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P0087 Comparison of the Seegene Allplex Respiratory Panel and the FTD Respiratory pathogens 21 assay for the detection of respiratory paediatric infections

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Background: Acute respiratory tract infections (RTI) frequently occur in children and represent one of the leading causes of morbidity and mortality worldwide. Rapid and accurate identification of pathogens is increasingly carried out using molecular techniques, which are often developed for simultaneous detection of multiple targets (Multiplex PCR). Quick and accurate detection can lead to a more appropriate use of antimicrobial treatment as well as timely implementation of isolation precautions. In the last decade, several commercial assays have been developed for the simultaneous detection of respiratory pathogens which substantially vary in formulation and performance characteristics.

The aim of this study was to compare the performances of the Seegen Allplex™ Respiratory Panel with the Fast Track Diagnostic Respiratory 21 (FTD21) assay in the detection of pediatric respiratory virus infections.

Materials/methods: One hundred forty five samples were randomly selected from nasopharyngeal washes collected at the Bambino Gesù Pediatric Hospital in Rome during the fall-winter 2017-2018 season. The samples were tested by Allplex™ and FTD21 assay, according to the manufacturing process workflows. These assays can identified 19 common viral pathogens. Coronavirus HKU1 and Parechovirus are identified only by FTD21.

Results: Overall, 126/145 (87%) samples generate concordant results by both assay: 81 specimens were monomicrobic, 28 were polymicrobic and 17 were negative.

19 of the 145 (13%) samples resulted discordant: 15/19 were polymicrobic specimens concordant for the main pathogen and discordant for pathogens with low viral load; 2/19 samples resulted negative with Allplex and positive by FTD21 (Rhinovirus and Influenza A H1N1p2009 respectively). Finally, 2/19 samples were discordant for the Coronovarirus type: Allplex identified OC43 while FTD21 HKU1. Sequencing analysis confirmed Coronavirus HKU1.

Cohen test showed a high degree of concordance for all pathogens commonly detected by the two assays (k Cohen= 1 for Respiratory syncytial virus, Influenza A, Influenza B and Enterovirus).

Conclusions: Both assays have proved suitable for the diagnosis in pediatric respiratory infections with excellent performance characteristics in identifying common pathogens (100% sensitivity and 100% specificity for FTD21; 98% sensitivity and 100% specificity for Allplex). FTD21 demonstrated a higher sensitivity for pathogens with low viral load.