

Vulnerable Population in Covid-19 Outbreak: A Look at Italy

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Abstract: We examine the population groups most exposed to Covid-19 in the Italian social and health context. These groups include, firstly, elderly and disabled people with one or more pre-existing diseases and, secondly, health workers, especially doctors and nurses, who have paid a very high price in terms of contagion and death. If elderly people are infected with the virus and become ill with severe interstitial pneumonia, they are unlikely to be admitted to intensive care units and are destined to die in a short time. Therefore, in accordance with the principle of "equity" recommended by the World Health Organization, some resources should be devoted to protecting these elderly persons, so that they would not come into contact with the virus. Unfortunately, the measures taken by the Italian National Government and Regional Administrations have not been effective in protecting this elderly group, as is evident from the ongoing judicial disputes. Covid-19 health care professionals are the most exposed to the risk of contagion, which increases dramatically if there are no adequate personal protection equipment. And these protections were lacking, especially in the early stages of contagion. Meaningful demonstrations of a human solidarity have happened, which have crossed the boundaries of duty to the point of sacrifice of life.

Keywords: Covid-19 Italian Vulnerable Groups, Covid-19 Health Workers, Covid-19 Outbreak in Italy, Allocation of Intensive Care Resources

1. Introduction

In the Italian Constitution, health is defined as «a fundamental right of the individual» and, at the same time, «Community interest» (art. 32). This means that the Italian Parliament, in order to protect the general health of the population, can pass laws that oblige individuals, certain population groups or the entire population to be subject to specific health treatment. This is the case for the vaccinations of children, which are intended to create the so-called "herd immunity" in relation to contagious diseases. The basic objective is the protection of the most vulnerable people, very often other children, who cannot be vaccinated.

With the outbreak of an epidemic so virulent as that caused by the virus SARS-CoV-2, the necessity for solidarity in the face of a health crisis has emerged. The whole population is obliged to respect strict rules of social distancing and isolation, with severe limitations to individual freedom. Solidarity is not only a good feeling, emanating from the

generosity of individual people, but also in the Italian Constitution it is considered to be a civic duty (art. 2). In the speeches to the nation by the President of the Republic Sergio Mattarella it is possible to grasp the constant appeal to the entire national Community to face a «common destiny» (Video message of 11 April 2020). Moreover, the Prime Minister Giuseppe Conte has repeatedly invited citizens to bear the sacrifices imposed by emergency laws «for the common good, for the highest good that is health: the health of citizens, public health» (Speech of 16 March 2020). The heavy restrictive measures, approved by the Italian Government, are aimed at protecting and promoting the most democratic of freedoms: freedom from disease and death.

In these days of pandemic emergency the «Community interest» becomes prevalent: «Western health care systems have been built around the concept of patient-centered care, but an epidemic requires a change of perspective toward a concept of community-centered care» [1]. In this perspective the protection of vulnerable subjects is required, with particular reference to two elements highlighted by the World

Health Organization (WHO) in the Guidance for managing ethical issues in infectious disease outbreaks – Guidelines (2016): 1) to avoid disproportionate burdens on certain population groups; 2) to allocate additional resources to those groups of the population most exposed to the risk of contagion and its most harmful consequences. The principle of "distributive justice" must not be disconnected from the principle of "equity" which «may sometimes justify providing greater resources to persons who have greater needs» [2].

2. Italy: The First Response to Covid-19 in the Context of Western Countries

Italy was the first Western Country to be affected by the SARS-CoV-2 epidemic. But the Country was taken unawares, because the experts did not consider realistic the hypothesis that the pandemic outbreak would be so sudden and extensive. Yet what happened in January 2020, in the Chinese province of Wuhan, could have offered a lesson on the devastating effects of the virus and a clear indication of the measures to be taken for preventive and precautionary purposes. The National Plan for Preparedness and Response to a Flu Pandemic, prepared by the Ministry of Health after avian influenza in 2003, was last updated in 2006 and therefore the recommendations of the WHO were ignored: «Governments have an ethical obligation to ensure the long-term capacity of the systems necessary to carry out effective epidemic prevention and response efforts» [2].

For the first time in Italy, Western democracy has been confronted with drastic measures to restrict personal freedom. We can say that Italy foreshadowed a third model of response to the pandemic, followed by other Western countries. The first model concerns China, where the spread of the virus was countered with «the most comprehensive, the strictest, the most thorough measures», as the Chinese authorities said [3]. These measures imposed strict control on the behaviour of citizens. The second model is inspired by the non-intervention strategy, outlined by Prime Minister Boris Johnson in his press conference on Thursday, March 12: it did not announce any restrictive measures for the British company nor restrictions on the calendar for sports events, while admitting that «many more families will lose loved ones before their time» [4]. This strategy was based on the hypothesis of a free circulation of the virus, which in 80% of cases does not produce symptoms or causes mild symptoms, relying on a gradual "herd immunity". The British government did not intend to halt an entire country, as Italy had already done a few days before, but rather to isolate the most vulnerable population at home, having taken into account the death of so many elderly and/or chronically ill. This hypothesis, however, did not endure the epidemic's storm.

The Italian model, despite its shortcomings, in principle has moved to safeguard the health of all or as many people as possible, imposing severe restrictions even on those who

were least at risk. The principle of health has been confirmed as a universal right, to be guaranteed to every "individual" without distinction or discrimination, citizen or non-citizen. An entire country has almost stopped for 60 days, with very heavy social and economic impact, as happened in other countries of the world.

3. The Identification of Vulnerable Groups in the Italian Social and Health Context

Every epidemic has peculiar characteristics and attacks different population groups according to age and state of health, or exposure to malnutrition and precarious hygienic-sanitary conditions. In some nations the population can be considered vulnerable as a whole because it would not be able to withstand the storm of such a contagion. In particular, we think of some African countries affected by recurrent epidemic crises, of Latin America and Asia, including the populous India.

Unlike other crises, the pandemic caused by the SARS-CoV-2 virus, was called «Ebola of the rich» [1], because until April 2020 it manifested its most ruinous effects in the highly industrialized province of Wuhan (China) and in western Countries (Europe and USA). In these contexts the vulnerabilities are attributable to the characteristics of the contagion, which can be spread also by asymptomatic persons or those showing few symptoms, and to the intensity of the pathological effects, which also test the most organized and advanced health systems. The virus is not yet known scientifically and there are currently no vaccines. This situation of great uncertainty brought Western societies back to the times of the Spanish fever (1918-20), and keeps them in a state of constant alert, because there are fears of successive epidemic waves. Given these premises, we will analyze the two main categories of vulnerability: 1) groups of people at risk of suffering the most serious consequences of the contagion in terms of severity of symptoms and mortality; 2) health professionals with increased exposure to the risk of contagion.

According to official statistics, the condition of maternity and early childhood, traditionally regarded as one of the most vulnerable, is not specially vulnerable in relation to Covid-19. As the WHO admits, «at this point, there is no evidence that pregnant women present with increased risk of severe illness or fetal compromise» [5]. It is not yet clear whether the virus can be transmitted from the pregnant woman to the foetus, but the consequences of the contagion on infants and children are not severe [6]. There are, however, episodes of death involving children under one year of age, for which investigations are still ongoing as to the causes. Special attention should be paid to children suffering from chronic heart or lung diseases, for which severe consequences may be expected in the event of infection.

4. Elderly Persons with One or More Comorbidities

Some very old people have overcome the infection, while others, young or middle-aged, with no previous known diseases, have been forced to succumb, after struggling for about 20-30 days. However, the data available on Covid-19 implies recognizing older people as a vulnerable group, because the advancement of age very often involves one or more chronic diseases. In Italy, the mean age of patients dying due to SARS-CoV-2 infection was 79 years (median 81, range 0-100). Women accounted for 8,500 deaths (36.7%) and on average, the women who died were older than the men [7]. The Italian population has a high proportion of elderly people, as attested by the official demographic indices: the age group >65 represents 22.8% of the total population [8] and the median age at 1 January 2020 is 45.7 years [9]. This explains, at least in part, the higher mortality rate than that of China, where the median age is 38.4 years [10].

Another important fact concerns the pre-existing comorbidities: 60.9% of the dead had three or more pathologies, 21.1% two and 14.4% one; 3.4% of the dead had no pathology other than coronavirus. The major risk factors for death are hypertension (69.1%), type 2 - diabetes (31.7%), ischemic heart disease (27.5%), atrial fibrillation (22.0%), chronic renal failure (21.1%), heart failure (16.1%), obesity (12.2%) [7]. This illustrates that in this epidemic the element that makes people vulnerable is not the factor of age itself, but rather the presence of other diseases. Therefore the level of vulnerability is a function of the association of advanced age and number of pre-existing chronic diseases. For some of these categories of patients, the Ministry of Health in Italy has issued specific Recommendations, including the postponement of non-urgent therapies to be carried out in hospital [11, 12].

In reality, during the acute phases of the epidemic (March and early days of April 2020), patients with chronic disease and a complex clinical history had to rely on telephone contacts with their own doctors, but they could not avoid close contact with their caregivers, family or external. Only in the presence of symptoms attributable to Covid-19 and high fever could their hospitalization be arranged, through notification from the family doctor or by calling the regional emergency numbers. Sometimes they arrived in hospital in already compromised conditions and very often they died at home, without diagnosis for Covid-19 and therefore not counted in the official statistics.

These circumstances lead us to understand the importance of a territorial protection system, because pandemic solutions are required for the entire population, not only for hospitals: «Home care and mobile clinics avoid unnecessary movements and release pressure from hospitals. Early oxygen therapy, pulse oximeters, and nutrition can be delivered to the homes of mildly ill and convalescent patients, setting up a broad surveillance system with adequate isolation and leveraging innovative telemedicine

instruments» [1].

The initial phase of the disease - confirms Prof. Francesco Le Focche, head of the Day Hospital of immunoinfectivity at the Policlinico Umberto I in Rome - is very important and we are underestimating it: it is very serious that we do not act where we can reduce damage» (source: daily "Il Fatto Quotidiano", 23 March 2020). Telemedicine, where used, has proved to be of great support in keeping under control the functional parameters of patients. An Italian Facebook group of 100,000 doctors of all specialties and services was also set up in favour of appropriate territorial assistance. In a letter of 17 April 2020 this group appealed to the Minister of Health and the Governors of the Regions: «We have come to the conclusion that early treatment can stop the course of infection towards the overt disease and then stem, until we defeat the epidemic» [13].

5. Older and Disabled People Hospitalized in the Health Care Residences

The older people hospitalized in the health care residences (RSAs) deserve special attention because they have been the most exposed to the risk of contagion and death for several factors: 1) the average age is 85 years; 2) the vast majority are afflicted by one or more chronic diseases; 3) it is very problematic to respect social distancing regulations due to layout and modalities of services. A survey carried out by the Italian Higher Institute of Health and published on 14 April 2020 shows that 83.7% of the dead in the Italian RSAs were over 70 years old and 40% of them were between 80 and 89 years old [14]. In the official bulletin, published on 24 April 2020, it is reported that, out of about 4,500 cases of Covid-19 notified in the period 1-23 April, 44.1% of infections (or 1,984) concern elderly people in the RSAs [15].

It is difficult to protect these elderly people from such an insidious epidemic, as Prof. Roberto Bernabei, director of the geriatric department of the Policlinico Gemelli in Rome, admits: «The protection of the most fragile inside the RSA is very complicated because there are the most fragile of the fragile and it is sufficient that the virus gets closer to claim victims» (source: daily "Il Messaggero", 8 April 2020). Visits by relatives were promptly barred, but the assistance staff went in and out, alternating between different shifts. In addition to this risk factor, there was a serious shortage of assistance staff, as quarantine operators did not have available substitutes. In some RSAs the health staff of the Italian army were brought in. Many elderly people were left to die in solitude, without adequate medical assistance. The assistance workers themselves have denounced this dramatic situation to the Judiciary, which is conducting investigations in several regions of Italy. In addition, some regions, such as Lombardy, have asked the RSAs to admit Covid-19 patients released by hospitals while they were still contagious and in compulsory quarantine [16]. They could certainly have been hosted, on condition of a total separation from vulnerable

inmates and assistance staff. But this condition did not occur. It is not comforting to think that the same problem has also occurred in other Countries.

There have been episodes of exceptional bravery. We just remember the story of Lidia, matron in the RSA “Villa Serena” of Predore, in the province of Brescia (Lombardy). On February 26, 2020 she confided to her sister that she was worried because her “grandpappies” were sick and some had pneumonia. In early March, she too had stayed home from illness, but then returned to work. She worked double shifts: she went in at 7.00 in the morning and left at 8.30 at night. On March 11, she was admitted to the hospital in Brescia, because she was struggling to breathe. In her last message written to her sister she foresaw her imminent end: «I will come out of here dead». With this awareness he faced death at the age of 55 (source: daily “Corriere della Sera”, 17 April 2020). The questions that this episode raises are destined to remain unanswered.

Among disabled people, those with mental disabilities (relational and/ or not self-sufficient), unable to perform the essential acts of daily life and with little protection from the family network, deserve special mention. Following the closure of day care, social welfare, educational and employment centers, the Regions have prepared extraordinary emergency plans, with the formation of special intervention units for health and social care at home [17]. As for the health residences for the disabled (RSDs), the problems overlap with those already reported for RSAs and the estimates of contagion are still ongoing.

6. Distributive Justice and Allocation of Intensive Care Resources for Older People

The profile of the patients admitted to Italian intensive and sub-intensive care is as follows: the median (IQR, 56-70) age was 63 years and the 82% were male; the 68% of patients had at least one comorbidity (hypertension 49%, cardiovascular disease 21%, hypercholesterolemia 18%); all the patients older than 80 years had at least one comorbidity; the 99% of patients who were admitted to the ICU needed invasive or noninvasive respiratory support [18].

In the face of the risk of collapse of Intensive Care Units (ICU) of many hospitals in Northern Italy, the Italian Society of Anesthesia, Analgesia, Resuscitation and Intensive Care (SIAARTI) addressed with special Clinical ethics recommendations, published on March 6, 2020, the problem of triage for admission to ICU of critical Covid-19 patients [19]. This document anticipated the lockdown measures in Italy by three days. The public had not yet realised the tragedies that were taking place in the ICU and was still far from imagining what was really happening. And then, more eloquent than words, were the images of military trucks that, in the middle of the night, moved away from the city of Bergamo, to transport the dead to the cremation ovens of cemeteries in other cities of Northern Italy.

The Anesthesiologists have addressed a thorny issue, already debated internationally [20], but little explored in Italian society. The central point is the interpretation and application of the principle of distributive justice and appropriate allocation in a context of serious shortage of healthcare resources, in which the main objective is to reserve extremely scarce resources «for those who have a much greater probability of survival and life expectancy, in order to maximize the benefits for the largest number of people» [19]. The most controversial is the statement on the age limit: «An age limit for the admission to the ICU may ultimately need to be set» (Recommendation No. 3) [19].

The elderly are certainly one of the most vulnerable age groups, but the «greater probability of survival and life expectancy» are not in themselves associated with an age limit, but with the overall clinical conditions of individuals. According to the WHO, «it is important to recognize that older people have the same rights as others to receive high-quality health care including intensive care» [5]. In other words, age is an important element to consider in the context of an overall assessment of the patient through the use of predictive tools already tested in ICU, such as the SOFA score, indicative of mortality risk by revealing the presence (or likelihood), severity, and number of acute organ failures [5].

Reasoning in terms of «disaster medicine» leads to the absolutization of criteria which in the context of an epidemic concerns the allocation of beds in ICU, an important resource, but not unique. Indeed, in a pandemic emergency, the point of view of national or regional task forces must take into account the principle of “equity” in the allocation of resources. Intensive care may be “inappropriate” for an elderly person who is debilitated by pre-existing diseases, but effective measures should be taken to keep her away from infection, with adequate material and personnel resources.

7. Health Professionals Interested in Covid-19 Care

In addition to the protection of vulnerable people, health institutions have a duty to safeguard and support health care personnel engaged in the care of infected patients [21]. This is a top priority. In the presence of an epidemic outbreak the risk of contagion is always present, but the high number of deaths among health workers in Italy attests that in some structures the safeguard has not been effective. According to official data provided by the Higher Institute of Health, as of 23 April 2020, 19,628 health workers were infected, 11.1% of the total number of those infected. A little more than 50% of infections concern hospital care and emergency services. As of 2 May 2020, the number of deceased doctors for Covid-19 is 154 [22], while the number of nurses who have died is 40 [23].

The President of the National Federation of Medical

Orders in Italy (FNOMCeO), Filippo Anelli, commented with bitter suffering on the tragic numbers: «We can no longer allow our doctors, our health workers to be sent to fight the virus with their bare hands. It is an uneven struggle, that hurts us, hurts the citizens, hurts the country» [22, 24]. The reference to «bare hands» expresses the real lack of personal protective equipment, especially for family doctors and health workers in RSA for the elderly. In this way, in addition to suffering a high risk of being infected, health professionals have become carriers of infection, in many cases asymptomatic or sick without surveillance. Two nurses committed suicide, being unable to bear the burden of having unintentionally transmitted the contagion to the patients. Yet the «protection of health workers» is primary in the Recommendations for health workers prepared by the Ministry of Health [25].

A constant check of the Health Care Personnel would have been needed through the use of nasopharyngeal swabs, of which, however, there was a shortage throughout the peak of the epidemic. Working conditions have also increased the risk: the real-time conversion of many hospital departments for the care of Covid-19 patients, the training of new teams with operators who had never worked together or worked in other sectors; the exhausting shifts of service, because the spread of the contagion between the operators caused staff to be absent in the moment of greatest necessity. The identification of the first case in the Hospital of Codogno is traumatic and the same trauma was repeated during the initial stages of contagion in the emergency Departments (DEA) of other hospitals. The doctors' testimonies confirm the uncontrolled spread of the contagion: «The infection is everywhere in the hospital. Although you wear protective gear and do the best you can, you cannot control it» [26]. And again: «Our own hospital is highly contaminated, and we are far beyond the tipping point» [1].

On the psychological and emotional level, the change of perspective and the changes in objectives of the care activities has been destabilizing for the hospital staff: «The shift from patient-centered practice supported by clinical ethics to patient care guided by public health ethics creates great tension for clinicians» [21]. A number of health professionals have had to make dramatic choices, without being able to offer many patients a chance of survival due to the lack of beds in the ICU and mechanical ventilators. Another element to consider is the work stress: the fatigue of putting on all the protective gear before starting the shift, the constant tension during the long hours of work, the difficulty of communication, too many patients to be kept under surveillance, the fatigue due to the many needs to be met, finally the exhausting phases of removing protective gear at the end of the shift. A moment of distraction could have led to contagion [27].

And then, the minds of health workers were held captive by the incessant, obsessive concern about whether they would infect their families, to the point of forcing them to isolate themselves on returning to their homes, or, to rent a hotel room or a special apartment, so as not to have to go

home at the end of the shift. Self-isolation was intended as an «act of love» towards the closest family members, just when they could have represented a support to a soul wounded by so many episodes of illness and death. The combination of these negative feelings and emotions would have required a service of clinical ethics consultation [21], but in Italian hospitals this service is still not widespread and little used [28].

8. Conclusions: Compassion for the Dying and Piety for the Dead

The comments made present us with a paradoxical effect. Italian society has stopped, with socio-economic consequences of exceptional gravity, specifically to protect people who would have suffered the worst consequences from the spread of the epidemic. However, the measures taken have not been effective in ensuring this protection. We trust that, after the epidemic wave, we can fill the deficiencies found.

This outbreak is also, and above all, a humanitarian crisis, whose most negative effect was the isolation of the elderly sick and disabled in health care residences, often experienced as abandonment at the time of illness and death. Patients in hospital wards also lived in isolation, because access was limited to personnel equipped with protective suits and helmets, which made communication extremely problematic. Under these conditions even receiving a simple phone call could become a problem. They died alone, devoid of religious comfort and without the possibility of a last farewell to their loved ones: «Older patients are not being resuscitated and die alone without appropriate palliative care, while the family is notified over the phone, often by a well-intentioned, exhausted, and emotionally depleted physician with no prior contact» [1]. The epidemic denied the dying accompaniment to death and made it impossible for family members, often confined at home in quarantine, the sharing of pain through the funeral rite. This has created wounds destined to make their mark on the lives of people and communities.

It is also true that, at the time of the epidemic, there were many episodes of extraordinary generosity. In addition to the dedication of so many health workers, who have tried to fill with gestures of spontaneous human solidarity the loneliness of patients, it is necessary to remember the sacrifice of those doctors who, already retired, have returned to the service to help colleagues at time of great need: some of them have not returned to their families. On March 14, 2020 the main Italian dailies reported the gesture of a 72-year-old priest diagnosed with Covid-19, from the province of Bergamo (Lombardy), who gave to a younger patient the respirator that had been given to him by the parish community. With this act he made his own death a source of life and hope for another man. In the initial paragraph we gave a nod to solidarity as a «civic duty». The above-mentioned episodes offer us an example of a solidarity which expresses the most authentic

form of the feeling of “human brotherhood”.

Conflict of Interest

The author declare no conflict of interest.

References

- [1] Nacoti, M., Ciocca, A., Giupponi, A., Brambillasca, P., Lussana, F. and Pisano, M. (2020). At the Epicenter of the Covid-19 Pandemic and Humanitarian Crises in Italy: Changing Perspectives on Preparation and Mitigation. *NEJM Catalyst*, March 21, 2020. Website: <https://catalyst.nejm.org/doi/full/10.1056/CAT.20.0080>.
- [2] World Health Organization (WHO 2016). Guidance for managing ethical issues in infectious disease outbreaks. Website: <https://apps.who.int/iris/handle/10665/250580>.
- [3] Fengyuan, D. (2020). How does China protect human rights amid Covid-19 outbreak. *CGTN*, March 3, 2020. Website: <https://news.cgtn.com/news/2020-03-03/How-does-China-protect-human-rights-amid-COVID-19-outbreak--OvcwjUJgs/index.html>.
- [4] Hunter, D. J. (2020). Covid-19 and the Stiff Upper Lip - The Pandemic Response in the United Kingdom. *NEJM* 2020; 382 (16): e31. Website: <https://www.nejm.org/doi/full/10.1056/NEJMp2005755?af=R&rss=currentIssue>.
- [5] World Health Organization (WHO 2020). Clinical management of severe acute respiratory infection when COVID-19 is suspected. Interim guidance. March 13, 2020. Website: [https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected).
- [6] Parri, N., Lenge, M. and Buonsenso, D. (2020). Children with Covid-19 in Pediatric Emergency Departments in Italy. *NEJM.org*, May 1, 2020. Website: <https://www.nejm.org/doi/full/10.1056/NEJMc2007617?query=RP>.
- [7] Higher Institute of Health (ISS 2020). Characteristics of SARS-CoV-2 patients dying in Italy. Report based on available data on April 23th, 2020. Website: https://www.epicentro.iss.it/en/coronavirus/bollettino/Report-COVID-2019_23_april_2020.pdf.
- [8] National Institute of Statistics (ISTAT 2020). Demographic Indices and Structure of the Italian Population from 2002 to 2019 (Indici demografici e Struttura della popolazione italiana dal 2002 al 2019). Website: <https://www.tuttitalia.it/statistiche/indici-demografici-struttura-popolazione>.
- [9] National Institute of Statistics (ISTAT 2020). Demographic Indices (Indicatori demografici). Februar 11, 2020. Website: <https://www.istat.it/it/archivio/238447>.
- [10] Worldometers (2020). China Population (Live). Website: <https://www.worldometers.info/world-population/china-population>.
- [11] Ministry of Health (2020). Recommendations for the management of oncology and onco-haematology patients in emergency from Covid-19 (Raccomandazioni per la gestione dei pazienti oncologici e onco-ematologici in corso di emergenza da Covid-19). March 10, 2020. Website: <http://www.trovanorme.salute.gov.it/norme/renderNormsanPd?anno=2020&codLeg=73635&parte=1%20&serie=null>.
- [12] Ministry of Health (2020). Address Lines for the reshaping of the programmed activity differing during emergency from Covid-19 (Linee di indirizzo per la rimodulazione dell'attività programmata differibile in corso di emergenza da Covid-19). March 16, 2020. Website: http://www.salute.gov.it/imgs/C_17_pagineAree_5373_6_file.pdf.
- [13] Coronavirus, SARS-Cov-2 and Covid-19 Facebook group for doctors only (2020). Covid-19, Appeal of 100 thousand doctors: strengthen the presence on the territory (Covid-19, Appello di 100 mila medici: rafforzare la presenza sul territorio). *Panorama della Sanità*, April 18, 2020. Website: <https://www.panoramasanita.it/2020/04/18/covid-19-appello-di-100-mila-medici-rafforzare-la-presenza-sul-territorio/>.
- [14] Higher Institute of Health (ISS 2020). National Survey on COVID-19 contagion in residential and social health facilities (Survey nazionale sul contagio COVID-19 nelle strutture residenziali e sociosanitarie). Third Report. Update on 14 April 2020. Website: <https://www.epicentro.iss.it/coronavirus/pdf/sars-cov-2-survey-rsa-rapporto-3.pdf>.
- [15] Higher Institute of Health (ISS 2020). COVID-19 epidemic National update 23 April 2020 (Epidemia COVID-19 Aggiornamento nazionale 23 aprile 2020). Website: https://www.epicentro.iss.it/coronavirus/bollettino/Bollettino-sorveglianza-integrata-COVID-19_23-aprile-2020.pdf.
- [16] Region of Lombardy - Giunta (2020). Resolution No. XI/2906 8 March 2020 (Annex 2). Website: <https://www.regione.lombardia.it/wps/wcm/connect/5e0deec4-caca-409c-825b-25f781d8756c/DGR+2906+8+marzo+2020.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-5e0deec4-caca-409c-825b-25f781d8756c-n2.vCsc>.
- [17] Higher Institute of Health (ISS 2020). ISS Covid-19 Report No. 8/2020 (Rapporto ISS Covid-19 n. 8/2020 - Indicazioni ad interim per un appropriato sostegno delle persone nello spettro autistico nell'attuale scenario emergenziale SARS-CoV-2). Website: <https://www.iss.it/documents/20126/0/Rapporto+ISS+COVID-19+n.8+autismo+%282%29.pdf/c558b34e-1bc9-c868-0c75-0030f8299bca?t=1585757457709>.
- [18] Grasselli, G., Zangrillo, A. and Zanella A. (2020). Baseline Characteristics and Outcomes of 1591 Patients Infected With SARS-CoV-2 Admitted to ICUs of the Lombardy Region, Italy. *JAMA* 2020; 323 (16): 1574-1581. Website: <https://jamanetwork.com/journals/jama/fullarticle/2764365>.
- [19] Vergano, M., Bertolini, G., Giannini, A., Gristina, G., Livigni, S. and Mistràletti G. (2020). Clinical ethics recommendations for the allocation of intensive care treatments, in exceptional resource-limited circumstances. *Italian Society of Anesthesia, Analgesia, Resuscitation and Intensive Care – SIAARTI*. March 6, 2020. Website: <http://www.siaarti.it/SiteAssets/>.
- [20] Daugherty Biddison, E. L., Faden, R., Gwon, H. S., Mareiniss, D. P., Regenber, A. C. and Schoch-Spana M. (2019). Too Many Patients...A Framework to Guide Statewide Allocation of Scarce Mechanical Ventilation During Disasters. *Chest* 2019; 155 (4): 848-854. Website: [https://journal.chestnet.org/article/S0012-3692\(18\)32565-0/fulltext](https://journal.chestnet.org/article/S0012-3692(18)32565-0/fulltext).

- [21] Berlinger, N., Wynia, M., Powell, T., Micah Hester, D., Milliken, A. and Fabi, R. (2020). Ethical Framework for Health Care Institutions Responding to Novel Coronavirus SARS-CoV-2 (COVID-19). Guidelines for Institutional Ethics Services Responding to COVID-19. The Hastings Center, March 16, 2020. Website: <https://www.thehastingscenter.org/wp-content/uploads/HastingsCenterCovidFramework2020.pdf>.
- [22] National Federation of Orders of Physicians Surgeons and Dentists (FNOMCeO 2020). List of the Physicians who fell during the Covid-19 epidemic (Elenco dei Medici caduti nel corso dell'epidemia di Covid-19). May 2, 2020. Website: <https://portale.fnomceo.it/elenco-dei-medici-caduti-nel-corso-dellepidemia-di-covid-19/>.
- [23] AssoCareNews - Editorial Staff (2020). Coronavirus. Here are all the deceased Nurses for Covid-19 (Coronavirus. Ecco tutti gli Infermieri deceduti per Covid-19). May 2, 2020. Website: <https://www.assocarenews.it/infermieri/coronavirus-ecco-tutti-gli-infermieri-deceduti-per-covid-19>.
- [24] Anelli, F., Nume, C. and Piscitelli, P. (2020). Italian doctors call for protecting healthcare workers and boosting community surveillance during covid-19 outbreak. BMJ 2020; 368: m1065. Website: <https://doi.org/10.1136/bmj.m1065>.
- [25] Ministry of Health (2020). Covid-19 - Recommendations for health professionals (Covid-19 - Raccomandazioni per gli operatori sanitari). Last updated on 24 April 2020. Website: <http://www.salute.gov.it/portale/nuovocoronavirus/dettaglioContenutiNuovoCoronavirus.jsp?lingua=italiano&id=5373&area=nuovoCoronavirus&menu=vuoto>.
- [26] Rosenbaum, L. (2020). Facing Covid-19 in Italy — Ethics, Logistics, and Therapeutics on the Epidemic's Front Line. NEJM.org, March 18, 2020. Website: <https://www.nejm.org/doi/full/10.1056/NEJMp2005492>.
- [27] Castelletti, S. (2020). A Shift on the Front Line. NEJM.org, April 9, 2020. Website: <https://www.nejm.org/doi/pdf/10.1056/NEJMp2007028?articleTools=true>.
- [28] Nicoli, F. and Gasparetto, A. (2020). Italy in a Time of Emergency and Scarce Resources: The Need for Embedding Ethical Reflection in Social and Clinical Settings. The Journal of clinical ethics 2020; 31 (1): 92-94. Website: <https://www.researchgate.net/publication/>.