

# Establishment of Rapid Diagnostic Tests for Melioidosis

## Abstract

Melioidosis, an infectious emerging disease in Taiwan, is caused by *Burkholderia pseudomallei*. Its clinical diagnosis has traditionally depended upon bacterial culture and identification. The purpose of this study is to establish a methodology of analysis of Taiwan's indigenous isolates, including: phenotypic characteristics, biochemical profiles, antibiotic susceptibility profiles; as well as, PFGE profiles, nucleic acid detection, fatty acid analysis, antigen detection, and serological detection methods. We hope that the established methodology could benefit clinical laboratories and local preventive authority. The polyclonal antibody produced by infected animals was used in rapid clinical diagnosis detection. Analysis of 83 isolates by API 20NE and Vitek I showed 98.8 % and 52% accuracy, respectively. However, Gas chromatograph fatty acid system could not detect any mucous-form isolates. In the respect of antibiotic susceptibility profiles: twenty (25.3%) isolates were resistant to trimethoprim-sulfamethoxazole; all isolates were sensitive to amoxicillin-clavulanic acid, ceftazidime, doxycycline, and imipenem. In the serological aspect: 89.5% of confirmed cases showed IgG positive in the beginning of infection; the IgG positive rate increased to 95.5% in half year later. The results demonstrated that IgG was not a good candidate for detection of melioidosis in endemic areas. Using PFGE analysis, it was demonstrated that an outbreak occurred in July, 2006 was originated from the environmental isolates. Besides, one confirmed case (No. 0523) was classified as an imported one from comparison of MLST information.

**Keywords:** Melioidosis , *Burkholderia pseudomallei*, Taiwan, PFGE