

Discussion

We would like to emphasize several important points. To the best of our knowledge, our study is the first to show that the occurrence of NSIs per number of active hospital activities and NSIs per number of hospitalized patients among HCWs from a dedicated COVID-19 hospital seemed to substantially increase during the COVID-19 pandemic. Only one previous report from a tertiary-care center treating heterogenous population of mostly non-COVID-19 patients reported a decrease in exposure of HCWs to NSIs during the pandemic period.² Our findings are representative of a high-volume tertiary-care hospital treating exclusively COVID-19 patients where HCWs are continuously equipped with PPE, which is probably the main reason for the observed differences. HCWs often experience difficulties in delivering a high level of care to patients while wearing multilayered PPE, and their performance may be affected to a significant degree, especially affecting their dexterity, visual impairment, communication, and risk of injury.^{3–5}

A non-significantly higher proportion of inadequately HBV-immunized personnel experienced NSIs during the pandemic period. This could indicate the higher proportion of nonprepared medical professionals that had to be engaged in the care of COVID-19 patients, which may have additionally contributed to the higher NSI rate.

This study had several limitations. It was a single-center experience with a retrospective study design and relatively small sample size. Nevertheless, our data show that the burden imposed on the healthcare system by the pandemic also resulted in the higher occurrence of NSIs despite a lower overall number of treated patients in the dedicated COVID-19 hospital. Possible reasons for this finding

might include the need for PPE and engagement of inadequately prepared medical professionals. Further studies on this topic are needed to help avoid NSIs and to improve the safety of HCWs.

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Ramifications of coronavirus disease 2019 (COVID-19) on blood donation in Africa: Challenges and solutions

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To the Editor—Blood transfusion is an indispensable life-saving treatment modality used regularly to treat a wide array of diseases, conditions, and emergencies. Blood transfusion has therefore also rightfully found its place on the World Health Organization (WHO) list of essential medications.¹ However, access to blood transfusion components and safe transfusion practices have been elusive to a large portion of the population in developing and underdeveloped countries. A plethora of pre-existing diseases, socioeconomic challenges, and a weak healthcare system have all played roles in the insufficiency of safe blood in Africa. This challenge is evident in the WHO report of 2016, in which the African region contributed to only 5.6% of the 112.5 million blood donations globally, which is disproportionate to the population density of Africa.^{2,3} None of the West African countries have met the WHO benchmark of 10 blood units per 1,000

inhabitants, per the 2016 Global Status Report on Blood Safety and Availability by World Health Organization (WHO). This lag in transfusion services in Africa existed even before the coronavirus disease 2019 (COVID-19) pandemic.²

In the wake of the COVID-19 pandemic, blood donation has fallen by 17% and blood donation drives have declined by 25% in the African region.⁴ These decreases are likely due to the widespread disruptions posed by the pandemic on health services and its effects on daily livelihood. Especially in sub-Saharan Africa, blood transfusion is critical in the management of multiple common ailments including trauma, obstetric hemorrhage, malaria-associated anemia, and neoplasms. Initially this decline in blood donation was not alarming because of a simultaneous fall in demand for blood products. Demand for blood products during the pandemic decreased by 13%, mostly as result of the suspension of elective surgeries and fewer people using health services.⁴

The substantial decline in blood donors could be attributed to a variety of reasons, one being the fear of becoming infected by severe acute respiratory coronavirus virus 2 (SARS-CoV-2) while visiting

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hospitals or other crowded areas for voluntary blood donation. Voluntary non-remunerated blood donation is the strongest pillar for effective blood transfusion service. However, in Africa, most of the population primarily rely on familial replacement and commercially remunerated blood donors. Due to the prevailing poor socio-economic conditions, most donors resort to remuneration, and these donations which has been documented to have a higher incidence of transfusion-transmissible infections than those from voluntary donors. Additionally, mass lockdown in most countries made it difficult for donors as well as staff and volunteers to travel to blood donation drives, camps, and hospitals. Logistics become even more problematic with the need to adhere to strict social distancing and precautionary measures to prevent the spread of COVID-19 while organizing blood donation camps and drives. The fear of possible parenteral spread of SARS-CoV-2 infection through blood among the local population is another potential cause of decreased donations. The pandemic also affected the supply chain of consumables due to governmental restrictions and travel bans. The improper management of components and reagents along with the reduced workforce has led to waste and expiration of the blood components.⁵

To prevent the transmission of SARS-CoV-2 in the African population, the main nonpharmacological methods include avoiding large gatherings and maintaining social distance, which have resulted in a significant reduction in blood donations. At the moment, the imbalance in blood product reserves in various blood banks across the world is attributable to a decrease in supply rather than an increase in demand. Because of the reduction in blood donations, most blood banks are currently undersupplied and vulnerable.⁶ Pregnant women, cancer patients, and transplant patients are usually in critical need of blood transfusions, making the blood demand crisis even more complicated because these patients require specific blood components or products.^{7,8} The maternal mortality rate continues to be unacceptably high in Africa, and this is one of the most important preventable conditions for which blood transfusion is an absolute necessity. Maternal hemorrhage patients require immediate replacement of blood to prevent devastating consequences. Moreover, due to poor access to family planning measures during the pandemic, unintended pregnancies soared by 1.4 million pregnancies among 12 million women from 115 countries.⁹ In a continent with poor healthcare infrastructure, like Africa, the increase in pregnancies could translate to a proportional rise in the requirement for blood products for transfusion. An upsurge in maternal mortality rates could occur as a consequence of depleted blood reserves. Hence, it is imperative to address the paucity of blood products and fewer blood donation drives.

Lack of government resources for national blood transfusion service (NBTS) and a substantial reduction in financing from partners to make safe and quality-assured blood and blood components available to all patients who require them are the main challenges with respect to blood supply in Africa.¹⁰ The challenges for staff include a shortage of human resources due to travel restrictions within the same country and between countries, staff security, along with availability of personal protective equipment (PPE) for every staff member, social distancing during blood donation sessions, and temperature monitoring. To address resource constraints, most NBTSs have undertaken initiatives: (1) advocating for increased allocations from the central government and other nontraditional organizations to support the service; (2) developing

work plans to share with the ministry of health, other partners, and stakeholders; and/or (3) utilizing available funds to implement workplace-related COVID-19 prevention measures as an alternative.¹⁰ Implementation of targeted measures, such as public awareness campaigns on local radio and television, newspapers, social media platforms, text messaging, and direct calls, will help improve the number of blood donations and mitigate potential risks for blood recipients. In addition, transporting donors to and from their homes with authorization from relevant national authorities, as well as provision of sanitary products such as face masks, sanitizers, and soaps will help increase blood donations.

Given the scarcity of blood and blood products posed by the COVID-19 pandemic, it would be heuristically difficult for the countries in Africa to respond to an emergency or to a volatile shift in the healthcare system that might occur in the future. However, this pandemic helps us detect pitfalls in the current blood transfusion practices in Africa, could be embraced as an opportunity to frame and build a secure and well-structured system to maintain an adequate blood reserve for the future.

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