

## Covid-19 Times, When Truly “Every Drop Counts”

Mona Ali Hassan<sup>1\*</sup>, Housam Eddine Al Hariri<sup>1</sup>, Rola Kwayess<sup>1</sup>, Julie Breish<sup>1</sup>, Lamees Kawam<sup>1</sup>, Nada Youssef<sup>1</sup>, Abdul Rahman Bizri<sup>2</sup>

<sup>1</sup>Department of Internal Medicine, American University of Beirut Medical Center, Beirut, Lebanon

<sup>2</sup>Department of Internal Medicine, Division of Infectious Diseases, American University of Beirut Medical Center, Beirut, Lebanon

\***Correspondence to:** Mona Ali Hassan, Department of Internal Medicine, American University of Beirut Medical Center, Beirut, Lebanon.

**Citation:** Hassan MA, Al Hariri HE, Kwayess R, Breish J, Kawam L, et al. (2020) Covid-19 Times, When Truly “Every Drop Counts”. *J Can Ther Res*. 1(1):1-6.

**Received:** September 14, 2020 | **Published:** September 24, 2020

**Copyright** © 2020 by Hassan MA, et al. All rights reserved. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

### Abstract

Coronavirus disease 2019 (Covid-19) had tremendous effects on various health care sectors all over the world, and as the pandemic continues, the blood donation sector is especially affected. During unusual times, where risk of contracting the novel Corona virus (SARS-CoV-2) is very likely, it can be seen why blood donations have decreased. In this article we will discuss why and how the blood donation sector was affected during the Covid-19 pandemic in various countries around the world and will propose our medical center’s solution for the potential shortages in blood and blood products supplies.

### Keywords

COVID-19; Transfusion medicine; Blood donation; Solution for blood shortage

### Background

Securing and protecting blood supplies is the biggest challenge any blood bank can face during regular times and it is even more defying during pandemics [1]. Most countries will not be prepared for such

scenarios when faced with a similar situation [2]. In theory the need for blood and blood products should decrease in the setting of a global infectious disease pandemic due to decline in hospital admissions and in elective surgical procedures. However, this was not the case in the current Covid-19 pandemic, where the hematological effects of SARS-CoV-2 necessitated the need to transfuse some affected individuals. A study conducted in Singapore showed that 36.8% (7 out of 19) of Covid-19 patients admitted to intensive care unit required red blood cells (RBC) transfusion. Meanwhile in Italy 39% of patients required transfusion, with lesser need for fresh frozen plasma and platelets leading to a mismatch between the demand and supply of blood products [3].

### **Covid-19 and Blood Donation Worldwide**

In China the impact of the Covid-19 pandemic on blood donation and supply in Zhejiang province was assessed by collecting the data from 38 blood centers during the Spring Festival of 2019 and 2020. It revealed that the number of blood donors dropped by 67% [4]. Similarly, In Italy, one of the country's most affected by the SARS-CoV-2, it has been reported that from the 2nd to the 8th of March, a total of 44,297 whole blood units were collected and 46,183 RBC units were transfused, with a negative balance of 1,886 units as reported by the Italian National Blood Center [5]. In the United States, nearly 4000 American Red Cross blood drives have been canceled across the country and hospital-based collections were cancelled due to institutional concerns regarding donors spreading Covid-19 to hospitalized patients or vice versa. This resulted in a huge shortage in supply forcing hospitals to establish new safety protocols to encourage people to donate [6]. In another published report, donor attendance has decreased by 10-30% in the Washington state (USA), and by 30% at the Canadian Blood Services [3].

### **Blood Donations in Lebanon**

In Lebanon, Covid-19 has worsened the burden of the existing economic crisis in the country. The lockdown and social distancing measures have led to closure of several businesses and increase in number of jobless citizens [18]. Between February and May 2020, during the lockdown in Lebanon, several peripheral hospitals have resorted to the Lebanese Red Cross so as to overcome shortages in different blood products. During this period, the demand for blood products increased by an average of 5% [7].

### **Discussion**

The significant decrease in the number of donors could be attributed to different reasons which are summed up below:

- The fear of acquiring Covid-19 infection during blood donation; a study conducted in China showed that 81.2% of people who were enrolled in the self-administered questionnaire were worried about the possibility of acquiring the virus during blood donation [1].
- The cancellation of all blood drives which is attributed to social distancing and complete lockdowns [8].
- The long incubation period and asymptomatic carriers which posed a safety challenge on donors and blood bank healthcare workers [8].

To cope with such shortages health authorities in different countries have dealt with this dilemma with great variability, yet they focused mainly on two different aspects:

- Focusing on decreasing the demand by wisely choosing the patients to be transfused aiming to close the demand-supply gap. Most of the cancer centers delayed all non-life saving procedures including auto bone marrow transplant in an attempt to decrease use of blood products. Moreover, the American Society of Clinical Oncology (ASCO) recommended the use erythropoietin-stimulating agents whenever serious and/or symptomatic chemotherapy-related anemia is anticipated, and avoiding prophylactic transfusion in asymptomatic patients based on laboratory values when possible. The American Society of Hematological Malignancies issued the Choosing Wisely Guidance which recommends transfusing the minimum number of RBC units necessary to relieve the symptoms of anemia or to increase a patient's hemoglobin to the safe range (7 to 8g/dL in stable non-cardiac in-patients). Accordingly, physicians were urged to avoid the routine administration of 2 units of RBCs if 1 unit is sufficient and to use appropriate weight-based dosing of RBCs in children since liberal transfusion strategies do not improve outcomes when compared to restrictive strategies. In addition, unnecessary transfusions may generate more cost and expose patients to potential adverse effects without any likelihood of extra benefit [8-10].
- Cancelling the elective surgeries and non-emergency transfusions to decrease the urge of transfusion and to preserve the blood supplies available for trauma and hematology-oncology patients [10].
- Increasing the supply through emphasizing and publicizing the importance of blood donations. In China, Italy and Iran, national media campaigns were launched to increase blood donation awareness. In China, less than 2 weeks after the Chinese New Year, the blood collection and territory inventory reached very low levels, so a campaign for blood donation was conducted via radio, television and social media platforms resulted in restoring good levels and replenishment of the inventory within a week [5,11].

### **Safety of Blood Products during Covid-19 Pandemic**

The safety of blood transfusions during Covid-19 pandemic is a problem that is poorly studied. Whether transfusing blood that is infected with SARS-CoV-2 will result in an infection in the recipient remains unclear. In South Korea, 7 donors were positive to the SARS-CoV-2, 6-15 days post donation. From these donations, 6 platelets units and 3 RBCs units had been transferred to 9 patients. However, 8 of the recipients did not develop symptoms related to Covid-19 and the 9th died of causes unrelated to Covid-19 [12].

Hee Jeong Cho et al. [13] reported a case of a 21-year-old Korean man who had very severe aplastic anemia and required platelet transfusion. One day after transfusion, the donor turned out to have Covid-19, yet the patient tested negative for SARS-CoV-2; the result of the 4 polymerase chain reaction

(PCR) tests done over a period of 3 weeks were negative [13].

The American Association of Blood Banks (AABB) and Centers for Disease Control and Prevention (CDC) currently do not recommend any specific SARS-CoV-2-related actions by blood collection establishments [14]. Meanwhile, the European Center for Disease Prevention and Control (ECDC) suggests a precautionary deferral from donation of blood for 21 days after any possible exposure to confirmed patients. Additionally, those recovering from Covid-19 should avoid donating blood for at least 28 days after symptom resolution and completion of therapy [15,16].

## Proposed Solution

Our institution experienced similar situation where a mismatch between the blood products available and those required existed. Patients who needed transfusion were asked to bring their own donors, and transfusing patients before ensuring a donor was only kept for strict lifesaving scenarios. As a group of residents specializing in internal medicine, we recognized the effect of such shortages on the wellbeing of our patients. This difficult situation provoked us to find a solution. Therefore, we decided to embark on our performance improvement project entitled “Every Drop Counts”. Our hospital is a university tertiary care medical center affiliated with a leading university in the Middle East, The American University of Beirut. Our university community is made up of around 65,000 individuals including faculty, students and employees [16].

The solution we proposed is to send the following Yes/No question through our information technology (IT) department to all our community members via their e-mails:

- Do you want to be a blood donor?
  - If the answer is No, then no further communication will be carried with the respondent.
  - If the answer is Yes, then the respondent will be asked to provide us with his/her blood group if known and will be asked to test for it in case he/she does not know.
- A data base/registry will be formed of all the potential donors taking into consideration confidentiality of the information obtained.
- Once blood products of a specific blood type are required, an email/text message will be sent to all possible donors.
- The donor may call our institution’s blood bank where an employee would do a quick safety survey to check for any contraindication or deferral reason for blood donation.
- If the donor passed the safety survey, he/she may present to the blood bank where optimal safety measures for donors and blood bank workers are taken, through complying with the WHO biosafety transfusion guidelines in Covid-19 times [17] and the American Red Cross as well as Lebanese recommendations.

## Conclusion

COVID-19 pandemic has affected most aspects of our lives. New strategies are needed to cope with the

challenges posed by this pandemic. Blood banks and hospitals should develop new initiatives to help overcome the shortages in blood products. Our project proposes a model which helps unite the community to better serve our patients. Such project is crucial for these critical times. Moreover, the proposed project is sustainable and will aid in ensuring the availability and safety of a lifesaving biological product in these critical times and later during regular intervals.

## Acknowledgements

We want to thank all healthcare workers and essential workers all over the world during this pandemic; we are all in this together.

## Conflict of Interest

All authors declare no competing interests.

## References

1. Gschwender AN, Gillard L. (2017) Disaster preparedness in the blood bank. Clin Lab Sci. 30(4):250-7.
2. Fan BE, Ong KH, Chan SSW, Young BE, Chong VCL, et al. (2020) Blood and blood product use during covid-19 infection. Am J Hematol.
3. Stanworth SJ, New HV, Apelseh TO, Brunskill S, Cardigan R, et al. (2020) Effects of the COVID-19 pandemic on supply and use of blood for transfusion: LANCET HAEMATOL.
4. Wang Y, Han W, Pan L, Wang C, Liu Y, et al. (2020) Impact of COVID-19 on blood centres in Zhejiang province China: Vox Sanguinis.
5. Mascaretti L, De Angelis V, Berti P. (2020) The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic and Transfusion Medicine: reflections from Italy. Blood Transfusion. 18:77-8.
6. Pagano MB, Hess JR, Tsang HC, Staley E, Gernsheimer T, et al. (2020) Prepare to adapt: blood supply and transfusion support during the first 2 weeks of the 2019 novel coronavirus (COVID-19) pandemic affecting Washington State. The Journal of AAB Transfusion. 60(5):908-11.
7. <http://www.redcross.org.lb/index.aspx?pageid=907>
8. <https://www.choosingwisely.org/clinician-lists/american-society-hematology-red-blood-cell-transfusions-for-anemia/>
9. <https://www.asco.org/asco-coronavirus-information/care-individuals-cancer-during-covid-19>
10. Ramanathan K, Maclaren G, Combes A, Brodie D, Shekar K. (2020) Blood transfusion strategies and ECMO during the COVID-19 pandemic—Authors' reply. Lancet Respir Med. 8(5):e41.
11. Cai X, Ren M, Chen F, Li L, Lei H, et al. (2020) Blood transfusion during the COVID-19 outbreak. Blood Transfus. 18(2):79-82.
12. <https://www.thalassemia.org/tif-releases-publication-on-blood-and-covid-19/>
13. Cho HJ, Koo JW, Roh SK, Kim YK, Suh JS, et al. (2020) COVID-19 transmission and blood transfusion: A case report. Journal of Infection and Public Health.
14. Update: impact of 2019 novel coronavirus and blood safety. American Association of Blood Banks (2020).
15. Outbreak of acute respiratory syndrome associated with a novel coronavirus, Wuhan, China; first update. European Centre for Disease Prevention and Control (2020).
16. [https://www.who.int/publications-detail/maintaining-a-safe-and-adequate-blood-supply-during-the-pandemic-outbreak-of-coronavirus-disease-\(covid-19\)](https://www.who.int/publications-detail/maintaining-a-safe-and-adequate-blood-supply-during-the-pandemic-outbreak-of-coronavirus-disease-(covid-19))

17. Bizri AR, Khachfe HH, Fares MY, Musharrafieh U. (2020) COVID-19 Pandemic: An Insult Over Injury for Lebanon. *J Community Health*. 1-7.