

**P2184 AusDiagnostics Pneumonia 16-plex PCR in comparison with immunofluorescence for *Pneumocystis pneumonia* diagnosis**Daniel Stevenson\*<sup>1</sup>, Penny Cliff<sup>1,2</sup>, John Klein<sup>1</sup>, Meera Chand<sup>1</sup><sup>1</sup> Guys & St Thomas Nhs Foundation Trust, United Kingdom, <sup>2</sup> St Thomas' Hospital, London, United Kingdom

**Background:** The use of polymerase chain reaction (PCR) for *Pneumocystis jirovecii* pneumonia (PCP) diagnosis has emerged as a viable alternative to microscopy. The AusDiagnostics Pneumonia 16-plex platform is a qualitative multiplex PCR with a *P. jirovecii* target. There is no published evaluation of this assay in a clinical setting comparing it to microscopic techniques.

**Materials/methods:** We retrospectively assessed the performance of the AusDiagnostics PCP PCR from November 2016 to June 2018. We defined a case of PCP based on the final diagnosis made by the attending physician, using epidemiological criteria, clinical criteria and radiological features with input from infectious disease specialists, HIV specialists and respiratory physicians.

**Results:** Over the study period 491 individual patient samples were tested using PCP PCR. Thirty-seven patients had PCP PCR positive samples (25 bronchoalveolar lavages and 12 induced sputa), 10 of whom were HIV infected. The result was interpreted as infection in 23/37 and colonisation in 14/37. Treatment was started in 13/23 cases before positive PCR and in 10/23 cases after positive PCR. Four patients with colonisation were also treated in anticipation of planned immunosuppression. In addition, 73 samples were tested with immunofluorescence (IMF): 44/73 were IMF and PCR negative, 23/73 were IMF negative PCR positive, and 6/73 were IMF and PCR positive. One IMF positive sample was interpreted as colonisation and the patient improved without PCP treatment. If we were to consider IMF a gold standard, PCP PCR had a 100% sensitivity and 66% specificity. With clinical diagnosis as gold standard IMF had a 28% sensitivity and 91% specificity.

**Conclusions:** The interpretation of PCP PCR results can be challenging, further complicated by the lack of a true gold standard. The introduction of the AusDiagnostics assay likely led to more patients treated for PCP, but the high sensitivity of the assay highlights that careful test interpretation is required to prevent over-treatment. Immunofluorescence, which many clinicians falsely regard as a gold standard, was noted to have a poor sensitivity.

