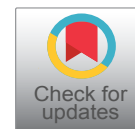




## COMMENTARY

## Effect of COVID-19 Pandemic on Blood Transfusion in Nigeria: Efforts and Challenges

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### Abstract

The deadly Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), caused the ongoing COVID-19 pandemic, which resulted in major disruption in the global health care system at all levels. Nigeria with an increasing population and worsened health indices has been affected massively in every sphere of life including health and economy. This research, the impact of COVID-19 pandemic on blood transfusion in Nigeria, has been able to look at the status of blood transfusion in Nigeria pre COVID-19 pandemic and current situation in the ongoing pandemic; its negative impact on the survival of blood beneficiaries, barriers to blood transfusion due to the current global pandemic which may include fear of getting infected, diversion of government national blood transfusion service attention to tackle the COVID-19 pandemic, and finally ways to improve blood donation amidst COVID-19 pandemic were elucidated; Blood should only be given when there is absolute indication for transfusion. The processing, storage and utilization of blood should also be monitored continuously to avoid shortages. During pandemics, regular communication between the blood banks, clinicians and donors should be maintained. Appointments can be given to potential donors to reduce donor flow to the blood transfusion bay and thus minimize risk of COVID-19 infection.

### Keywords

Blood, COVID-19, Transfusion, Donation, Nigeria

### Introduction

An effective and efficient health care system ensures access to a steady and adequate supply of safe blood which forms a pillar for attaining the health-related Sustainable Development Goals (SDGs) [1]. Blood transfusion is at the core of orthodox medical care; it is an important component for the achievement of universal health coverage advocated by the World Health Organization (WHO). Transfusion involves the safe transfer of blood and blood products from a healthy donor to a recipient of the same species. Despite ongoing medical research, there is still no ideal replacement for blood, hence blood is unique in medical practice [2,3]. Safe blood saves lives, yet its supply falls short of demand; particularly in Sub-Saharan low income nations. Regular blood donation by voluntary, unpaid donors whose blood have been shown to have low risk of transmission of infectious diseases ensures a steady and adequate safe blood supply, but remains a challenge in Nigeria and other low-income countries [3]. Guided by the World Health Organization's call for a national coordinated activity towards the provision of safe blood to meet demands, the National Blood

Transfusion Policy was established giving rise to the National Blood Transfusion Service (NBTS) of Nigeria. NBTS is saddled with the responsibility of regulating and controlling the use of blood and blood products, as well as ensuring their safety as a matter of national interest [4]. NBTS has a national coverage and is involved in blood donor drive and campaigns to ensure adequate supply of safe blood.

Globally in 2018, about 118.5 million donations were made annually with half of the donations coming from developed countries where only 16% of the world's population resides [5]. This implies that donation rate is low in developing countries with serious consequences on meeting transfusion demand especially during the COVID-19 pandemic. In Nigeria and most other African countries, blood demand far outweighs supply, and inadequate supply contributes to the poor health indices particularly regarding maternal and infant mortality. According to WHO, at least 1-3% of a country's population needs to donate blood to meet the yearly blood demand for that country [6]. Nigeria and other low-income nations are yet to meet this target. For instance, in the year preceding 2005, only half a million units were donated in Nigeria which falls far short of the estimated 1.5 million units required for that year [4,7]. Additionally, despite an increasing population and worsened health indices due to the COVID-19 pandemic on a background moribund health care system, the number of blood donations continue to dwindle. In the first quarter of 2019, Nigeria with an estimated population of 180 million required about 2 million donations to be made, yet only 44722 units were made available in 53 apex hospitals across the country [1]. In the face of the Covid-19 pandemic, the number of donations per year is expected to decline further straining the already comatose health care system of the country. To add insult to injury, most donations in Nigeria just like many other African countries are from paid or replacement donors with only 5% of the donations being from the recommended voluntary, unpaid donors [8]. Poverty exacerbated by the Covid-19 pandemic may increase the number of paid donors hence the need to reverse this trend through rigorous campaigns on the importance of voluntary, altruistic blood donation.

The COVID-19 pandemic has significantly affected every sphere of life including health and economy. The restriction of movement (lockdown) has led to an increase in cost of health equipment and consumables such as blood screening kits, personal protective equipment and laboratory logistics. Consequently, the pandemic has caused a drop in blood donation globally. In Nigeria, the drop was as a result of decline in blood transfusion demand as opposed to fear of getting infected; in other parts of the globe, it was due to decrease in trauma/injuries because of movement restrictions [9]. In a report by National Blood

Transfusion Service, the decline in the number of blood units available for transfusion during the first wave of the COVID-19 pandemic was due to wastage.

To rectify the deficit in blood supply in low-income countries especially Sub-Saharan Africa, WHO recommends the implementation of a set of policies geared towards provision of affordable, and readily available blood units in hospitals to serve the needs of patients especially during the COVID-19 pandemic [10,11]. Safe blood unit supply is a life-saver in numerous clinical cases, ranging from acute hemorrhage as a result of trauma, to postpartum hemorrhage or severe anaemia resulting from different medical conditions. Transfusion of adequate safe units of blood could make a huge difference in saving the lives of these patients and limiting morbidity. In Nigeria, high maternal mortality has been shown to be as a result of inadequate blood transfusion services [12,13]. In order to achieve universal health coverage and improve the poor health indices (particularly that of high maternal and infant mortality) worsened by the COVID-19 pandemic, it is imperative that blood transfusion services be made more efficient.

The advent of the COVID-19 pandemic initiated a myriad of measures globally to tackle it. In Nigeria, one of such measures adopted was restriction of movement (COVID-19 imposed lockdown). Although it was introduced with the best of intentions, it brought to limelight problems masked across the entire spheres of existence in the country and worsened already existing challenges in health care delivery. Over the years, it became normal seeing government officials embarking on or encouraging so-called "medical tourism" [14] as the health care system kept deteriorating. As a result, when the pandemic associated lockdown came into effect, "a lot of blood was lost in Nigeria". According to the Nigerian Blood Transfusion Service Abuja Center, 200 units expired in its care due to the lockdown [15]. One simple reason for this was lack of access to health care facilities by people who needed blood. The restriction in movement meant that people could not leave their homes to access the vital care they needed. There was also hardly any means of public transport available to take people to where they needed to go. Another factor that may have been responsible for this was the fact that most health care facilities partially shut down and only attended to extremely vulnerable patients, thus even patients and blood donors who managed to find their way to hospitals were not guaranteed medical attention.

In addition, restriction of movement also meant that there was less ease of access to health care facilities for walk-in donors. Hospitals rules were very strict on who was to be allowed into hospitals and for what. As a corollary, mobile blood collection drives were been, hampered or postponed as areas/people that were

targets were inaccessible. Furthermore, restriction in movement brought a disruption in the global supply chain of equipment that are pertinent to donation and transfusion of blood [15].

The WHO regional director for Africa, Dr. Matshidiso Moeti, in her message commemorating the World Donor Day also highlighted amongst other barriers to blood transfusion during the COVID-19 pandemic, the fear of getting infected [15]. Borne from misinformation, misconception and ignorance about the effects and safety of blood donation/transfusion, this barrier existed even before the pandemic [12]. A lot of conspiracy theories and fake news are all over the place regarding the COVID-19 pandemic and in no era of human existence was it ever easier to spread them like in this technology driven/social media epoch. This has spread a lot of panic into people's minds making many blood donors reluctant to do so. The authorities and experts worldwide have been trying desperately to make their "correct" voices heard but their efforts are being seriously curtailed by other people who can just pop up in any corner of the world and spew out absurd and baseless ideas that stoke doubts into the minds of the masses. Consequently, the number of blood donors keeps dwindling and blood reserves gradually become used up or candidates for blood transfusion reject it for fear of "catching something" leading to blood expiration.

Another major barrier to blood donation was diversion of attention to COVID-19 management during the pandemic. On one hand there was the positive side of it; it showed governments' commitment to aggressively tackle the crisis and limit the transmission as much as possible. On the other hand, it showed lack of foresight. This assessment is because there was a serious risk that other structures that have been painstakingly put in place with decades of hard-work could crumble. Blood donation/transfusion services has significantly reduced mortality and morbidity over the years, but due to the diversion of government/policy makers' attention to almost focus solely on COVID-19, there's a risk that this precious life-saving practice could be jeopardized. Resources should therefore be channeled not only towards restoring this practice to its best, but also to other essential services so that we would not have to start everything all over again after giving all our attention to COVID-19.

At the heart of improving blood donation is rigorous blood donor drives and campaigns. The NBTS should coordinate this action and also develop ways to maximize blood use and minimize loss particularly during the pandemic. It is important that utmost care is taken to prevent transmission of the virus among blood donors. Strict COVID-19 prevention guidelines should be adhered to when making donations. Donor drives and campaigns can be done via public/social media to educate and motivate donors while reassuring them

of the availability of safe options for blood donations through an appointment system and mobile blood drives at donors' homes.

Blood should only be given when there is absolute indication for transfusion. The processing, storage and utilization of blood should also be monitored continuously to avoid shortages. During pandemics, regular communication between the blood bank, clinicians and donors should be maintained. Appointments can be given to potential donors to reduce donor flow to the blood bleeding bay and thus minimize risk of COVID-19 infection. To ensure easy access for making donations, mobile blood collection sites should be instituted to reduce the time for blood donation and difficulty in accessing the hospital [16].

COVID-19 vaccination has drastically affected the percentage of blood donor in Nigeria. Since the start of the vaccination program, many countries and organization have had unique deferral periods for blood donation after the COVID-19 vaccination. This too has affected the supply and transfusion of blood and its components. The world health organization (WHO) other organizations have emphasized the importance of being prepared and of responding promptly and have outlined key actions and measures that the blood service should take to mitigate the potential risk to the safety and sufficiency of blood supplies during the COVID-19 pandemic. Donor deferrals following COVID-19 vaccination is considered as one of the prudent measures aimed at protecting donor health and avoiding the theoretical risk of unintentional transmission of vaccine agents to transfusion recipients. For COVID-19 vaccines requiring more than one administration, each vaccination should be regarded as an independent event for purposes of blood donor deferral. Where mass vaccinations are anticipated, the blood centre should work closely with local health authorities to minimize any impact this may have on the availability of blood donors [17].

The guidelines of the European Centre for Disease Prevention Control (ECDC) on deferral of blood donors due to the COVID-19 are similar to that of the WHO. It details that after vaccination with attenuated viruses (e.g., replication competent virus vector-based vaccine, live attenuated virus vaccines) substance of human origin (SoHO) donors must be deferred for four weeks. The ECDC guidelines also states that in a scenario where information about vaccine type is missing or the vaccination is experimental, a four weeks deferral period should be applied [18].

According to WHO, there is no evidence that COVID-19 can be transmitted through transfusion of blood and components. Therefore, the risk is presently theoretical and considered quite unlikely Nevertheless, reduced blood donation and reduced availability of appropriate collection facilities is one of the major

impacts the current pandemic already has had on blood supplies. Blood services have to consequently take steps to assess, plan, and respond to the demands appropriately and proportionately after undertaking a data-driven risk evaluation. This evaluation should take into consideration; the extent of transmission in the country or geographical areas, the hazard of transfusion transmission, the quality of the health care, the public health response, sufficiency of the blood supply, operational impacts and the cost effectiveness of blood safety interventions in decreasing disease morbidity when it comes to the overall situation within the country.

Blood services must be prepared to move quickly in response to changes in the pandemic situation. A national approach, rather than a sub-national or local approach, should be adopted for coherence and coordination, but taking into account any specific localised factors or needs. This type of approach will also ensure public confidence in the safety and sufficiency of the blood supply. Coordination and support should be fostered between all stakeholders in the blood system to help maintain blood and blood component availability. Blood services should be included in the national outbreak response through experts linked to the national emergency response team. Blood services should develop, implement and activate their emergency response plans [17].

## Conclusion

The outbreak of COVID-19 and the measures to contain its spread, such as total/partial lockdown, restriction of mobility, vaccination and physical distancing have significantly reduced blood collection across the country. This situation has had a negative impact on the survival of blood beneficiaries. Lack of adequate blood donors can cause a lot of health complications amongst beneficiaries, and hence lead to death. Adopting practices for the safe collection of blood during the pandemic will ensure that more donors see the need to donate blood to sustain the blood bank. Failure to address these challenges may cause the country to face another dimension of health crisis at this critical period occasioned by the pandemic.

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