Editorial: The risk of anthrax and smallpox in Australia

The world has changed since the September 11 terrorist attack on New York. Bioterrorism has raised its spectre and globally, anthrax false alarms and worse, deliberate hoaxes, have placed an enormous burden on emergency services and public health systems. The threat of anthrax has highlighted the importance of a multi-disciplinary and high level inter- agency approach to all biological emergencies so that security intelligence is wedded to health intelligence and that the lessons learnt from disaster management can be used when dealing with such events.

The threat of biological terrorism in Australia is low. Evidence supporting a domestic source of the anthrax letters in the United States (US) further reduces Australia's risk.[1] In spite of this intelligence, community anxiety since the first case of inhalational anthrax was confirmed in the US on 4 October has led to a need for information and reassurance. Health departments have been inundated with calls from people seeking information about the disease, what they should do to protect themselves and the availability of vaccination against anthrax and smallpox. In Australia, public health professionals and emergency services personnel have worked hand in hand to manage 'white powder' incidents. Health authorities have also acted quickly to build on existing plans to deal with anthrax and other threats, however unlikely.

Despite the high number of white powder incidents reported in the Australian media no anthrax spores have been detected in any of the samples tested and there have been no cases of anthrax. However, such incidents cause significant anxiety to the people involved and to the public in general. A large component of the work for health professionals is therefore risk communication — reassuring the worried well, providing information to the public should a real incident ever occur, and preventing the mental health consequences of an intangible but implied global threat. General practitioners, State and Territory health authorities and the Commonwealth Department of Health and Ageing Care (formerly Department of Health and Aged Care) have already played a key role in reassuring people and providing reasoned responses to inquiries.

Australia's federal system of governance means that a response to any biological emergency requires a collaborative process between the Commonwealth, States and Territories. Preparedness planning to meet the challenge of new and emerging infectious diseases, including those released deliberately, should build on existing disease and disaster surveillance systems and infrastructures. The Communicable Diseases Network Australia and the Public Health Laboratory Network have been working towards strengthening surveillance systems, outbreak response capacity and laboratory technologies for the early detection and confirmation of all infectious diseases of public health importance as recommended by the National Communicable Diseases Surveillance Strategy, 1995.[2] More recently, both networks have been working towards finalising a revised set of disease case definitions, including those for biological agents that have the potential to be used as weapons. In addition, strong communication linkages with other government agencies and the general public are required and are being actively pursued.

Anthrax

Public health professionals have drawn on the international literature on anthrax and other biological agents, especially advice from the US Centers for Disease Control and Prevention (CDC), the World Health Organization (WHO) and the UK Public Health Laboratory Service, as guides to policy development, adapted to meet Australia's needs. Anthrax treatment and post-exposure prophylaxis guidelines have been developed as a consensus document between public health physicians, microbiologists and infectious diseases specialists and endorsed by Australia's Chief Health Officers and Directors of Public Health services. Work is progressing on other public health and clinical protocols.

Agreement has also been reached that primary care providers should not prescribe or supply chemoprophylaxis in the event of suspected anthrax. Instead they should notify their local, State or Territory public health unit immediately by phone for advice about referral for diagnosis and further management (see contact details for State and Territory health authorities on the Anthrax Fact Sheet at: http://www.health.gov.au). General practitioners should not supply individuals requesting a contingency supply of antibiotics for treatment or prophylaxis, in order to prevent inappropriate use of these antibiotics.

Health authorities in all jurisdictions have taken steps to ensure that Australia has adequate supplies of essential antibiotics in the case of an emergency. The Commonwealth is working with pharmaceutical companies to ensure supply continuity.

Anthrax vaccine is not registered for use in Australia.

Smallpox

Initial indications that the US Government intended to procure 250-300 million doses of smallpox vaccine for mass vaccination appears to have been modified following expert advice, both international and from within the US. Existing vaccines have proven efficacy but also have a high incidence of adverse effects. The risk of adverse events is sufficiently high that mass vaccination is not warranted if there is no or little real risk of exposure.

World Health Organization guidance[3] is that vaccination of entire populations is not recommended.

Nowhere in the world has there been a smallpox release and, despite the USA's announcement to develop a new vaccine supply against a possible bioterrorism incident, no country in the world is routinely giving smallpox vaccine to its citizens. DA Henderson,[4] interviewed on the SBS program *News Hour*,[5] agreed with the WHO guidance that case detection, post-exposure vaccination and 'ring fencing' an outbreak were the appropriate responses to the reintroduction of smallpox. This approach is the basis of the CDC interim smallpox response plan announced on 26 November.[6,7] Unlike many communicable diseases,

smallpox is not transmissible during the incubation period so cases only become infectious when they develop symptoms, hence the effectiveness of search and containment of cases during the global eradication program. In addition, post-exposure vaccination can prevent smallpox even after exposure to the virus.[3]

The calf lymph-derived live smallpox vaccine that was used in the WHO smallpox eradication program, is associated with a post vaccinal encephalitis rate of 3–4 per million primary vaccine doses. Forty per cent of cases are fatal and some patients are left with permanent neurological deficits.[8] In addition, progressive vaccinia occurs among those who are immunocompromised and there is no smallpox vaccine available today with proven safety for use in this group of people. HIV/AIDS was unknown when the last doses of smallpox vaccine were administered in the 1970s. Unlike today when the risks far outweigh the benefits, mass vaccination was used to eradicate smallpox globally and the last case of naturally acquired smallpox occurred in Somalia in 1979.

Due to the eradication of smallpox, Australia has no smallpox vaccine available currently and there is no indication for vaccinating the Australian public against smallpox. However, as a precautionary measure, the Commonwealth Department of Health and Ageing has had discussions with international agencies to secure access to vaccine in the most unlikely event of a smallpox incident. Finally, in the unlikely event that smallpox was re-introduced, Australia needs to be well prepared to implement a strategy of surveillance, quarantine and vaccination. WHO has pledged to support any country in controlling smallpox should it occur as the incident would be considered an international emergency. WHO will help countries to pool available resources so as to contain the disease as rapidly and effectively as possible.

Fact sheets on the Internet

For the assistance of doctors there is now a comprehensive guide to dealing with patients' inquiries posted on the Commonwealth Department of Health's Website at: http://www.health.gov.au.

This guide covers enquires by patients, patients presenting with clinical symptoms, requests for diagnostic testing, and links to Fact Sheets on anthrax and smallpox. There is also a list of contacts for public health authorities around Australia.

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References

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3. Statement WHO/16 2 October 2001 Statement to the press by the Director-General of the World Health Organization, Dr Gro Harlem Brundtland — World Health Organization announces updated guidance on smallpox vaccination. http:/www.who.int/inf-pr-2001/en/state2001-16.htm
4. Professor Henderson is a distinguished academic at the Johns Hopkins University, holding an appointment in the Department of Epidemiology. Prof Henderson directed the World Health Organization's global smallpox eradication campaign (1966-1977) and helped initiate WHO's global program of immunisation in 1974. He is currently Director of the Office of Public Health Preparedness at the Department of Health and Human Services in Washington, DC.
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6. Laura Meckler, Associated Press, 27 November 2001. CDC releases Smallpox Response Plan. http://news.excite.com/news/ap/011127/08/attacks-smallpox
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