

MALDI-TOF comes to Waikato's Microbiology department

Late in 2014 a new identification system was installed in the Microbiology department. The MALDI-TOF is new technology that supersedes multiple conventional methods for the identification of infection causing bacteria and fungi.

This technology is considerably cheaper to operate, 50c per test, and produces results within 60 minutes compared to methods previously used, which cost \$10 per test and took 24-48 hours to produce a result. It also provides more accurate and extensive identification of pathogens.

The end result is better patient management, due to improved ability to accurately and rapidly identify the causative agents of infection, resulting in timely and appropriate treatment.

The following example is a patient case, reported by Dr Chris Mansell

“Mr TH is 71 year old man who presented with fever and haemoptysis, initially presumed to be pneumonia. He was treated with broad spectrum antibiotics (gentamicin, then amoxicillin-clavulanic acid and erythromycin, then roxithromycin and clindamycin). Two out of three blood cultures grew coagulase negative staphylococci. These are common contaminants and may have been disregarded but the MALDI-TOF identified them both specifically as *Staphylococcus epidermidis* and, together with an unusual antibiotic susceptibility pattern, this prompted a search for a plausible site of infection. The patient had a previous heart valve replacement and CT scanning found a leak and haematoma around his aorta. After bronchoscopy to further investigate the suspected pneumonia, an operation was performed to remove some of this periaortic haematoma and staphylococci were again found in two specimens. The species was identified again as *Staphylococcus epidermidis*, which gave enough certainty to the diagnosis of infected haematoma as the cause of the fever and haemoptysis to enable the antibiotics to be narrowed down to flucloxacillin alone. This saved on additional antibiotic costs and indicated that a long course of antibiotics as an outpatient was required.”

The Maldi-TOF was only one part of the large diagnostic armamentarium deployed but having the species name quickly and reliably available from the Maldi-TOF was helpful.