

## Letter

# Swine flu: provision of ventilation in a worst-case scenario

Alex Doyle, Joseph Carter and Peter Young

Department of Anaesthesia, Queen Elizabeth Hospital, Gayton Road, Kings Lynn PE30 4ET, UK

Corresponding author: Alex Doyle, [ajdoyle@gmail.com](mailto:ajdoyle@gmail.com)

Published: 28 October 2009

This article is online at <http://ccforum.com/content/13/5/422>

© 2009 BioMed Central Ltd

*Critical Care* 2009, **13**:422 (doi:10.1186/cc8122)

As a busy intensive care unit in a district general hospital in the UK, we are intrigued by the worst-case scenario plans for swine flu in our region and the ubiquitous algorithms that form part of this planning.

A Department of Health document suggests for the purposes of planning that, during a first major UK pandemic wave, the peak clinical attack rate per week would be 8% [1]. Of these patients, the hospitalization rate would be 2% – and 25% of these would require intensive care if the capacity exists.

Our hospital serves a population of 220,000. In our region, these estimates suggest that 352 patients will require hospital admission each week during the peak. Using these calculations, we could expect 88 patients per week to require intensive care unit support.

In this hospital, there is the capacity to provide mechanical ventilation to 25 patients (utilizing all ventilators and anaesthetic machines). Clearly, as this is primarily a disease affecting the respiratory system, demand for mechanical ventilation could vastly outstrip supply.

This lack of equipment will mean either severe rationing of treatment or obtaining more ventilators from an external source. At a time of heightened national demand, the latter is unlikely to be achieved.

In the polio epidemic of the 1950s, patients were manually ventilated by medical students and anyone else on hand as the small number of cuirass ventilators was rapidly overwhelmed by clinical cases [2]. When we receive our 26th mechanically ventilated patient, rather than being unable to provide positive pressure ventilation, we propose – in a worst-case scenario – a return to basics.

Our solution to this problem is to order 200 disposable bag–valve masks with adjustable positive end-expiratory pressure valves. This solution is conveniently a cost-neutral approach to the single organ support as we already use disposable bag–valve masks throughout the trust. Clinical

staff are fully trained in their use, and support staff and relatives could be utilized. Any excess stock could be used as part of normal resource turnover.

A similar issue might occur with the requirement for renal replacement therapy in large numbers of patients. In this scenario, perhaps a similar solution would be a return to continuous arteriovenous haemodiafiltration – which requires only a simple disposable item rather than the complex and limited resource of haemofiltration machines.

## Competing interests

The authors declare that they have no competing interests.

## References

1. **Swine Flu UK Planning Assumptions** [[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_102892](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_102892)]
2. Wackers G: **Modern anaesthesiological principles for bulbar polio: manual IPPR in the 1952 polio-epidemic in Copenhagen.** *Acta Anaesthesiol Scand* 1994, **38**:420-431.