

LETTER TO THE EDITOR

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Shortage of cholera vaccines amidst rising cases worldwide should worry us all

Bashar Haruna Gulombe*  and Mohammed Bashir Danlami

To the Editor,

Cholera continues to remain a major public health issue, with numerous nations being plagued by the disease annually, mostly in low- and middle-income nations in Africa and Asia. Sub-Saharan Africa has recorded the highest number of cholera cases and cholera-related deaths worldwide from the late 1990s through the first decade of the new century. This pattern has persisted, with a few exceptions, over most of the second decade of this century. Many cholera cases and outbreaks in the region, which can spread to other nations, have a significant negative impact. Africa continues to have a greater rate of reported cholera fatalities than any other region (CDC 2022). On the other hand, Asia is home to around 37% of all WHO-reported cholera cases and 39.0% of projected worldwide cholera cases. The region is still plagued by cholera, which is thought to have originated in Asia and is endemic to that continent (Sack et al. 2021). Together, cholera kills 95,000 people globally, affecting around 2.9 million people. In 2015 alone, more than 172,000 cholera cases and 1300 cholera-related fatalities were recorded in 42 countries (Sack et al. 2021).

Since the beginning of this year, 29 nations have recorded cholera cases, including Haiti, Malawi, Syria and Nigeria, which are dealing with significant outbreaks. Comparatively, fewer than 20 countries, on average, reported outbreaks over the previous five years. This increase in cases across the globe is aggravated by factors such as floods, droughts, warfare, population movements, and other circumstances that restrict access

to clean water and increase the risk of cholera epidemics. This trend toward more frequent, widespread, and severe outbreaks has compelled the International Coordinating Group (ICG), the organization in charge of emergency vaccine supply, to temporarily abandon the two-dose immunization schedule used in cholera epidemic response operations in favour of a single-dose method. Immunity against infection lasts three years with a two-dose regimen when the second dose is administered within six months of the first (WHO 2022).

At a time when cholera epidemics are on the rise globally in an unprecedented way, the strategy shift would enable more individuals to get immunized and gain protection in the short term, should the worldwide cholera situation worsen (WHO 2022). The one-dose approach has been demonstrated to be effective (Azman et al. 2016) and, therefore, efficient in controlling epidemics (WHO 2022)—definitely preferable to giving no doses. However, there is no information on the precise length of protection, and a substantially low level of protection has been reported in children (Qadri et al. 2018). Another limitation of the momentary break in the two-dose plan is that it will result in a decrease and shortening of immunity.

The ICG oversees the world's supply of oral cholera vaccinations and coordinates its usage for emergency response. It oversees the world's supply of oral cholera vaccines. Members of the World Health Organization, Doctors Without Borders, UNICEF, and the International Federation of Red Cross and Red Crescent Societies make up the group. According to the organization, cholera vaccines are currently in a critically short supply. Twenty-four million (up to 66.67%) of the thirty-six million doses anticipated to be produced in 2022 have already been dispatched, with 83% and 17% for reactive

*Correspondence: bashar.haruna@fubk.edu.ng

Department of Microbiology, Faculty of Science, Federal University Birnin-Kebbi, Birnin-Kebbi, Kebbi State, Nigeria



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and prevention interventions, respectively. Moreover, an additional eight million doses were approved by the ICG for the second round of emergency vaccination in four countries, highlighting the severe lack of the vaccine (WHO 2022). Unfortunately, currently, there is no short-term strategy to increase vaccine production since manufacturers are now producing at their total capacity. Additionally, experts believe that the global vaccine industry's combined lack of interest in creating and delivering cholera vaccines is another factor contributing to vaccine scarcity. For example, according to Gordon Dougan, a professor in the University of Cambridge's department of medicine and a member of the board of management at the Wellcome Sanger Institute in the United Kingdom, cholera vaccines have never been a top priority for manufacturers, and in many cases, governments have not engaged. The oral cholera vaccine is inexpensive and relies on wholesale purchases to turn a profit, which is out of the question for the majority of businesses in higher-income nations, he added. The oral cholera vaccine Shanchol has traditionally been produced by Shantha Biotechnics, an Indian division of France's Sanofi. Shantha Biotechnics declared last year that it will cease production of the cholera vaccine by the end of 2022 and distribution by the end of 2023 (Roth 2022). This situation should worry every public health stakeholder, especially as the elements exacerbating the cholera outbreak continue to persist.

The temporary suspension of the two-dose is a short-term plan allowing the leftover doses to be diverted for any needs for the remainder of the year. On the other hand, the ICG and other global health stakeholders will continue to monitor the changes in worldwide cholera epidemiology and vaccine availability. To expand global vaccine production over the long run, an immediate effort is required.

As a matter of priority, countries dealing with the outbreak should work with relevant national and international stakeholders to end the outbreaks. Cholera being a disease that affects poor and vulnerable populations, particularly in conflict zones and places where sanitation and hygiene are lacking (Lancet 2018), ending it requires basic provisions such as clean water and hygiene. Other interventions should include early detection through, for instance, surveillance systems, repositioning crucial supplies, monitoring water sources and mass immunization campaigns, focusing on cholera hotspots through strengthening the capacity of healthcare systems, and efficient coordination of technical assistance and resources at local and global levels GTFCC (2022). The majority of cholera cases in 2021 and 2022 were reported in Afghanistan, Bangladesh, the Democratic Republic of the Congo, Ethiopia, and Nigeria. Therefore, vaccine supplies should be kept up in each of these places.

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