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Analysis Treatment

Who will get ventilators in a covid-19 crisis? If there is a shortage of breathing machines, doctors and ethicists say priority should go to people with the best chance of recovery, reports **Alice Klein**

THE coronavirus pandemic has left doctors around the world facing a grim decision: who will be put on potentially life-saving machines if there aren't enough to go round?

According to data from China, about 2 per cent of people infected with the covid-19 virus needed a ventilator, which helps patients breathe by pumping air with extra oxygen via a tube into their lungs. It normally takes a few weeks for the immune system to clear the virus so they can breathe on their own again.

In Italy, which has among the highest number of covid-19 cases, recent guidelines recommend that, if demand outstrips supply, ventilators should be preferentially given to people with the best chance of recovery and the most years to live.

The UK, Australia and New Zealand have similar guidelines. This approach reflects an ethical framework called utilitarianism that aims to bring about the most good for the greatest number of people, says philosopher Julian Savulescu at the University of Oxford.

However, making these choices will be difficult because we still don't

JACK GUEZ/AP VIA GETTY IMAGES

Ventilators feed air into the lungs of people severely affected by covid-19

understand who has the best chance of surviving covid-19, he says.

One way around this may be to implement a "trial of treatment" approach, he says. You could put a person in need on a ventilator for a designated period, say a week, to see how they respond, before deciding whether to give it to someone who may benefit more.

This obviously has implications for the patients involved, but it

also has some for the doctors, says medical ethicist David Hunter at Flinders University in Australia. "Psychologically, that would be very tough on clinicians," he says.

Front-line doctors and nurses who become seriously ill with covid-19 should be given preferential access to ventilators so they can recover and help others, according to a statement by an international group of doctors and medical ethicists. This is the right call, says Hunter. "Healthcare workers are putting themselves at risk, so there's an obligation to take care of them," he says.

Other tough questions are whether to prioritise people with children or other dependants, or what to do if two people in the same circumstances both need a ventilator but only one is available.

In the latter situation, a lottery system may be the only way to make the decision, says bioethicist Wendy Rogers at Macquarie University in Sydney.

Many nations may struggle to meet the demand for ventilators. For example, the US is thought to have around 170,000 machines, but it is estimated that 240,000 to 5.25 million people in the country could need a ventilator during the pandemic. In the UK, which has about 8000 ventilators, it is estimated that between 48,000 and 1 million people may require one. In Australia, which has 2000 ventilators, between 18,000 and 400,000 people may need one.

All three countries are trying to import and build more machines. If they can't, their decisions should be made transparent and guidelines kept flexible, says Savulescu. "There's no simple set of rules you can follow," he says. ■

Viral transmission

Should you disinfect your online shopping?

PEOPLE who are self-isolating are increasingly relying on grocery deliveries. This raises a new worry: whether delivered goods carry the new coronavirus. Research suggests it can spread via particles in the air, but also via surfaces. How long can it survive and how can we protect ourselves?

Covid-19 is a respiratory illness and is largely transmitted via drops in the air from coughing or sneezing,

says John Lednicky at the University of Florida. The new virus has also been found to persist on surfaces. A team led by Vincent Munster at the US National Institute of Allergy and Infectious Diseases in Montana found it may survive on plastic and stainless steel for up to 72 hours.

But other research suggests that SARS and MERS, which are similar coronaviruses, can persist on metal, glass and plastic for up to nine days. Research by the US Centers for Disease Control and Prevention suggested that traces of the new virus could be on surfaces for even longer: its RNA was detected in

cabins of people who had vacated the Diamond Princess cruise ship 17 days earlier, including those without symptoms.

This doesn't necessarily mean these virus particles could still infect other people, says Lednicky. How long virus particles remain viable depends on various factors. Those coughed or sneezed out may be covered in a layer of mucus that helps them survive better.

"The new coronavirus has been detected on surfaces for days, but it may not necessarily be infectious"

Surface survival may also be affected by UV light, which can destroy the ability of some viruses to reinfect us. Heat and higher humidity can also inactivate viruses.

Is it worth trying to disinfect your shopping? Lednicky doesn't think so. Most household cleaning products won't kill coronaviruses, he says. Even if you use one that does, you're unlikely to be able to clean every nook and cranny of, for example, a bunch of grapes. It is more practical to practise social distancing and good personal hygiene, he says. ■
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