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behaviours, such as not obtaining the pneumococcal or influenza vaccine, adopting sedentary lifestyles, and smoking.¹⁰ Individuals who do not know their genotype might require additional education and intervention to mitigate the risk of SARS-CoV-2 infection. As the advocacy for COVID-19 vaccination in people with AATD continues, studies need to elucidate a proven vaccine correlation with SARS-CoV-2 strains.

In the meantime, the protective roles of α 1-antitrypsin on lung structure and function, on preventing acute lung injury and acute respiratory distress syndrome, and especially on inhibiting SARS-CoV-2 infection renders alpha₁-proteinase inhibitor a promising candidate for COVID-19 treatment in select populations.^{11,12} For patients with AATD, alpha₁-proteinase inhibitor therapy might solve two problems with one single action because it is also the best candidate drug for the treatment of COVID-19. As the ongoing pandemic persists in the foreseeable future, we strongly advocate that public health officials and health-care professionals should encourage the population of people with AATD to adopt protective behaviours, including lifestyle changes, pharmacotherapy, alpha₁-proteinase inhibitor therapy, surgery, and other therapeutic approaches in addition to COVID-19 vaccine uptake (panel). Patient-centric educational messages for patients with AATD that emphasise the severity of COVID-19, particularly the potential long-term negative health sequelae, are needed. We must fight to ensure that all patients with AATD, regardless of race, ethnicity, immigration status, income, and insurance status, have access to

essential medications and timely and high-quality care in this difficult time.

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Ongoing asthma management in children during the COVID-19 pandemic: to step down or not to step down?

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A substantial reduction in asthma exacerbations in both children and adults has been seen in many countries worldwide during the COVID-19 pandemic.^{1,2} The cause of this reduction is likely to be multifactorial, but at least partly due to population-level public health measures, such as physical distancing, masking, and hand washing, which reduce broad viral transmission.² This improvement in asthma control poses an interesting clinical dilemma: should clinicians consider tapering

asthma medications in children during the pandemic in the face of good asthma control? Furthermore, if medicines are reduced during the COVID-19 pandemic, should clinicians return to the pre-COVID-19 schedule as respiratory precautions are gradually relaxed?

Before the pandemic, the evidence strongly supported a step-down therapeutic approach in children (aged >5 years) with good asthma control. The Global Initiative for Asthma (GINA) strategy, under usual circumstances,

recommends that step-down treatment for children with asthma could be considered when good asthma control has been maintained for 3 months.³ First-line asthma therapies, such as inhaled corticosteroids, have risks of adverse events, and many young children are likely to undergo spontaneous clinical remission, potentially rendering ongoing therapy unnecessary in the face of good control and low risk.^{4,5}

Conversely, there are many compelling reasons to support ongoing asthma maintenance therapy during the COVID-19 pandemic, even in young children. Tapering asthma medications carries a risk of exacerbations, and the repercussions of a potential visit to the emergency department are higher than before the pandemic due to constraints in health-care resources and risk of SARS-CoV-2 infection acquisition and transmission.⁶ Additionally, some instances of improved asthma control could potentially be misinterpreted due to possible poor perception by caregivers, withholding objective measures (eg, spirometry), and caregiver reluctance to maintain follow-up medical care during the pandemic. Furthermore, a potential benefit of inhaled corticosteroid therapy against COVID-19 morbidity and mortality, extrapolated from adult studies, could be due to inhibition of the inflammatory response and viral replication.⁷ It is unclear how eventual relaxation of public health measures, such as mandatory mask wearing, will affect asthma control and SARS-CoV-2 infection risk.

When faced with this clinical dilemma, a stratification approach based on several key factors might aid the clinician and family in weighing the risks and benefits of a step-down therapeutic approach for children (figure). The first factor is atopic status, such as eczema, food allergy, eosinophilia, serum IgE, and sensitisation to aeroallergens, along with physiological measures, including bronchodilator response and markers of inflammation (eg, high fractional exhaled nitric oxide).^{5,8} Atopic status, along with increased bronchodilator response and airway hyper-responsiveness, predicts likelihood of asthma persistence, risk of asthma exacerbations, and response to inhaled corticosteroids.^{5,8-10} Substantial reductions in asthma exacerbations during the COVID-19 pandemic have also been seen among individuals who are non-atopic.² In general, we suggest greater caution in tapering an atopic child with asthma during the pandemic, even if their asthma is well controlled. The

second factor is baseline risk for poor asthma outcomes, as outlined in the GINA strategy, which includes low pulmonary function, smoke exposure, and previous severe exacerbations.^{3,9,10} As with before the pandemic, tapering asthma medications in a child at high risk should only be done with careful follow-up monitoring. Some features of increased asthma risk, such as low pulmonary function, are also associated with persistence of asthma into adolescence.⁹

Other circumstances might play a role in decision making. For example, in general, it would not be recommended to consider a step-down approach for children in the autumn due to increased viral infection and aeroallergen load.³ Additionally, when children return to school, the likelihood of acquiring other viral infections, such as rhinovirus and respiratory syncytial virus, will resurface; therefore, readjustment of the previous medication regimen should be considered.

COVID-19 has highlighted the need for patient-preference care and for all decisions regarding asthma medications to be made in the context of a shared decision making approach, which reviews the benefits and risks of each method with the family.¹¹ Families might have vastly different perceptions of risks and benefits during the pandemic, and a shared decision making framework allows for family engagement in the

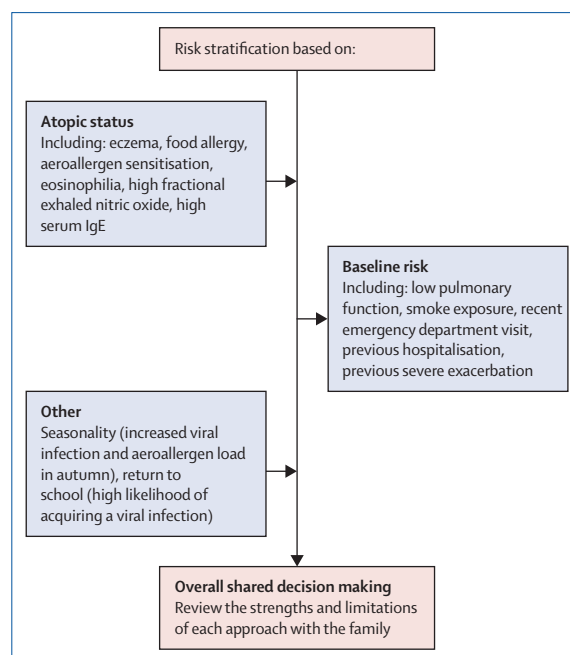


Figure: Considerations for tapering asthma medications in children during the COVID-19 pandemic

care that is received, which ultimately improves patient outcomes.¹¹

No matter what the decision is regarding asthma maintenance medications, a point of focus in asthma care during the pandemic should also be public health strategies—eg, physical distancing—and good management of asthma comorbidities, which will optimise ongoing control.³ COVID-19 vaccination and annual influenza vaccination are both recommended in all patients with asthma who are eligible (ie, aged >12 years with no medical comorbidities), with a gap of at least 14 days between them.³

The GINA strategy recommends that children with asthma remain on their usual asthma medications during the pandemic.³ We suggest that atopic status and baseline risk might be helpful in stratifying those children who could be considered for asthma medication tapering during this time. Additionally, circumstances such as time of year should be taken into account, and public health measures and vaccination should be encouraged. Further research will help to establish whether a more nuanced approach could be considered in pandemic guidance in the future.

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