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Editorial: COVID-19: The second year

The accumulating consequences of COVID-19 in children

As the world staggers to stabilize, let alone emerge, from the physical, emotional and economic turmoil of the continuing COVID-19 pandemic much is left to consider for the health and wellbeing of children who will be the most appropriate cohort to consider in terms of the “long-COVID” analysis [1]. We are now approximately eighteen months into the pandemic and many countries are facing the added challenges of dealing with the more infectious delta COVID-19 variant as they roll out their vaccinations. Some OECD countries are approaching the relative comfort of having a reasonably well vaccinated adult population; with 25.9% of the world population having had at least one vaccine dose but < 1% of people in low-middle income countries [LMIC] having had one dose [<https://ourworldindata.org/covid-vaccinations>; accessed July 17th 2021]. Vaccine donations are often politically mediated rather than needs-based [2], and children are seldom prioritized in these considerations.

COVID-19 is here to stay for some time and we must continue to face its challenges co-operatively and equitably. This emphasizes the importance of praising remarkable achievements such as the development of COVID-19 vaccines in such a short time but accepting, acknowledging and learning from early mistakes, something which is not new in terms of the history of vaccinations. This is exemplified by the role of smallpox eradication following Jenner's work in the late eighteenth century.

Edward Jenner, the ‘father of vaccinology’, experimented in 1796 to develop the smallpox vaccine, a disease which had killed ~ 10% of the global population [3]. Jenner inoculated an eight-year old boy with cowpox and, six weeks later, exposed him to smallpox to demonstrate immunity [4]. Widespread use of smallpox vaccine soon followed. In 1806 Napoleon introduced vaccination for the French army. In 1853 the UK introduced the Vaccination Act mandating smallpox vaccine for all children under 3 months old. Those who failed to comply faced fines or imprisonment. Mandatory vaccination was met with strong opposition and the anti-vaccination movement began to emerge. In 1869 the Leicester Anti-vaccination League was formed and led demonstrations in 1885 prompting a royal commission into compulsory vaccination. A ‘conscience objector’ clause was introduced in 1896 [4]. Two hundred years later, in 1980, the success of Jenner's initial experiment was declared when the WHO announced the global eradication of smallpox, but not without leaving a trail of anti-vaccination sentiment [5]. Even now, in the era of COVID-19, surveys across UK and USA report 13–14% of the population would refuse vaccination and another 6% only accept if mandated [6,7]. Considering a target of 80% vaccination coverage is necessary for ‘herd immunity’, clinicians should be concerned about how the vaccine

roll-out has again sparked conflict between individual autonomy and civic responsibility. In the present era, the role of social media in propagating vaccine misinformation remains concerning in reaching the potentially elusive target for achieving herd immunity.

In this issue of Paediatric Respiratory Reviews we provide some insights into how, after 18 months, the world has responded to the shock of COVID-19 in the mini-symposium entitled COVID-19: The second year. The first paper deals with the practicalities of non-pharmacological initiatives to mitigate the spread of COVID-19 in Brazil and the impact of these on acute respiratory illnesses [8]. Chiapinotto and colleagues discuss the reduced hospital admission rates for bronchiolitis, pneumonia, croup and asthma based on personal aspects of social distancing, better hand hygiene and mask wearing as well as community lockdowns. They speculate on lessons learnt which may encourage forms of these altered hygiene practices to continue in daycare, preschools and schools and why persisting with some of these may be better for the health of children and more cost effective for the delivery of healthcare [8].

The consequences of COVID-19 on the emotional wellbeing of children are explored by Fitzgerald, Nunn and Isaacs who look at what we have learnt about trauma, grief and loss for children during the pandemic [9]. The resilience of children in having to deal with disrupted schooling, changed social interactions and altered family dynamics is considered in relation to the potential for post-traumatic stress disorder. Children's views of safety, security and trust may be challenged and as paediatricians we need to be aware that these altered constructs may manifest for years to come.

Exercise is an activity that many take for granted, regardless of age. Some embrace it and others shun it. Many value its health benefits from a physical and emotional viewpoint [10,11]. For a subset of the population, young athletes, the impact of COVID-19 infection and public health measures, changed sporting training and competition and career pathways are explored by Fitzgerald HT, Rubin S and colleagues [12]. The consequences for athletes of personal and environmental constraints during the COVID-19 pandemic are examined together with a synthesis of practical advice from existing guidelines on aspects of a graded return to sporting participation after competition constraints or actual COVID-19 infection.

Vaccination remains the way forward for the world as we fight to emerge from successive waves of the pandemic. Sharma and colleagues provide a timely update on where we stand with vaccine options in July 2021 [13]. The paper covers the effectiveness as well as the inequity of access to different vaccines. Further, the

progress on variant specific vaccines, age extension trials to incorporate data in children and mixed vaccine schedules are discussed. Data is presented regarding vaccine efficacy, effectiveness and special populations studied for vaccines approved or currently in use globally. Interestingly, developing public policy in response to the pandemic has been greatly benefitted from the mathematical wizardry of modelling in structuring healthcare decisions. This is highly relevant in vaccine programmes. Caldwell and colleagues provide insights into how modelling can be useful in predicting vaccine utility with the emergence of variant strains [14]. The authors illustrate that such modelling data has proven useful in forming school opening policies, likely patterns of infection with variant strains, as well as vaccine uptake likelihood across differing social, educational and economic backgrounds.

As our leaders race ahead with vaccination roll-out in adults, the trends now reveal COVID-19 is increasing in the young, unvaccinated population. Hence attention is now on vaccinating children. More than 85% of Israel's adult population is now vaccinated. Recent data showed just over 50% of COVID-19 cases in the month of June 2021 were in 0–19 year-olds which has prompted vaccination of 12–15 year-olds [15]. Israel is not alone; the UK, Canada and parts of Europe have approved the Pfizer vaccine for > 12 year-olds. However, as we have seen over the last 18 months, the risk of severe disease in children is low. Can we justify vaccination in children when risk is low, vaccine safety data is limited and around the world adults in low-middle income countries still await their first vaccine? Is there a strong enough argument that vaccinating children will lead to decreased COVID-19 transmission and increased herd immunity? Whilst arguments on both sides will begin to mount, as we emerge from this pandemic we must continue to advocate for children.

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