calculating the “district”) according to the users’ needs. This paper proposes an integrated
approach between the disciplines of urban planning and health programming to implement
the proximity healthcare model at the national scale.

The paper argues for an in-depth study on how to localise the current and future CHFs to
guarantee healthcare services for all from the Inner Areas to metropolis and “Intermediate
territories” (Di Matteo et al., 2021; Kercuku et al., 2023).

Methodology
The paper provides an operational methodology for defining the proximity concept and
developing a model that can be applied in future case studies, at the national scale. The
methodology represents an opportunity for urban planning to address the issue of providing
services to the community and to evaluate the impacts of integrating public health and welfare
services in urban design. It is about developing benefit from including the concept of per-
capita public facilities within the sizing process of urban planning standards (Giaimo, 2022).

Urban systems can offer spaces, activities and public services to the inhabitants to create a
living environment that reduces the time spent by people in their daily commute (chrono-
urbanism), implements the functional mix of neighbourhoods and buildings (chronotopy) and
increases the connection between inhabitants and places (topophilia) (Moreno, 2020a, b;
Moreno, 2021b; Pesaresi, 2021b).

The methodology aims to define spatial geographies and localisation parameters useful to
develop an inclusive territorial health network for the Italian geographies, with a focus on
fragile areas. It incorporates a geographical connotation and assumes a balance between
various factors (Fior et al., 2023), such as:

(1) the accessibility to healthcare facilities through mobility,
(2) the equity of CHFs’ distribution based on the income users’ capacity, density and
   vulnerability,
(3) the environmental safety in which the healthcare facilities are located and
(4) the quality/efficiency of the urban system.

The method analyses the social needs and health requirements for territorial care based on
the urban and territorial conditions; and supports the location of CHFs according to the
specificities of the Italian context and the population’s characteristics. It aims to optimise the
responses to citizens’ needs through the location of current and future CHFs, so they are truly
accessible and useable even in the most deprived areas or are equitably distributed and
strategically positioned (Dell’Ovo et al., 2020; Mareggi and Ugolini, 2022). The goals are:

(1) to identify the quantitative/qualitative parameters for analysing the suitability of
   places according to the Italian geographies, taking into consideration the Inner Areas too;
(2) to know the location of CHFs planned by the NRRP and to assess the location’s
   efficiency;
(3) to establish the spatial parameters useful to correctly plan future CHFs, overcoming
   the quantitative logic of the maximum number of users per facility and responding to
   the different needs of the territory made up of urban polarities but also of peripheral
   and fragile realities and
(4) to support operatively the construction of the 15-minute city that is to bring services
closer to citizens and contemporarily to stimulate them to improve both physical
activities by walking or biking to the new CHFs and social encounters.
The originality of the approach is the multidisciplinary perspective that integrates urban planning and public health programming, as never before. The aim is to achieve a “complementary interdisciplinarity” to have a unified and close-to-reality view of the topic.

Two Italian regions as pilot cases
The most recent research on the Italian settlement structure highlights the presence of both large metropolises and the Inner Areas, but also of a “middle” territory with specific fragilities and imbalances (Di Matteo et al., 2021; Mascarucci, 2020; Kercuku et al., 2023). This classification, based on the diversity of territorial strengths and weaknesses, calls for a multi-scalar approach in healthcare planning as well, to offer a service tailored to the different levels of “proximity” contexts. The paper proposes to start integrated research between urban planning and health programming through an inductive method, i.e. from regional contexts representative of the various geographies of Italy. The possible case studies are the Lombardy and Lazio regions because:

1. Lombardy is the Italian “economic capital”, Milan, and includes four Inner Areas identified by the SNAI which in turn include 474 municipalities (85,230 inhabitants) of the total 1,506;

2. Lazio hosts the “administrative capital” of Italy, Rome, and includes four Inner Areas identified by the SNAI which include 290 municipalities (120,461 inhabitants) of the total 378 (ACT, 2023).

Both Milan and Rome are metropolises affected by settlement dispersions like other European capitals. Between the capital cities and the Inner Areas, there are hundreds of “intermediate” municipalities.

Analysing the existing CHFs in both regions, Lombardy hosts 366 facilities (199 CHCs, 66 CHs and 101 LOCs) with 9 CHFs in the four Inner Areas; Lazio records 230 facilities (135 CHCs, 59 LOCs and 36 CHs) with 9 CHFs in the four Inner Areas, as Table 1 shows.

Starting from the experiences of the existing CHFs in these regions—with detailed analysis of their localization and the efficiency of services, collecting current data regarding health and social status and population distribution—it is necessary to process the available data, creating a knowledge set on the territorialisation of future CHFs in Italy. The methodological approach needs to be built on a rigorous process based on planned stages and verifiable results. It needs to be organized according to logic of contextualisation of the research (first

<table>
<thead>
<tr>
<th>Region</th>
<th>Inner Area</th>
<th>CHC</th>
<th>Municipality</th>
<th>CH</th>
<th>LOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lazio</td>
<td>Alta Tuscia</td>
<td>Tuscania</td>
<td>Leonessa</td>
<td></td>
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<td></td>
<td>Monti Reatini</td>
<td>Antrodoco</td>
<td>Posta</td>
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<tr>
<td></td>
<td>Monti Simbruini</td>
<td>Castel di Tora</td>
<td>Subiaco</td>
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<td></td>
<td>Monti Simbruini</td>
<td>Arsolì</td>
<td>Subiaco</td>
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<td></td>
<td>Monti Simbruini</td>
<td>Subiaco</td>
<td>Subiaco</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lombardy</td>
<td>Valle di Comino</td>
<td>Atina</td>
<td>Sondalo</td>
<td>Bellano</td>
<td>Bellano</td>
</tr>
<tr>
<td></td>
<td>Alto Valtellina</td>
<td>Bormio</td>
<td>Bellano</td>
<td>Bongo</td>
<td>Bellano</td>
</tr>
<tr>
<td></td>
<td>Alto Lago di Como and Valli del Lario</td>
<td>Bellano</td>
<td>Bongo</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Appennini Lombardi-Oltre Po Pavese</td>
<td>Varzi</td>
<td>Chiavenna</td>
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<tr>
<td></td>
<td>Valchiavenna</td>
<td>Chiavenna</td>
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</tbody>
</table>

Source(s): Authors’ own creation

Table 1. Synthesis of the CHFs in the Inner Areas of Lazio and Lombardy
phase), experimentation of the case studies process (second phase) and application of the results to the national level (third phase).

The first phase should be dedicated to returning to the State-of-the-Art on proximity healthcare model, which is still not very structured and systematic from the point of view of its benefits on the territory, as well as the relations with urban and territorial planning. A literature review on proximity healthcare in Italy and Europe should be conducted, studying the strengths and weaknesses of the model and highlighting the parameters for the definition of catchment areas. In parallel, the literature review on territorial performances for supporting proximity healthcare will serve to identify the territorial features that determine the allocation of local facilities including health services. These analyses guarantee to frame the state of parameters usually used in the healthcare facilities’ location, as well as on the mapping of the main territorial features.

The second phase should be based on data collection of existing and planned CHFs. It is essential to collect information and databases useable with GIS tools for spatial analysis, calculating statistics on geometries and performing geoprocessing activities such as data interpolation. Since the approach proposed is stressed spatial outcomes, it is necessary to launch exploratory campaigns on the availability of homogeneous, comparable and up-to-date data covering the entire regional territory of the case studies. Therefore, five interconnected activities will be essential:

1. surveys/interviews with regional and local stakeholders, as well as codesign activities with citizens, for search of new spatial location parameters;
2. data collection on expected CHFs in the regions selected;
3. data collection on the territorial features of the Lombardy and Lazio regions;
4. geo-spatialisation of planned CHFs of the pilot regions and
5. identification of homogeneous zones using GIS tools.

In the third phase, the methodological approach can focus on the case studies’ analysis and the definition of the toolkit as a decision support system. The case studies’ analysis identifies new parameters to be used in the location of CHFs. It focuses on the spatial analysis of CHFs planned in Lombardy and Lazio. The goal is to detect the strengths and weaknesses of the locations according to the need to ensure a widespread, accessible and integrated healthcare service with the network of existing social welfare services. Two specific activities need to be developed:

1. analysis of the existing parameters for the location of planned CHFs in the Lombardy and Lazio regions and
2. the preliminary evaluation of the potential and risks of locating planned CHFs in the case studies, highlighting the strengths and weaknesses of the existing location parameters (the quantitative catchment areas calculated on residents), while outlining further and different indicators (e.g. socio-economic, infrastructural and environmental) that could integrate and better support the decision-making process for other CHFs.

All these steps can become milestones for the definition of a toolkit for supporting the LHAs and municipalities in locating CHFs as Figures 1–4 show. The definition of a tool through the systematisation of the experimental phase results makes the outcomes of the case studies replicable at the national scale by offering support to territorial decision-making in urban planning and health fields. It focuses on the proposal of new spatial location parameters for CHFs at the national scale, useful both in urban planning activities and in health
programming activities (targets are the LHAs and regions). It is requested, as the following images synthetize, to focus on:

1. validation of the new spatial location parameters starting from the meetings with the stakeholders,
2. the setting of new spatial location parameters for CHFs in the regions and
3. simulation of the CHFs location by homogeneous areas at the national scale.

Multidisciplinary approaches are necessary. The way of developing the methodology through multifactorial analysis and following a working method that goes from the particular to the general issues is basic but strategic. It is used as a research development method that, through the analysis of a few case studies, can offer valid results for the entire national
context and for international ones too. In particular, the study of the two regions (given their
deriety of urban/territorial contexts) should be considered suitable and sufficient to
determine the territorial factors that most influence the process of better allocation of CHFs.

Factor analysis is a set of statistical techniques used to search for the existence of latent
variables from a set of observed variables. For example, concepts such as health, urban well-
being or quality of life are not directly measurable; however, much health and urban planning
research is based precisely on investigating these concepts by proposing the use of a set of
measurable variables. This method helps it possible to explore the hidden relationships
between observable factors and to derive the measurement and parameterisation of certain
non-measurable phenomena.

**Call to action and conclusions: helping public and health authorities**

Research theories on health and urban design are moving towards the idea of the city as a
need for resilience and the network as a tool to meet this challenge. Starting from the trends of
ageing in contemporary society, the recent health crisis and continuous social and climatic-
environmental issues, it is possible to define the relationship between the psycho-physical
well-being of people and the spaces made available by society and the primary care offered,
long-term care and the territorial healthcare network. Nowadays, healthcare settings become
spaces where the community can identify itself. The shift in life expectancy beyond 90 years
old, the annual increase in the budget dedicated to chronic diseases and elderly issues and the high-level specialization of healthcare facilities highlight the need for alternative spaces, less formal and specialized, but which must be truly accessible to an ever-increasing percentage of the population.

By understanding the communities’ needs, it will be possible for regional and local policymakers to face the transformation of the healthcare model (from the centralized hospitals to an integrated, capillary and widespread network) from the right perspective: synergistically planning urban regeneration and programming the welfare state and considering benefits to the final user, the citizen, in terms of treatment and prevention.

Lombardy and Lazio could become pivotal areas for the definition of strengths, opportunities, weaknesses and threats for locating the CHFs planned by the NRRP at the national level. The method investigates the relationship among communities, Italian geographies and healthcare facilities, understanding the needs and perspectives, defining trends and giving rise to strategic indications based on qualitative and quantitative analyses. The drive of the methodology is to support the choice of political decision-makers in the distribution of the territorial healthcare network at the national scale. Through the definition of territorial-based scenarios, new assessment criteria for the location of these architectures for health will be studied and proposed. The urban and social effects, urban planning, spatial
strategies, etc. will be considered, as well as the possibilities of shared programs between regional administrations and territorial facilities.

The availability of guidelines for adequate efficiency and effectiveness of the social and health service network through the location of CHFs will have an impact on the current scientific debate in public health and urban studies. Territorial health and social services will profoundly benefit from research results in terms of critical understanding of the State-of-the-Art of feasibility studies for new constructions, evaluation of maintenance and better management or reuse of existing facilities. This creates a common background and a starting point to open horizontal multidisciplinary research lines. In the field of territorial governance, research poses issues that urban planners might address through the tools of the discipline.

The research underpins a field of study that has been rarely investigated: the integration between health programming and urban planning. Considering the need for revising the national urban planning law and the decree on urban planning standards, the proposed research demonstrates how the subject of healthcare represents a strategic issue for the regeneration of territories (new CHFs represent engines of development) and at the same time an essential endowment for public facilities networking (new healthcare facilities must be appropriately calibrated and positioned, where they are most urgent and necessary). The

**Key:**
- New CHC

**Source(s):** Authors’ own work
research methodology could be a milestone for urban planning, which will benefit from the
generation of advanced urban planning tools that will have to
consider both the existing health services and the new facilities. The latter will have to be
appropriately studied based on new spatial parameters that go beyond the merely
quantitative logic of users/inhabitants and, above all, through urban planning tools that will
combine the programmatic (non-prescriptive) and operative-regulative dimensions.

The methodology will be useful to review the implementation of the public network of
public services and facilities, according to the various Italian administrative levels present
today. The reform on local autonomies (Law no. 56/2014) claims a new setting of the bodies in
charge of territorial governance by increasingly incentivising the reorganisation of
municipalities in the form of Unions and Consortia and by establishing Metropolitan Cities
as an alternative to the Provinces. This administrative reconfiguration needs to be
adequately supported by urban planning tools that work at the scale of the contemporary city
and thus consider the territorial differences that exist today. In this framework, the supply of
the healthcare and welfare system must be adequately proportioned to the characteristics of
the new administrative structures. The research offers valid cognitive and programmatic
support to orient future choices on health, urbanism and welfare issues.

The method aims to adopt a multidisciplinary approach, in which socio-economic and
territorial aspects, demographic and healthcare issues will be combined with spatial analysis
and design for defining the best strategies for the localization of CHFs. It lends a set of
indicators and parameters not only to recognise new ways of allocating facilities but also to
monitor the implementation of existing ones. The methodology can be subject to international
scientific debate, offering both a detailed analysis of two important Italian regions and
providing a reference model for monitoring possible new healthcare facilities’ projects in Italy
and worldwide. It provides a model that, although calibrated on the Italian territory,
recognises the differences in territorial performance in social, economic, infrastructural,
environmental and urban planning terms suitable for other countries.

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(The Appendix follows overleaf)
Community health centers (CHCs)
MD 77/2022 defines the CHC as “the physical and easily identifiable place to which citizens can access for healthcare and social care needs with a health value”. In general, the CHC represents the organizational model that locally guarantees assistance for the target population. It must be an easily recognizable and accessible facility, for supporting the citizens within the NHS with the set of essential levels of social and medical assistance (Capolongo et al., 2023). Figure S1 and Table S1 synthetize the functional programs of CHC.

Figure S1.
Functional diagram of the CHC Hub and Spoke

Source(s): Authors’ own work
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<tr>
<th>MACRO-AREA</th>
<th>CHC functional units</th>
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<tbody>
<tr>
<td>SPECIALIZED OUTPATIENT CARE</td>
<td>DIAGNOSTICS&lt;br&gt;Diagnosis and treatment services&lt;br&gt;SAMPLING AREA&lt;br&gt;Sampling area and point of care&lt;br&gt;SPECIALIST CLINICS&lt;br&gt;Specialist outpatient services&lt;br&gt;PRIMARY CARE&lt;br&gt;PRIMARY CARE AREA&lt;br&gt;PROXIMITY CARE&lt;br&gt;NURSING SERVICES&lt;br&gt;H24/H12 MEDICAL ASSISTANCE&lt;br&gt;ADMISSION SERVICES&lt;br&gt;INTEGRATION with SOCIAL CARE&lt;br&gt;HOME TREATMENT&lt;br&gt;COMMUNITY SERVICES&lt;br&gt;GEOGRAPHIC SERVICES&lt;br&gt;GENERAL SERVICES AREA&lt;br&gt;Urban services for external users and healthcare staff&lt;br&gt;LOGISTICS AREA&lt;br&gt;Logistics for social-health facility operation&lt;br&gt;TECHNICAL ROOMS AREA&lt;br&gt;CTs, gas stations, connections, substations, etc.&lt;br&gt;GENERAL SERVICES AND LOGISTICS&lt;br&gt;GENERAL SERVICES AREA&lt;br&gt;Urban services for external users and healthcare staff&lt;br&gt;LOGISTICS AREA&lt;br&gt;Logistics for social-health facility operation&lt;br&gt;TECHNICAL ROOMS AREA&lt;br&gt;CTs, gas stations, connections, substations, etc.</td>
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<td>BASIC DIAGNOSTICS (retinography, spirometer, echograph, etc.)&lt;br&gt;SAMPLINGS&lt;br&gt;SPECIALIST OUTPATIENT AREA&lt;br&gt;(diabetologist, cardiologist, etc.)&lt;br&gt;MEDICAL CLINIC for General Practitioners (GPs)&lt;br&gt;MEDICAL CLINIC for Primary care Pediatricians&lt;br&gt;MEDICAL CLINIC for Family or Community Nurses&lt;br&gt;NURSING CLINICS&lt;br&gt;H24/H12 MEDICAL ASSISTANCE&lt;br&gt;ADMISSION&lt;br&gt;INTEGRATION with SOCIAL CARE&lt;br&gt;Spaces for SOCIAL CARE&lt;br&gt;INTEGRATED HOME TREATMENT&lt;br&gt;CONTINUING CARE&lt;br&gt;MULTI-PURPOSE MEETING ROOM&lt;br&gt;WELCOMING AREA&lt;br&gt;STAFF ROOMS&lt;br&gt;ADMINISTRATIVE AREA&lt;br&gt;ARCHIVES-WAREHOUSES-STORAGES&lt;br&gt;INFO POINT and TELEMEDICINE&lt;br&gt;ECO-ISLAND&lt;br&gt;CLEANING AREA&lt;br&gt;TECHNICAL ROOMS, TECHNOLOGICAL CENTRE, AIR HANDLING UNITS, etc.</td>
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Source(s): Authors' own work referring to MD 77/2022

Table S1. List of the functional areas of the CHC
Community hospitals (CHs)
As MD 77/2022 defines, CHs are intermediate healthcare facilities between home care and hospitals, and they aim at avoiding inappropriate hospitalizations by better supporting the process of discharge from hospitalization structures. Moreover, they guarantee assistance to patients with complex conditions, overcoming the specificity for single disease/condition. The CH is composed of an inpatient ward with 15–20 beds, expandable up to a maximum of two inpatient wards, for a total of up to 40 beds (Capolongo et al., 2023). Figure S2 and Table S2 synthetize the functional programs of CH.

Figure S2. Functional diagram of the CH

Source(s): Authors’ own work

Table S2. List of the functional areas of the CH

Source(s): Authors’ own work referring to MD 77/2022
Local Operative Centres (LOCs)
The LOCs become a new innovative organizational model of the center which performs coordination functions both in taking charge of the citizen and in the relationship between services and the healthcare professionals involved in the various healthcare settings (territorial medicine, healthcare and social activities, hospital activities, etc.) (Capolongo et al., 2023). Figure S3 and Table S3 synthetize the functional program of LOC.

At a national level, there are already operative centers for emergency management, which will therefore be joined by the LOCs, for even more widespread coverage of the territory and a service that is closer and more appropriate to the end user.

![LOC functional units diagram]

Source(s): Authors’ own work

<table>
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<th>MACRO-AREA</th>
<th>FUNCTIONAL AREAS</th>
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| OPERATIVE CENTER                  | OPERATIVE CENTER
|                                  | Operative area with workstations                                                |
| GENERAL SERVICES AND LOGISTICS    | GENERAL SERVICES AREA
|                                  | Welcoming services for users and healthcare staff LOGISTICS
|                                  | Logistics for healthcare facility operation TECHNICAL ROOM AREA                |
|                                  | Operative rooms, premises for technological equipment, management and administrative offices, etc. HEALTHCARE STAFF WELCOMING ARChIVES-WAREHOUSES, STORAGES CLEANING AREA TECHNICAL ROOMS, TECHNOLOGICAL AREA, AIR HANDLING UNITS, etc. |

Source(s): Authors’ own work referring to MD 77/2022

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