

Facing the Pandemic: The Italian Experience From Health Management Experts' Perspective

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Abstract

Globalization has boosted the development of new pathogens as well as their capacity to cross national borders and threaten citizens' health. It should therefore have been no surprise that the infection caused by COVID-19 spread so quickly from the metropolitan city of Wuhan, China, to the whole world. Today, the COVID-19 pandemic represents the biggest health crisis for many countries since the postwar period. The aggressiveness of the virus quickly led many countries to bring in strict containment measures to limit the spread of the disease and particularly to reduce pressure on hospitals. Pandemics affect the health care community in different ways, but all involve a bigger flow of patients into the system, compromising the proper functioning of hospitals. Italy was the first Western country to be heavily affected by the virus. This article describes how Italian health care organizations are facing the COVID-19 pandemic. A survey administered to health management experts highlights the main problems and possible ways for health care organizations to cope with the health crisis more effectively. Results highlight that the COVID-19 pandemic had a dramatic impact on health care organizations, forcing all hospitals to modify structures and processes to guarantee an efficacious response to new patient care needs. The lack of specialized resources, appropriate coordination tools, and clear plans for emergency management were the main problems faced by hospitals. Italy's experience could be useful to countries facing the crisis today, or those which will face it in the near future.

Keywords

health management, health care organizations, pandemic, health systems, Italy, COVID-19

Introduction

Factors, such as urbanization, globalization, biodiversity, and ecological changes; the increase in global trade and travel; growing inequality; and the lack of resilience of health care systems, have boosted the development of new pathogens as well as their capacity to cross national borders and threaten citizens' health (Lederberg et al., 2003). It should therefore have been no surprise that the infection caused by the novel coronavirus (COVID-19) spread so quickly from the metropolitan city of Wuhan, China, to the whole world (Xu et al., 2020). In fact, only a few months had passed since December 2019, when the first cases were recorded in Wuhan, when the World Health Organization (WHO) declared the world “pandemic” (March 11, 2020). The disease marched relentlessly westward until the WHO stated that Europe was the center of the pandemic (March 13, 2020). However, the possibility of a global pandemic had already been flagged by the WHO (Stoto et al., 2019).

In 1995, WHO revised International Health Regulations (IHR) to guarantee mutual accountability for health security

among countries (WHO, 2008). IHR is an agreement that involves 196 countries including all WHO Member States to work together for global health security (www.who.int/ihr). IHR were developed by the World Health Assembly in 1969 and covered six diseases. Over the years the IHR underwent several modifications (1973, 1981), to include further diseases such as cholera, yellow fever, and plague (WHO, 1983). But it was only in 1995 that the intensification of international travel and trade, and worldwide spread of diseases and other threats led to a substantial revision of IHR (WHO, 2008). This revision, implemented on June 15, 2007, extended the scope of diseases and related health events covered by the IHR to take into account almost all public health

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risks that might affect human health. IHR (2005) lay down that WHO plays a coordinator role and helps countries to build capacities in detecting, assessing, and reporting public health events. IHR also include measures to limit the spread of health risks to neighboring countries, such as limiting transactions in ports and airports and imposing restrictions on unwarranted trade and travel to reduce traffic as much as possible (WHO, 2008).

These containment measures serve both to limit the spread of the virus and to reduce pressure on hospitals (Dewar et al., 2014). Pandemics affect the health care community in different ways, but all involve a big flow of patients into the system. Having the specialized human and physical resources available to promptly manage infected patients is a challenge facing most health care organizations (Rebmann et al., 2009). Bourgeois (2007) reported that most U.S. hospitals have very little medical equipment to manage the flow of affected patients, and moreover most hospitals (about 80%) could run operations for less than a week without external resources. Rebmann et al. (2007) assessed the preparedness of U.S. hospitals in terms of bed size and found that smaller facilities are less prepared than larger sized facilities and, in addition, U.S. health care organizations lacked health professionals, negative-pressure rooms, and medical supplies to face a pandemic. The readiness and preparation of hospitals is vital to ensure adequate care for patients affected by the pandemic and for all other patients who turn to the facility for other health issues (WHO, 2004).

Thus, when the coronavirus epidemic started to spread, many countries started taking containment measures. The lockdown put in place just a few months ago in Wuhan, which seemed so drastic, soon became common in other countries as well. Nevertheless, many national governments are still not following WHO's guidelines on containment (social distancing, widespread testing, quarantine of cases, etc.). The United Kingdom, Sweden, and the United States are examples of countries that initially underestimated the problem and tried to recover "on the run," although still with less restrictive measures than others (The Lancet, 2020). Italy was the first European country to be heavily affected by the virus, and soon overtook China both in terms of number of deaths (March 19) and number of positive patients (March 27). The Italian government opted for very restrictive measures almost immediately, and was "specially observed" by other European countries. And although the containment measures in Italy were initially considered excessive by some observers, the "case of Italy" was soon to be taken as a reference model by other countries (Onder et al., 2020).

This article describes how Italian health care organizations faced the coronavirus pandemic. A survey administered to health management experts highlights the main problems and possible ways in which health care organizations may be able to better cope with a future health crisis.

Italy's experience could in fact be useful to countries which are facing the crisis today, or which will shortly do so.

There is in fact much concern about how the poorest countries, characterized by scarce resources and inadequate health systems (Hanson et al., 2008; Sekhri et al., 2011), can face the emergency of the pandemic. To date, the countries of Africa and Latin America still have a limited number of cases but many believe that they will inevitably be affected by the next wave of infections (Gilbert et al., 2020; Hopman et al., 2020).

Learning From Experience in Health care Organizations

The COVID-19 pandemic is the biggest health crisis for Italy, and for most Western countries, since the postwar period. At the beginning of the epidemic, the Italian health system and its hospitals were substantially unprepared. But organizational and human factors quickly joined forces to effectively face the epidemic, as often happens in emergency health situations (Kets de Vries & Miller, 1984; Pauchant & Mitroff, 1988). According to Reason (1990), organizational behavior during an epidemic is, paradoxically, similar to that of the virus itself. During its incubation phase, the pathogen remains dormant and undetected, until it manifests with all its dangerousness. Similarly, health care organizations in the first phase remain immobile, uncertain about how to proceed (Bourrier et al., 2019; Pisano et al., 2020). In Italy, for example, from the awareness of the world epidemic to identification of the first official Italian case, managerial processes, especially decision-making, did not change very much within hospitals, which generated an organizational emergency. As is well documented in research, such organizational inertia can make emergency management more difficult and complex especially when it becomes more intense.

The rapid spread of a disease and the growing flow of patients to hospitals put the health care organizations into a situation of crisis management. In general, the first reaction of hospital managements is to extend the duties of health care operators and managers, making demands beyond routine which severely test the abilities of health personnel to cope. In addition, the intense activity and chaos of managing pandemic forces hospitals to redefine the organizational processes. Such charged and emotional organizational contexts facilitate the development of new working methods and approaches that, when effective, should be consolidated and learned.

In fact, after a crisis, the causal factors that gave rise to the event, as well as the best ways of responding, can become clearer. Past experience thus can be used to learn lessons and prepare for management of future emergencies.

To consolidate positive experiences and best practice, it is important to share solutions and analyze any mistakes. Promoting adequate opportunities for reflection, investigation and analysis to accumulate knowledge can be positive ways to facilitate learning.

However, the accumulation of knowledge represents only the first step in the learning process. The ways and means by which this knowledge is disseminated and interpreted play a

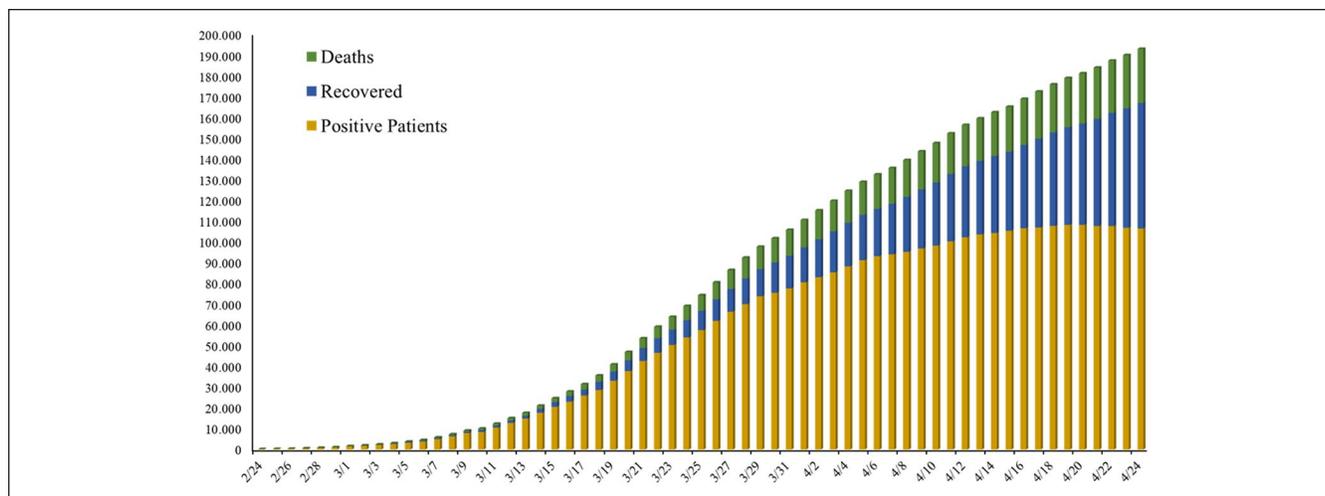


Figure 1. Case of COVID-19 in Italy from February 24 to April 24.
Note. COVID-19 = Coronavirus disease 2019.

vital role in influencing the extent of cultural readjustment. At the organizational level, the interpretation of such knowledge depends on the cognitive abilities of managers and staff (Sparrow, 1999) and the presence and characteristics of organizational routines (Elliott & Smith, 2006). The literature also identifies elements which can hinder organizational learning:

1. Tendency to give scant attention to lessons from accidents in other organizations or near-miss events (Weick, 1995);
2. “It couldn’t happen here” syndrome or cognitive narrowing (Starbuck & Milliken, 1998), linked to the assumption that catastrophic events are unique and constrained in space and time. This belief can hinder the learning process by preventing managers from picking up cues from events that happen elsewhere (A. Keller, 2019);
3. Lack of corporate responsibility which results in the tendency to conform to (but not exceed) current institutional accreditation requirements;
4. Organization tendency to focus on single-loop rather than double-loop learning (Argyris, 1999; Argyris & Schön, 1978). Although some learning does take place, it tends to appear within the dominant organizational paradigm that may be the main reason for the failure. An inability to change that paradigm, through effective double-loop learning, seems to be one of the reasons why organizations fail to learn effective lessons from crisis.

To date, the experience of Italian health care organizations enables us to focus only on the first part of the learning process: the analysis of achievements as well as failures and mistakes. Policy-makers and hospital top management will

be responsible in the future for selecting, institutionalizing, and implementing best practices and achievements effectively into the health care system, overcoming difficulties and barriers that will inevitably arise.

Italian Response to COVID-19

The Italian National Health Service was set up in 1978 following the Beveridge model (Beveridge, 1942) and today it is classified as one of the best in the world (Fullman et al., 2018). It is financed mainly by public finance (74%) with a marginal role for private insurance (3%) and the rest covered by out-of-pocket spending (23%) (Armeni et al., 2019). The 21 regions composing Italy have great discretion and power over health matters. Central government identifies the fundamental principles of the health system, but regional governments are responsible for the organization, provision, and sustainability of health services at the local level.

As noted above, Italy was the first Western country to face the COVID-19 pandemic. The so-called “patient zero” was admitted to the hospital of Codogno, in Lombardy, on February 18, 2020 and from that date the number of positive patients increased dramatically (Figures 1 and 2).

The first phase of the pandemic was characterized by several small outbreaks in the Lombardy and Veneto regions, in the north of Italy, with a few dozen patients affected. Central government reacted by making areas “red zones,” restricting any activity, movement, or social interaction to contain the virus.

From the last week of February, awareness of the difficulty in preventing the spread of the virus led many regional governments in areas near but outside the red zones to take precautionary steps by shutting down education facilities (universities, schools, etc.) and other sites of frequent social interaction (parks, pubs, restaurants, cinemas, etc.).

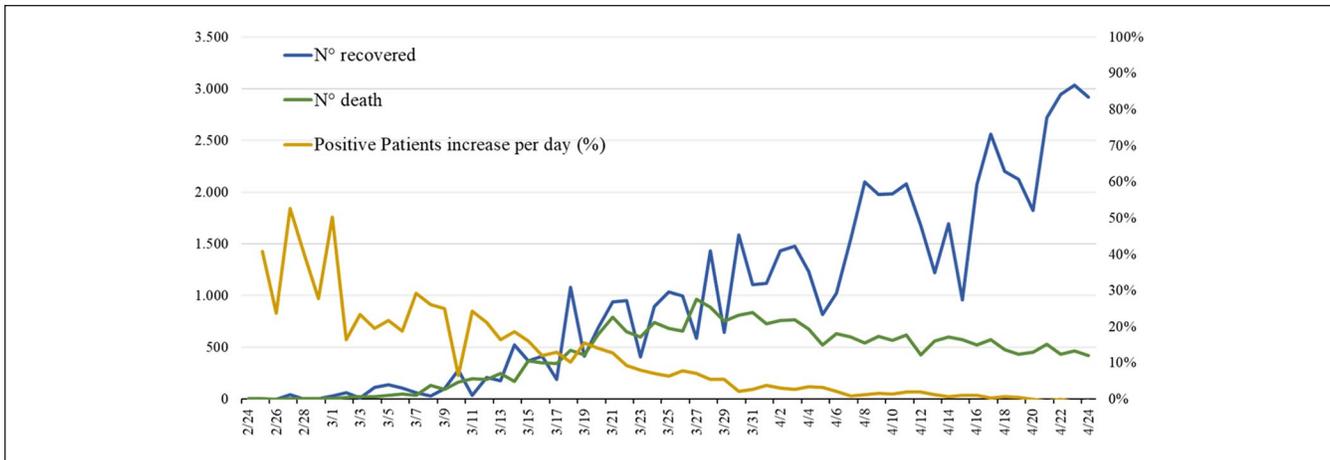


Figure 2. Percentage of cases of COVID-19 in Italy from February 24 to April 24.
 Note. COVID-19 = Coronavirus disease 2019.

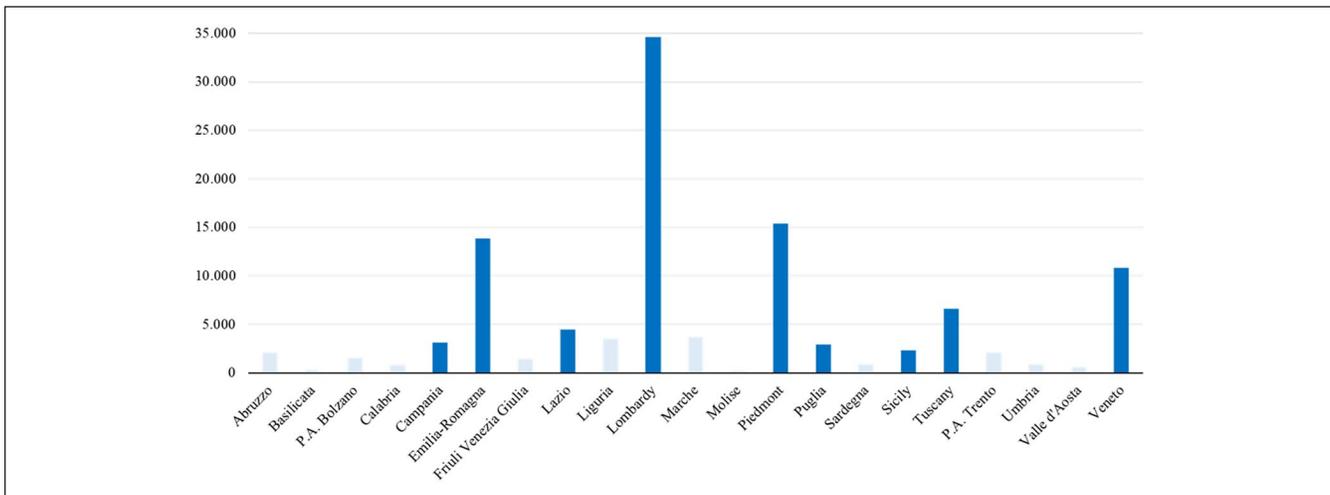


Figure 3. The highest number of positive cases in Italian regions.

From the first week of March, COVID-19 spread into all Italian regions, and the whole of Italy was classified as a “red zone.” Restrictions were tightened and almost any kind of “nonessential” activities and movements were banned. These restrictions were introduced on March 22 and after two extensions were in force until May 3, with the shutdown of any nonessential economic activities, with the exception of pharmacies, groceries, and few others.

The impact of COVID-19 on Italian health care organizations was devastating. The central government was forced to halt all nonurgent or nondeferrable activities in hospitals (Ministry of Health Circular no. 7422 of March 16, 2020). For outpatients, only urgent (within 72 hr) and short term procedures (within 10 days) were guaranteed. For hospital patients, only emergency care and scheduled activities for cancer patients and “class A” non-cancer patients were assured. This measure was necessary so that hospitals could devote all their resources to pandemic management.

However, partly because the spread of the virus was different from region to region, regional governments responded to the COVID-19 emergency at different times and with different approaches (Cicchetti et al., 2020).

This analysis hereafter focuses on nine regions to trace the complexity of pandemic management. The nine regions account for 80% of the population of Italy and are shown by dark blue bars in Figure 3. Analyses were made on the basis of data from Italian Ministry of Health and cover the first 2 months of the epidemic in Italy, from February 24 to April 24.

Data show a higher percentage of affected patients in the north of Italy, where the pandemic started, with a range of positives over population from 0.2% to 0.3%. Moving further away from Lombardy, where the pandemic started, the percentage of population positive decreases to under 0.1% in the center and south of Italy (Table 1). Obviously, the number of people affected by the pandemic impacts differently on the quantity of resources needed for care processes.

Table 1. The Highest Percentages of COVID-19 Patients on Population by Region.

Region	Position	Positive patients	Population	%
Lombardy	North	34,587	10,060,574	0.32
Emilia-Romagna	North	13,818	4,459,477	0.31
Piedmont	North	15,391	4,356,406	0.30
Veneto	North	10,800	4,905,854	0.22
Tuscany	Center	6,622	3,729,641	0.17
Lazio	Center	4,492	5,879,082	0.07
Puglia	South	2,936	4,029,053	0.06
Campania	South	3,118	5,801,692	0.05
Sicily	South	2,320	4,999,891	0.04

Note. COVID-19 = Coronavirus disease 2019.

Table 2. Average and Highest Numbers of ICU Patients on Hospitalized Patients.

Region	Average % ICU of hospitalized patients	Max % ICU of hospitalized patients
Veneto	20.72	36.84
Tuscany	18.60	38.30
Campania	15.09	34.41
Lazio	14.18	50.00
Piedmont	13.39	34.48
Lombardy	13.20	24.04
Puglia	11.25	23.08
Sicily	10.63	24.56
Emilia-Romagna	10.34	16.67

Note. ICU = intensive care unit.

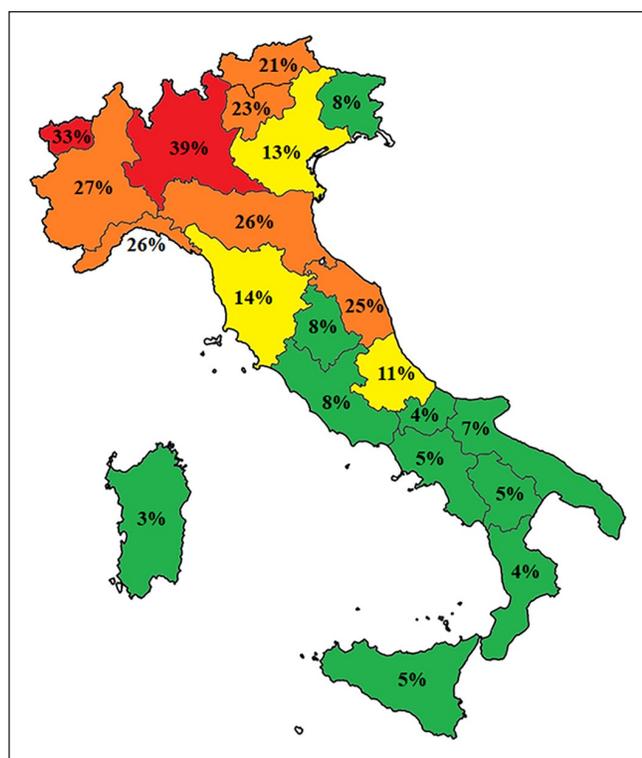


Figure 4. Percentage of COVID-19 beds on hospital pre-pandemic beds.

Note. COVID-19 = Coronavirus disease 2019.

Superficially, the percentage of affected patients may appear too low to impact on health care organizations. But, in reality, these data indicate extremely high pressure on health care organizations, taking into account the endowment of hospital resources.

Comparing the number of beds occupied by COVID-19 patients during the peak of the pandemic in Italy to the number of beds in each region in a nonemergency situation, there are big differences between regions (Figure 4). A pattern of spread can be seen which is linked to geographical proximity to Lombardy (the biggest region in Figure 4 shown in red). There is a slight irregularity in the pattern

for Veneto (adjacent to Lombardy in Figure 4, shown in yellow).

Health care organizations in the worst affected areas faced a shortage of beds to manage the pandemic. Many regional governments asked health care organizations to raise the number of beds significantly, particularly in intensive care units (ICUs) to manage the high number of patients requiring high-intensive care. Before the pandemic, Italy had a total of approximately 5,400 beds in ICUs.

Regions show different compositions of hospitalized patients, with a strong variance of rates of ICU admissions (Table 2).

Comparing numbers of ICU patients to ICU beds before the beginning of the pandemic (saturation rate), three clusters of regions can be identified (Figure 5):

- Campania, Sicily, Lazio, and Puglia managed the need for ICU beds without a high level of criticality (saturation rate < 50%).
- Emilia-Romagna, Veneto, and Tuscany may have managed the need for ICU beds with a high level of criticality (saturation rate between 50% and 100%).
- Lombardy and Piedmont managed the need for ICU beds with a very high level of criticality (saturation rate > 100%).

So to manage the high number patients admitted, in many regions the number of ICU beds was almost doubled from the beginning of the COVID-19 pandemic. Lombardy brought the number up from 900 to 1,755, Emilia Romagna from 449 to 1,022, and Piedmont from 320 to 570. Overall, it is estimated that the number of ICU beds in Italy rose by approximately 2,400 (+44%).

Health care organizations where possible opted to increase the number of ICU beds in existing hospitals, and few regions built new facilities or converted other existing facilities into hospitals. Health care organizations in Lombardy, for example, managed the pandemic peak without any additional support. The Fiera Hospital in Lombardy, a facility converted

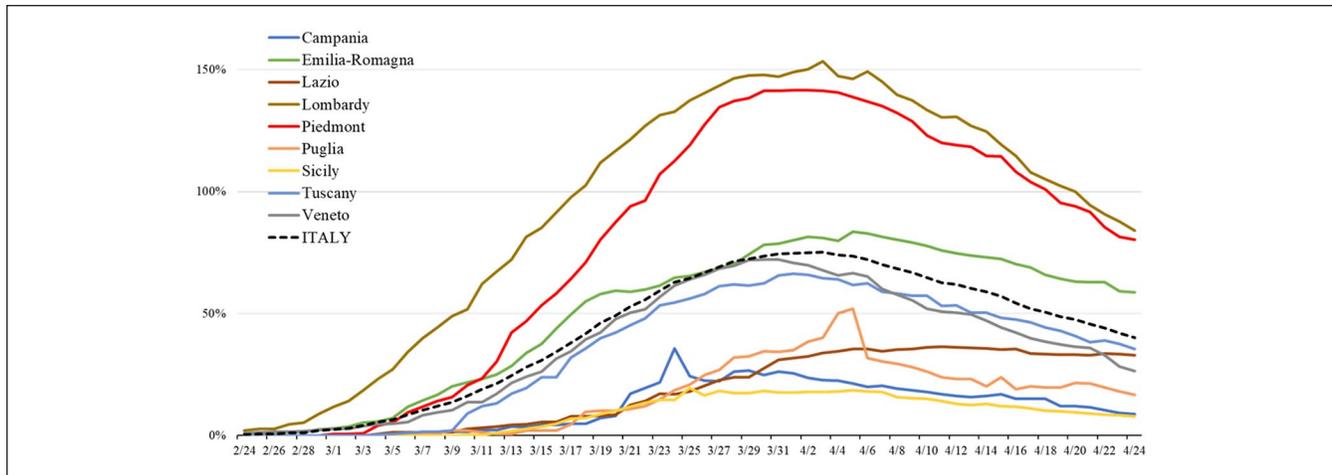


Figure 5. Saturation rates of ICU beds.
Note. ICU = intensive care unit.

into a hospital with only ICU beds (200 beds), was inaugurated on the 31st March but at the time of writing manages less than 10 patients. In sum, the COVID-19 pandemic has had a dramatic impact on health care organizations, forcing all hospitals to modify structures and processes to guarantee an efficacious response to new patient care needs.

Method

We administered a questionnaire to health management experts to capture their opinion on how the Italian health system and hospitals managed the COVID-19 pandemic. Previous studies have used experts' perspective to have a better understanding of the phenomenon and to identify methods of improvement (Fanelli et al., 2020; Glasner et al., 2013; Tousignant-Laflamme et al., 2020). About 70 health management experts were invited to participate in the survey. They were selected from a group of people who have skills and experience in the field and from the regions most affected by the COVID-19 pandemic.

The questionnaire was administered online on April 6, 2020 and after 2 weeks, 30 experts had replied (42.8%).

The questionnaire consisted of 14 open-ended questions, divided into three sections (Supplemental Appendix 1). The first section (four questions) was aimed at highlighting the critical issues in organizational roles, coordination with regional governments, and hospital leadership. The second section (seven questions) asked what changes were deemed necessary in the hospital organization and in relations between institutions. The last section (three questions) collected proposals on how to support hospitals in the change process.

Results and Discussion

The responses to the questionnaire by the 30 management experts make it possible to evaluate how health care

organizations responded to the sudden increase in patient access due to the pandemic. They also enable us to identify how hospitals can in future modify organizational structures, operational processes, and leadership styles to be more effective.

The first issue that emerges is related to resources. The COVID-19 pandemic showed that hospitals were suffering from a lack of resources, especially in ICU, in terms of shortages of beds, staff, and personal protective equipment. The inability to immediately access additional resources shifted the focus to the need to convert or divert resources already available into activities directly related to the management of COVID-19 diagnosis and treatment processes. The conversion of activities is however complex, as it requires considerable organizational effort. Central government's decision to suspend all nonurgent and deferrable activities in hospitals allowed health care facilities to focus their efforts on redefining activities to accommodate COVID-19 patients. Regional governments, which in Italy are responsible for health planning, thus redefined the role of hospitals in the network of health services. Hospitals, in turn, proved to be flexible, redefining their services and the methods of delivering treatment processes, reshaping the activities, increasing the number of ICU beds, and deploying staff to the units where there was greater need.

Our sample of management experts recognized the ability of hospitals to modify their activities for an effective emergency response, but they also highlighted limited coordination capacity between different actors in the hospitals. Coordination is a crucial managerial aspect to effectively face a health emergency (Katz, 2009). However, in the Italian case, coordination was slow, and procedures and intermediary roles proved to be ineffective. Virtuous organizational behaviors were in fact more frequently linked to choices made by individual health professionals or teams, rather than general coordination at organizational level. More specifically, management expert

respondents identified little clarity in defining roles, and poor communication between various hospital departments, especially between administrative and health care departments. Having clear guidelines is essential in emergency situations, but it appears that these were often lacking. The lack of coordination highlighted the absence of hospital emergency management plans to face epidemics, which should have been in place. Health managers and operators were therefore forced to make urgent decisions on the basis of the emergency situations that arose day by day, rather than on plans already defined a priori.

In sum, in the response of health care organizations to the crisis, hospitals showed a good ability to adapt to the emergency above all thanks to timely decisions taken by individuals rather than to emergency management plans at organizational level.

Analyzing the main critical issues revealed by our survey, it is possible to hypothesize that health care organizations could be redesigned as follows:

- Restructuring logistics. Logistics of many hospitals were compromised by the poor adaptability of spaces. The inability to efficiently separate COVID-19 from other patients shows the importance of designing more spaces that can accommodate large patient flows.
- Improving coordination tools. Coordination between health workers, between hospital units, and between the hospital and local services is critical in managing a health emergency. Intermediary roles, regular meetings to analyze problems, and information technology, are useful tools to improve communication, coordination, and sharing of information.
- Defining emergency management plans. Having emergency management plans with clear procedures and systematic exercises can help health workers better manage stress in critical situations, increase coordination, and facilitate decision-making.
- Enhancing health care professionals. In emergencies, the need to promote multi-professional and multidisciplinary integration is highlighted. This is easier when a hospital adopts policies that enhance all professional profiles.

The elements above could be important indications for hospitals, and if properly implemented, may help them to better manage future emergencies.

Hospitals demonstrated the ability to manage the emergency, although with some difficulties, but the experience of primary care, including general practitioners, preventive medicine, and territorial health care service, and so on was much more critical and complex. Responses from our questionnaire show that severe organizational weaknesses and shortages of resources meant that these services were strongly perceived as inadequate.

Primary care services therefore appear to require more fundamental and far-reaching reform. Priority interventions which our experts highlight as necessary include the following:

1. Better coordination with hospitals, and the identification of tools that allow effective integration. For this purpose, the redefinition of contracts, methods of taking care of the patient, and responsibilities of health professionals would be useful.
2. The ability to work more effectively requires that more resources should be allocated to primary care services, often underfunded compared with hospitals. This would enable better prevention processes, diagnostic activities, patient care at home, and the definition of guidelines.
3. Strengthening the role of general practitioners is a way to better monitor the health of the local population, and to prevent many nonurgent patients from presenting at hospital, compromising the management capacity of the hospital. This necessitates a strong network of health services integrating hospitals, general practitioners, and other area health services.
4. The crucial role of nurses in taking care of patients and assistance and care suggests that this professional profile should be enhanced with greater responsibilities and decision-making power.

Conclusion

It has been noted that after a negative experience, organizational change processes are effective if new tools and processes are identified and become part of practice in the daily work routine (Elliott & Smith, 2006). For this to happen, resistance to change often has to be overcome. Interventions on organizational culture and the definition of tools to support change, like incentives, redefinition of roles, and so on, can help managers in overcoming resistance. In fact, in hospitals with a weak organizational culture and with a poor connection with the values of the organization it is less likely that change processes can generate the desired results. In such organizations, resistance is stronger and an orientation toward the individual rather than the organization prevails (Sparrow, 1999).

Hospitals in Italy are mostly public, and historically, change is more difficult and complex in public administrations (Kuipers et al., 2014). This implies that even greater effort will need to be made for change to become “institutional”: public organizations may need to redefine their entire mission and structure.

The Italian experience of the COVID-19 pandemic shows that for hospitals it was relatively easy to change through the learning processes, but for primary care services fundamental redefinition of structure and processes is necessary.

However, it is possible to draw a general indication: institutional reforms are useful if they can generate the conditions for effective organizational learning. In emergency situations, the simple “application of the law on paper” is not always possible, and it is more useful to have a flexible organizational culture, in which objectives can be pursued even in extreme working conditions.

However, this is an important managerial challenge for hospitals (Wilson, 1989). Organizational learning requires management to identify the reasons for failure and errors correctly. It is easy to identify errors with hindsight, but difficult *in itinere* because those in charge during a crisis often have to take decisions quickly and on the basis of partial and potentially incorrect information. Learning from experience is very complicated. Even in cases of successful crisis management, or in less frequent cases of completely unsuccessful management, it can be difficult to identify which exact choices or decisions made a difference. Furthermore, the complexity of health emergencies and hospitals means that the responses to crises cannot be analyzed by abstracting them from the specific sociopolitical contexts in which they were implemented (A. C. Keller et al., 2012).

In conclusion, the role of managers is critical to successfully tackle health crises, and the skills of leadership, problem solving, and teamwork are crucial. It is thought reforms in turn play an important role in selecting managers with these characteristics.

The hope is therefore that important lessons can be learned from the COVID-19 emergency to allow health care organizations to be more effective in facing future challenges.

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Supplemental Material

Supplemental material for this article is available online.

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