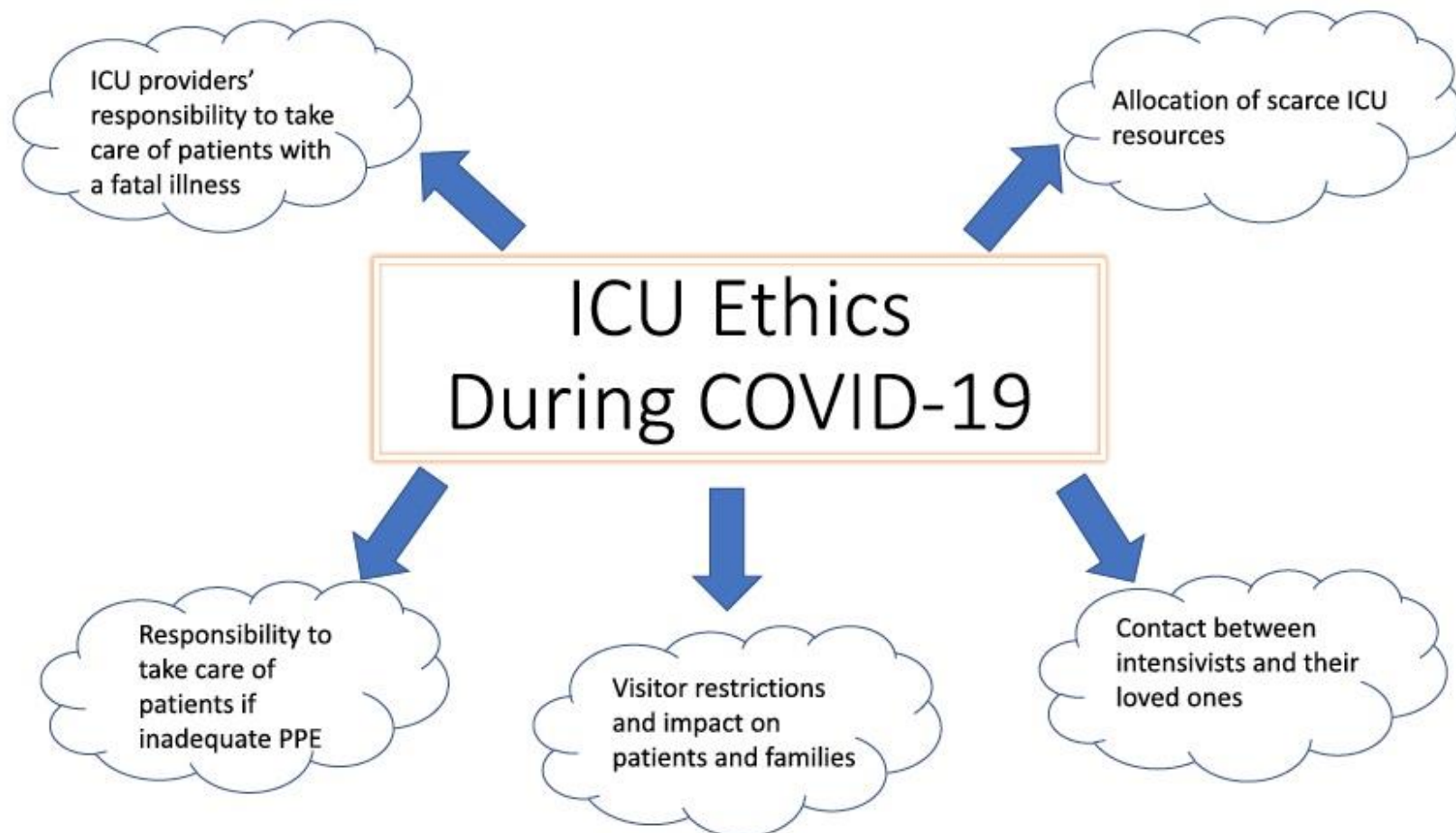


EDITORIAL

Open Access

# COVID-19 and ethics in the ICU

Sarah F. Nelson



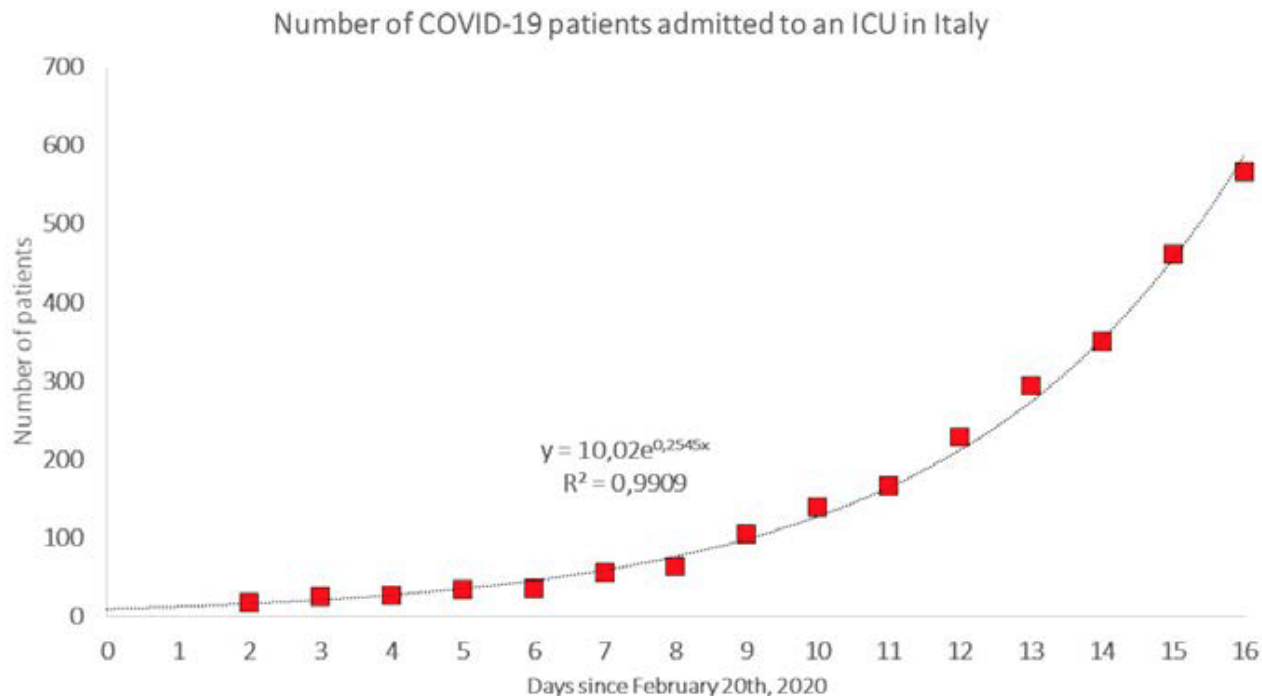
Medical ethics issues encountered by intensivists during the COVID-19 pandemic

On February 21st, 2020 the **first case** of severe acute respiratory syndrome due to the coronavirus 2 (SARS-CoV-2) causing the CoViD-19 disease, was identified in Italy.

In the following days, despite the restrictive public health measures aimed to avoid the infection's spread, the number of cases increased.

As of March 8th, 2020, Italy is the 2nd **most affected country in the world**.

As of March 6th, 2020, the Italian Society of Anesthesia Analgesia Resuscitation and Intensive Care (SIAARTI) published operational **recommendations** and ethical considerations to support the clinicians involved in the care of critically-ill CoViD-19 patients, in regard a probable scenario where an **imbalance between supply and demand** of ICU beds is put in place by a steadily **rising number** of these patients.





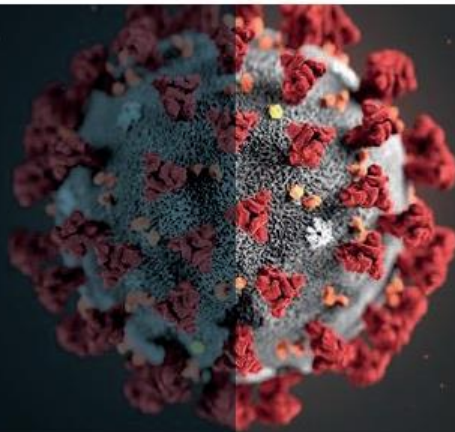
## **CLINICAL ETHICS RECOMMENDATIONS FOR THE ALLOCATION OF INTENSIVE CARE TREATMENTS, IN EXCEPTIONAL, RESOURCE-LIMITED CIRCUMSTANCES**

### **Authors**

Marco Vergano, Guido Bertolini, Alberto Giannini, Giuseppe Gristina, Sergio Livigni, Giovanni Mistraretti, Flavia Petrini



**SIAARTI**  
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*The* NEW ENGLAND JOURNAL *of* MEDICINE

# Perspective

## **Facing Covid-19 in Italy — Ethics, Logistics, and Therapeutics on the Epidemic's Front Line**

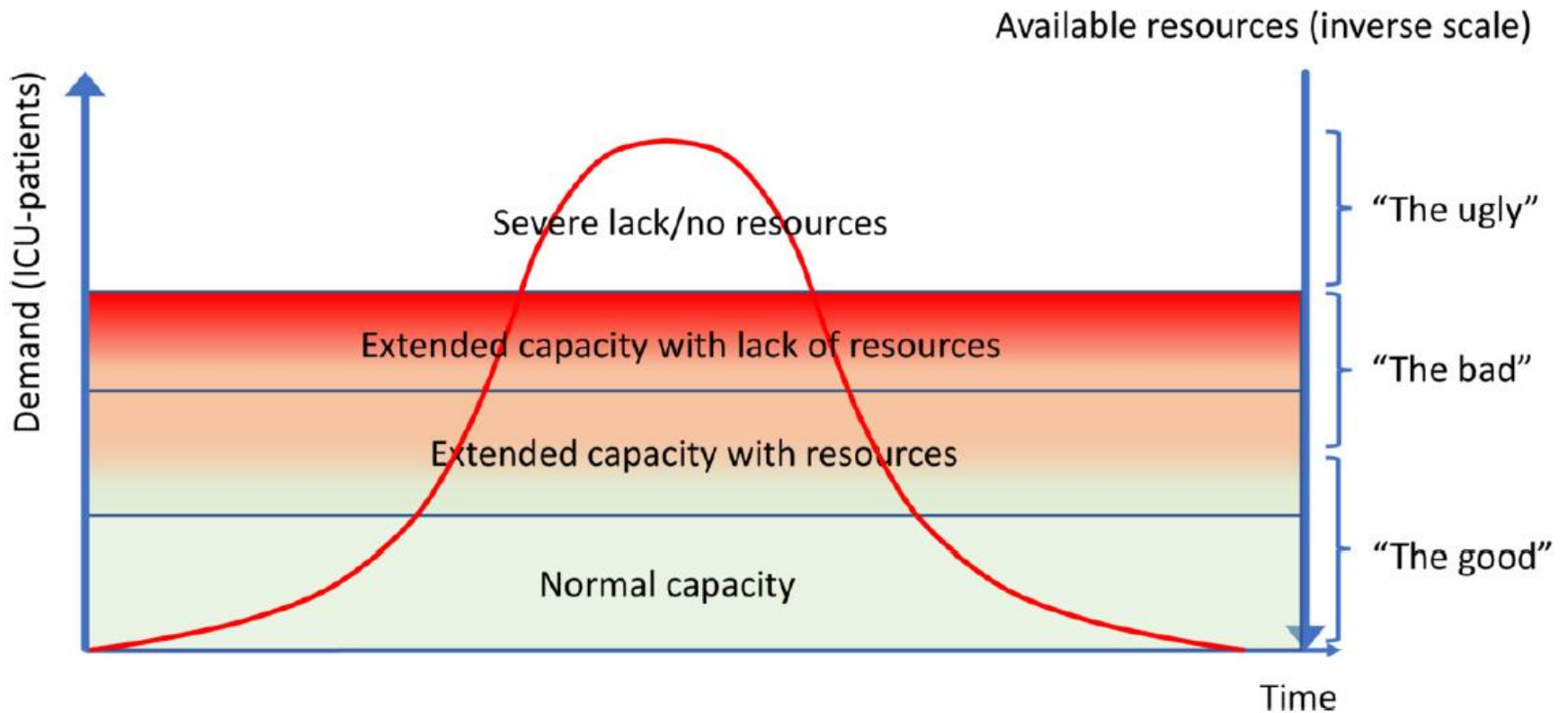
Lisa Rosenbaum, M.D.

March 18, 2020

N Engl J Med 2020; 382:1873-1875

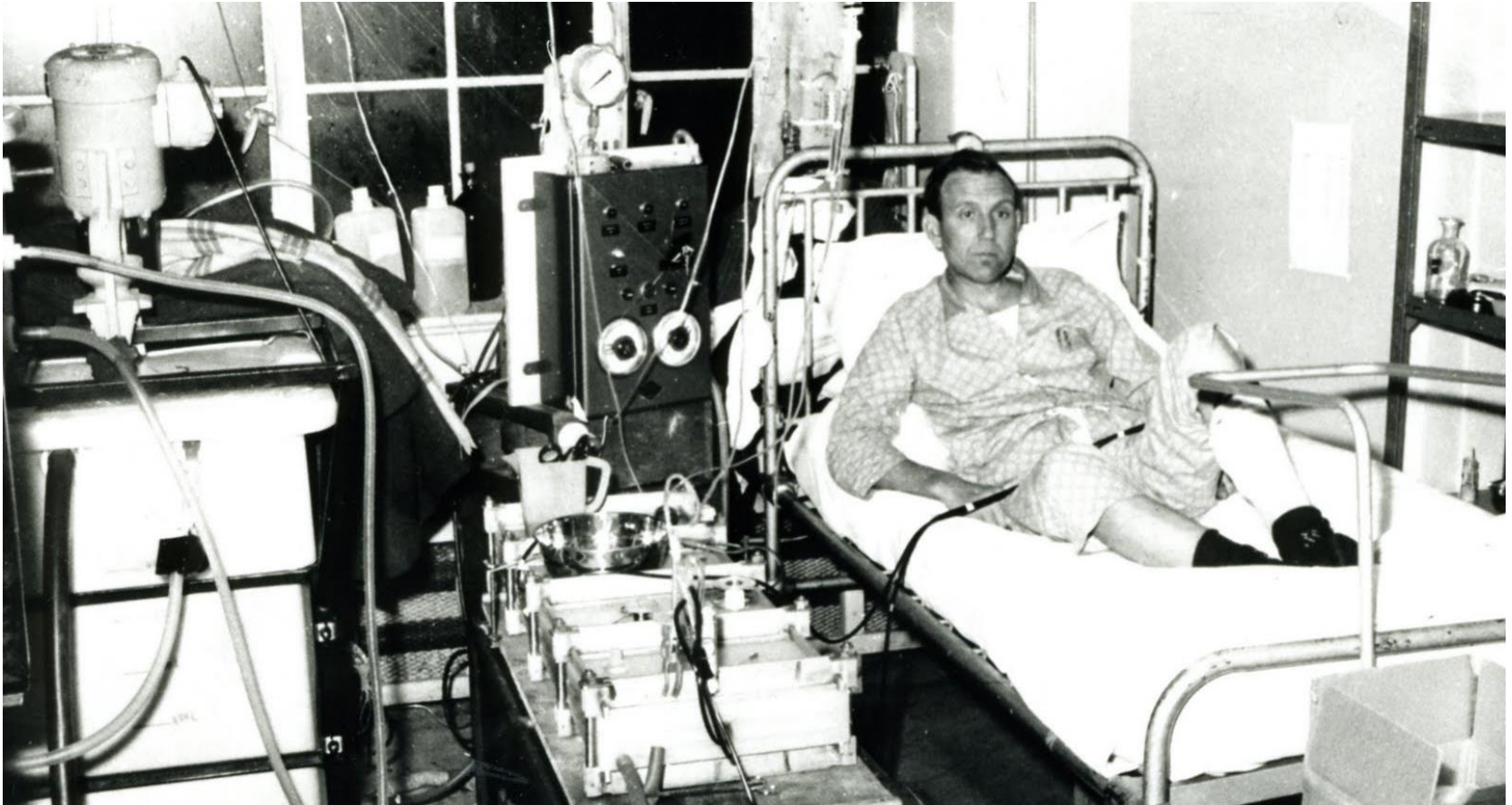
DOI: 10.1056/NEJMp2005492

# triage and resources allocation





# rationing decisions



In 1962 the Seattle Artificial Kidney Center charged a **committee** of physicians, nurses, and community and civic leaders to develop an **allocation system** for dialysis treatments



## Medical miracle and a moral burden They Decide Who

by SHANA  
ALEXANDER

John Myers has known about his kidney trouble ever since a routine physical examination at the time of his Army discharge in 1945. But until two years ago he felt fine. Then the headaches began and his blood pressure began to rise. By last summer there were days when

he could barely drag himself out of bed to get to his office. He was 37 years old. Neither he nor his wife Kari had any idea that he had come, irrevocably, to the terminal stage of his disease. But a glance at his case history was enough to tell any physician that John Myers' death would be ugly and soon.

Last Christmas morning when Myers awakened at his home in

Bremerton, Wash., his heart was pounding violently. He could not stop coughing. Blood was running from his nose. He had an indescribable headache, a horrible taste in his mouth, dreadful nausea. His face and limbs were grossly swollen. He was rushed to a hospital where it seemed certain he would be dead within a matter of hours. But today, 11 months later, Myers

is still alive. He is no longer even an invalid in the usual sense of the word. He is back at his old desk with an oil company, and he is living comfortably at home with Kari and their three young children. To the casual observer, John Myers looks and acts just like everybody else. But he is different, in a very special way. There is now a small, U-shaped plastic tube sutured into

## of a small committee Lives, Who Dies

Seattle committee members, who are kept anonymous, meet periodically to determine which patients may receive treatment at the kidney center.

the blood vessels of his left forearm.

Every Monday and Thursday afternoon Myers takes an hour-long ferryboat ride across Puget Sound from Bremerton to downtown Seattle. By 6 p.m. he is making his way down a short flight of steps to an unmarked basement door in an annex of Swedish Hospital. Inside, he exchanges his business suit for a green hospital gown

and climbs into bed. A compact hunk of medical plumbing which looks like a stainless steel washing machine is wheeled to Myers' bedside. From its innards a technician unfurls a pair of clear plastic tentacles six feet long. A nurse connects these to the little tube in Myers' forearm, and twiddles a few controls. Suddenly, in one bright spurt, one of the tentacles becomes

red as John Myers' blood rushes out to fill the bedside machine.

The machine is an artificial kidney. Because it can be coupled at will to the U-shaped tube in Myers' forearm, it has become the first true artificial organ in medical history. For the rest of his life Myers will spend two nights a week joined by a plastic umbilical cord to this machine which keeps him alive.

At present the miraculous machine requires 10 to 12 hours to cleanse Myers' blood of accumulating poisons which otherwise would kill him. The procedure is quite painless, and Myers has now become so accustomed to the whole idea of surrendering his life's blood to a medical laundromat twice a week that during the cleansing he just goes to sleep. A

Criteria for acceptance onto RRT included: sex, marital status, number of dependants, income, occupation, «social value», future potential

*Life Magazine, November 9, 1962*

# Ethical considerations during the COVID-19 Pandemic

clinical ethics



patient-centered care  
(duty to **care**)

- beneficence
- non maleficence
- respect for autonomy
- justice

organizational ethics



community-centered care  
(duty to **plan**)

- prevention
  - duty to steward resources
  - surge capacity
  - networking and coordination
  - **Crisis Standards of Care (CSC)**
- Rationing decisions  
(tragic choices)





# Triage in Medicine, Part II: Underlying Values and Principles

John C. Moskop, PhD

Kenneth V. Iserson, MD, MBA

From the Brody School of Medicine at East Carolina University and the University Health Systems of Eastern Carolina, Greenville, NC (Moskop); and the University of Arizona, Tucson, AZ (Iserson).

Triage provides **a method to distribute health care resources** when **patient needs exceed available resources**. Triage **operates along a continuum** of decreasing resources, social order and the resource-to-patient ratio. Arrival patterns, triage methods, and the applicable ethical basis for triage vary along this continuum.

Most triage systems are designed to serve the values of **human life, human health, efficient use of resources, and fairness**.

Nevertheless, given the variety of specific triage settings and goals, **there is no single “correct” way to perform or to justify triage**.

**Routine triage** in the relatively resource-rich setting of the modern hospital ED, for example, focuses appropriately on **maximizing benefits for each individual patient**, giving treatment priority to patients whose needs are most urgent.

In triage **following a massive disaster**, where not all individual needs for life-saving care can be met, **the focus may shift from an individual to a group perspective**, and triage officers may seek **to save as many lives as possible** with the limited resources at their disposal.

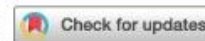
# patient-centered vs community-centered: an example

AJOB EMPIRICAL BIOETHICS  
2019, VOL. 10, NO. 1, 63–69  
<https://doi.org/10.1080/23294515.2019.1576799>



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## Impartiality and infectious disease: Prioritizing individuals versus the collective in antibiotic prescription

Bernadine Dao<sup>a,b</sup>, Thomas Douglas<sup>b</sup>, Alberto Giubilini<sup>c</sup>, Julian Savulescu<sup>b</sup>, Michael Selgelid<sup>d</sup>, and Nadira S. Faber<sup>b,e</sup>

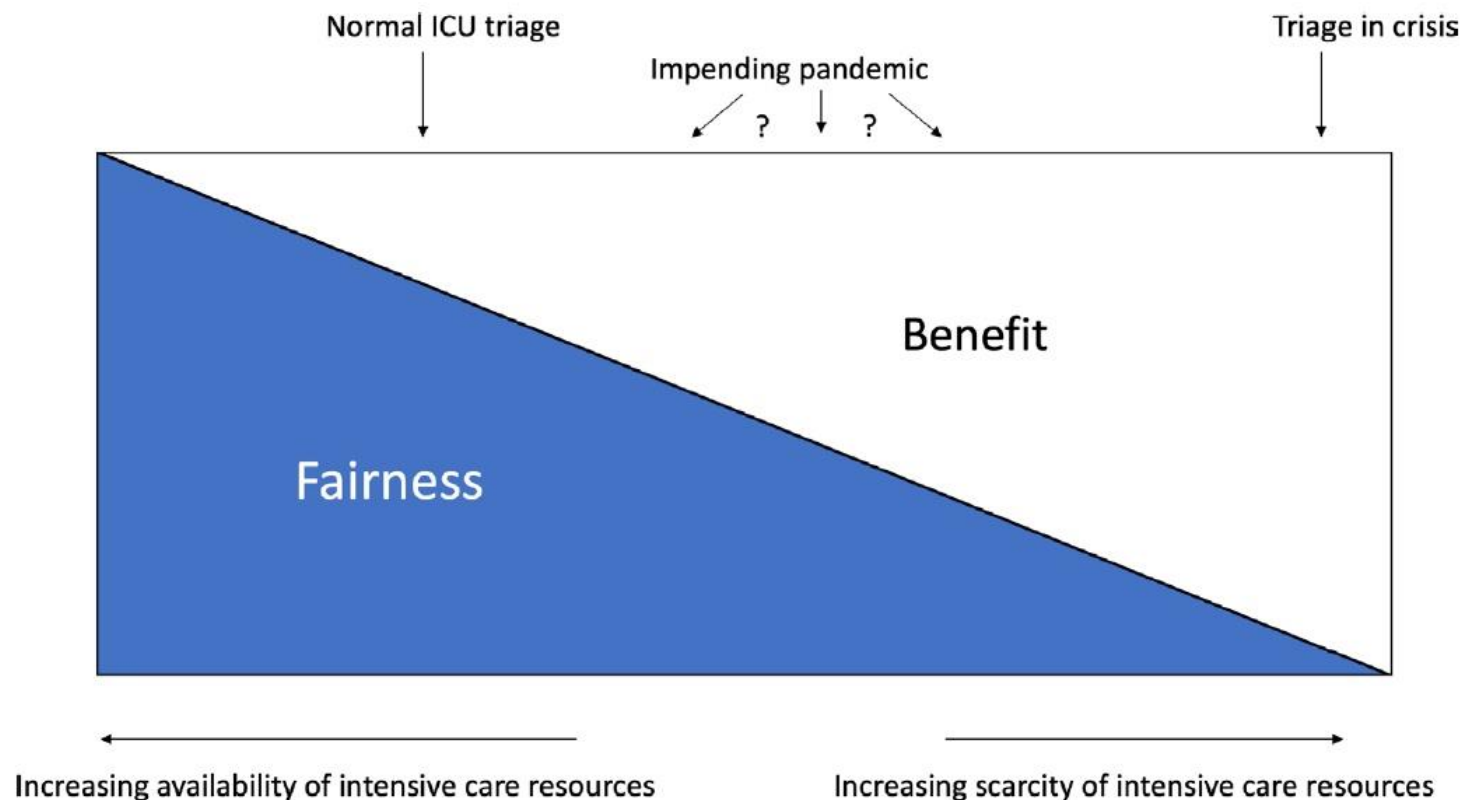
<sup>a</sup>Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Victoria, Australia; <sup>b</sup>Oxford Uehiro Centre for Practical Ethics, Faculty of Philosophy, University of Oxford, Oxford, United Kingdom; <sup>c</sup>Oxford Martin School and Wellcome Centre for Ethics and Humanities, University of Oxford Oxford, United Kingdom; <sup>d</sup>Monash Bioethics Centre, Monash University, Clayton, Victoria, Australia; <sup>e</sup>Department of Experimental Psychology, University of Oxford, Oxford, United Kingdom;

The **ethical conflict** that doctors often face **between acting in the best interests of their patients and acting in the best interest of society-at-large** when considering whether to prescribe an antibiotic.

There is evidence that doctors frequently prioritize individual patient health over public health when deciding whether to prescribe antibiotics— even when doing so contravenes clinical guidelines.

«There are different values at stake in **triage decisions**, but at a basic level the **key values** are those of **benefit** and **fairness**.

Decisions about who to admit can **either** aim to secure the **greatest benefit** from allocation of ICU beds, **or** they can aim to prioritise fairness, responding as equally as possible to **patient claims or need** for treatment»



**Figure 1** Balancing ethical values in Intensive Care Unit (ICU) triage

EDITORIAL

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# Ethics guidelines on COVID-19 triage—an emerging international consensus



Susanne Joebges and Nikola Biller-Andorno\* 

[...] a number of triaging guidelines have been issued in various countries, including Italy, Switzerland, Austria, Germany, the UK, and Belgium.

All guidelines concur that in a situation of scarcity, COVID and non-COVID patients should be treated equitably according to the same criteria.

However, **no guideline argues in favor of a lottery or a “first come, first served” approach.**

Rather, prognosis—assessed in accordance with current intensive care standards—is seen as an indispensable precondition for **maximizing benefit.**



## An ethical algorithm for rationing life-sustaining treatment during the COVID-19 pandemic

Julian Savulescu<sup>1,2,\*</sup>, Marco Vergano<sup>3,4</sup>, Lucia Craxì<sup>5</sup> and Dominic Wilkinson<sup>1,6</sup>

<sup>1</sup>Wellcome Centre for Ethics and Humanities and Oxford Uehiro Centre for Practical Ethics, University of Oxford, Oxford, UK, <sup>2</sup>Murdoch Children's Research Institute and Melbourne Law School, Melbourne, Australia, <sup>3</sup>Italian Society of Anesthesia Analgesia Resuscitation and Intensive Care (SIAARTI), Italy, <sup>4</sup>Department of Anesthesia and Intensive Care, San Giovanni Bosco Hospital, Turin, Italy, <sup>5</sup>Department of Biomedicine, Neuroscience and Advanced Diagnostics, University of Palermo, Palermo, Italy and <sup>6</sup>John Radcliffe Hospital, University of Oxford, Oxford, UK

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At a minimum, every reviewed proposal for allocation of ventilators in the pandemic should include **prioritisation of chance of survival**.

**Differences between countries** in their chosen approach to allocation are **inevitable**, and will reflect the ethical choices of particular societies.

However, these **values must be made explicit** and **decisions not left to personal values, conscience, intuition, religion, or idiosyncrasy**.

Algorithmic ethics makes these values and their relationship explicit. How these values are applied will depend on the facts. But we should as a society agree on the ethical values and their relationship.



## HEAD TO HEAD

### Is it wrong to prioritise younger patients with covid-19?

With services overburdened, healthcare professionals are having to decide who should receive treatment. **Dave Archard** says this is no excuse for wandering blindly into discrimination, but **Arthur Caplan** argues age is a valid criterion when supported by data

Dave Archard *emeritus professor*<sup>1</sup>, Arthur Caplan *William F and Virginia Connolly Mitty professor of bioethics*<sup>2</sup>

<sup>1</sup>Queen's University, Belfast, UK; <sup>2</sup>Division of Bioethics, NYU Grossman School of Medicine, New York, USA

## It is not wrong to prioritise younger patients with Covid-19

Vergano M, Veatch RM, *BMJ* 2020;369:m1509

«Age *per se* is not only a **reliable predictor of mortality**, according to Gompertz law; it is also **associated with frailty**, regardless of other chronic illness.

There is relevant literature supporting the idea that **aging occurs as an emergent phenomenon**: people do not die from old age, rather they accumulate **age-related illnesses** and become **increasingly vulnerable to death**.

Thus **vulnerability (frailty) can be quantified through mathematical models** and is **strongly associated with mortality** [Mitnitski, 2017].

In the case of Covid-19, in particular, from a clinical perspective, **preliminary outcome data show a strong correlation between age and Covid-19 lethality.**»

# Factors associated with COVID-19-related death using OpenSAFELY

<https://doi.org/10.1038/s41586-020-2521-4>

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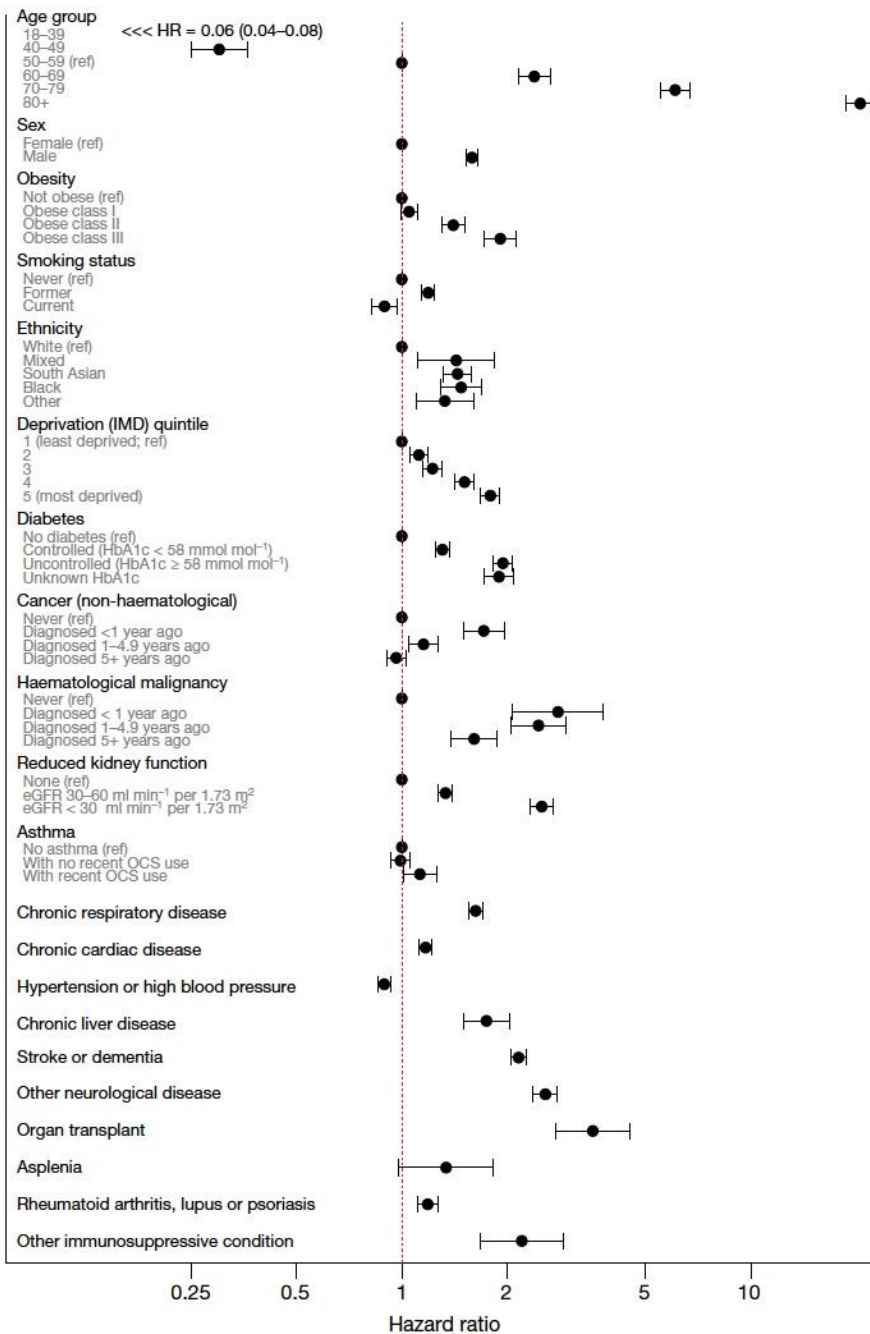
 Check for updates

Elizabeth J. Williamson<sup>1,6</sup>, Alex J. Walker<sup>2,6</sup>, Krishnan Bhaskaran<sup>1,6</sup>, Seb Bacon<sup>2,6</sup>, Chris Bates<sup>3,6</sup>, Caroline E. Morton<sup>2</sup>, Helen J. Curtis<sup>2</sup>, Amir Mehrkar<sup>2</sup>, David Evans<sup>2</sup>, Peter Inglesby<sup>2</sup>, Jonathan Cockburn<sup>3</sup>, Helen I. McDonald<sup>1,4</sup>, Brian MacKenna<sup>2</sup>, Laurie Tomlinson<sup>1</sup>, Ian J. Douglas<sup>1</sup>, Christopher T. Rentsch<sup>1</sup>, Rohini Mathur<sup>1</sup>, Angel Y. S. Wong<sup>1</sup>, Richard Grieve<sup>1</sup>, David Harrison<sup>5</sup>, Harriet Forbes<sup>1</sup>, Anna Schultze<sup>1</sup>, Richard Croker<sup>2</sup>, John Parry<sup>3</sup>, Frank Hester<sup>3</sup>, Sam Harper<sup>3</sup>, Rafael Perera<sup>2</sup>, Stephen J. W. Evans<sup>1</sup>, Liam Smeeth<sup>1,4,7</sup> & Ben Goldacre<sup>2,7</sup>✉

**Table 2 | Hazard ratios and 95% confidence intervals for COVID-19-related death**

Characteristic	Category	COVID-19 death HR (95% CI)	
		Adjusted for age and sex	Fully adjusted
Age	18–39	0.05 (0.04–0.07)	0.06 (0.04–0.08)
	40–49	0.28 (0.23–0.33)	0.30 (0.25–0.36)
	50–59	1.00 (ref)	1.00 (ref)
	60–69	2.79 (2.52–3.10)	2.40 (2.16–2.66)
	70–79	8.62 (7.84–9.46)	6.07 (5.51–6.69)
	80+	38.29 (35.02–41.87)	20.60 (18.70–22.68)
Sex	Female	1.00 (ref)	1.00 (ref)
	Male	1.78 (1.71–1.85)	1.59 (1.53–1.65)
BMI (kg m <sup>-2</sup> )	Not obese	1.00 (ref)	1.00 (ref)
	30–34.9 (obese class I)	1.23 (1.17–1.30)	1.05 (1.00–1.11)
	35–39.9 (obese class II)	1.81 (1.68–1.95)	1.40 (1.30–1.52)
	≥40 (obese class III)	2.66 (2.39–2.95)	1.92 (1.72–2.13)





**Fig. 3 | Estimated hazard ratios for each patient characteristic from a multivariable Cox model.** Hazard ratios are shown on a log scale. Error bars