

Comprehensive approaches for the detection of *Burkholderia pseudomallei* and diagnosis of melioidosis in human and environmental samples

ABSTRACT

Melioidosis is endemic in Southeast Asia and northern Australia. The causative agent of melioidosis is a Gram-negative bacterium, *Burkholderia pseudomallei*. Its invasion can be fatal if melioidosis is not treated promptly. It is intrinsically resistant to a variety of antibiotics. In this paper, we present a comprehensive overview of the current trends on melioidosis cases, treatments, *B. pseudomallei* virulence factors, and molecular techniques to detect the bacterium from different samples. The clinical and microbial diagnosis methods of identification and detection of *B. pseudomallei* are commonly used for the rapid diagnosis and typing of strains, such as polymerase chain reaction or multi-locus sequence typing. The genotyping strategies and techniques have been constantly evolving to identify genomic loci linked to or associated with this human disease. More research strategies for detecting and controlling melioidosis should be encouraged and conducted to understand the current situation. In conclusion, we review existing diagnostic methodologies for melioidosis detection and provide insights on prospective diagnostic methods for the bacterium.