



Plague Anatomy:

Health security from pandemics to bioterrorism

Executive summary

At the beginning of the 21st century the world has already experienced a number of serious infectious disease threats including SARS, avian influenza, pneumonic plague, Marburg virus, and HIV. We now face the threat of an influenza pandemic.

This strategy paper argues that public health surveillance of, and response to, emerging infections and biological terrorism are closely related. Biological terrorism sits at one end of a continuum of biological threats to our health and wellbeing. At the other end are located pandemics of infectious disease like influenza and HIV/AIDS, which still sweep away millions each year. Somewhere in between lie emerging and re-emerging infectious diseases like SARS, West Nile virus, Marburg virus, Ebola, and bird flu, as well as a growing list of infections becoming resistant to antibiotics. Compared to all these, biological terrorism is a much more unlikely danger. Nevertheless, the covert release of a biological agent into a civilian population has fearful potential that has long been recognised.

Disease and security

One of the looming challenges to Australia's national security is infectious disease. The argument that infectious disease threatens Australia's national security rests largely on the proposition that the health of Australia's population is a critical resource, vital to the stability and growth of the nation, and that the control of foreseeable risks and the maintenance of a healthy and productive population is one of the government's prime responsibilities.

Today, Australia is faced by a three-fold threat. Firstly, the persistence of a wide range of infections within Australia. Secondly, the threat of emerging or re-emerging infections 'invading' Australia via the medium of travel or trade. Finally, there is the continuing threat of a bioterrorist attack.

In addition to the risks we face directly is the prospect that our neighbours will be further weakened by disease threats. Infectious disease can place enormous strains on local economies, reduce trade, and even the

capacity of the state to meet the demands of its own security and law and order. Infectious disease can compound the problems of our most vulnerable neighbours. Those states at most risk of becoming failing states face the daunting prospect of managing the impact of new infections, like HIV. The experiences of sub-Saharan Africa tell us something of how this pandemic can savage societies, trapping vulnerable states in a cycle of poverty and under-development.

Emerging infections

Hardly a week goes by without evidence of the appearance of ‘new’ or re-emerged infections. Many of these are zoonotic or animal infections, long present in wildlife reservoirs. In Australia, infectious disease continues to play an important part as a mortality and morbidity factor and a number of zoonotic infections remain poorly controlled. The problem is being compounded by the growing list of drug resistant bacteria and viruses. The promise of an era free of disease, apparently within our grasp in middle of the 20th century, has proved illusive.

The problem of zoonotic infections—diseases that occur naturally in animal populations but can cross the species barrier to infect humans—has become increasingly apparent over the last four decades. Probably 75% of emerging human diseases are caused by zoonosis. SARS, HIV and the H5N1 strain of avian influenza underscore the importance of these diseases to the state’s wellbeing and prosperity, and ultimately its stability.

The impact of pandemics

There would seem little doubt that globalisation has transformed the world, and that with increasing interconnectedness between states and increasing trade and travel, health has ceased to be ‘national’ and become ‘international’. Infectious disease is now just a plane journey away, and it is no longer possible to protect Australian citizens without addressing infectious disease

elsewhere in the world. The revolution in cheap air travel brings with it its own concerns. With more than 1.5 billion airline passengers carried annually to all corners of the globe, the safety that was once inherent in Australia’s geographic isolation has disappeared.

In parts of Asia HIV has taken hold and threatens to spread through our small Pacific neighbours. Should we fail to halt its spread, the consequences will be felt for at least a generation. Australia’s interests are directly engaged by this threat, which has the potential to wind back whatever progress has been made over the last three decades.

The risk of bioterrorism

The threat of bioterrorism continues to concern the Australian Government. A variety of possible biological agents and delivery mechanisms are considered here, including the use of humans as ‘vectors’ of disease, the use of a local endemic infectious agent, and the possibility of the use of a virulent respiratory infection.

Biological agents have several characteristics that makes them attractive as weapons and the technical expertise needed to develop bio-weapons is not especially demanding. Advances in science and the growing list of attempts to employ biological weapons gives us no cause for complacency.

The challenges for Australia

Faced with a ‘new era’ of infectious disease and the threat of bioterrorism, how well prepared is Australia and what responses might be considered? This paper briefly considers the surveillance and preparedness programs in place, as well as issues of control, cooperation and collaboration. It then considers particular issues of response and containment, such as quarantine, the provision of antiviral drugs and vaccines, the impact on the healthcare system, and the management of human fear.



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Peter Curson is Professorial Fellow in Medical Geography and Director of the Health Studies Program at Macquarie University. A former Dean of the Division of Environmental & Life Sciences, he has a particular interest in infectious disease and human behaviour and in the emergence and spread of new infections like SARS and Bird Flu. He has written extensively on infectious disease and Population- Health-Environment interactions, including books on Plague; Epidemics in 19th Century Australia; Population and Disasters; and Climate Change and Human Health, as well as carrying out a number of applied studies in the general area of Medical Geography and Public Health.



Brendan originally joined ASPI as a seconded officer from the Department of Defence to assist establish the Institute, and also has the role of company secretary. With most of the foundation work completed he has taken responsibility for developing a program of initiatives under the Outreach banner, on contract with ASPI. His prior experience in Defence included work in strategic policy and force structure development.

Brendan joined the RAAF as a trainee pilot in 1987. He has also worked in veterinary and medical research in Brisbane, London and Canberra. He holds a Bachelor of Science degree from Griffith University and an honours degree in Science from the ANU.

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