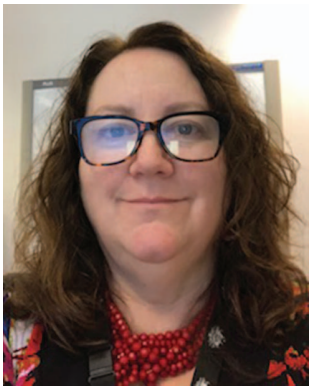
The risk from Security Sensitive Biological Agents (SSBAs) and the need for response



Sandra Gebbie, Alexa Kaufer and William Rawlinson

In 2011, the International Health Regulations Review Committee of the WHO suggested 'The world is ill-prepared to respond to a severe influenza pandemic or to any similarly global, sustained and threatening public-health emergency'. This was presumably partly in response to known threats that had occurred over the previous decade – Severe Acute Respiratory Syndrome (SARS) in 2003, H1N1 pandemic influenza in 2009, avian influenza H5N1 in 2004, and predated outbreaks with Zikavirus (2015–2016), Ebolavirus (2014), and most recently SARS CoV2, the causative agent of COVID-19 (2020).

Although things have moved on since 2011, the difficulties continue in preparing for a biothreat, either natural or manufactured. This includes the nature of such threats – they remain theoretical until proven to occur, manufactured threats (bioterrorism) are covert by nature, and numerous logistic and policy barriers are in place. For example, maintenance of stockpiles that expire before use, politicisation of parts of the response, and the enormously wide range of real and potential biothreats. In some ways, the world can be seen as an interpandemic one, with increasing time between pandemics a feature of the 20th and 21st centuries. It is up to us to design better ways of responding, and planning for response, in going forward.

This edition of *Microbiology Australia* approaches the issue of security, biothreats and possible responses in a broad manner. Important overarching issues, such as what we can learn from past experience (Kaufer *et al*.), how new policy and practice can inform ongoing response (Roffey *et al*.) and how One Health is an important concept linking animal and human health (Brinkley and Eagles), all play into how we see the current COVID-19 outbreak (Howard-Jones and Kok). Since January 2020 our lives have changed with pandemic COVID-19, and our interconnectedness is at the forefront of thinking about control. However, in a post-COVID-19 world, we cannot afford to be complacent about other agents that could, and certainly will, emerge. We must have a national response possible. We must listen to best medical and logistic advice. We must learn from best processes internationally, and introduce these in a transparent manner, allowing constructive evaluation and changes as we learn more. We must have data sharing available internationally, and as scientists and clinicians push back against lack of transparency by governments.

Although the recent pandemic has shown capacity and capability among Australian clinicians, laboratories and research to deal with COVID-19, leading to some success in diagnostic testing and advanced genomics, there is still much to learn. It is striking in looking at many websites now in late 2020 how country-specific the references are, indicating how we still think in national terms. It is remarkable we still do not (and may well never) have data on initial emergence of viruses such as SARS CoV2 and H1N1 pandemic strain. Such accurate data are critical to inform avoiding such mistakes in the future.

Of course we must continue with preparation, maintaining things that work (Gray outlines the successes and demands of proficiency testing programs for preparedness), and examining where additional work is needed. Fred Sanger, winner of two Nobel prizes in molecular biology, said in 1980, 'Through art and science in their broadest senses it is possible to make a permanent contribution towards the improvement and enrichment of human life and it is these pursuits that we students are engaged in'. If nothing else, 2020 has shown we are all students, we all still need to learn, and we all need to respect the truth.