

## **HOW COVID19 PANDEMIC IS AFFECTING ITALY: IMPACT, RESPONSE AND RECOVERY**

**Sandro Bologna, Simona Cavallini\*, Carmelo Di Mauro, Vittorio Rosato**  
*TIEMS Italian Chapter*

### **Abstract**

This paper aims at providing an overview of dynamics of the COVID19 pandemic in Italy, how the country has been affected, has responded and is reacting, having the unpleasant role of “first mover” in the first wave and suffering for the second wave. Part of the negative effects was due to lack of preparedness for a such event. Their extent was amplified by a fragile health system.

In Italy the first case of COVID19 was officially detected on 21st February 2020. At the beginning of April Italy ranks third for infected cases (after USA and Spain) but unfortunately first for both the number of deaths (18.279 on 9<sup>th</sup> April) and the fatality rate. Number of deaths and number of occupied intensive care beds demonstrate: the occurrence of two waves of the COVID19 pandemic; and, a COVID19 contamination not homogeneously distributed on the Italian territory. Four key dates are taken into account for a deep understanding of the situation in the Italian regions: 9<sup>th</sup> April 2020 (just after the pick of the first wave), 31<sup>st</sup> July 2020 (at the end of the first wave), 15<sup>th</sup> October 2020 (at the beginning of the second wave) and 15<sup>th</sup> November 2020 (at the pick of the second wave (?)).

Nine months after the first Italian COVID19 case, the Italian government had to re-define restriction measures and to implement a new combination of response and recovery actions. For this second wave, a restriction approach at regional level was preferred to a national lock down (as during the first wave). A scientific robust approach defined by the Italian Ministry of Health at the end of April was implemented at the beginning of November. 21 indicators were used to define four possible scenarios (with an assigned a “severity colour”). Italian regions became yellow, orange and red. None of them was recognised green and the situation worsen during November (with gradual increase of the number “orange” and “red” regions).

Effects of this new approach at regional level need more time to be appreciated. In any case lessons learnt from the first wave can be used to understand how to better address socio-economic challenges of the second wave and of a new world with a persistent COVID19 threat. Approaches and tools to predict new types/other waves of pandemics (not only in Italy) needs also to be considered.

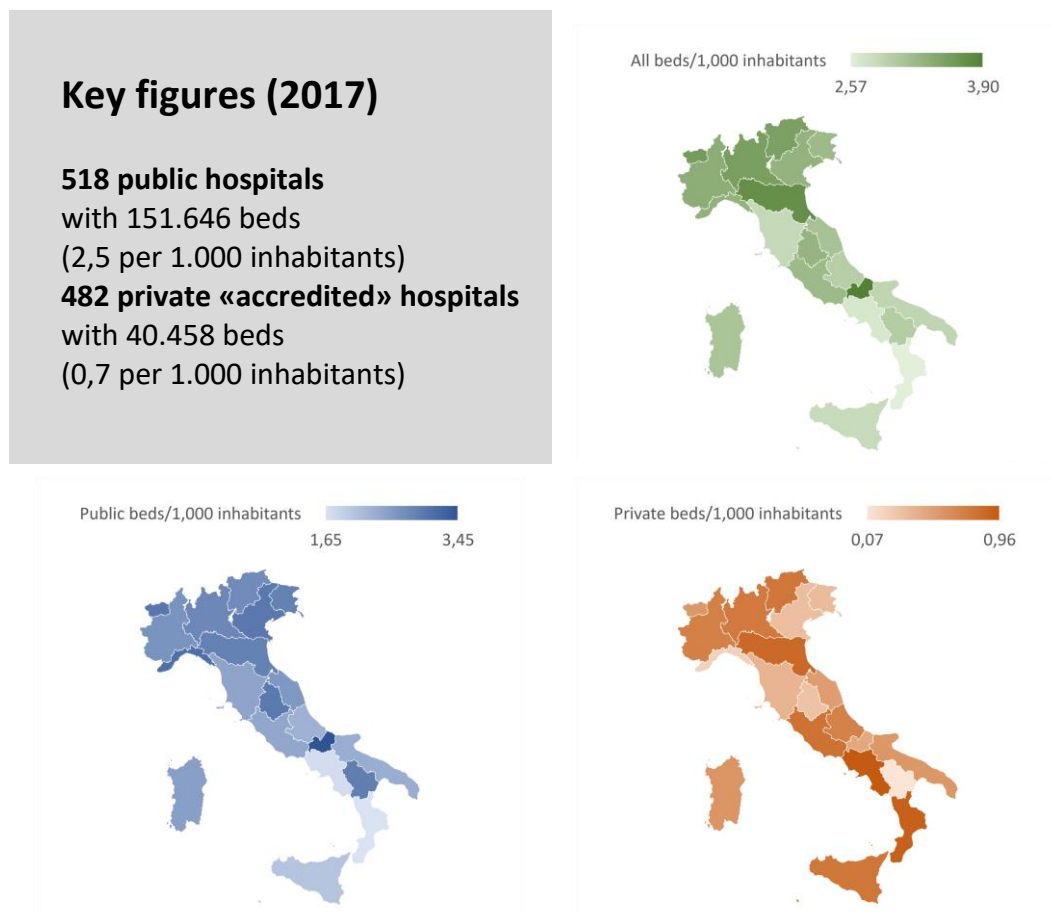
**Keywords:** COVID19, Italy, regions, health system, deaths, intensive care beds.

\* corresponding author: [s.cavallini@formit.org](mailto:s.cavallini@formit.org)

## Introduction

This paper aims at providing an overview of dynamics of the COVID19 pandemic in Italy, how the country has been affected, has responded and is reacting, having the unpleasant role of “first mover” in the first wave and suffering for the second wave. Part of the negative effects was due to lack of preparedness for a such event. Their extent was amplified by a fragile health system.

The Italian Health system (i.e. the “National healthcare service” – “Servizio Sanitario Nazionale” – SSN is a «universal» system answering to the “right to health” of all the citizens (guaranteed by the Italian Constitution - Art. 32). Such system is public and system financially supported by taxes and by (mostly) «out of the market» costs of the provided health services. «Private accredited» health structures are part of the SSN. The high-level provisions/targets at national level (i.e. the Italian Ministry of Health) guide the health services management (and the related budget) of the Italian regions (i.e. based on subsidiarity principle).



*Source: maps created by the authors with data from Ministero della Salute (2019)*

## Italy as a “first mover”

In Italy the first case of COVID19 was officially detected on 21st February 2020, although preliminary findings of some studies indicate that virus was already in some areas of the country in January. The Italian government reacted in a couple of weeks defining restriction measures in all the Italian territories that became red zones for almost one month (i.e. Decree of the Council of Ministries on 8th March).

## The first month of COVID19 pandemic in Italy

- **21<sup>st</sup> February** – **First official COVID19 case** in Codogno, epidemic outbreak in Vo' Euganeo and first death in Padova
- **22<sup>nd</sup> February** – DPCM\* - Red zone for 10 municipalities in the Province of Lodi and in Vo' Euganeo (in the province of Padova). 76 COVID19 cases
- **24<sup>th</sup> February** – DPCM – Restriction measures (e.g. education institutions closed) in six Italian regions (Piemonte, Lombardia, Veneto, Friuli-Venezia-Giulia, Emilia Romagna, Liguria)
- **4<sup>th</sup> March** – DPCM - Education institutions closed in Italy with additional restriction measures (e.g. movie theaters closed)
- **6<sup>h</sup> March** – The Italian government allocates 7,5 billion euros to immediately support consumers and enterprises
- **7<sup>th</sup> March** – DPCM – Lombardia and other 14 provinces become red zone.
- **8<sup>th</sup> March** – DPCM – **Restriction measures in all the Italian territories that become red zones for almost one month.** (e.g. only a limited number of commercial activities such as those providing food, drugs remained open).
- **12<sup>st</sup> March** – **More than 1,000 deaths** from 21<sup>st</sup> February
- **18<sup>th</sup> March** – DPCM – “Cura Italia”. The Italian government allocates 25 billion euro to address the COVID19 emergency. Cemeteries in the Province of Bergamo are no more able to manage deaths. The army is required to transport deaths in other regions.
- **19<sup>th</sup> March** – **Italy with 3,405 fatalities** becomes the country with the highest number of COVID deaths in the world.

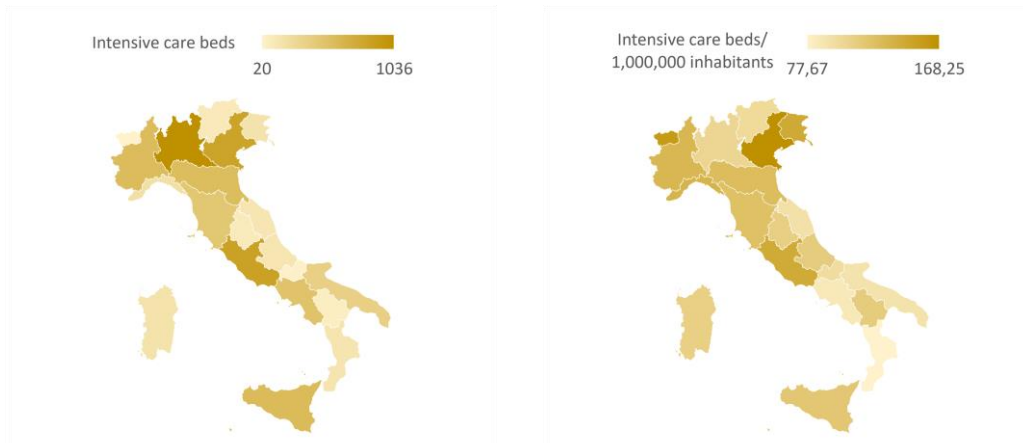
Decreto Presidenza del Consiglio dei Ministri del 08.03.2020 DISPOSIZIONI VALIDE FINO A VENERDI' 3 APRILE 2020	
<b>APERTI E ATTIVI</b>	<ul style="list-style-type: none"> <li>• Farmacie, parafarmacie (anche se nei centri commerciali)</li> <li>• Uffici Comunali</li> <li>• Cimitero</li> <li>• Consegna pasti a domicilio</li> <li>• Assistenza domiciliare</li> <li>• Trasporti sociali</li> <li>• Ambulatori Medici (previo contatto telefonico)</li> <li>• Mercati rionali (vedi limitazioni)</li> </ul>
<b>CHIUSI E SOSPESI</b>	<ul style="list-style-type: none"> <li>• Sospensione dell'attività didattica delle Scuole di ogni ordine e grado e degli Asili Nido</li> <li>• Concorsi pubblici</li> <li>• Eventi, congressi, iniziative e attività culturali</li> <li>• Riunioni e assemblee in luogo pubblico o privato</li> <li>• Centri sportivi E palestre</li> <li>• Museo d'Arte Contemporanea</li> <li>• Biblioteca Civica</li> <li>• Cinema e teatri</li> <li>• Pub, Scuole di Ballo, Sale gioco, Sale Scommesse, Discoteche</li> <li>• Centri Benessere</li> <li>• Cerimonie civili e religiose, ivi comprese quelle funebri</li> </ul>
<b>CON LIMITAZIONI</b>	<ul style="list-style-type: none"> <li>• Giornate festive e prefestive: chiusura dei negozi all'interno dei centri commerciali (alimentari e farmacie esclusi)</li> <li>• Sabato e domenica chiusura delle medie e grandi strutture di vendita</li> <li>• Mercati consentiti da lunedì a venerdì</li> <li>• Bar e Ristoranti: apertura consentita dalle 6.00 alle 18.00, con obbligo delle distanze di sicurezza (1 mt) e interdizione del servizio al banco; obbligo di chiusura dalle ore 18.00 alle 6.00 del giorno successivo.</li> <li>• Apertura di attività commerciali, supermercati, negozi di vicinato e mercati, sempre condizionata all'adozione di misure organizzative tali da evitare assembramenti di persone</li> <li>• Per i pubblici esercizi confermata l'apertura a condizione di garantire il mantenimento di distanza di almeno metri 1 tra clienti («criterio droplet»)</li> <li>• Eventi sportivi e allenamenti a porte chiuse solo per atleti tesserati professionisti.</li> </ul>

\*Decree of the Presidency of the Council of Ministries

## A way to measure the capacity to cope with COVID19 pandemic

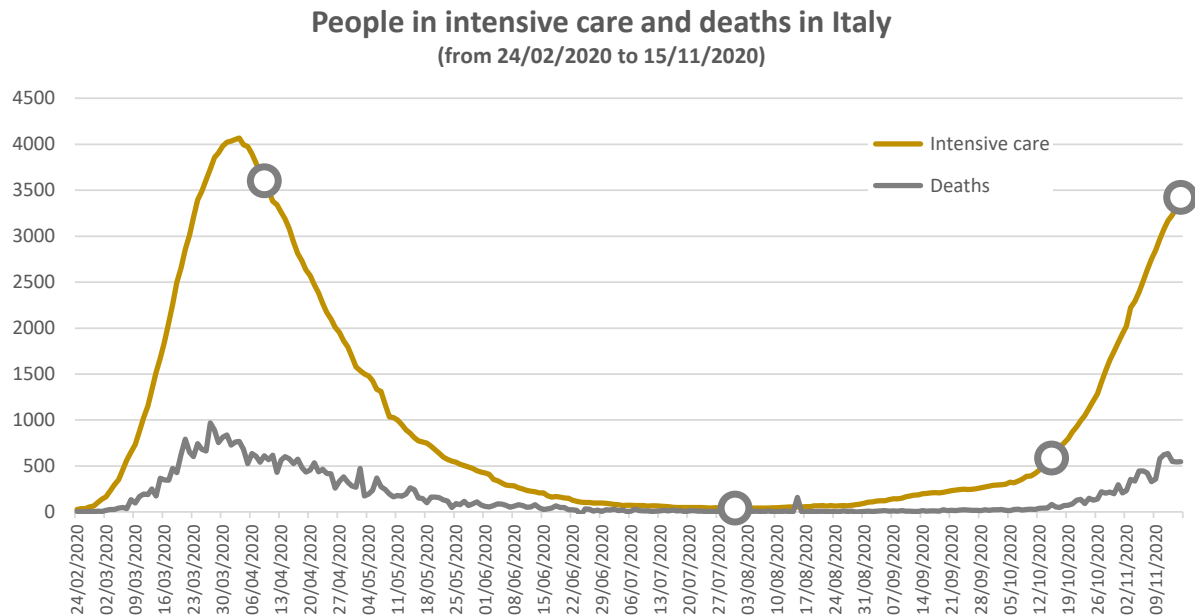
Occupied intensive care (IC) beds and number of deaths can be used as a proxy of the severity of the COVID19 pandemic at a certain date.

Occupied intensive care (IC) beds on the total available provide also an indication of the response capacity and the reliability of the health system. In Italy IC beds endowment at regional level is very heterogeneous. At the end of October 2020 there were 7,092 available intensive care beds in Italy. The regional endowment ranges from 20 IC beds in Valle d'Aosta to 1,036 IC beds in Lombardia. Such situation is confirmed by taking into account the number of inhabitants of each region. There are 77 intensive care beds/million inhabitants in Calabria and the region with the highest number intensive care beds/million inhabitants is Veneto with more than double beds (i.e. 168).



Source: maps created by the authors with data from Ministero della Salute (2019)

Data of occupied intensive care (IC) beds and of number of deaths from 24<sup>th</sup> February 2020 on the Italian situation clearly show two waves.



Source: graph created by the authors with open daily data provided by Protezione Civile

Four key dates are taken into account for a deep understanding of the situation in the Italian regions: 9<sup>th</sup> April 2020<sup>1</sup> (just after the pick of the first wave), 31<sup>st</sup> July 2020<sup>2</sup> (at the end of the first wave), 15<sup>th</sup> October 2020 (at the beginning of the second wave) and 15<sup>th</sup> November 2020 (at the pick of the second wave (?)).

<sup>1</sup> The TIEMS Italian Chapter reported the Italian situation of the COVID19 pandemic on 9<sup>th</sup> April 2020 with a dedicated article on the newsletter of TIEMS International ([issue 38](#)).

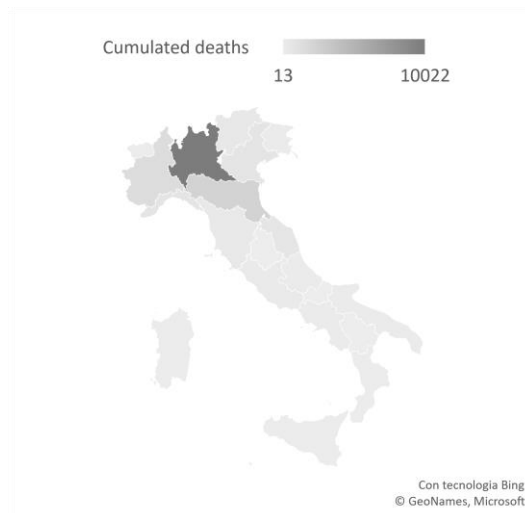
<sup>2</sup> The TIEMS Italian Chapter reported the Italian situation of the COVID19 pandemic on 31<sup>st</sup> July 2020 with a dedicated article on the newsletter of TIEMS International ([issue 39](#)).

## 9<sup>th</sup> April 2020

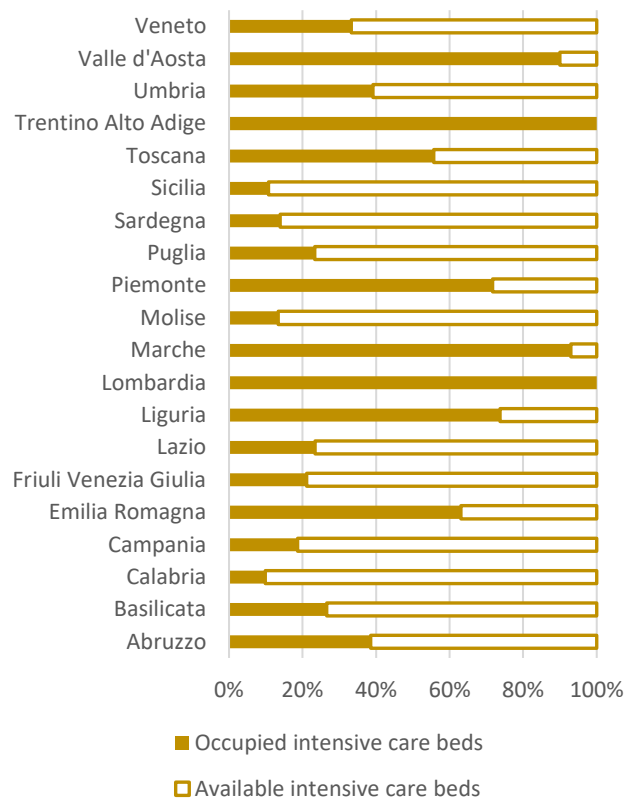
According to John Hopkins University data on the COVID19 contamination in the world by country, at the beginning of April Italy ranks third for infected cases (after USA and Spain)(i.e. more than 143.000 infected people) but unfortunately first for both the number of deaths (18.279 on 9<sup>th</sup> April) and the fatality rate. During the first week of April number of COVID intensive care beds were more than 4.000. COVID19 contamination was not homogeneously distributed on the Italian territory. 1,5 months after the first case, out of the 20 Italian regions the five most affected (i.e. Lombardia, Emilia Romagna, Piemonte, Veneto and Toscana) registered 74,8% of the total COVID19 cases. 54.802 cases (38,3%) were in one region only (i.e. Lombardy region).

### 1,5 months after the first case (just after the pick of the first wave)

- **COVID19 deaths** (starting from 24<sup>th</sup> February) → **18,279**.
- **COVID19-occupied intensive care beds** (on 9<sup>th</sup> April) → **3,605**.
- **COVID19 cases** (starting from 24<sup>th</sup> February) → **143,626**.



### Saturation of the intensive care



Source: map and graph created by the authors on elaboration of open daily data provided by Protezione Civile

The country with its 60 million inhabitants (the third most populated Member State) was the first in Europe, and to some extent in the world, to be severely impacted. Casualties, stress of the existing health system, social discontent, crisis of key economic sectors (as tourism) are only some of the negative effects of the pandemics.

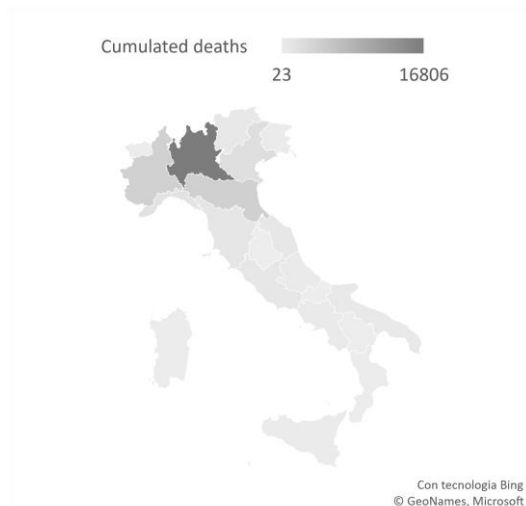
Response was at national level, combining technical and professional solutions for emergencies with political decisions.

### 31<sup>st</sup> July 2020

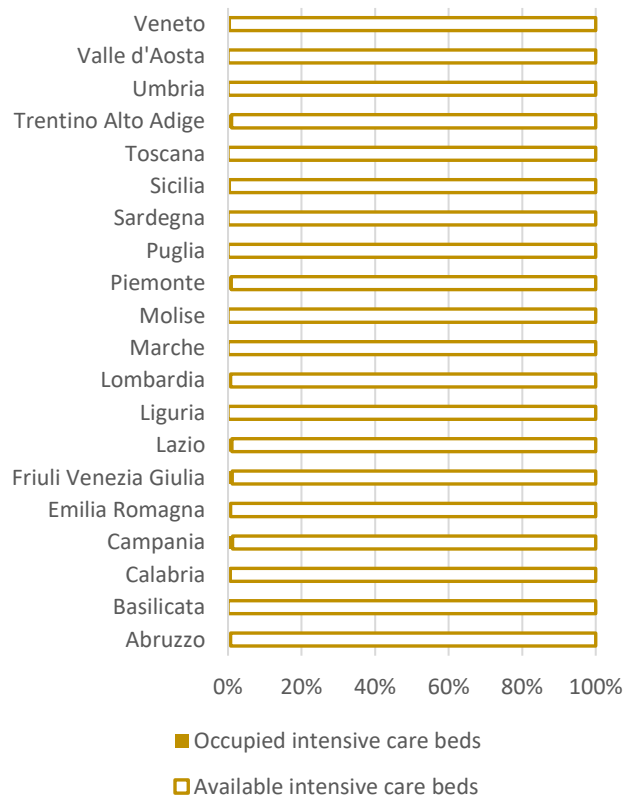
Five months after the first case, deaths amount to 35.141 and COVID intensive care beds were 41 (on 31<sup>st</sup> July), but the pandemic assumed a world-wide scope. Italy with 247.537 COVID19 cases was the 15th affected country in the world. The USA were the most affected country with a number of COVID19 cases (4.495.015) and with more than 150.000 deaths. Taking into account of only four countries in South America (i.e. Brasil, Perù, Cile, Colombia) number of COVID19 cases reached 3,5 million and deaths 130.000 units. In this phase, the COVID19 contamination remains not homogeneously distributed on the Italian territory. On 31<sup>st</sup> July, the five most affected regions (i.e. Lombardia, Piemonte, Emilia Romagna, Veneto and Toscana) registered 76,0% of the total COVID19 cases. More than 95.000 cases (51,1%) in Lombardia region only.

### 5 months after the first case (at the end of the first wave)

- **COVID19 deaths** (starting from 24<sup>th</sup> February) → **35,141**.
- **COVID19-occupied intensive care beds** (on 31<sup>st</sup> July) → **41**.
- **COVID19 cases** (starting from 24<sup>th</sup> February) → **247,537**.



### Saturation of the intensive care



Source: map and graph created by the authors on elaboration of open daily data provided by Protezione Civile

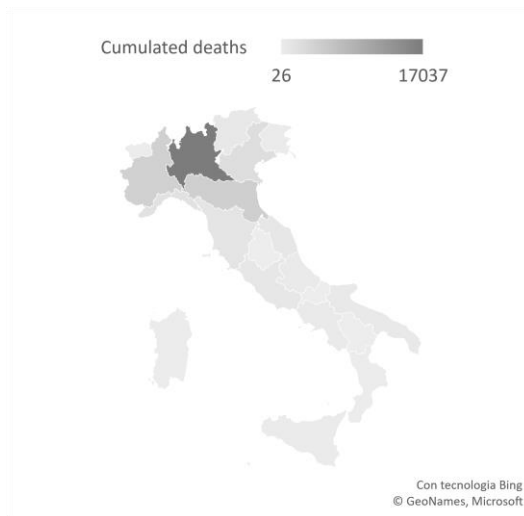
After more than two months of lock-down (from beginning of March to mid-May), just before the summer period measures to reduce contaminations were gradually relaxed and at beginning of September 2020 (6 months after the first case) crucial decisions were taken. Schools and any other education institutions, closed at the beginning of April, re-opened moving around 10 million people (including students, teaching staff and administrative/technical staff) while most of the public administration employees and part of private sector ones continued to work in remote mode. In the meantime the health system was enforced to address a possible “second wave”.

### 15<sup>th</sup> October 2020

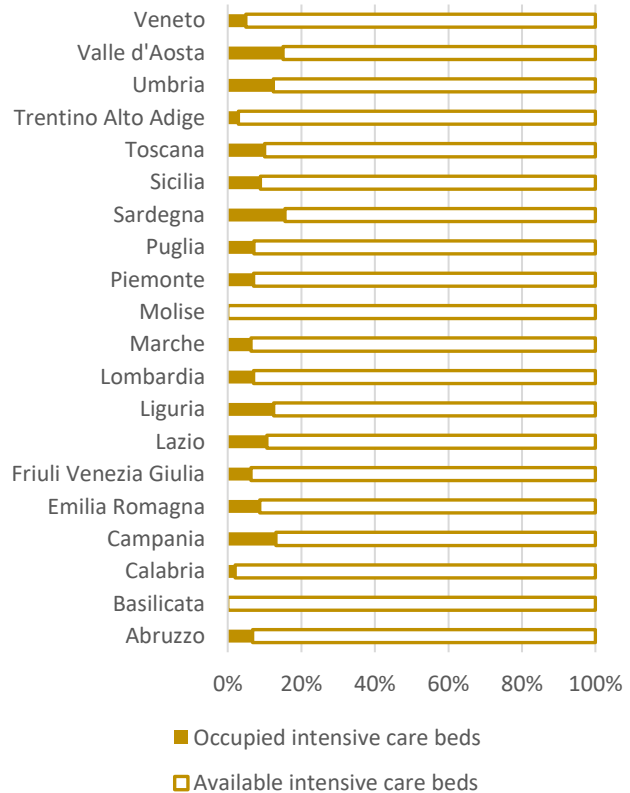
On 15 October occurrence of the second wave in Europe was no more an hypothesis and COVID19 cases and intensive care beds raised in Italy again (reaching respectively 99266 and 586 units) and other regions started to compete with the most affected regions of the “first wave” in terms of cases.

### 8 months after the first case (at the beginning of the second wave)

- **COVID19 deaths** (starting from 24<sup>th</sup> February) → **36,372**.
- **COVID19-occupied intensive care beds** (on 15<sup>th</sup> October) → **586**.
- **COVID19 cases** (starting from 24<sup>th</sup> February) → **381,602**.



### Saturation of the intensive care



Source: map and graph created by the authors on elaboration of open daily data provided by Protezione Civile

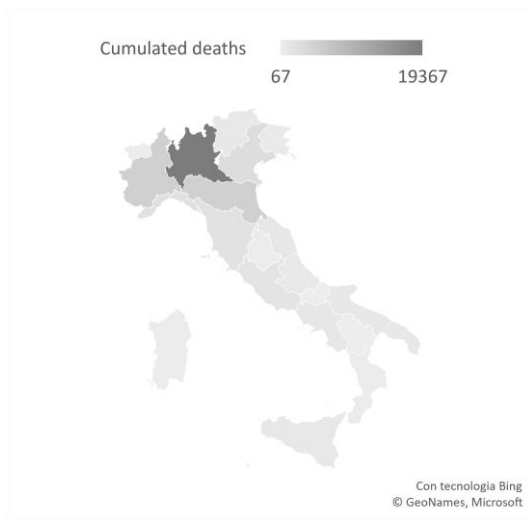


**15<sup>th</sup> November 2020.**

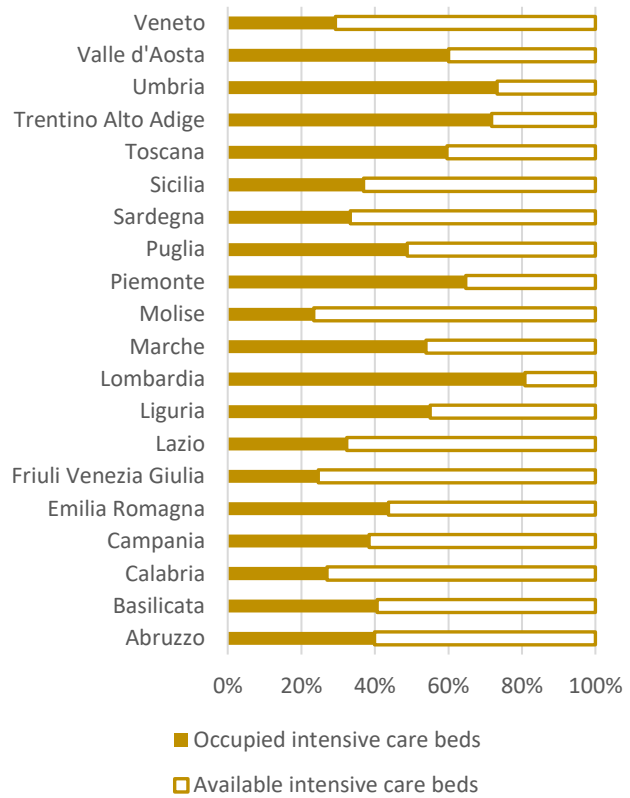
On 15 November the overall situation worsened reaching the number of occupied IC beds and the number of deaths of the pick of the first wave.

**9 months after the first case  
(at the pick of the second wave (?))**

- **COVID19 deaths** (starting from 24<sup>th</sup> February) → **45,229.**
- **COVID19-occupied intensive care beds** (on 15<sup>th</sup> November) → **3,422.**
- **COVID19 cases** (starting from 24<sup>th</sup> February) → **1,178,529.**



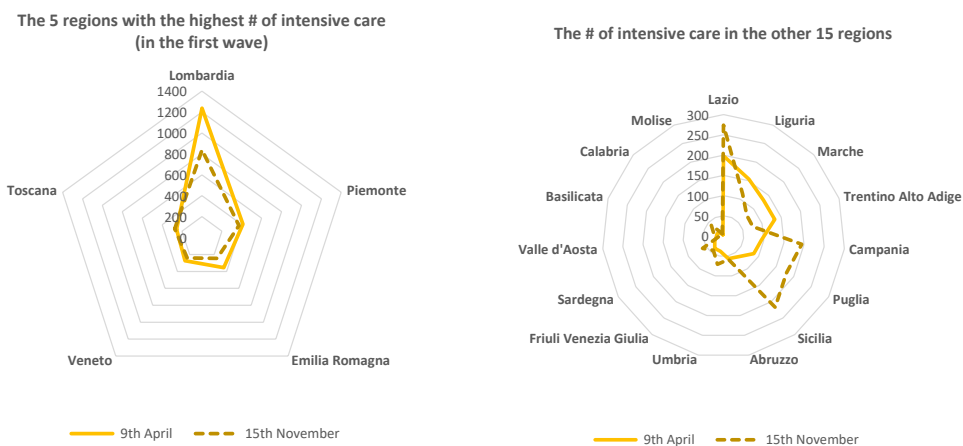
**Saturation of the intensive care**



Source: map and graph created by the authors on elaboration of open daily data provided by Protezione Civile

**The geographical scope: one of the main difference between the two waves**

Looking at the number of occupied IC beds and the number of deaths of the two waves have the same shape. However, the geographical scope differently characterised the two waves.



Source: graphs created by the authors on elaboration of open daily data provided by Protezione Civile





Source: graphs created by the authors on elaboration of open daily data provided by Protezione Civile

### A response to the second wave with an approach at regional level

A new combination of response and recovery measures were taken. A restriction approach at regional level was preferred to a national lock down. On 3rd November 2020 a Decree of the Presidency of the Council of Ministries applied the 21 indicators defined by the Ministry of Health (in the Decree of the Ministry of Health, 30 April 2020). The indicators (to be weekly updated with regional data) were grouped in three categories: Indicators related to monitoring capacity (6); Indicators related to COVID19 detection and contacts management capacity (6); Indicators related to contamination stability and response capacity of the health services (9).

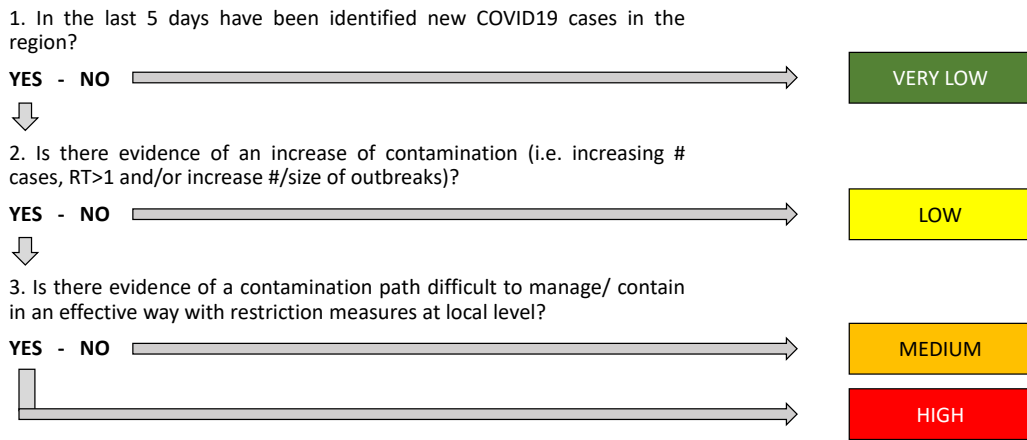
Monitoring capacity (6)	COVID19 detection and contacts management capacity (6)	Contamination stability and response capacity of the health services (9)
1.1 # synthomatic cases reported in the month with the first day of synthoms / total # synthomatic cases reported in the month	2.1 % positive tests (excluding repetitions to the same individuals) in the month	3.1 # cases reported in the last 14 days to the Civil Protection
1.2 # hospitalised cases (not IC) reported in the month with the hospitalisation date / total # hospitalised cases (not IC) reported in the month	2.2 Time lag between the first synthomatic day and the date of certification of the COVID19 case	3.2 RT based on criteria defined by the Istituto Superiore di Sanità
1.3 # IC cases reported in the month with the IC date / total # IC cases reported in the month	2.3 Time lag between the first synthomatic day and the date of isolation (not mandatory).	3.3 # cases reported every week to the COVID-net monitoring (not mandatory)
1.4 # cases reported in the month with indication of the municipality of residence / total # cases reported in the month	2.4 Professional staff #, type and person/hours in contact-tracing	3.4 # cases reported every day with certification date and the first synthomatic day
1.5 # weekly checklist submitted to healthcare infrastructures (not mandatory)	2.5 Professional staff #, type and person/hours in testing, lab analysis, contact tracing of first level and of cases in isolation/quarantine	3.5 # outbreaks (2 or more connected cases or an unexpeted increase of # cases in an area)
1.6 # healthcare infrastructures answering to the weekly checklist with at least one critical issue (not mandatory)	2.6 # new cases identified with contact tracing of first level in the area / total # new cases in the area	3.6 # new cases with known transmission paths
		3.7 # first-aid patients with COVID19 synthoms (not mandatory)
		3.8 % of intensive care beds occupied by COVID19 patients
		3.9 % of beds in healthcare structures occupied by COVID19 patients

Source: Decree of the Ministero della Salute (30 April 2020)

For each indicator were defined thresholds and critical values to allow a risk assessment based on algorithms taking into account four levels of the likelihood of contamination and four levels of impact on citizens' health. A risk matrix combining probability and impact supported the definition of possible scenarios.

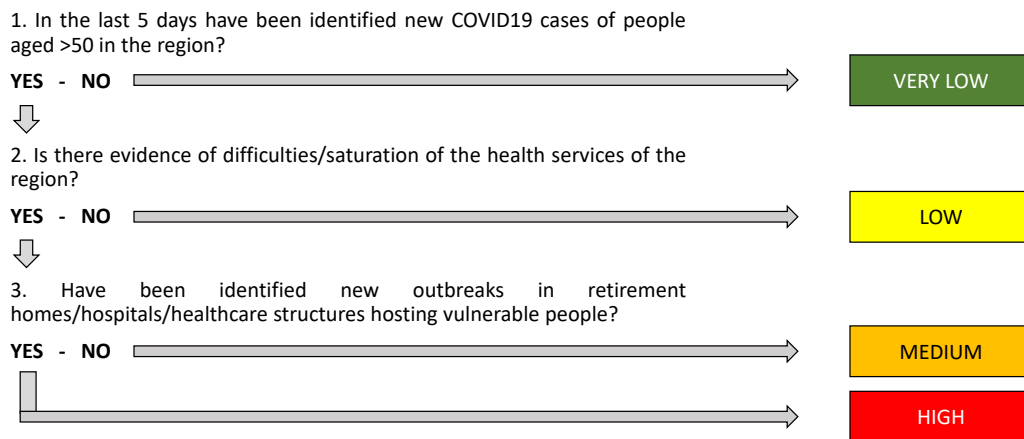
## Risk assessment procedure for the Italian regions

### The algorithm for LIKELIHOOD\*

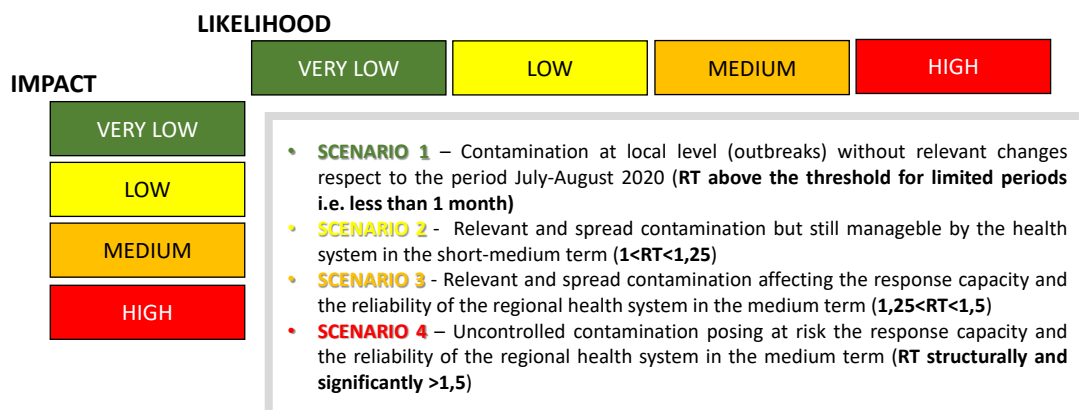


\*answers based on evidence of a specific sub-set of the 21 indicators.

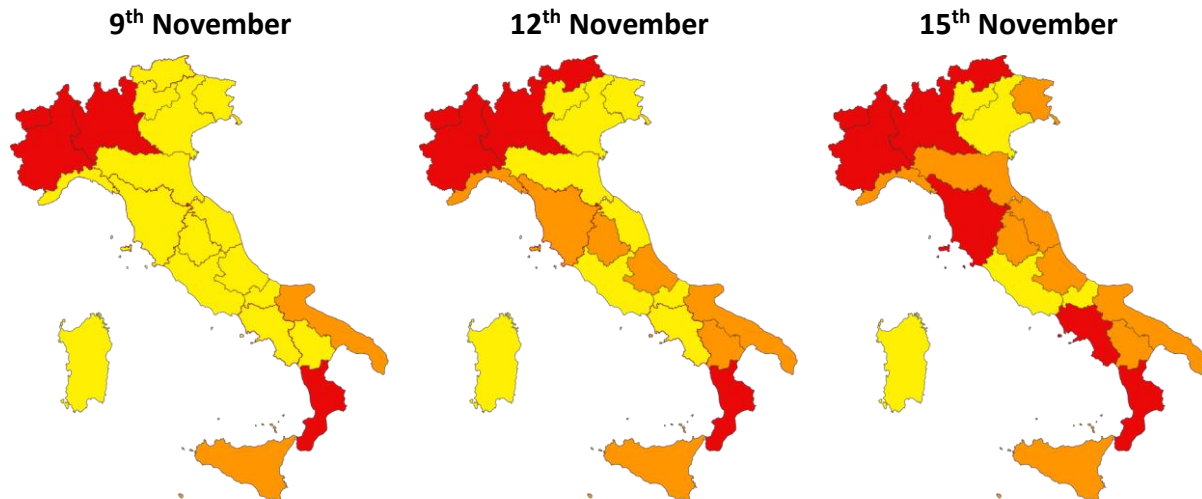
### The algorithm for IMPACT\*



\*answers based on evidence of a specific sub-set of the 21 indicators.



Source: Ministero della Salute, Istituto Superiore di Sanità (2020)



Source: Act of the Ministry of Health (4 November)

Source: Act of the Ministry of Health (10 November)

Source: Act of the Ministry of Health (13 November)

AREA GIALLA	AREA ARANCIONE	AREA ROSSA
<p><b>Vietao circolare dalle ore 22 alle ore 5 del mattino, salvo comprovati motivi di lavoro, necessit� e salute. Raccomandazione di non spostarsi se non per motivi di salute, lavoro, studio, situazioni di necessit�.</b></p> <p><b>Chiusura dei centri commerciali nei giorni festivi e prefestivi ad eccezione delle farmacie, parafarmacie, punti vendita di generi alimentari, tabaccherie ed edicole al loro interno.</b></p> <p><b>Chiusura di musei e mostre.</b></p> <p><b>Didattica a distanza per le scuole superiori, fatta eccezione per gli studenti con disabilit� e in caso di uso di laboratori; didattica in presenza per scuole dell'infanzia, scuole elementari e scuole medie. Chiuse le universit�, salvo alcune attivit� per le matricole e per i laboratori.</b></p> <p><b>Riduzione fino al 50% per il trasporto pubblico, ad eccezione dei mezzi di trasporto scolastico.</b></p> <p><b>Sospensione di attivit� di sale giochi, sale scommesse, bingo e slot machine anche nei bar e tabaccherie.</b></p> <p><b>Chiusura di bar e ristoranti alle ore 18. L'asporto � consentito fino alle ore 22. Per la consegna a domicilio non ci sono restrizioni.</b></p> <p><b>Restano chiuse piscine, palestre, teatri, cinema. Restano aperti i centri sportivi.</b></p>	<p><b>Vietao circolare dalle ore 22 alle ore 5 del mattino, salvo comprovati motivi di lavoro, necessit� e salute.</b></p> <p><b>Vietao gli spostamenti in entrata e in uscita da una Regione all'altra e da un Comune all'altro, salvo comprovati motivi di lavoro, studio, salute, necessit�. Raccomandazione di evitare spostamenti non necessari nel corso della giornata all'interno del proprio Comune.</b></p> <p><b>Chiusura di bar e ristoranti, 7 giorni su 7. L'asporto � consentito fino alle ore 22. Per la consegna a domicilio non ci sono restrizioni.</b></p> <p><b>Chiusura dei centri commerciali nei giorni festivi e prefestivi ad eccezione delle farmacie, parafarmacie, punti vendita di generi alimentari, tabaccherie ed edicole al loro interno.</b></p> <p><b>Chiusura di musei e mostre.</b></p> <p><b>Didattica a distanza per le scuole superiori, fatta eccezione per gli studenti con disabilit� e in caso di uso di laboratori; didattica in presenza per scuole dell'infanzia, scuole elementari e scuole medie. Chiuse le universit�, salvo alcune attivit� per le matricole e per i laboratori.</b></p> <p><b>Riduzione fino al 50% per il trasporto pubblico, ad eccezione dei mezzi di trasporto scolastico.</b></p> <p><b>Sospensione di attivit� di sale giochi, sale scommesse, bingo e slot machine anche nei bar e tabaccherie.</b></p> <p><b>Restano chiuse piscine, palestre, teatri, cinema. Restano aperti i centri sportivi.</b></p>	<p><b>� vietato ogni spostamento, anche all'interno del proprio Comune, in qualsiasi orario, salvo che per motivi di lavoro, necessit� e salute; vietati gli spostamenti da una Regione all'altra e da un Comune all'altro.</b></p> <p><b>Chiusura di bar e ristoranti, 7 giorni su 7. L'asporto � consentito fino alle ore 22. Per la consegna a domicilio non ci sono restrizioni.</b></p> <p><b>Chiusura dei negozi, fatta eccezione per supermercati, beni alimentari e di necessit�.</b></p> <p><b>Restano aperte edicole, tabaccherie, farmacie e parafarmacie, lavanderie, parrucchieri e barbieri. Chiusi i centri estetici.</b></p> <p><b>Didattica a distanza per la scuola secondaria di secondo grado, per le classi di seconda e terza media. Restano aperte, quindi, solo le scuole dell'infanzia, le scuole elementari e la prima media. Chiuse le universit�, salvo specifiche eccezioni.</b></p> <p><b>Sono sospese tutte le competizioni sportive salvo quelle riconosciute di interesse nazionale dal CONI e CIP. Sospese le attivit� nei centri sportivi. Rimane consentito svolgere attivit� motoria nei pressi della propria abitazione e attivit� sportiva solo all'aperto in forma individuale.</b></p> <p><b>Sono chiusi musei e mostre; chiusi anche teatri, cinema, palestre, attivit� di sale giochi, sale scommesse, bingo, anche nei bar e nelle tabaccherie. Per i mezzi di trasporto pubblico � consentito il riempimento solo fino al 50%, fatta eccezione per i mezzi di trasporto scolastico.</b></p>

## Lessons learnt

Two main types of measures were taken to better address socio-economic challenges of the first wave: measures to reinforce the health system and measures to support citizens and enterprises that suffered from the COVID19 pandemic effects. The design and the implementation of such measures led to lessons learnt useful to understand how to face a possible second wave in a more effective way. Among those to reinforce the health system, the need: to define for emergency situations light/ad-hoc procurement procedures; to improve/increase the existing equipment for intensive care; to create an effective system to track contacts. From measures addressed to citizens and enterprises, the main lessons learnt were related to the imposition of restrictions where they are really needed to avoid negative side-effects, to the improvement/simplification of mechanisms/procedures to support from the economic point of view affected citizens and enterprises and to improvement of the societal digitalization.

## A shortcoming in the COVID19 emergency management – The IMMUNI app for Contact Tracking

When two IMMUNI users (user A and user B) meet, terminal (e.g. smart phone) of user A issues an anonymous key via Bluetooth including a specific ID of the contact event together with an assessment of the distance between User A and User B. Terminal of User B behaves in the same way. Each of the two terminals stores the other user's key.

If later one of two users (e.g. User A) results a potential COVID19 case, his/her keys (together with a contamination factor) are uploaded on an ad-hoc central server. All the keys are regularly downloaded by the IMMUNI app of all the users.

All the IMMUNI users having stored keys generated by contact events with User A → informed of a potential contact with a COVID19 case with a precise level of health risk ranging from 1 to 8 (the contamination factor is one of the elements defining the level of the health risk).

On 15<sup>th</sup> November:

**Around 9 million of users**

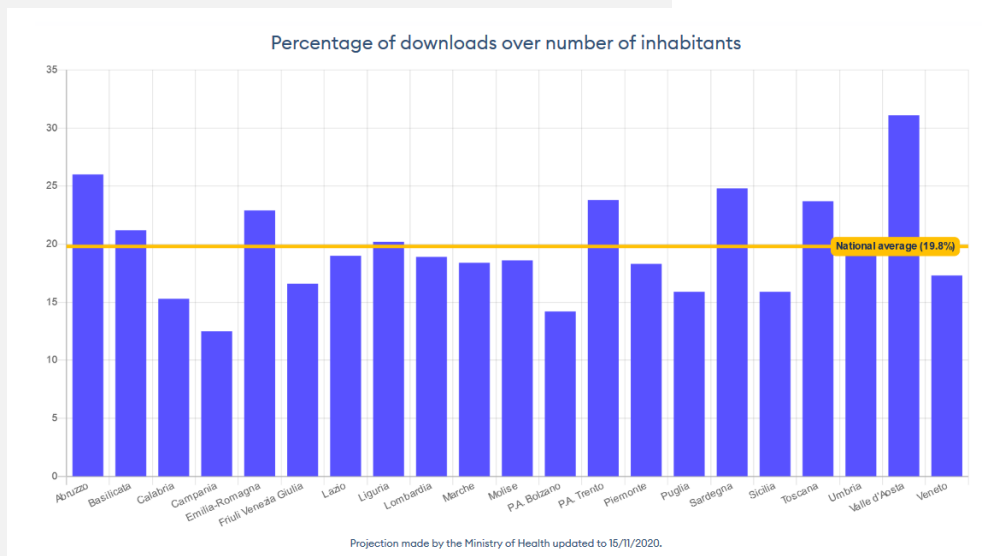
**19.8% of downloads over the number of inhabitants**

**275 notifications**

**100 positive users**

**76687 notifications** (from 15 June 2020)

**4155 positive users** (from 15 June 2020)



The arrival of the second wave and the experience gained with the first one gave important lessons to better address socio-economic challenges related to a new world with a persistent COVID19 threat. The Italian health system needs to address in the medium term an higher demand of specialized health staff (i.e. intensive care doctors) and to guarantee first aid/care also for the other/not COVID19 patients. Among lessons learnt for what can reduce the negative socio-economic effects for citizens and enterprises the need to improve the public urban transport system, to define medium-term incentives/strategies to support the economic recovery, to favour the green transition and societal revitalization of non-urban areas.

### **A shortcoming in the COVID19 emergency management – Procedures in urgency to find medical/health staff**

- 24 October 2020: call for medical/health staff (1,500 units) and for administrative staff (500 units) to generally address the COVID19 emergency and to enforce the contact tracing.
- 18 November 2020: call for specialised medical/health staff (160 units) to address the COVID19 emergency in the Campania region.
- 20 November 2020: call for specialised medical/health staff (200 units) to address the COVID19 emergency to support regional health systems.



*Source: Website of the Italian National Civil Protection (22 November 2020)*

In general, the experience of the COVID19 pandemic leaves behind a new awareness of the pandemic risk and suggest a greater probability of occurrence respect to what was previously perceived. As a direct consequence of this new awareness, a more adequate perception of that risk will also settle among the population. This include new communication approaches to properly inform about the pandemic risk all the population (regardless e.g. age, cultural diversity, social status) and to fight against distorting effects of deniers/conspiracy theorists. New policies and new tools can be introduced to activate supervisory strategies at national/regional level in order to improve the resilience of the territorial system towards risks relating to the health sector. This can be done by intervening on the various phases of risk management, in particular on the central phases (prevention, mitigation, response) that divide the "ordinary times" from the management of moments of crisis (Emergency Management). Unlike other dramatic events (such as earthquakes, for example), pandemics can occur downstream of precursor phenomena which, although being weak and delocalized, can and must be recognized and taken out of the "health noise" in order to be identified and managed. This operation, if suitably coordinated at central level, will allow the adoption of warning measures, the in-depth analysis and, in the case, the definition of timely containment actions.

### **Sources and references**

- IMMUNI website, <https://www.immuni.italia.it/>
- Ministero della Salute (2019), «Annuario Statistico del Servizio Sanitario Nazionale. Assetto organizzativo, attività e fattori produttivi del SSN. Anno 2017», [http://www.salute.gov.it/imgs/C\\_17\\_pubblicazioni\\_2879\\_allegato.pdf](http://www.salute.gov.it/imgs/C_17_pubblicazioni_2879_allegato.pdf)
- Protezione Civile – Open data. <https://github.com/pcm-dpc/COVID-19>
- Ministero della Salute, Istituto Superiore di Sanità (2020), «Prevenzione e risposta a COVID-19: evoluzione della strategia e pianificazione nella fase di transizione per il periodo autunno-invernale»,

<https://www.trovanorme.salute.gov.it/norme/renderNormsanPdf?anno=2020&codLeg=76597&parte=1%20&serie=null>

- Webpage of the Italian Civil Protection for the calls aimed at recruiting medical/health staff <https://medicipercovid.protezionecivile.it/>
- Webpage of the Ministry of Health collecting all the Decrees of the Ministry of Health, <http://www.salute.gov.it/portale/nuovocoronavirus/dettaglioContenutiNuovoCoronavirus.jsp?lingua=italiano&id=5351&area=nuovoCoronavirus&menu=vuoto>
- Webpage of the Ministry of Health collecting general information on COVID19 in Italy, <http://www.salute.gov.it/portale/nuovocoronavirus/homeNuovoCoronavirus.jsp>