



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



Available online at
ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com



Editorial

COVID-19 spread: The Italian case



ARTICLE INFO

Keywords:
 Covid-19
 Pneumonia

Newly identified SARS CoV-2 may cause mild and self-limiting illness with upper respiratory tract symptoms, non-life-threatening pneumonia and severe pneumonia with acute respiratory distress syndrome (ARDS) that begin with mild symptoms and then progresses rapidly to respiratory failure requiring intensive care management [1–4]. This latter occurrence affects above all older people or those with co-morbidities, i.e. diabetes, arterial hypertension, pulmonary disease, and other chronic conditions [1]. The current outbreak of coronavirus disease 2019 (COVID-19) has been classified by the World Health Organization as a global pandemic. On January 31st, after the detection in Rome of two COVID-19 positive Chinese tourists travelling from Wuhan, the Italian Cabinet declared a 6-month national emergency and formally entrusted the SARS-CoV-2 outbreak emergency plan to the head of the Civil Protection Department. On February 22nd, the first Italian COVID-19 positive patient was reported by the health authorities in Lombardy, followed by a number of additional cases in the neighbouring areas of Emilia Romagna and Veneto. On February 23rd, the first “red zones” were created near the hotspots. The clusters emerging in the Northern part of the country revealed a wide community spread of the virus; hence, additional restrictive measures were raised in the entire Lombardy and Veneto, Emilia Romagna, Friuli Venezia Giulia, Liguria, and Piemonte regions in subsequent days. Schools and universities were officially closed nationwide on March 4th. A partial lockdown was introduced in the whole country on March 9th, followed by a complete lockdown on March 22nd when all non-essential activities were shut down. Further restrictions of movements were introduced on March 25th. Up to April 24, 2020 in Italy, the most affected European country, there had been 192.994 confirmed SARS-CoV-2 infections and 25.969 deaths [5].

Italian hospitals, particularly from Lombardy, Veneto and Piemonte, have dramatically reshaped their structure and capacity to adapt to the increased number of patients with pneumonia and acute respiratory distress syndrome (ARDS) presenting to the Emergency Room (ER) requiring advanced life support and ICU admittance [3,4]. Separated triage programs in the ER to avoid contact between positive and negative patients have been implemented, self-presentation to the ER has been discouraged and lastly

dedicated COVID-19 wards, often managed by multidisciplinary teams of specialists, have been introduced [6]. Outpatients clinics have been remodelled to follow recommendations by experts and scientific societies for patients with coexisting chronic diseases. These recommendations are mostly based on the implementation of telemedicine services and telephone triage systems with the postponement of non-urgent ambulatory visits [7]. Italy was the first European country hit by COVID-19, with the highest number of deaths in the world, so far. It has also been the first country, outside of China, to impose strict lockdown measures. In the early phase of the emergency slow compliance with public health measures and a flux of people travelling out of the most hard-hit regions towards the South (after the ministerial decree was prematurely leaked to the press), may potentially have had a negative impact on the spread of the outbreak in previously unaffected areas. In the urgency of addressing COVID-19 patients in a hospital setting (with the doubling of ICU beds in the span of 15 days), Italy might have been slow in organizing an equally effective response at the primary/community level. The high level of infected General Practitioners (as compared to all healthcare professionals) testifies the lower level of attention that this part of the healthcare workforce has received in the overall COVID-19 emergency response strategy. According to the April 25th update, the curve of COVID-19 inpatients (especially those requiring ICU) is decreasing, and the growth rate of total cases is slowing down. However the risk of relapse is concrete.

Data on infections and mortality linked to COVID-19 are dramatic and initially seemed to indicate an “Italian case” or even more to a “Lombardy case” (the most populated and rich region in Italy with 10 million inhabitants and a high population density). Now, what happened between the end of February and March 2020 in Italy, and in particular in Lombardy, was a real “health hurricane” that has caused a violent disturbance of the health system with an intense health demand, huge need for hospitalizations, a real assault on the only places in care, hospitals.

However, other European countries also recorded high mortality expressed as deaths/100.000 inhabitants) such as Belgium 58.47, Spain 48.20, Italy 42.97, France 33.20, UK 29.33, Netherlands 24.89 and Sweden 21.13 (<https://www.ecdc.europa.eu/en/cases-2019-ncov-eueea>). Always, in routine health care, when a dramatic and unexpected event happens, we proceed to start an “Audit” defined as “a review of the professional standards of doctors, usually within a hospital, conducted by a medical committee to verify health interventions, timing, setting and professionals involved. The aim is retrospectively to understand whether the

clinical recommendations (what) operational procedures (how), the professionals involved (who), the timing (when) and the setting (where) of care have been corrected.

All of us Europeans made mistakes thinking that what was happening in China would never affect us because that was an “Asian problem” confined to that strange country that in two weeks built mega hospitals and locked itself in the house. Moreover, the WHO has underestimated first and gave contradictory indications then, the Italian (and European) politicians have attempted to procrastinate as much as possible the hard and dramatic action of lock down.

Proper scientific audit will not fail to take seriously into account the different health systems, the rapid ability to identify a sick or healthy carrier, the under-financing of health systems, the number of available places in intensive care, the different enhancements and capabilities of territorial medicine, the decentralization of health services, the ability of the territory to cope with a treacherous pathology that in a few hours can lead to respiratory failure and mechanical ventilation. A serious audit will also have to take into account the inability to test the virus with a swab in millions of people, the huge territorial and economic differences, the population density, the different factories zones, the international trade relations, the presence of railway, motorway or airport interconnections, the orographic factors and finally cultural and socio-demographic differences that all together can facilitate or make complex effective isolation.

However, an important aspect of the Lombardy situation is if the excessive rate of hospitalizations ended up worsening the clinical outcome; in the areas of high endemia, about 20% of the patients who arrived to the emergency room did not survive, over 50% needed even aggressive ventilator support and only 20–30% were perhaps manageable at home, albeit with pneumonia. It was therefore very difficult to manage all cases at home, considering also the difficulty to evaluate the clinical evolution, almost always unpredictable.

Understanding, analyzing and contextualizing in the dramatic time we have experienced, would allow us to avoid future mistakes by organizing new health paths: this is a slow, tiring and methodical process that requires observation, data collection, measurement, description, analysis and evaluation. The call to the entire scientific community is to contribute with their experiences and ability to overcome this moment: the challenge is to further improve the

health system but giving back to the medical and scientific class the lost role in pre-Covid-19 society.

Disclosure of interest

The authors declare that they have no competing interest.

References

- [1] Guan WJ, Ni ZY, Hu Y, et al. Clinical characteristics of Coronavirus Disease 2019 in China. *N Engl J Med* 2020. <http://dx.doi.org/10.1056/NEJMoa2002032>.
- [2] Zhou F, Yu T, Du R, et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. *Lancet* 2020;395:1054–62.
- [3] Grasselli G, Pesenti A, Cecconi M. Critical care utilization for the COVID-19 outbreak in Lombardy, Italy: early experience and forecast during an emergency response. *JAMA* 2020. <http://dx.doi.org/10.1001/jama.2020.4031>.
- [4] Vitacca M, Nava S, Santus P, Harari S. Early consensus management for non-ICU ARF SARS-CoV-2 emergency in Italy: from ward to trenches. *Eur Respir J* 2020. <http://dx.doi.org/10.1183/13993003.00632-2020> [2000632].
- [5] Istituto Superiore di Sanità. “COVID-19 epidemic. 2 April 2020 national update” Appendix to the bulletin with a regional breakdown. Accessed April 25, 2020. <https://www.epicentro.iss.it/coronavirus/bollettino/Bollettino-sorveglianza-integrataCOVID-19>.
- [6] Viganò M, Mantovani L, Cozzolino P, et al. Treat all COVID 19-positive patients but don't forget those negative with chronic diseases. Submitted.
- [7] Viganò M, Carbone M. Let's not forget our COVID-19-free cirrhotic patients! *Liv Int* in press doi.org/10.1111/liv.14460.

S. Harari ^{a,*}

M. Vitacca ^b

^a Dept of Medical Sciences San Giuseppe Hospital MultiMedica IRCCS and Dept of Clinical Sciences and Community Health, Università degli Studi di Milano, Via San Vittore 12, 20123 Milan, Italy

^b ICS Maugeri IRCCS, Respiratory Rehabilitation Unit Lumezzane, Brescia, Italy

* Corresponding author.

E-mail address: sergio@sergioharari.it (S. Harari)

Received 8 May 2020

Accepted 10 May 2020

Available online 23 May 2020