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Tuberculosis in NSW

Tuberculosis, public health and gathering new evidence to guide control efforts

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More than 100 years after the discovery of the tubercle bacillus by Robert Koch, tuberculosis (TB) remains one of the most important public health challenges worldwide. Despite significant achievements in communicable disease control in the last century, the World Health Organization (WHO) estimates that in 2011 there were 8.7 million incident cases of TB and 1.4 million TB-related deaths, as well as an additional 430 000 deaths as a result of TB and human immunodeficiency virus (HIV) co-infection.[1] In Australia, the incidence of TB has fluctuated at around 6.0 per 100 000 population for the last 15 years, with more than 85% of cases occurring in people born overseas.[2] This special issue of the *NSW Public Health Bulletin* reviews the current epidemiology of TB in New South Wales (NSW), showcases the experiences of clinicians in managing difficult TB cases, highlights the public health challenges involved in TB control, and adds new evidence to aid future action towards the elimination of TB in Australia.

The first paper, from the NSW TB Control Program, describes the epidemiology of TB in the state. Lowbridge, Christensen and McAnulty review TB notifications over the past two decades and explain why, despite high rates of treatment success, this disease remains a continued strategic priority for disease control. They focus our attention on two key themes: TB transmission within sub-groups of the NSW population, and the potential threat of evolving TB epidemics in neighbouring countries. These two themes are reinforced and expanded upon by other papers in the issue.

Gilbert and Sintchenko outline new opportunities in deciphering TB transmission chains presented by the radically improved resolution of subtyping and whole-genome sequencing of *Mycobacterium tuberculosis*. It is important to raise public health professionals' awareness about recent advances in pathogen genome characterisation as these methods are becoming available at state public health laboratories and allow inference about the direction of transmission between cases and the prediction of undiagnosed cases.[3]

Britton, Perez-Velez and Marais offer an update on the clinical management of TB in children. They demonstrate that rates of paediatric TB in Australia are comparable to other developed countries, with minimal local transmission and routine post-exposure prophylaxis.

The case studies present emerging issues in TB management and control. Michail summarises recommendations about monitoring for adverse events following anti-TB therapy. Banner shares the lessons she and her colleagues learnt following a contact tracing exercise within a school environment. Fisher, Cook and Marks estimate the costs of contact screening in a neonatal intensive care unit following the incidental exposure of neonates to a health care worker diagnosed with respiratory TB. Vogelnest, a senior veterinarian, presents TB as an emerging zoonotic disease and highlights the need for occupational health programs and screening programs for susceptible species. These reports illustrate the increasing complexity of TB patient management and public health investigations.

Two papers aim to improve our understanding of effective contact investigations, especially in hard-to-reach populations. They add to the body of knowledge about how to prioritise contacts on the basis of the infectiousness of the

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index case, intensity of exposure and susceptibility of contacts. Dobler discusses the findings from a retrospective review of TB contact investigations in NSW. This study demonstrated that only 9% of contacts with positive skin tests received treatment for latent TB infection and advocated for more consistent decision-making and testing strategies for latent TB management. Devlin and Passmore highlight the challenges faced by public health professionals in managing ongoing outbreaks in high-risk communities. Their paper provides important details on the transmission of TB in Aboriginal communities in northern NSW, perhaps the only example of an ongoing local TB outbreak in the state.

The final paper reminds us about the critical importance of TB control interventions in high-incidence countries. Shaw explains Australia's role in promoting and supporting TB control within the Western Pacific Region. This region has been responsible for almost a quarter of the world's TB cases and its challenges of drug-resistance and co-infection with HIV make a strong case for improved engagement from Australia. The author details opportunities for our country to contribute to the *Regional Strategy to Stop TB in the Western Pacific*[4] and to the local TB control capacity building in the region.

The editorial team hopes that this issue of the *NSW Public Health Bulletin* will assist both public health professionals and clinicians involved in the management and control of TB and will be of interest to everyone who is passionate about local and international efforts in TB control.

References

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Notice

This issue of the *Bulletin* marks the beginning of quarterly publication.

Erratum

Typhoid and paratyphoid fever in Western Sydney Local Health District, NSW, January–June 2011 (N S W Public Health Bull 2012; 23(7–8): 148–152).

The paper by Blackstock, Sheppeard, Paterson and Ralph erroneously used the term 'serotype' in some instances where the term 'phage type' should have been used, for example in the sentence "Three *S.* Typhi isolates acquired at large social gatherings in Samoa had the same serotype and susceptibility profiles…" The sentence should have read: "Three *S.* Typhi isolates acquired at large social gatherings in Samoa had the same phage type and susceptibility profiles…" In addition, differences from the locally endemic strain would need to have been shown to "suggest a potential outbreak".

The authors would also like to clarify that, while the results reported in this paper were provided by the NSW Enteric Reference Laboratory, Institute for Clinical Pathology and Medical Research, Westmead Hospital, the phage typing was in fact performed at the Microbiological Diagnostic Unit – Public Health Laboratory, The University of Melbourne.

The *Bulletin* apologises for any confusion resulting from these errors.