

# Bioterrorism

## Are we ready?



Stadium Australia

Australia is an unlikely target of bioterrorist attack during the Sydney 2000 Games, but it's a risk for which the country should be suitably prepared, according to Commander Andy Robertson of the Defence Health Service in Canberra.

At a bioterrorism symposium held at Sydney in August by the International Union of Microbiological Societies, Robertson said although the risk was minor, 'even a small-scale attack would be catastrophic, physically and psychologically, and the civil unrest and economic cost would be devastating'.

Robertson said the 2000 Games would bring with it a host of targets that may make Australia attractive to bioterrorist groups. In preparation for an attack – which could involve the release of microbes for diseases such as smallpox, anthrax and plague – Australia was developing a number of preventative and emergency response strategies, which would be at world's best practice by the 2000 Games.

These strategies include regulating the movement of equipment and microorganisms through customs and quarantine, preventing equipment falling into the 'wrong hands' through organisations such as the Australia Group, developing methods of detecting a biological release, stockpiling vaccines and antibiotics and improving communication between government agencies and the medical community.

Dr Annabelle Duncan, chief of CSIRO Molecular Science and a former member of the United Nations Special Commission for biological weapons disarmament in Iraq, says raising awareness of unusual diseases amongst the medical community, and providing the tools for diagnosis, is particularly important.

'Many doctors haven't seen some of these diseases, because they're not particularly common,' Duncan says. 'So we need to raise awareness and provide doctors with information on how they can get assistance or access facilities for diagnosis.'

Robertson said Commonwealth Health and Emergency Management Australia had been developing management protocols and training manuals, and NSW Health was training health and ambulance personnel. In addition, the Federal Government had dedicated \$23 million towards improving the detection, protection and medical countermeasures of the Australian Defence Force.

'By facing these threats now, Australia will be better prepared for a bioterrorism incident or a novel emerging disease outbreak next century,' he said.

*The bioterrorism symposium was part of a series of congresses held at Sydney that covered virology, microbiology and mycology. More articles relating to the congresses will feature in future issues of Ecos.*

Wendy Pyper

## Local candidate for toxin patrol

EARLY last year, scientists from CSIRO Land and Water imported from the United States the only soil microbe known to efficiently mineralise atrazine, the world's most widely-used herbicide. They planned to use the microbe – *Pseudomonas* sp. strain ADP – to help clean up atrazine contamination in Australian groundwater.

Faced by strict quarantine and patent restrictions, however, and a reluctance to introduce a foreign microbe to Australia, the scientists turned their attention to finding a local counterpart.

Amanda Tilbury joined the hunt as part of her honours project with the University of Western Australia Chemistry Department. She discovered more than 40 kinds of bacteria at a contaminated site in Perth and selected four that seemed able to digest and neutralise the pollution. From these, a new strain of *Pseudomonas*, AT2, was isolated.

AT2 has the capacity to reduce the half-life of atrazine from one to eight years to just 5.5 hours. It renders atrazine non-toxic in a similar manner to the ADP strain – by chopping off chlorine atoms. Tilbury says both strains are equipped with three genes necessary to breakdown or metabolise the man-made chemical to its final product, cyanuric acid, which is then used as a nitrogen source by bacteria.

Dr Peter Franzmann of CSIRO Land and Water says if trials in Perth of AT2 are successful, the microbe will most likely be used to clean 'hot spots' of contamination such as atrazine manufacturing sites. Future research will examine the effectiveness of AT2 in breaking-down 2.4.5-T and 2.4-D.

More than 3000 tonnes of atrazine is applied annually in Australia to control broad leaf and grassy weeds. The chemical is highly persistent and its residue remains in soil or water for many years. Its use is under review by Australia's National Registration Authority.

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*Pseudomonas* sp. strain AT2