Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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COVID-19: Time to embrace MDI+ valved-holding chambers!

To the Editor:

Because of the great transmissibility of the virus causing coronavirus disease 2019 (COVID-19), the use of small-volume nebulizers (SVNs) in these days may constitute a serious hazard.

There is much evidence that pressurized albuterol metered-dose inhalers (pMDIs) with valved-holding chambers (VHCs) are efficient, effective, and associated with less side effects than SVNs for the treatment of obstructive pulmonary exacerbations.[1,2] VHCs help to ensure aerosol delivery in infants and toddlers (3-5 years) and in the elderly or cognitively impaired by means of facemasks and tidal breathing. In older children, adolescents, and adults, aerosols should be inhaled by means of the VHC mouthpiece and well-defined respiratory maneuvers designed to maximize deposition of medical aerosol particle (mass median aerodynamic diameter 1-5 μm) in the lower respiratory tract.[3]

In contrast to many other countries that have replaced SVN bronchodilator therapy with pMDIs with VHCs, the United States has continued to use SVN in asthma and chronic obstructive pulmonary disease.

The main impetus for continuing to use SVNs was perceived financial considerations. Because the MDI unit used to cost about $200 and had to be single-patient use (not reimbursed), it was "clearly more cost-effective" to use the SVN. However, this is true only if one considers the devices and not the true cost of the longer emergency department and often intensive care unit stay. Recent studies showed a significant cost saving with MDIs/VHCs because patients improved faster, were sent home more quickly, and could be taught in the emergency department to use the MDIs/VHCs, thus decreasing early readmission.[4,5]

VHCs have numerous additional advantages including an up to 80% decrease in the upper respiratory tract deposition of inhaled medication, and generation of significantly smaller particles that better penetrate into the lung periphery.[3] Furthermore, they are totally self-contained and do not require an external, expensive, and bulky source of energy.

The current COVID-19 pandemic has been shown to require much greater infection control not only with proven infected persons but even more in unknown, as yet undiagnosed, or asymptomatic COVID-19 carriers.

With continuously operating SVNs, aerosols are released into the room air throughout exhalation. The risk of transmission further increases because SVNs generate a large, potentially "respirable" aerosol mass propelled over a greater distance than the natural dispersion pattern.[6] Recent reports indicated that the coronavirus may be disseminated by airborne transmission.[7-9] Furthermore, the aerosol particles generated by SVNs can stimulate patients' or by-standers' cough reflex, further increasing the risk of spreading the disease.

The change from SVNs to MDIs/VHCs has been going on in Canada for many years. Given the current pandemic of COVID-19, Canadians have further restricted the delivery of aerosol by nebulizers, with Global Initiative for Asthma[10] and many other international authorities following suit. On April 8, 2020, the Food and Drug Administration approved the first generic albuterol inhaler in the United States. This is a major step that promises to make pMDIs/VHCs increasingly favored over SVNs for treating reversible airflow obstruction. It is our view that caregivers worldwide should also adopt the conversion from SVNs to pMDIs/VHCs for bronchodilator therapy.

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The bimodal SARS-CoV-2 outbreak in Italy as an effect of environmental and allergic causes

To the Editor:

We read with attention the very recent Editorial by Navel et al[1] in the latest issue of the *Journal*. The topic intrigued us because we are currently investigating how come Italy is cropped into 2 great coronavirus disease 2019 (COVID-19)-infected macro