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Does virus–bacteria coinfection increase the clinical severity of acute respiratory infection?

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This retrospective cohort study investigated the presence of bacteria in respiratory secretions of patients hospitalized with acute respiratory infections and analyzed the impact of viral and bacterial coinfection on severity and the mortality rate. A total of 169 patients with acute respiratory infections were included, viruses and bacteria in respiratory samples were detected using molecular methods. Among all samples, 73.3% and 59.7% were positive for viruses and bacteria, respectively; 45% contained both virus and bacteria. Bacterial coinfection was more frequent in patients infected by community respiratory viruses than influenza A H1N1pdm (83.3% vs. 40.6%). The most frequently bacteria detected were Streptococcus pneumoniae and Haemophilus influenzae. Both species were co-detected in 54 patients and identified alone in 22 and 21 patients, respectively. Overall, there were no significant differences in the period of hospitalization, severity, or mortality rate between patients infected with respiratory viruses alone and those co-infected by viruses and bacteria. The detection of mixed respiratory pathogens is frequent in hospitalized patients with acute respiratory infections, but its impact on the clinical outcome does not appear substantial. However, it should be noted that most of the patients received broad-spectrum antibiotic therapy, which may have contributed to this favorable outcome.

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Infection control survey to examine policies and practices around the use of masks/respirators for influenza and other respiratory infections

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Background: The debate around what is considered appropriate respiratory protection has been renewed since the emergence of new pathogens such as influenza A (H1N1) pdm, MERS-CoV, H7N9 and Ebola. The aim of this study was to examine the policies and practices around the use of masks/respirators to protect hospital healthcare workers (HCWs) from influenza and other respiratory infections.

Methods: A cross sectional survey was conducted in Health Departments and secondary/tertiary hospitals in Beijing (China), Punjab (Pakistan) and Hanoi (Vietnam). Samples of each type of masks and respirators used in the hospital were also collected. Three infectious diseases were selected for this study; influenza (including seasonal, pandemic and avian influenza), SARS and TB.

Results-(Influenza only): Policies - Across the three countries, there is some inconsistency in regards to the types of products (i.e. masks vs. respirators) recommended for seasonal, pandemic and avian influenza. The detail on training and fit testing procedures for the respirator use is not provided in most policy documents. The re-use of masks and respirators are not recommended in three countries. Practices - Amongst the 89 hospitals surveyed, clinical practices around the use of masks/respirators are divergent from recommended practices. The surveyed hospitals from Beijing reported that staffmostly use a surgical mask or a respirator to protect from influenza. Surgical masks were reported to be the most common type used in Punjab. Different types of masks are used in Hanoi for influenza; ranging from, paper/cloth masks, to surgical masks and respirators.Certified respirators are used in few hospitals. Training and fit testing is also not performed in most hospitals. We collected 369 samples of facemask from three countries, and these masks are of various shapes, layers and design. The penetration of particles through cloth masks (median 85.5%, range 66-90%) and surgical masks (median 53%, range 0.4-93%) was very high compared to N95 respirators (median 0.6%, range 0.1-30%).

Conclusion: There is a great deal of inconsistency in regards to the selection and use of masks/respirators recommended for influenza in the three countries studied. Given the variation in quality between the products being currently used, there is a need to develop a comprehensive and uniform policy on facemask use and healthcare facilities should comply with those policies.

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