

Saving Lives Versus Saving Dollars: The Acceptable Loss for Coronavirus Disease 2019*

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The coronavirus disease 2019 (COVID-19) pandemic is taking a major toll in terms of human lives and global economic consequences. The severe acute respiratory syndrome coronavirus 2 spreads rapidly, silently, and aggressively with high death rates among people 60 years old and older. Given these characteristics, in several countries, including Spain, Italy, the United Kingdom, the United States, and others, the number of patients increased quickly, placing a heavy and rigorous burden on healthcare systems in a very short period. This has led to a predictable surprise, which included “mass casualty incident” in terms of rapid overwhelming of hospitals’ capacities, including the critical need to make the difficult (and even impossible) decisions of who will be treated and who will not, and who will live and who will die.

In their article in this issue of *Critical Care Medicine*, Sprung et al (1) present an ICU adult triage algorithm based on various criteria—except for age—and include performance score, ASA score, number of organ failures, and predicted survival. An important emphasis in their guidelines is to avoid ageism while also focusing on the need to prioritize patients on the assessment of the expected quality of life after the life-saving treatment.

We claim, however, that although these guidelines are well-grounded on ethical considerations and cumulative clinical experience, ICU triage is only one component in the strategic decision-making process of planning the national capacities and capabilities during pandemics. In fact, ICU triaging is a reflection of failures in the entire pandemic management so far. Strategic planning at the early stages of a pandemic should consider the “acceptable loss,” which represents the ultimate balance between saving lives and keeping life routines.

*See also p. 1196.

Key Words: coronavirus disease 2019; healthcare management; intensive care unit; pandemic; planning; triage

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This includes defining the “price” we are willing to “pay” in order to be able to save the most lives and life-years and to lower the morbidity rate while, at the same time, safeguard the economy and individuals’ workplaces and social existence.

The response to the COVID-19 pandemic so far has shown that social distancing and quarantine have proven to be the most effective strategy to mitigate the spread of the virus, as well as widespread testing and quick tracking and monitoring of positive cases to assess its containment. However, the heavy economic losses caused by a national quarantine puts in question the possibility of its cost-effectiveness over time. In fact, although it seems that quarantine is the optimal solution (at least from a medical perspective), the social and economic consequences are enormous, leading to the emergence of negative outcomes. These include indirect loss of lives due to suicides (2) and delayed chronic treatment (3) as well as increased mental diseases (4) and domestic violence (5).

Strategically, we suggest that the two fundamental factors—saving lives and continuing life routines—are in complementary contradiction. An appropriate balance between them (given the current conditions), the evolution of each factor and its consequences, will lower the “price” or the loss so that ICU triaging will not be an option.

In practical terms, what is the balance between the length of the quarantine or social distancing practices, the economic losses, the level of public compliance, and the healthcare system capacity? Evaluating the acceptable loss is a professional, financial, ethical, legal, social, cultural, and historical dilemma. It should be the basis for planning before and during a pandemic and should take into consideration current infrastructure and resources. Defining the acceptable loss is critical for scarce resources allocation (such as ventilators, personal protective equipment, and ICU beds) and sets standards for the conditions to reopen businesses and schools. Defining the acceptable loss is also important for gaining public support in extreme circumstances when there is a need to prioritize certain patients over others due to limited resources.

We suggest that to avoid reaching the critical capacity surge of healthcare systems, and ICUs in particular, decision-makers should first optimize the diagnosis processes. It seems that in the current pandemic, the threat has not been properly diagnosed, leading to a response (massive quarantine) that has severe negative outcomes. Such a diagnosis should have included answers to the following questions:

- Does the COVID-19 have a different effect on different populations?
- Is this a differential pathogen which demands a differential response or is it an equal-opportunity killer?
- How can we focus on the high-risk populations, such as the elderly and enhance prevention while keeping their routine as much as possible?

The COVID-19 pandemic has developed into a major crisis due to two elements: “the objective element” of the lethal virus and the high death rate it poses, and the “controlled element” of the overprotective reaction for those who are not at risk, while vulnerable populations are left unprotected.

A closer look on the demographics of COVID-19 patients reveals three main groups:

1. Older adults (≥ 65 yr old) are at highest risk, especially those with preexisting health issues.
2. Males are more vulnerable than females. So far, the death rate among males is almost twice as high as the death rate among females. Furthermore, as females are the vast majority in the age group of 65, the proportion of male deaths is even higher.
3. Children and young persons are at very low risk.

Given these data, separate analysis must be performed in each country, state, or area to evaluate frequencies and spatial distributions of high-risk population.

For example, this could be the basis for planning of the practices to protect the vulnerable and at-risk populations in particular, while not wasting valuable resources on populations who do not need it. Defining the acceptable loss of lives demands the consideration of the meaning of the number of the COVID-19 deaths against the meaning of the economic losses to the healthcare system and the entire society. Obviously, efforts should be made to save as much lives as possible. However, quarantine has an enormous price, which can also be measured in loss of human lives, higher levels of physical and mental morbidity, economic losses, and long-term effects on the healthcare system.

To better cope with pandemics, and avoid the need for triage in ICU, several recommendations are suggested:

1. Differential diagnosis: Decisions should be made upon a concrete evaluation of the domestic demographics. This will allow for accurate identification of high-risk populations.
2. International surge: Given that the current pandemic has expected patterns of transition between countries (through air traffic and ground transportation), the establishment of international cooperation mechanisms for sharing knowledge and equipment is critical. Countries with lower levels of morbidity and mortality, or

those which have successfully coped with the pandemic, could provide important resources, including ICU medical personnel and ventilators, to other countries who are facing overwhelmed healthcare capacities. The surge capacity should be defined as an international measure, rather than national or local.

3. Differential care: Vulnerable populations should be carefully protected, with allocation of distinct resources from both governmental and local healthcare sources. The majority of the population, which is not high risk, will continue their life routine and achieve a “herd immunity” while supporting the vulnerable population and maintaining the sanity of the country.
4. Meta-leadership: In addition to political leaders, public health professionals, and practitioners, the crisis leadership should also include financial experts, business leaders, big-data analysts, risk management professionals, and behavioral sciences experts (including specialists in the areas of mental health, demographics, gender, criminology, and national security).

Similar to the triage performed by medical personnel in mass causality events, the acceptable loss should be put forward to a public debate. Discussing the price of life is complicated but inevitable. As in the case of medical triage, acceptable loss is based on two basic principles: beneficence and distributive justice. Strategic planning at early stages of a pandemic should prioritize finding an accepted balance—between saving lives of COVID-19 patients and saving the life of the country.

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