
EDITORIAL**CHILDHOOD IMMUNIZATION AND THE COVID 19 EPIDEMIC:
THE ETHIOPIAN PERSPECTIVE**

Sileshi Lulseged*, M.D, MMed

The population of Ethiopia was estimated at 118 million in 2020; 43.2% were children under 15 years of age [1]. The country has one of the highest under-five mortality rates with nearly one-third of a million children in this age bracket dying every year, three-quarter of them due to pneumonia, diarrhea, malaria, measles, and malnutrition or a combination of these conditions compounded by low health care utilization and immunization coverage [2]. The under-five mortality rate dropped gradually from 244.8 to 50.7 deaths per 1,000 live births over the period spanning from 1970 to 2019, which is a huge achievement though the gains are not up to the global average fall from 93 deaths per 1,000 live births in 1990 to 30 deaths per 1,000 live births in 2019 [3].

As in other developing countries, childhood vaccines provided through the Expanded Program on Immunization (EPI) have substantially contributed to the reduction in under-five mortality in Ethiopia [4]. The EPI program in Ethiopia that was launched in 1980 covered six target diseases (tuberculosis, poliomyelitis, diphtheria, pertussis, tetanus and measles) lacked continued and systematic implementation approaches until 2003, when the Health Extension Program (HEP) was introduced in 2003 and the Reach Every District (RED) and Sustainable Outreach Services (SOS) approaches were initiated in 2004 [5]. Subsequently, much progress was made, and the program expanded by introducing hepatitis B and *Hemophilus influenzae* type B vaccines in 2007, Pneumococcal conjugate vaccine in 2011, and rotavirus vaccine in 2013 [4].

The Ethiopian EPI evolved over the years into a comprehensive immunization program, but much still remains in terms of coverage and equity, particularly in accessing pastoralist and other hard-to-reach populations for which a “reaching every community” approach was adopted by the health system during 2016–2020 [[4–6]. While the country is grappling with the challenges hindering an effective, efficient, and equitable delivery of the current EPI vaccines, it needs to adequately prepare itself to introduce new vaccines on the horizon systematically and safely. Of note, over 20 vaccines are currently at various stages of clinical trial or advanced pre-clinical development, some of which are vaccines against malaria, dengue, neglected tropical diseases (NTDs) are nearly within reach [7]. There are also a number of critically important next-generation (improved) vaccines in development.

*Department of Pediatrics and Child Health, Faculty of Medicine, Collage of Health Sciences Addis Ababa University.
Corresponding author: Sileshi Lulseged, sileshilulseged@gmail.com

There are also a number of contextual factors and barriers to consider in the procurement of new vaccines to Ethiopia which may include, but are not limited to, infrastructure, migration, conflicts and population displacement, lack of data on the burden of disease, health services quality, health workforce density and skills, and logistics, coordination, and surveillance capacity, and most importantly the financing of new vaccines. Therefore, the decision should be based on a systematic review of data on the magnitude of the disease, and safety, efficacy, cost-effectiveness, and programmatic feasibility of introducing a new vaccine. To the country. The process requires strong technical leadership and coordination to select appropriate vaccine products, decide on eligibility and immunization schedules, ensure the availability of adequate and timely budget, establish a monitoring and evaluation plan, and facilitate implementation research [8].

As in many other similar settings, while there is continued and increased pressure to adopt new and improved vaccines and delivery technologies, of course on top of the need to sustain the delivery of the EPI program, Ethiopia is faced with the brutal COVID-19 epidemic. Estimates of the magnitude of the epidemic among Ethiopian children are unknown, but estimates elsewhere suggest figures in the order of 14%-16% [9]. Available evidence has also shown that the epidemic not only adds directly to the stark mortality and morbidity toll in children, but, perhaps more importantly, exerts an immense burden on the health system, and disrupts basic services including immunization programs. As underscored by the United Nations Children's Fund [10], the COVID-19 epidemic has in fact made routine vaccination a daunting challenge, and a further deterioration in vaccine coverage should be averted as we cannot trade one health crisis for another.

In Addis Ababa, where basic services are far better than the other parts of the country, even early in the course of the epidemic, children's wellbeing in terms of food and nutrition, protection and education, and access to basic health services have been impacted [11]. Indeed, although apparently children are less affected by the virus itself, the indirect effects of the epidemic can easily reverse the modest, hard-earned gains in child health outcomes and will have a substantial impact on the growth and development of children with life-long consequences. Inevitably, the most marginalized and deprived children are hit the hardest, further compounding the impact of the epidemic.

To avert the broader impacts of the COVID-19 epidemic in children, mitigation measures which have been instituted need to be strengthened among the population at large. The effort that is underway needs to focus on ensuring that there are adequate amounts of vaccines that

should also be delivered systematically based on a coherent national plan and well-thought-out strategies. Collective effort and strong partnership are essential and the right balance between COVID-19 control measures and losing the gains made in immunization and other basic health programs. Well-designed epidemiological studies are required to identify ways of tackling the many challenges posed by the COVID-19 epidemic and ways of effectively and sustainably delivering child health services, including immunization programs.

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