



Fewer Bronchiectasis Exacerbations during the “Lockdown” for COVID-19 Can We Convert Knowledge into Action?

Commonly circulating respiratory viruses, including rhinovirus, influenza, coronaviruses, enteroviruses, respiratory syncytial virus, and others, exact a huge toll on infected individuals. Although the “common cold” may be the most frequent manifestation, rhinovirus is likely the most frequent cause of community-acquired pneumonia (1), and viral pneumonias account for one-third of severe pneumonias (2). Respiratory viruses are also responsible for a large percentage of chronic obstructive pulmonary disease and asthma exacerbations, and even seemingly uncomplicated respiratory virus infections trigger thrombotic events such as stroke and myocardial infarction. It has been estimated that over 150,000 deaths per year in the United States and 3 million worldwide are the direct result of viral respiratory infections unrelated to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (3).

In parts of Asia, including Japan and China, it has long been considered polite to wear a mask when suffering from a “cold” and interacting with others. Public health experts have long recommended that those suffering from viral respiratory infections refrain from working with others. Although population-based data supporting mask wearing and physical distancing have been lacking, the SARS-CoV-2 pandemic has demonstrated the validity of these practices. Data from around the world have demonstrated low rates of influenza, respiratory syncytial virus, chronic obstructive pulmonary disease exacerbations, and other respiratory infections, correlating with institution of public health interventions designed to minimize community transmission of SARS-CoV-2 and concomitant increases when these measures are relaxed (4–8). In this issue of the *Journal*, Crichton and colleagues (pp. 857–859) in Scotland sought to determine if public health measures in response to the coronavirus disease (COVID-19) pandemic resulted in a decrease in the frequency of acute exacerbations of bronchiectasis (9). Respiratory viruses can be detected in the sputum of approximately 50% of patients with bronchiectasis suffering from an acute exacerbation (10), so they theorized that exacerbation rates would decline during the pandemic. Patients enrolled from the Ninewells Hospital in Dundee, Scotland, in the European Multicentre Bronchiectasis Audit and Research Collaboration (EMBARC) Registry (11), a multicenter European Union bronchiectasis research registry, were included in this study. Fortunately, the investigators were studying a new bronchiectasis patient-reported outcome tool, the Bronchiectasis Impact Measure (12), during this time, allowing them to assess

chronic symptomatology in addition to exacerbation rates. Self-reported exacerbations were verified by antibiotic prescription records.

The authors enrolled 173 patients; 19 were lost to follow up and 7 died, leaving 147 for analysis. Of these patients, 82% reported leaving their home as little as possible and minimizing contact with others. They compared the frequency of exacerbations and the degree of chronic symptomatology during March 2020 to March 2021 (corresponding with the beginning of the “lockdown” in Scotland), with the same period during the 2 prior years.

Consistent with the authors’ hypothesis, and the experience with other respiratory diseases, the patients in the study suffered fewer exacerbations during the COVID-19 pandemic than during prior years. The mean number of exacerbations declined from 2.08 in 2018–2019 and 2.01 in 2019–2020 to 1.12 in 2020–2021 ($P < 0.0001$ for both comparisons). The number of patients suffering no exacerbations increased from 22.4% and 25.6% in the baseline years to 52.3% in 2020–2021.

There are several strengths of this analysis, including the availability of data from 2 baseline years, in which exacerbation rates were quite similar. This makes it unlikely that the decline in exacerbation rates was related to factors unrelated to physical distancing, such as year to year variation in circulating viruses, including influenza. One could theorize that patients might have improved as a result of being cared for by the bronchiectasis experts who authored the manuscript, as improvements in clinical status have been reported after patients begin care at a dedicated bronchiectasis center (13). However, they found stability of chronic respiratory symptoms from the baseline period to the “lockdown” period, making overall improvement in the status of these patients an unlikely explanation for the decline in exacerbation rates. Another strength was the prospective nature of this observational study, nested within the EMBARC protocol, which resulted in a standardized patient assessment and lessened the potential impact of recall bias.

Some limitations of the study were noted by the authors. There was a relatively small sample size, but nonetheless, the results were robust, lessening this concern. More importantly, it was a single-center study, potentially limiting its generalizability given that the underlying mechanisms and manifestations of bronchiectasis may vary in different countries and races (14). Furthermore, despite the strength of the prospective design noted above, EMBARC evaluations were performed once a year, leading to the possibility of exacerbations being missed. The most significant potential limitation was the possibility that patients were less likely to report and get treated for bronchiectasis exacerbations during the lockdown because of fear of contracting COVID-19, a phenomenon reported widely for other conditions. However, hospitalizations for bronchiectasis exacerbations also declined during the lockdown

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period, from approximately 15% during the 2 prior years to 8.8% during 2020–2021, lessening the concern for this confounder, as it would be expected that patients with severe exacerbations would seek care even during the COVID-19 pandemic.

The evidence is overwhelmingly clear that mask wearing and physical distancing implemented in response to the COVID-19 pandemic have prevented morbidity and mortality related to numerous respiratory viruses in patients with bronchiectasis as well as more common diseases. This demonstrates a potential highly effective tool to prevent disease and economic disruption related to highly incident respiratory viruses even after the COVID-19 pandemic is over. The widespread acceptance of mask wearing in many countries in which it had not previously been the norm and the increased availability of working remotely provide the opportunity to make it the “new normal” for many individuals with acute respiratory infections to wear masks and minimize indoor contact with others. There should be funding of research to verify the benefit of such behaviors in a nonpandemic setting and determine how best to employ these behaviors with minimum disruption to those suffering from acute respiratory tract infections. Public health campaigns should promote these behaviors similar to other public health campaigns, such as antismoking, influenza vaccination, etc. This type of campaign could potentially result in an immediate measurable impact. The results of the “real world experiment” with mask wearing and physical distancing to fight the COVID-19 pandemic should prompt action on the part of public health professionals, clinicians, and political leaders so as to not squander the knowledge gained and the current widespread societal acceptance of these measures. ■

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