

# Disease and age-related inequalities in paediatric research, funding and communication: Lessons from the COVID-19 pandemic

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## 1 | INTRODUCTION

COVID-19 has already caused millions of infections, thousands of deaths and countless indirect and poorly estimated consequences on other diseases and the global economy. All ages are potentially susceptible, but the virus has had a lower direct impact on children, with fewer severe cases and low mortality rates.<sup>1</sup> However, the reasons for this are still unclear and we cannot rule out children's role in transmitting the disease. The serious impact that restrictive measures have had on children's lives have not been fully considered. Because children are less affected by COVID-19, the scientific community, health agencies and governments have not focused much attention on them during this pandemic.

Unfortunately, the low priority given to paediatrics is not new, as the following examples illustrate.

Every year since it was discovered in the late 1950s, the respiratory syncytial virus has been one of the primary pathogens responsible for bronchiolitis in children. It has been estimated to cause 120 000 deaths a year worldwide. Many more children require hospitalisation and there are long-term consequences for some, including recurrent wheezing or asthma and neuropsychological dysfunction. The effects can also cause post-traumatic stress and disruption for families or caregivers.<sup>2</sup> Despite these numbers, there is very little discussion on this disease by scientists and the media and no community interest means poor research funding. In fact, 80 years after bronchiolitis was first described, there is no vaccine or even effective treatment. In contrast, several vaccines are already being developed for the virus that causes COVID-19.

Paediatric infections related to influenza is another issue that receives inadequate attention. These affect 90 million children under

5 years of age each year, with one million cases of associated severe acute lower respiratory tract infections and 28 000–111 500 deaths.<sup>3</sup> However, although a safe and effective vaccine is available, and recommended for infants over six months, vaccination rates are low in the general population. Greater media attention could surely help to boost vaccination rates.

Another lesson can be learnt from reports in Italy, the UK and USA that children with COVID-19 displayed some characteristics that overlapped with Kawasaki Disease. The European Centre for Disease Prevention and Control has produced a rapid risk assessment document on paediatric multisystem inflammatory syndrome temporally related to COVID-19 or PIMS-TS for short.<sup>4</sup> Only a minority of the affected children had microbiological isolation of the virus, but most displayed serological evidence that they had been infected at some point during the pandemic. However, some bias is involved in this description. Serological evidence of infection in a high burden area has doubtful significance; for example, the Italian area where this syndrome was described had a 65% overall seroprevalence in the community. Also, during the pandemic local health systems have changed their routine procedures, by admitting suspected COVID-19 cases to dedicated hospital. This might have resulted in a higher rate of observations of common paediatric diseases than previous seasons. Lastly, a cause-effect relationship has not yet been proven. However, even if we assume that COVID-19 is associated with this condition, this would not be unexpected. Even though the aetiology of Kawasaki disease and other paediatric inflammatory conditions is not yet understood, there is general agreement that stimulating the immune system triggers uncontrolled responses that generate inflammatory diseases. We know that viruses are the most frequently described triggers in

Kawasaki disease.<sup>5,6</sup> Cases of Kawasaki disease have been described every year for decades, thousands have life-long health consequences and a minority die. However, Kawasaki disease has never had such a high social impact. It seems that there is the more important form related to COVID-19 and the less important form that is not. In fact, Kawasaki disease is one of the rarest and most poorly supported conditions, with fundraising and awareness being driven by parents and not-for-profit organisations. I now expect that funding for PIMS-TS research will be readily available. Hopefully, this will have a general impact on child care in general and on Kawasaki disease in particular.

Last, but not least, I must mention Africa. African governments have implemented good systems to test people living in the main cities and to quarantine contacts and organise lockdowns based on local epidemiology. But the biggest non-urbanised parts of Africa are on their own. Major global organisations are fearful that COVID-19 will have a huge direct impact on the major infectious killers in Africa: malaria, tuberculosis, human immunodeficiency viruses, pneumonia and diarrhoea. Sierra Leone is just one of the countries that has seen the first evidence of the economic and health consequences of the lockdown, with job losses and food poverty,<sup>7</sup> a 50% to 75% reduction in infant vaccinations and reduced diagnoses of tuberculosis.<sup>8</sup> Therapy has been interrupted during lockdown to limit people moving around,<sup>8</sup> and there is insufficient personal protective equipment. In addition, peripheral health systems have insufficient tools to monitor people with telemedicine, provide at home services or monitor and treat the commonest causes of death. The level of clinical and research funding and clinical assistance provided during the first three months of the pandemic have been the highest for decades. They have far surpassed the financial resources allocated to tackle major African killer diseases.

COVID-19 has changed people's daily lives. Smart working has been implemented during lockdown and will continue. Millions of children have been locked down at home, with no idea of when schools will open again and virtually no attention has been paid to child social and psychological health. Children are not performing daily activities, they are losing out on education, spending more time on computers, television and social media and not socialising with their peers. This has particularly impacted low-income children and increased the gap with their higher-income peers. There has probably been an increase in child abuse, an ever-existing problem in paediatric practice, but has remained hidden. Teachers, who are often the first to notice problems, cannot raise the alarm. However, there is no information on these issues. Children are simply forgotten and hidden by COVID-19, unless they are involved in a medically interestingly pandemic-related condition. Bhopal et al<sup>9</sup> evaluated children's mortality from COVID-19 compared with all-deaths and other relevant causes of death. They examined age-specific data on COVID-19 deaths that had been collated from official government sources for seven countries up to 8-19 May 2020: USA, UK, Italy, Germany, Spain, France and Korea. There were 44 COVID-19 deaths reported and 42 846 confirmed cases in those aged 0-19 years. They also estimated there had been 13 200 deaths from all causes, including 1056 from unintentional injuries and 308 from lower respiratory tract infection, including 107 from influenza. Although these data must not underestimate the importance of

closely monitoring the effects of COVID-19 on children, at the same time they highlight that several other conditions require attention to guarantee children's rights to health.

However, there is still time to change the situation. The post-COVID-19 era has two scenarios. The first is a better world that recognises the important role that children play in our future and invests in their future health. The other is the world we had before the pandemic, which does not consider their diseases or invest in preventive strategies and research to defeat major causes of child death. A world that does not invest in their education and does not provide a world suitable for children. COVID-19 is a massive health problem that must be tackled with determination and resources, but the long-term health of children is a vital issue that stretches beyond the virus.

#### CONFLICT OF INTEREST

Nothing to declare.

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