

## **New and neglected respiratory viruses**

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Acute respiratory infections (ARIs) are the most common infections in humans of all ages, and although viruses cause the majority of ARIs, they are the main reason for overuse of the antibiotics. Without specific viral diagnostics, it is not possible to distinguish between viral and bacterial ARI. Rapid advance of laboratory methods has led to the discovery of new viruses (bocavirus, new coronaviruses), and has enabled diagnosis of laboratory demanding and thus neglected viruses (parechovirus, rhinovirus).

As a part of Croatian foundation project, for two years period, a total of 593 children admitted to the Children's hospital Zagreb and General hospital Karlovac with symptoms of ARI and suspected viral aetiology were tested for 15 respiratory viruses. Nasopharyngeal and pharyngeal swabs were collected and combined in viral transport medium and tested using multiplex PCR. There was 348 boys and 245 girls. Respiratory viruses were detected in 453 (76.4%) patients, in 316 (69.7%) cases as single pathogen detected and in 137 (30.3%) cases in co-detection with other respiratory viruses. The most commonly detected virus was rhinovirus (198; 43.7%), followed by respiratory syncytial virus type A and B (112; 24.7%), adenovirus (92; 20.3%), parainfluenza viruses types 1, 2, 3 and 4 (58; 12.8%), influenza viruses types A and B (45; 9.9%), coronaviruses OC43 and 229E/NL63 (42; 9.3%), human bocavirus (31; 6.8%), enterovirus (26; 5.7%), and human metapneumovirus (18; 4.0%).

The results of this study demonstrate the need for more comprehensive diagnosis of respiratory viruses that include diagnostically neglected pathogens such as rhinovirus, or newly discovered viral pathogens – bocavirus. Rapid and sensitive diagnostics such as multiplex PCR contribute to the quality of health care because it makes possible to avoid prescribing unnecessary antimicrobial drugs and thus avoiding undesirable side effects as well as the development of bacterial resistance.