

# 2017–2018 Influenza Season: viral etiology of acute respiratory infection in a North-East Italian hospital

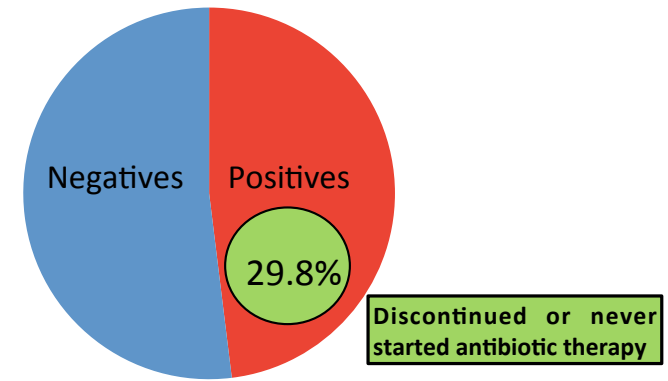
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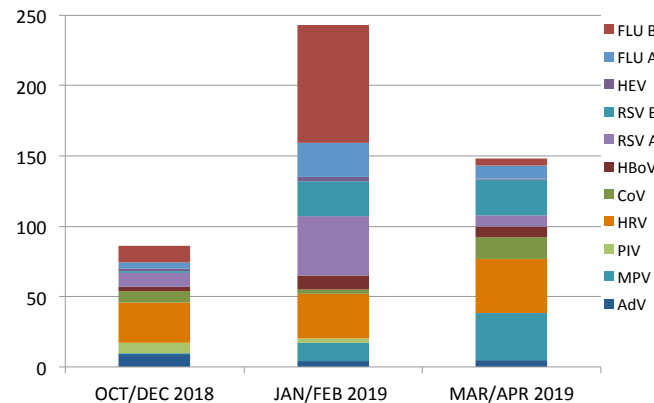
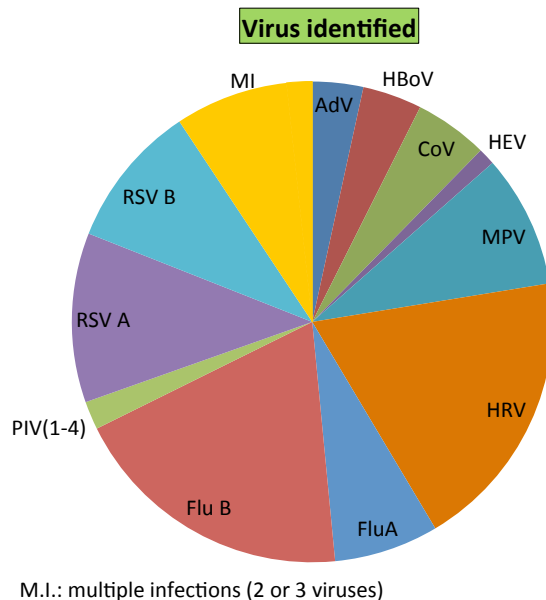
**Background:** Acute Respiratory Infections (ARIs) are one of the leading causes of morbidity and mortality. Although a viral etiological agent is estimated to be involved in up to 80% of cases, the majority of these agents have never been specifically identified. Influenza viruses are one of the main causative agents of ARIs; however, many other respiratory viruses for which insufficient epidemiological information is available can also cause ARIs.

**Materials/methods:** 872 clinical respiratory specimens (843 nasopharyngeal swabs and 29 bronchoalveolar lavage), collected between October 2017 and April 2018 from adult and pediatric hospitalized patients with symptoms of ARI, were tested by Allplex™ Respiratory Panel Assays (Seegene, Seoul, Republic of Korea) detecting simultaneously: influenza virus A (FluA) and B (FluB), adenovirus (AdV), coronavirus (229E, NL63, OC43) (CoV), 1/2/3/4 human bocavirus (HBoV), human enterovirus (HEV), human metapneumovirus (MPV), human rhinovirus A/B/C (HRV), 1/2/3/4 parainfluenza virus (PIV), respiratory syncytial virus A (RSVA) and B (RSVB).

## Impact of molecular diagnostics on antimicrobial stewardship



**Results:** 419 out of 872 patients were positives for at least 1 virus (48%). FluB had the highest number of detections (24.1%), followed by HRV (23.9%), RSVA (14.3%), RSVB (12.2%), FluA (8.8%), CoV (6.2%), HBoV (5.0%), EV (5.8%), AdV (4.3%), PIV (2.4%) and HEV (1.4%), with a bimonthly behavior depending on the type of virus. In 49 out of 419 cases of positivity a co-infection (11.6%) was identified, in particular 40 caused by 2 (9.5%) and 9 by 3 (2.1%) viruses, respectively. The positivity rates, for each class age, were: 44% (0-9), 4% (9-19), 9% (20-59) and 43% (>60) (Table 1). Furthermore, we evaluated that the rapid positive result availability allowed the appropriate patients management in terms of droplets isolation precautions, when necessary, and that in 125 of the 419 positive patients (29.8%) antibiotic therapy was discontinued or never started, with an average saving of about 400 days of antibiotic exposure.



**Conclusions:** Insufficient epidemiological information is available on respiratory viruses and the multiplex molecular assays have the advantage of rapid screening of a large number of potential viral pathogens. We strongly highlight that a rapid identification of a viral etiology in ARIs is critical in ruling out non-viral infections, initiating antiviral treatment, limiting the spread of the infection, reduce the unnecessary antibiotics exposure and the hospitalization time and last but not least add epidemiological information currently lacking.