

P0026 Syndromic sample to result PCR versus conventional real-time PCR testing for respiratory infections: a clinical study in adult patients

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Background: Syndromic sample to result (SS2R) polymerase chain reaction (PCR) can rapidly identify causative pathogens of respiratory tract infections (RTI). We evaluated diagnostic accuracy, applicability, prescription of antivirals and usage of in-hospital isolation facilities of one of the current rapid SS2R diagnostics, the FilmArray® Respiratory Viral Panel.

Materials/methods: We performed a prospective clinical study among adult patients presenting with symptoms of RTI at the Emergency Department of University Medical Centre Utrecht in the Netherlands during the 2016/2017 viral respiratory season. Clinical data were collected. We compared SS2R results on nasopharyngeal swabs to conventional real-time PCR, calculated turnaround times and explored implementation barriers using questionnaires. Potential clinical benefits were calculated using current guidelines for prescription of oseltamivir and the local protocol for administration of isolation measures plus the virological results from this study.

Results: Sixty-two patients were included (64.5 years [IQR 44.3-75.0]). Sensitivity of the SS2R was 87.5% [95% CI 72.4-95.3] for detection of virus(es) with treatment consequences - oseltamivir prescription for Influenza and application of isolation measurements for Influenza, RSV, parainfluenza or HMPV - and 82.5% [95% CI 66.6-92.1] for detection of all present viruses (n=60). Specificity was 95.0% [95% CI 73.1-99.7]. The SS2R was invalid for two patients. Median time to result of SS2R was 2:06 hours [IQR 1:45 – 3:17] compared to 32:00 hours [IQR 26:50-40:42] of conventional real-time PCR (n=49, p=0.000). Reported benefits were ease-of-use and fast turnaround time (mentioned 5/5 times). A low test capacity with the availability of one SS2R system was mentioned as downside 5/5 times. Calculated potential clinical advantages of using SS2R were increase of correct administration of in-hospital isolation facilities from 31% to 72% and increase in adequate oseltamivir prescription from 16% to 40%.

Conclusions: SS2R testing for respiratory viruses offers a rapid and reliable diagnostic method which can result in more efficient and targeted therapy and in-hospital isolation facilities in adult patients with RTI.