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Flawed recommendations on surface hygiene within the existing Interim Influenza Pandemic National Infection Control Guidelines

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Abstract

The Interim Infection Control Guidelines for Pandemic Influenza in Healthcare and Community Settings, published by the Australian Commonwealth Government in 2006, have been reviewed and found to contain recommendations that, if they were made by a private organisation, would be potentially illegal under the Therapeutic Goods Act 1989, and also raise some concern in relation to occupational health and safety. The guidelines also fail to recommend the use of disinfecting products with specific claims relating to influenza virus that have been approved by the Therapeutic Goods Agency.

In 1996, the Australian Government through the gazetting of Therapeutic Goods Order Number 54, 1996 (as amended), introduced a range of controls over the disinfectant market in Australia. During the following year, all states of the Commonwealth formally ceded their powers in this area to the Australian Government. The Therapeutic Goods Administration (TGA) administers the regulatory scheme, which was augmented in 2002 with the Medical Devices Regulations (2002) to cover not just the higher risk products under a uniform international scheme, but also to bring under control even the cleaning products intended for use within healthcare. The TGA, through a range of instruments, also controls the label claims of all products in this category, and for any of the products intended for use exclusively within healthcare, this is a pre-market scheme. In practice, this means that any therapeutic claims (such as efficacy in disinfection of, for example, influenza virus) are required to be approved by the TGA, and that in order to gain TGA approval, the manufacturer is required to submit fully validated test data for review. It is therefore particularly strange that the Australian Guidelines for Infection Control within the context of an influenza pandemic1 do not even mention the TGA as the regulator of therapeutic goods. The recommendations contained within these guidelines for surface disinfection focus generically on alcohol and chlorine as active materials. There are four areas of concern over the recommendations as they are currently framed. The affirmation of these guidelines by distinguished authors2 lends weight to the opinions expressed within the guidelines, but fails to address the legal requirements of the Therapeutic Goods Act or allow for a hierarchy of control so important in managing risk, and particularly risk in occupational safety.3

First, there is the equity problem of unqualified recommendation of products by brand name within the official interim guidelines where the opportunity of consideration of legal alternatives is not provided. The products named are chlorine-based disinfectants without any specific approved claims (e.g. for killing of the influenza virus on surfaces). The most galling situation is the specific recommendations superimposed, wherein information is provided by the guidelines which if repeated by the companies involved would be strictly illegal under the Therapeutic Good Act 1989. These guidelines as they stand are very good for the company named, but deny equity to all other companies, even when some other companies have products registered and accepted to kill influenza virus, information that the named products do not have on their official labels.

Second, while the strengths recommended for disinfection (1000 ppm or 0.1%) would not be classifiable as hazardous under the Australian Occupational Health and Safety regulations,4 such solutions are not available off the shelf. In the case of liquid chlorine, the actual disinfectant solution will be prepared by dilution of a significantly higher concentration solution. Such solutions are highly corrosive and classifiable as both a hazardous substance and a dangerous good under Australian Occupational Health and Safety regulations. Sodium hypochlorite solutions are also notoriously unstable with respect to loss of active chlorine, and therefore a means of analysing for active chlorine is essential to ensure a correct working dilution.

Solid chlorine (sodium dichloroisocyanurate), although more stable than liquid chlorine, is also a hazardous substance (irritating...
to skin and eyes, and the respiratory system). It is also a powerful oxidising agent (classified under the Australian Dangerous Goods Code as a class 5.1 oxidising agent). There is therefore a workplace requirement to segregate this material from certain other dangerous goods (e.g. class 3 flammable liquids such as alcohol). By contrast, many hospital grade disinfectants with TGA approved claims relating to influenza are not classifiable as hazardous substances or dangerous goods.

Third, the recommendation for use only of chlorine-based disinfectant, at 1000-times the strength of what is used in swimming pools, is completely impractical. During a pandemic, the need for surface disinfection is not limited to clinical areas. For example, a patient waiting room will be a mixed environment with fabrics, carpet, magazines, chairs and other objects that may become contaminated by droplets or fomites from a coughing and sneezing viremic patient. The use of chlorine-based disinfectants may also affect safety measures such as the fire resistance of upholstery. Clearly, the inexpensive option of a chlorine-based solution will be likely to lead to damage that far outweighs the initial cost of purchase. This is so unnecessary when there are products registered to kill influenza virus on surfaces, which are not corrosive, are non-staining and are safe to use when used as directed on the approved label.

Fourth, the unpleasantness and impracticality associated with use of chlorine products at this strength will likely also lead to incorrect, insufficient or inappropriate non-use. This elevates the recommendations to the level of the absurd. It is human nature that unpleasant tasks are avoided. The problems with hand washing compliance are a case in point. Widespread non-compliance with the recommendations will almost certainly lead to the psychological phenomenon known as ‘normalised deviance’ and in fact raise the risk of transmission via contaminated inanimate surfaces.

Readers should be aware that this is not at all a fanciful problem, as evidenced by the findings on the last two major pandemics that affected Australians. (i) SARS, involving a coronavirus, was spread and its virulence increased via inanimate surface spread. (ii) The 2007 outbreak of equine influenza occurred primarily due to a breakdown in surface disinfection within the quarantine process, which saw the virus escape quarantine via inanimate objects taken out of quarantine by humans and then infect other horses. The Honorable Ian Callinan, who led the Commission of Inquiry into the Equine Influenza outbreak, said about the outbreak:

‘I find that the most likely way that the virus entered the general horse population is by its escape from infected horses at Eastern Creek Quarantine Station on contaminated person or persons or equipment leaving the Quarantine Station and coming into contact with a horse.’

The current Interim Infection Control Guidelines for Pandemic Influenza in Healthcare and Community Settings (2006) make the point that the human influenza virus does remain viable on surfaces for up to 48 h.

The problems that have arisen in the guidelines could have easily been avoided through a consultation process in accordance with the accepted Council of Australian Governments recommendations. A consultation process with the stakeholders involved in this sector would have pointed the authors back to legislative process and included the correct references to the regulator. The corrections are quite simple.

Recommendations

(1) Remove all reference to company brand names.
(2) Recommend use of only TGA approved hospital grade disinfectants with label claims noted against influenza virus on surfaces.
(3) Refer inquirers with questions on specific products to the online portal for the Australian Register of Therapeutic Goods for information regarding the general approval status of products being recommended by category.

At the present time, the Australian Infection Control Guidelines are undergoing a major revision by the Australian Commission on Safety and Quality in Health Care, and this revision offers an opportunity to bring the Australian Infection Control Guidelines in line with not only global best practice, but with Australian Therapeutic Goods legislation. In this respect, it is perhaps advisable to include both regulators and industry representatives alongside clinicians while drafting such guidelines. It is also highly recommended that all guidelines should be reviewed by the relevant governmental agencies for compliance with existing and upcoming legislation.

References

1. Australian Government Department of Health and Ageing. Interim infection control guidelines for pandemic influenza in healthcare and community settings (June 2006). Canberra: Commonwealth of Australia; 2006.
2. Collignon PJ, Carnie JA. Infection control and pandemic influenza Med J Aust 2006; 185: S54-7.
3. Australian Government. National code of practice for the control of workplace hazardous substances: National Occupational Health and Safety Commission. Canberra: Commonwealth of Australia; 2007.
4. Australian Government. Approved criteria for classifying hazardous substances, [NOHSC:1008(2004)]. Canberra: Commonwealth of Australia; 2004.
5. WorkCover NSW. Storage and handling of dangerous goods, code of practice 2005. Gosford: WorkCover NSW; 2005.
6. Communicable Diseases Network Australia. Interim guidance for aircraft cleaning when H1N1 influenza 09 (human swine influenza) is suspected in a passenger or crew member. Canberra: Communicable Diseases Network Australia; 2009.

7. Health Department of Hong Kong. Investigation SARS. Summary of findings. Hong Kong: Health Department of Hong Kong; 2003.

8. Hong Kong Government Information Centre. Amoy gardens outbreak case study. Hong Kong: Hong Kong Government Information Centre; 2004.

9. Callinan I. Equine influenza: the August 2007 outbreak in Australia. The report of the inquiry. Canberra: Commonwealth of Australia; 2008.