

# Is the effect of COVID-19 on children underestimated in low- and middle- income countries?

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The COVID-19 pandemic has had a huge impact on health and society, worldwide. While most high-income countries are felt to be reaching their COVID-19 peak, most low- and middle-income countries (LMICs), particularly sub-Saharan countries, are anticipating an exponential growth of cases.<sup>1</sup> Overall it has been documented that children are less affected.<sup>2</sup> However, in this commentary we describe how in Kenya, a LMIC in sub-Saharan Africa, COVID-19 is likely to have far-reaching direct and indirect implications on children.

Of all confirmed cases of COVID-19, only around 1%-5% are children.<sup>2</sup> In Kenya, the first case of COVID-19 was diagnosed on 13th March 2020; one month later, six children aged between one and 15 years (2.7% out of 216 total cases) have been diagnosed with the infection according to the Ministry of Health Kenya, COVID-19 Daily Situation Report as at 13th April 2020. Although most have had mild illness, there has been one reported death of a child with underlying comorbidity. As testing for COVID-19 in children is very limited, and children being excluded from mass testing, it is difficult to be confident in the numbers. Collecting nasopharyngeal or oropharyngeal swabs requires the patient to be cooperative, which is difficult to achieve in young children, as well as acute respiratory infections (ARIs), are so common in children that index of suspicion of COVID-19 is low, these pose unique challenges in children. It is

therefore imperative that other methods of estimating the burden of COVID-19 in LMICs may have to be utilised including syndromic surveillance as well as modelling data. However, modelling in COVID-19 has led to different predictions depending on assumptions made.<sup>3</sup> It is therefore difficult to tell which path the pandemic will follow in reality.

Children in LMICs are at risk of developing and dying from severe acute respiratory infections as well as other preventable causes of child mortality including diarrhoea, malaria and neonatal causes. Particular risk factors include malnutrition and immunodeficiency including HIV, low uptake of immunisation services (particularly in rural settings and urban slums), variable housing quality, indoor air pollution, poor care seeking behaviour and barriers to access to affordable high-quality health services.<sup>4</sup> National and local initiatives aligned to global child survival strategies have gone some way to improving these modifiable risk factors, with tangible improvements in outcome, but as resources are directed towards COVID-19, there is a risk that these gains will be eroded as witnessed in the Ebola epidemic in west Africa.<sup>5</sup> The government-mandated lockdown will affect mobility of healthcare workers, patients and families, hindering such efforts further. While currently there are guidelines on resumption of follow-up for children with chronic conditions, the hitherto

suspension of paediatric outpatient clinics,<sup>6</sup> in addition to closure of growth monitoring/ well-child services and a notable reduction in immunisations, children with chronic medical conditions are likely to suffer. In children with chronic illnesses known to affect respiratory outcome, such as sickle cell disease, rickets, HIV and asthma, this lack of follow-up may increase the risk of morbidity and mortality from COVID-19. We do acknowledge there is currently lack of evidence on whether poorly controlled asthma or HIV have impact on COVID-19 in children. As a substantial number of children get COVID-19, this will become clearer.

Social distancing measures have led to closure of schools in Kenya. In the absence of a formal government-led facilitation of alternative learning arrangements, some schools have adopted technology with online interaction with children. While this is welcome, such initiatives may, in fact, worsen inequalities, as children from poor backgrounds may not have access to such resources.<sup>7</sup> Worse still, these resources may not be available to children with special needs. The mental and emotional well-being of children is already threatened by social isolation from friends and relatives, and continuous exposure to bad news about the pandemic and risks of death.<sup>7,8</sup> Schools and peer-group interaction can provide a protective effect in times of uncertainty, and some children will lose this opportunity. The likely mental effects of closed schools on children should be evaluated against the backdrop that, closure of schools may not be an effective method of controlling coronavirus transmission.

The economic effects of the COVID-19 pandemic are also likely to be catastrophic to large sections of the population. About 80% of the total labour force in Kenya works in the informal sector.<sup>9</sup> Current restrictions and uncertainty have led to reduced opportunities and dwindling family income. This will affect poor families the most, particularly those living in urban informal settlements which are common in Kenya and are home to a substantial number of children. The impact of worsening financial hardship on the quality of nutrition, housing, education and social mobility, at a time of rapid physiological and psychological development, are well described.<sup>8</sup> In the short term, malnutrition levels are likely to increase with decreasing food security which will negatively impact further on medical outcomes of these children.

The direct effects of the COVID-19 pandemic on health appear to affect adults mainly. Children, however, are vulnerable to the wider consequences. We hope that the predominance of asymptomatic and mild illness reported in high-income countries<sup>2</sup> applies in LMICs. However, without adequate testing and weak surveillance systems, rates of diagnosis and outcomes of disease are uncertain.<sup>10</sup> What is clear, however, is that the societal effects of the pandemic are likely to be detrimental to a large number of children. In this time of great uncertainty there is need for immediate, country-led multi-sectoral efforts to sustain hard-earned improvements in child health. The national policy discussions to ensure that services for all children are protected must start now and continue to ensure the long-term well-being of children. Continuation of services for interventions that have shown great impact in reducing child mortality

such as immunisation services, delivery under skilled birth attendants, prevention and early treatment of malaria, and Integrated Management of Neonatal and Childhood Illness (IMNCI) should be a priority. Further, tapping into emerging opportunities brought about by strengthening of healthcare system through COVID-19 related response should be utilised to reduce the likely untold effects. Such opportunities include use of telemedicine where applicable, the enhanced infection prevention practices in healthcare facilities as well as increased oxygen delivery capabilities. Lastly, equitable education opportunities, provision of food directly or through cash transfers to the orphaned and vulnerable, are to be explored to ensure mitigation towards the afore mentioned effects. Without such efforts, the generational impact of COVID-19 will be far higher than currently estimated.

### CONFLICT OF INTEREST

The authors declare no conflict of interest.

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