

Sniffing out Bacteria: Non-invasive Volatile Organic Compound Analysis of Patients with Ventilator Associated Pneumonia

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There is a continual need for analytical methods that are non-invasive and hence non-destructive to the sample under analysis. We consider a powerful bacterial typing method that would have immediate patient benefit is to sample the volatile organic components, or volatilome, that is produced by bacteria during growth within the host. As detailed in Fowler [Surveillance for lower airway pathogens in mechanically ventilated patients by metabolomic analysis of exhaled breath: a case-control study. *Thorax* **70** (2015), 320-325] healthcare associated infections, including ventilator associated pneumonia, are difficult to diagnose and treat, and are associated with significant morbidity, mortality and cost. This presentation will detail some of our current steps towards measuring breath volatile profiles from individuals undergoing ventilation on an intensive care unit. Once collected the aim was to classify the patients based on their breath profiles and associate these human-microbial volatilomes with the presence of clinically relevant pathogens in the lower respiratory tract.