



Developed nations must not fear sending Ebola help

The anxiety and stigma associated with Ebola are hampering Australia's willingness and ability to help with the control efforts in Africa, argues **Tim Inglis**.

The Ebola outbreak has pitted rational science against fear and superstition. We see this in Africa: the murder last month of eight people working to raise awareness of the disease close to the town of Nzerekore, in southeastern Guinea, is a tragic example. But we see it in the supposed scientific superpowers too.

In the United States, for example, the debate over how the nation should respond is being undermined by media hype and political panic over domestic cases; there are calls for total bans on flights from the outbreak region. And here in Australia, the government is reluctant to send people to help to control the spread of the disease until it can get guarantees from nations closer to the outbreak that those people would be able to receive treatment in the event that they became infected. Worse, health-care workers who voluntarily went to the affected region to help have been criticized on their return to Australia. These people — including a nurse who developed a fever after her return (but tested negative for Ebola) — have been turned on by politicians and the press for putting fellow Australians at risk, despite having followed expert guidance and quarantined themselves.

The threat posed by a few imported cases of Ebola is low: Australia has the procedures, resources and facilities here to minimize the risk of secondary transmission. And other developed countries are willing to accept that risk because they understand the crucial and urgent need to tackle the outbreak in Africa. Mathematical models predict that transmission will continue for many months, even if the rate of expansion levels out soon. The large number of infections clearly increases the probability of exports and that the virus's genome will continue to mutate. The real issue is that the threat to Australia, the United States and other developed countries will be much higher in six months. The best defence is to act now and in Africa.

I believe that Australia could handle isolated cases. Why do politicians and the public not seem to share that confidence? It is true that we do not understand the Ebola virus very well (see page 554), and when science is lacking, the default response to infectious disease is often fear. But before we are too critical, scientists must realize that some of the public and political response is driven by the mystique that we have created around Ebola and other viral haemorrhagic fever agents.

For example, when the outbreak began, several biomedical research centres in Australia promptly established procedures for screening possible cases — all negative so far. Eager to reassure and to show what a good job these public-health labs were doing, we entertained the media outside the high-security labs. The messages were supposed to be comforting, but the

images of staff entering secure facilities in full Tyvek protection suits was anything but. Such footage does little to challenge a popular view informed as much by disaster movies as by molecular biology. In fact, it could have inadvertently made the situation worse and entrenched a national preoccupation with border protection.

Research on Ebola lags behind the clinical need, but much has been learned about its virology, immunology and molecular epidemiology in the past nine months. Here, science can suggest a way to improve the international response. At present, lab resources — including those sent from abroad — tend to be located in disease hot spots. But if we want to restrict the outward spread of the virus, it makes little sense to busy these screening facilities — and new ones to be deployed — with samples that have a high probability of testing positive. We should focus support on rapid turnaround of tests for the field epidemiology teams working at the edge of the outbreak zone.

This would take diagnosis to where patients are most likely to become infected next, rather than sending those people or their blood samples to centres where the disease is concentrated. This could help to steer the countermeasure response to where it is likely to have the most impact. In view of the escalating case load and mortality figures, it is an experiment we should try as a matter of priority.

Crucial to such a response are mobile labs that can follow the disease control teams. My team has one. We have developed and tested a mobile molecular lab in other emerging infectious-disease settings, including epidemic influenza. It is a small technical step to transfer the standard

(fixed) lab assay for Ebola virus RNA to a portable thermocycler device.

Colleagues have volunteered and we are set to test the mobile lab in the tropical conditions of northern Western Australia in the coming weeks. We hope to be working in West Africa by the end of the year.

What will we bring home with us? Unlike clinical staff, we are unlikely to have to have much contact with actual patients. The blood samples we handle could be highly infectious, but I argue that researchers who understand the biology of the Ebola virus have a healthy respect for the occupational safety risks, and know how to mitigate those risks. Australia can therefore make an effective contribution to the control efforts with little risk to her own population.

Past experience has shown me that effective infection control needs a strong grounding in science. Scientists are needed at the front line. The risk is worth it. ■

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