

S032

## 2-hour Symposium

### Added value of syndrome-based molecular diagnosis?

#### Respiratory tract infection

K. Templeton<sup>1</sup>

<sup>1</sup>NHS Lothian, Edinburgh, United Kingdom

Community acquired pneumonia (CAP) is extremely common in the UK, with an annual incidence estimated at 5 – 11 cases per 1000 of the adult population, and between 22% and 42% of cases requiring hospitalisation (Lim et al 2009). The mortality of adult CAP patients in hospital is estimated at 6 – 14% and therefore, adult patients presenting to hospital with moderate to severe CAP require immediate assessment and management according to national guidelines. As CAP can be caused by a range of different bacterial pathogens, respiratory specimens from these patients are sent for routine microbiological investigation to determine the cause of infection and patients are given broad-spectrum empirical antibiotic treatment while awaiting results. However, national guidelines emphasise that de-escalation to narrow-spectrum antibiotics should occur wherever possible, especially once a pathogen is identified, because inappropriate antibiotic prescribing has several side-effects, particularly increasing the likelihood of developing *C. difficile* infection.

Unfortunately, current standard diagnostic methods for common respiratory bacteria take 24-72 hours and have low sensitivity. Often actual diagnosis is around 30% with some studies managing to achieve 50%. Therefore, in reality, patients with CAP are treated empirically and changes in antimicrobials are infrequent as diagnosis is too slow or inconclusive. The development of improved diagnostics is therefore integral to national efforts to improve patient care through antibiotic stewardship; reducing the risks of drug toxicity, the emergence of drug-resistant bacteria and *C. difficile* infection.

Over the last decade, the use of molecular methods for pathogen detection has led to a revolution in the field of clinical virology. . The introduction of multiplex real-time polymerase-chain reaction (mRT-PCR) assays into the routine diagnostic virology service enables a specimen to be rapidly screened for a number of viral pathogens in a single reaction with results available in 4 hours. However, although rapid and sensitive molecular methods like mRT-PCR are part of routine diagnosis for viral agents causing respiratory infection, they are not widely used for atypical bacteria (*Mycoplasma*, *Legionella* and *Chlamydia*) and almost never used reliably for common bacterial pathogens such as *S. pneumoniae*. There are huge advantages of making a combined molecular test which can be done in all patients presenting with pneumonia symptoms. The use of this approach in Edinburgh, Scotland has resulted in simplification of diagnostic algorithms, faster results and has enabled patients to be given appropriate management within hours of hospital admission.

LIM, W., S. Baudouin, R. George et al (2009). British Thoracic Society guidelines for the management of community acquired pneumonia in adults: update 2009. *Thorax* 64 (iii) 1-55.