

Public Health



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This issue of *Microbiology Australia* looks at some evolving aspects of microbiology as it relates to Public Health in Australia.

Microbiology laboratories play a significant role in public health ranging from testing of clinical samples (humans and animals) and the testing of food and environmental specimens. Diane Lightfoot reviews the history of the public health laboratories in Australia.

Successful communicable disease surveillance depends on the accurate diagnosis of illness, which is well covered by the diagnostic laboratories throughout Australia. The results of these tests, required for patient management, and then the mandatory laboratory notification of certain results (as required by National Notifiable Diseases Surveillance System (NNDSS)) are the first steps in public health surveillance.

Specialist laboratories do further typing work on a number of organisms for enhanced surveillance and many of these labs are part of the Public Health Laboratory Network (PHLN). John Bates reviews the PHLN, its integral collaborative role in the generation of data of public health significance, the PHLN interaction and member involvement in specialist committees and working groups determining policy and providing advice nationally and internationally.

New technology has a definite place in microbiology and in public health but it is important the results are transportable nationally and internationally due to human and food product movement around the world. Amy Jennison shows how the implementation of Whole Genome Sequencing has been used in outbreak investigations and in improving disease surveillance. Sometimes there can be risks with the implementation of new technology/techniques into the diagnostic field and these have to be monitored for their long-term impacts on public health. Fiona May reviews the increasing implementation of culture independent testing and its potential impacts on public health surveillance, especially, in the area of enteric infection.

There are a number of areas of long term enhanced public health surveillance in Australia. An example of this is the National Neisseria Network whose Australian Gonococcal Surveillance program was established in 1984. It has been investigating antimicrobial

resistance on all isolates of *Neisseria gonorrhoeae* and is the longest running program in the world. These results have been used throughout that time to determine gonococcal treatment policies and the information is provided to the World Health Organization. Monica Lahra, head of the National Neisseria Network, and her colleagues review gonococcal resistance in Australia, while David Speers highlights the new approaches to gonococcal treatment in Western Australia.

The National Neisseria Network also implemented the Australian Meningococcal Surveillance Program in 1994 and there is a review of the changing epidemiology of meningococci in Australia since that time. This is particularly current now with the increase in serogroup W infection and the implementation of vaccination programs by a number of states.

Vaccination has been a major boon to public health. Brendan Murphy and Masha Somi show that perhaps vaccination has become a victim of its own success in a number of illness and how we must not become complacent.

The World Health Organization has acknowledged antimicrobial resistance as a serious threat to global public health that requires action across all government sectors and society. Australia has had a number of programs looking at antimicrobial resistance in specific organisms such as the Australian Gonococcal Surveillance Program. John Merlino reviews further work in antimicrobial resistance in Australia. An article by John Iveson, Donald Bradshaw and David Smith examines the spread of Salmonella into pristine environments.

We are living in an increasingly smaller world and nowhere has this become more obvious than in the nation's food supply. Ben Polkinghorne and colleagues review the impact that OzFoodNet has had in the investigation of food poisoning in Australia, the investigation of outbreaks and also the determination of policy to prevent future outbreaks. Clean safe drinking water is also a very important component of health and Chris Owens and colleagues discuss this in their article on Water and Public Health.

An important aspect of public health is the monitoring of new and emerging public health threats and nowhere do we see this more reflected than with viruses. Sometimes it is changes to our activities and Peter White and colleagues review the fast-growing activity in Australia of going on cruises and the impact of norovirus. Dengue Fever has become a public health issue in both developed and developing countries and this is reviewed in the article by Trine Gulholm and Bill Rawlinson while Ben Kippenberg and Mark Ferson look at Enteroviruses as continuing and further emerging public health threats.

The range of articles in this issue highlights just some of the public health activities occurring to ensure continued good health in the Australian population.