Catastrophic worldwide medical ventilator shortfall despite years of warning

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The rapid spread of coronavirus is threatening to overwhelm health services around the world, exposing the gutting of social provisions by the financial oligarchy.

A major component of this crisis is the catastrophic and criminal shortage of medical ventilators in quantities sufficient to confront a long predicted and inevitable pandemic.

Medical ventilators are relatively complex devices, normally costing up to $50,000. Under normal circumstances, the entire annual global production is estimated at between 40,000 and 50,000. A small number of companies, based in a handful of countries, build the complex devices, which require pressure generators, flow regulators, filters, valves, alarms, numerous sensors and software to allow control and display of the device's activity and reports of the patient's breathing. Production is generally licensed and subject to scrutiny and regulation.

Specialist clinical engineers and qualified medical staff are required to install and operate the devices, which need careful calibration and skilled supervision, without which the patient has little chance of survival.

But under conditions of crisis, when every country is suddenly trying to acquire thousands of the devices, suppliers and global supply chains are being stretched far beyond their capacities.

British hospitals, for example, have only 5,000 ventilators attached to intensive care beds. But British Health Secretary Matt Hancock conceded that "many times more" than current levels of supply were likely to be needed in the period immediately ahead. German hospitals have around 25,000, with another 10,000 on order. The US has 62,000 and an additional 99,000 obsolete machines in storage. France is still conducting a nationwide survey of its capacity.

While peak demand might be is impossible to predict, it will be many times current production capacity. Swiss-based Hamilton Medical—one of the world's main producers, usually making 15,000 ventilators a year—has increased production by up to 40 percent. CEO Anthony Wieland warned Reuters of "a huge discrepancy between available ventilators and the need."

Charles Bellm, managing director of ventilator component supplier Intersurgical, explained that one respiratory product sold by his company has attracted more orders since the start of 2020 than in the previous 15 years.

A 2015 survey in New York State, population 19.5 million, concluded that, based on an epidemic similar to the 1918 flu pandemic, 18,600 ventilators would be needed in that state alone. While in total the state could muster some 9,000 ventilators, most of these would already be in use. Therefore, at the peak of the disease, there would be a shortfall of nearly 15,600 machines—in a single US state.

Capacity in most countries is catastrophically inadequate, is likely to remain so, and medical staff will be forced, as has already occurred in Italy, to repeatedly choose which patients are left to die. Only the patients deemed most likely to survive with the use of ventilators will have access to treatment.

Making things worse is the fact that the common response to the escalating crisis is for each country to assert its own national interest.

In Italy, where over 1,300 people are already reliant on intensive care, the government has ordered 500 ventilators a month from the country's only manufacturer, Siare Engineering in Bologna. The company anticipates being able to deliver 2,000 devices by July, twice its annual production, but has cancelled all international orders. German manufacturer Drägerwerk AG said that its order from the German government would take up its entire annual production.

The *Financial Times* noted that were even one country

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to impose an export ban on ventilators, prices would immediately ratchet up and global supplies collapse. Yet, last Sunday, European Commission President Ursula von der Leyen announced an export authorisation scheme to prevent vital medical equipment leaving the European Union (EU).

This move was made in the context of the revolting flag-waving stunts mounted by US President Donald Trump, British Prime Minister Boris Johnson and others to attempt to enrol sections of industry in patriotic drives for ventilator production.

In Britain, the result has been the blackest farce. The Conservative government hosted a conference call with around 60 leading figures from vehicle makers JCB, Land Rover, Honda, Ford and domestic gadget maker Dyson.

During the conference call, Johnson failed even his own abysmal standards of behaviour by jokingly referring to the scheme as "Operation Last Gasp." His words perfectly captured his government's sociopathic indifference to working people's lives.

A two-page specification document for a "rapidly manufactured ventilation system" was circulated, along with the Brexit-inspired requirement that the devices should be "made from materials and parts readily available in the UK supply chain."

The document helpfully included links to a YouTube video about ventilator design! The government also put up a web contact form for prospective ventilator makers, encouraging them to list their experience in medical matters.

Even among the assembled captains of industry, there was open incredulity. One executive warned that his company would need a "certified design" and "we can't make one up." Another car industry leader was blunter: "What makes them think we carmakers know how to make ventilators and that a car factory assembly line is even vaguely appropriate?"

Robert Harrison, professor of Automation Systems at WMG, University of Warwick, was quoted on *The Manufacturer* magazine website: "JCB, Rolls Royce or others could potentially manufacture ventilators. They have relevant skills and capabilities, but given that all the design and manufacturing related information could be supplied to them, getting the parts and the tooling to manufacture such a thing will be a significant task, perhaps taking many months."

Craig Thompson, of Oxfordshire-based ventilator manufacturer Penlon, told the BBC, "The idea that an engineering company can quickly manufacture medical devices, and comply with the rules, is unrealistic because of the heavy burden of standards and regulations that need to be complied with." Penlon has said it could eventually double production.

By Thursday, it was reported that three companies, Meggit, an aerospace consortium including GKN, Airbus and Thales, along with car makers Nissan and McLaren, had taken up the offer and intend to start work on a basic design. Five thousand of the rudimentary devices are intended to be available by the end of the month, far below requirements if they even work.

In the US, President Donald Trump last week invoked the Defense Production Act, pretending to compel manufacturers to make ventilators. Leading US corporations went along with the charade. But after a meeting at the White House, GM spokeswoman Jeannine Ginivan was distinctly non-committal. Ginivan said the automaker "are already studying how we can potentially support production of medical equipment like ventilators."

Trump's director of the National Economic Council, Larry Kudlow, took the opportunity to advance the proposal for unpaid labour, suggesting on *Fox News* that car workers might be mobilised to make equipment "on a voluntary basis for civic and patriotic reasons."

Even should viable equipment be produced, there are equally pressing shortages of staff to install and safely operate the machines. Nicki Credland, chair of the British Association of Critical Care Nurses, told *Nursing Times* that there were not enough qualified intensive care staff to look after patients on the new machines, even if they get built. Current guidelines are for a nurse to patient ration of 1:1 or 1:2 depending on the condition.

Dr. Rinesh Parmar, chair of the Doctor's Association UK, warned that systematic under-resourcing of the National Health Service and the exodus of staff has "ultimately left the country with a severe lack of intensive care nurses and doctors." The same issues are posed in every country.

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