

# Resource scarcity and allocation criteria during the Covid-19 pandemic: Ethical issues

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## Abstract

The increase in cases of patients needing to be admitted to intensive care, due to Covid-19 infection, has led to a strong imbalance between available resources and healthcare requirements. Therefore, the determination of further criteria, in addition to those of clinical appropriateness and proportionality of care, to define the allocation of the limited resources available was necessary. For these reasons, in March 2020, the SIAARTI (Italian Society of Anesthesia, Analgesia, Resuscitation and Intensive Care) published a document containing the “Clinical Ethics Recommendations for the Allocation of Intensive Care Treatments, in exceptional, resource-limited circumstances,” to relieve clinicians from a part of the responsibility in the decision-making process, which can be emotionally burdensome, carried out in individual cases and to make the allocation criteria for healthcare resources explicit in a condition of their own extraordinary scarcity.

## Keywords

Resource allocation, allocation criteria, bioethics, equity, decision-making process, pandemic

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## Introduction

The increase in cases of patients needing to be admitted to intensive care, due to Covid-19 infection, has led to a strong imbalance between available resources and healthcare requirements. Therefore, the determination of additional criteria, apart from those of clinical appropriateness and proportionality of care, to define the allocation of the limited resources available was deemed necessary.

For these reasons, in March 2020, the SIAARTI (Italian Society of Anaesthesia, Analgesia, Resuscitation and Intensive Care) published a document containing the Clinical Ethics Recommendations for the Allocation of Intensive Care Treatments, under exceptional resource-limited circumstances,<sup>1</sup> “to relieve clinicians from a part of the responsibility in the decisions making process, which can be emotionally burdensome, carried out in individual cases” and “to make the allocation criteria for healthcare resources explicit in a condition of their own extraordinary scarcity.”

The extraordinary and emergency nature of the situation, in which the availability of resources and their

allocation become components of the decision-making process, has made it necessary to identify criteria that can guide choices. Application of this criteria can only be justifiable once all possible efforts have been made, by all parties involved, to increase the availability of allocable resources and once any possibility of transferring patients to treatment centers with greater availability of resources has been evaluated.<sup>2</sup>

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## Resource scarcity and healthcare requirements during the Covid-19 pandemic: Principles of medical ethics and allocation criteria

Within this context, there is an emphasis in the document about what “criteria for access to intensive care and discharge may be needed, not only in strictly clinical appropriateness and proportionality of care, but also in distributive justice and appropriate allocation of limited healthcare resources.”<sup>1</sup> The document published by SIAARTI indicates that “the underlying principle would be to save limited resources which may become extremely scarce for those who have a much greater probability of survival and life expectancy, to maximize the benefits for the largest number of people. In the worst-case scenario of complete saturation of Intensive Care Unit (ICU) resources, keeping a “first come, first served” criterion would ultimately result in withholding ICU care by limiting ICU admission for any subsequently presenting patient” and that “together with age, the comorbidities and functional status of any critically ill patient presenting in these exceptional circumstances should carefully be evaluated. A longer and, hence, more “resource-consuming” clinical course may be anticipated in frail elderly patients with severe comorbidities, as compared to a relatively shorter, and potentially more benign course in healthy young subjects.”

The SIAARTI Working Group underlines the fact that no numerical threshold has been made explicit, precisely to make sure that the criterion for evaluation and the consequent prognostic orientation adapt to a concept of functional limits that can be seized only by taking into account both individual biological variability and the treatment setting. This choice should be interpreted as an evaluation of the patient’s age, which is made as carefully as possible, as an expression of the functional reserve that the patient should be able to put into play in order to face not only the challenge of the disease, but also the impact of intensive treatment (chronological age in the absence of comorbidities, biological age in the presence of comorbidities).<sup>2</sup>

According to the Swiss Academy of Medical Sciences,<sup>3</sup> where resources are not sufficient to treat all patients in an optimal manner, the fundamental principles of medical ethics (beneficence, non-maleficence, autonomy, and justice) must be applied following a fair, objectively motivated, and transparent allocation procedure, with no discrimination, and with a view toward limiting as far as possible the number of patients becoming seriously ill as well as that of deaths. In that context, according to the Swiss Academy of Medical Sciences “If ICU capacity is exhausted and not all patients who require intensive care can be admitted, the short-term prognosis is decisive for purposes of triage. For ICU admission, highest priority is to be accorded to those patients whose prognosis with regard to hospital discharge is good with intensive care,

but poor without it – i.e., the patients who will benefit most from intensive care.” “Age in itself,” it is pointed out in the document, “is not to be applied as a criterion, as this would be to accord less value to older than to younger people, thus infringing the constitutional prohibition on discrimination. Age is, however, indirectly taken into account under the main criterion «short-term prognosis», since older people more frequently suffer from comorbidity. In connection with COVID-19, age is a risk factor for mortality and must therefore be considered.” As for the evaluation of additional criteria, the Swiss Academy of Medical Sciences believes that criteria such as lotteries, “first come, first served” and prioritization according to social usefulness must not be considered.

In the document “Bioethical guidelines for equal access to healthcare,”<sup>4</sup> the National Bioethical Committee points out that in the context of resource allocation issues, thoughts regarding ethics play a fundamental role in placing guidelines and methodologies within boundaries of just and shared criteria for the reduction of the traumatic consequences that allocative choices can often involve.

More specifically, the same Committee, in a recent document on clinical decisions made under conditions of scarce resources and the criterion of “triage in pandemic emergency,”<sup>5</sup> examines the ethical problem of patient access to treatment under conditions of limited health resources, or in relation to the scenario that has recently emerged as a result of the Covid-19 emergency. Clearly, this problem makes it necessary to mitigate the application of various principles, including the protection of life and health, freedom, responsibility, justice, fairness, solidarity, and transparency, in relation to the totality of those people in need of treatment, whether infected by the current epidemic, or affected by other pathologies.

The National Committee for Bioethics has assessed clinical criteria as the most appropriate point of reference for the allocation of healthcare resources, deeming any other selection criteria such as age, sex, social condition and role, ethnicity, disability, costs, and responsibility with respect to behaviors that have induced the disease, ethically unacceptable.

Secondly, the Committee, considering the exceptional nature of the moment, believe that the method of selecting patients according to the degree of urgency (triage) should be redefined. Triage during a pandemic emergency is based on the concepts of preparedness, clinical appropriateness, and topicality, in order to avoid a priori choices regarding access to care. The concept of “preparedness” can be explained, for example, as the preparation of action strategies in the field of public healthcare, in view of exceptional conditions with respect to emergencies caused by pandemics. The term “clinical appropriateness” means the medical evaluation of the efficacy of the treatment with respect to the clinical need of each individual patient, seen in the entirety of his/her clinical situation, whilst taking all

the necessary factors of evaluation into consideration. According to the National Bioethics Committee, without prejudice to the priority of treatment according to the degree of urgency, other factors include the severity of the ongoing clinical situation, the comorbidity, and the situation of imminent termination of life. Age is also a parameter that is taken into consideration due to the correlation with the current clinical and prognostic evaluation, but it is neither the only nor the main parameter. According to the National Bioethics Committee, the priority should be established by evaluating, based on the indicators mentioned, the patients for whom the treatment can reasonably be most effective, in the sense of ensuring the greatest chance of survival. In other words, a criterion should not be adopted, according to which the sick person would be excluded because he/she belongs to a category established a priori. Lastly, “topicality” because during triage, in a pandemic emergency, in addition to the patients who are “physically present,” we consider those who have been evaluated and observed from a clinical point of view, whose critical conditions we are already aware of, always keeping in mind the objective of avoiding the formation of categories of people who would then be disadvantaged and discriminated against.

Some authors<sup>6</sup> underline the “prospective” character of the very serious situation of scarce resources: the emergency, though not concentrated in a given space and time with a defined number of patients, is a crisis of the system and is on-going. That is to say, the crisis is destined to spread, to last for an unpredictable period of time and is characterized by the rapid and progressive increase in the number of the sick, for whom it is necessary to apply extraordinary rationing criteria.

The German Ethics Council, in its Ad hoc Recommendation on “Solidarity and Responsibility during the Coronavirus Crisis,”<sup>7</sup> distinguished two basic scenarios in emergency situations, when fewer ventilators are available than are acutely needed. “Triage in ex ante situations” refers to “cases where the number of unoccupied ventilators is smaller than the number of patients who have an acute need for them.” In these situations, “patients who are subsequently denied treatment (. . .) are simply not saved from disease-related death for reasons of tragic impossibility” and “from an ethical point of view, the decision should be based on well-considered, justified, transparent and as far as possible, uniformly applied criteria.” In “Triage in ex post situations,” where all ventilators are occupied “the life-sustaining treatment of one patient would have to be discontinued to save the life of another patient by reassigning the medical device”: in these situations, the decisions are “far more problematic.”

On the other hand, other Authors<sup>8</sup> have emphasized how we must start from the full awareness that extraordinary circumstances cannot overturn fundamental ethical values that normally regulate our social life. Healthcare needs, even if they are deficient, cannot assume such a

preponderant weight as to compress the irreducible core of the right to healthcare, an indispensable element of human dignity. In this context, it remains necessary to use the decision-making criterion of clinical and scientific appropriateness to evaluate the efficacy and proportionality of the treatment (which must not be wasted). Treatment choices must be evaluated case by case and based on the informed consent of the patient, on the refusal or interruption of medical treatment, on the prohibition of clinical obstinacy given the real health conditions of the patient, on treatment planning, and on any advance declarations concerning treatment. To ensure the necessary and continuous adaptation of the adopted criteria, in the various phases of the emergency, it would be appropriate to hold a collegial bioethical discussion within the healthcare professions and to set up specific, multidisciplinary bodies, equipped with the necessary knowledge, skills, and abilities.<sup>8</sup>

Within this exceptional context, therefore, problematic situations are created that effectively prevent the principle of *favor vitae* from being fully respected, precluding the ethical, deontological, and legal duty of providing necessary assistance.<sup>6</sup> In this situation, in which, given the insufficiency of available resources, healthcare professionals may no longer be able to distribute treatment and assistance equitably, the identification of criteria aimed at guiding the decision-making process, albeit with awareness of the extraordinary, necessarily flexible and adaptable nature it must encompass, in relation to the availability of resources, the concrete possibility of transferring patients and the number of accesses currently underway or planned, and temporary, of these criteria must be provided for.

### **Resource scarcity and healthcare required during the Covid-19 pandemic: Reallocation of resources and protection of health**

According to the Council of Europe - Committee on Bioethics (DH-BIO)<sup>9</sup> it is essential that decisions and practices in this context “meet the fundamental requirement of respect for human dignity and that human rights are upheld.” The DH-BIO highlights some of the principles of human rights laid down in the Oviedo Convention which require vigilance in their application in the current pandemic. The principle of equity of access to health care laid down in Article 3 of the Oviedo Convention says “that access to existing resources be guided by medical criteria, to ensure namely that vulnerabilities do not lead to discrimination in the access to healthcare. This is certainly relevant for the care of COVID-19 patients, but also for any other type of care potentially made more difficult with confinement measures and the reallocation of medical resources to fight the pandemic.”

The ISTAT 2020 Annual Report<sup>10</sup> shows how the pandemic had a significant impact on the quantity and type of supply of the health system, being able to influence its

dynamics and organization also in the future. The redistribution of resources, in consideration of Covid-19, has resulted in a limitation of the ordinary supply, postponing the deferred scheduled interventions, and discouraging non-urgent demand. Furthermore, the fear of contagion would have played an important role in limiting demand.

It should be remembered that in Italy, during the lockdown period (March–May 2020), outpatient and hospitalization services defined as “non-urgent” (i.e. those that can be scheduled or deferred) were suspended as per provisions issued by the Government (DPCM of 08/03/2020<sup>11</sup> and DPCM of 09/03/2020<sup>12</sup> for the contrast and containment of the spread of the SARS-Cov-2 virus. During the lockdown period, only the booking lists for urgent and cancer patients remained active, as indicated by the Ministry of Health circulars no. 7422 of 16/03/2020<sup>13</sup> and n. 8076 of 30/03/2020.<sup>14</sup>

A huge number of specialist visits and diagnostic testing services (CT, MRI, ultrasound, PET, etc.) were frozen, awaiting reopening and the return to normal in the country. Patients with other diseases, the so-called “non-Covid,” had to wait for the requested though postponed services, *de facto* losing, though temporarily, their rights to health care. In many cases urgent or short-term services saturated the waiting lists and, therefore, the reopening following the lockdown did not involve the automatic resumption and recovery of services, not performed during this period. The reopening of those hospitals not identified as “Covid Centers” to the entire population also required the imposition of new rules for maintaining social distancing, with the reduction of available beds and the number of outpatient visits that could be performed.

In order to promptly respond to requests for outpatient, screening and hospitalization services not provided during the emergency period and to reduce waiting lists, with Article 29 of Decree-Law no. 104 of 14/08/2020,<sup>15</sup> converted into Law no. 126 of 13/10/2020,<sup>16</sup> containing “urgent measures to support and relaunch the economy,” the Government ordered an increase in spending for healthcare personnel, in terms of new hires and an increase in their hourly rate, in attempt to mitigate the effects of the health emergency and the scarcity of resources. Despite the current recovery attempts, we might expect an even more serious delay than in the past in the new bookings, due to a further extension of the waiting lists, disregarding the legitimate expectations of patients who would be forced to wait even longer before receiving treatment.

## Conclusions

As is evident from the documents taken into consideration, in the context outlined, we may be faced with the choice of who to include and who to exclude from intensive treatment. Considerations on who is to make the choice and the possible criteria to be used for that selection further highlight the tragic nature of the situation, in which as some<sup>17</sup>

have underlined, the “random lottery” as a criterion for solving the dilemma of distribution seems to be entirely unacceptable, even though, at times, when faced with an apparently impossible decision, it seems to be the only solution. On the other hand, these same Authors underline the fact that the criterion of age or preference of a life less lived and open to the future with respect to the life most lived, the quality of probable life, financial availability, social role, disability or dependence, productive capacity or efficiency, social cost, responsibility with respect to the pathology, nationality and ethnicity are unacceptable criteria as they are extra-medical, which arbitrarily and extrinsically establish inequalities among human individuals, representing an evident deviation from the logic based on the criterion of objective medical evaluation of the case in question. If the scarcity of available resources does not make it possible to treat all patients, the criterion for access to treatment should be defined only using objective (medical) criteria, that is, based on the patient’s clinical condition. In the context of the pandemic, it has therefore been made very clear that scarce resources must not be misused or wasted. Instead, they must be used as effectively as possible. That is to say, they must be used to save human lives. However, at the same time we must not forget that the needs of each person must be placed at the center and that this criterion must be applied to all patients indiscriminately. Selection must not lead to differentiated treatment between infected patients and patients with other pathologies, since vigilance is ethically due to the continuity of taking care of other patients.<sup>17</sup>

The importance of sharing rigorous and transparent criteria, and medical-clinical parameters, the application of which takes place in compliance with constitutional and ethical principles and within the framework of the appropriateness of care, to guide health professionals in the distribution of resources when guaranteeing intensive care to all patients has proved to not be possible, which has led to the adoption of documents containing such indications by scientific societies. A recent joint document, drawn up by SIAARTI and the FNOMCeO (National Federation of Orders of Physicians and Dentists) on “Therapeutic choices in extraordinary conditions,”<sup>18</sup> intends to establish these criteria, being coherent with ethical and professional principles, in support of the doctor who is faced with tragic choices, due to the imbalance between needs and available resources.

In these situations of absolutely urgent necessity, under exceptional conditions of imbalance between needs and available resources, access to intensive treatment would be guaranteed with priority given to those who might receive a concrete, acceptable and lasting benefit. Therefore, the following concurrent and integrated criteria, always evaluated case by case will be applied: the severity of the clinical case, any comorbidities, the previous functional state, the impact of the potential side effects of intensive care, the knowledge of previous expressions of will, as well as

the patient's biological age, which should never be prevalent. The document specifies that if providing a specific medical treatment in exceptional conditions of imbalance between needs and available resources is impossible, therapeutic abandonment must not follow. In consideration of his or her position as guarantor, the doctor must always carry out the necessary assessments for the progression of the pathology, causing as little pain as possible, whilst safeguarding the dignity of each person, through suitable support in an attempt to alleviate physical, mental, and spiritual suffering.

Following the aforementioned SIAARTI Recommendations and the SIAARTI – FNOMCeO agreement document, the Italian National Institute of Health (ISS) invited SIAARTI and the Italian Society of Legal and Insurance Medicine (SIMLA) to prepare draft guidelines for triage in relation to decisions for intensive care in the event of disproportion between healthcare requirements and resources available during the Covid-19 pandemic. After public consultation, the final version of the document was published on the ISS National Center for Clinical Excellence, quality and safety of care (CNEC) website on 13 January 2021.<sup>19</sup>

Specifically, the document emphasizes that “the increase in demand for health care (. . .), due to a situation such as the pandemic, does not reduce the necessary adherence, as regards the protection of health, to the constitutional and founding principles of the National Health Service and to deontological principles, particularly universality, equality (non-discrimination), solidarity and self-determination”; “at every level of intensity of care, should care resources become saturated, making it impossible to guarantee each sick person the recommended treatment, it is necessary to resort to triage rather than to a ‘first come, first served’ or random (lottery) criterion,” in order to ensure life-sustaining treatments to as many patients as possible who may benefit from them.

Triage must be based on a global evaluation of patients, through clinical-prognostic parameters such as: number and type of comorbidities, previous functional status and frailty relevant to the response to care, severity of the current clinical condition, presumable impact of intensive treatment, also in consideration of the patient's age (it should be noted that age should be considered as part of the global assessment of the patient and not on the basis of pre-set cut-offs), patient's wishes with regard to intensive care, which should be investigated at an early stage of the assessment, or, in the event of the person's incapacity, by verifying any wishes previously expressed through advanced treatment provisions or through shared care planning. These proposed criteria do not have a predefined hierarchy and should not be viewed as absolute but should be “balanced and viewed in the light of each clinical condition, where one criterion or more may become more important and thus predominate in the clinical decision.”

As highlighted by the National Bioethics Committee, the fundamental lines of triage in a pandemic emergency

should be based on one premise, namely the preparation of action strategies in the field of public health, in view of exceptional conditions with respect to emergencies caused by pandemics. In other words, we must evaluate how to manage, in exceptional situations, the inevitable conflict between the collective objectives of public healthcare (to ensure the maximum benefit for the greatest number of patients) and the ethical principle of ensuring maximum protection for the individual patient: a dilemma difficult to resolve in the concreteness of the choices.<sup>5</sup>

Finally, it is necessary to emphasize that Italy was only one of the first countries to experience the rapid increase in severe COVID-19-cases. Thus, triage recommendations have been published by several professional associations, in several countries, in an extremely short time.<sup>20</sup> The goal of the guidance documents drawn up in 2020 was “to achieve maximum benefit for as many as possible and to save the maximum number of lives with the resources available at the time of the decision.” The principle of justice and equitable access to healthcare was always invoked and described. Most of the documents included medical criteria in triage decisions and recommended regular re-evaluation “in order to continually adapt treatment strategies to current resources and to an individual patient's condition.”<sup>21</sup>

### Author contributions

PD drafted the work and revised it. FM revised the work. BF revised the work. AC made substantial contributions to the conception and design of the work.

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### Significance for public health

The spread of Covid-19 infection has led to a strong imbalance between available resources and healthcare requirements, which has necessitated the establishment of further criteria, in addition to those of clinical appropriateness and proportionality of care, needed to define the allocation of the limited resources available, primarily considering access to intensive treatments. The redistribution of resources, in relation to the demand related to Covid-19, resulted in a limitation of the ordinary supply, postponing planned interventions, and discouraging non-urgent demand. The National Bioethics Committee has highlighted that “how to deal in exceptional situations with the inevitable conflict between collective public health objectives (ensuring maximum benefit for

the largest number of patients) and the ethical principle of ensuring maximum protection for the individual patient: a dilemma difficult to solve in the concreteness of the choices.”

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