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How do I/We forecast tomorrow's transfusion? A series of experts' proposals for changes in transfusion medicine

Heath care systems worldwide have faced the unprecedented and often unanticipated situation of having to reorganize the way they manage both in- and outpatients due to the Covid-19 epidemic [1]. This health crisis was superimposed on the background of a deteriorating health care situation seen in several industrialized countries, not to mention the disastrous situations in developing countries [2,3]. All of the routine nursing activities were affected by the epidemic, including blood donation and transfusion programs worldwide [4,5]. The same was true for inpatient and outpatient care in general, and the Covid-19 crisis has revealed the gaps between the administrative centralization of the health care organizations and the everyday situation in clinics and wards. Germane to this discussion, blood donation is struggling to keep up with demand in many countries, after a slow but consistent decline in collections compared to previous decades where blood was largely collected in abundance [6,7]. Alerts about the state of collections have been raised from the innumerable analyses of motivation and discouragement of volunteer non-remunerated blood donors that is the bedrock of the so-called ethical blood donation system that have been published over the past two decades. A PubMed search in June 2022 with the following entries: "Knowledge + Motivation + Blood donation" found no fewer than 164 entries. All published material and the very many proposals that did not receive high enough priority to be published (according to our own Editor in chief and reviewer experience) stress issues that are hardly ever accompanied by applicable proposals for plans to fix the issues. Audits commissioned by blood establishments and services, as well as academic studies make observations and focus on the sociological studies relative to the issue of being blood donor vs non-being blood donor. After decades of relative failure, the time has come for alternate types of investigations, in many leaders' opinions. The current worldwide and severe blood shortage, really a second pandemic, is likely attributable to a reduction of blood donor candidates and of donors who are not permitted to donate because they do not meet the current criteria; however, in addition to blood establishments' problems collecting enough blood, there has also been a change in the recipients' profiles [8]. Not only is there a donor crisis that strikes countries which were largely self-sufficient previously, but blood services in high-income countries face novel situations such as providing blood to novel populations in need of transfusion with specific phenotypes, usually not found within the general blood donor populations [9,10]. Many blood establishments worldwide have commissioned internal and external audits to help them in building the infrastructure needed to meet the needs of tomorrow's transfusion recipients. Beside the development of quality programs emphasizing the reduction of wastage, the principles of good practice and evidence-based medicine, the optimized management of patient blood, the use of alternatives to blood components when possible, the considerable progress in bloodless surgery and blood saving anesthesiology techniques, the continuous improvement of blood components both in terms of quality and safety etc., are all working towards the common goal of saving blood resources so that they are available when needed [11–14]. Besides, the increasing number of cancer patients who are eligible for aggressive treatment regimens that most often induce pancytopenia, and ageing populations who require transfusions for a variety of reasons including severe anemia continue to tax our limited blood inventories [15]. Patient blood management (PBM) programs are one among several lines on saving blood; some programs comprise of the Optimal Use of Blood initiatives, while others do not. In the facts, PBM applied in the field often do not cover how to best transfuse patients on qualitative grounds but focus primarily on quantitative grounds. Another issue that blood establishments and services have faced for decades, while it is growing insidiously, is the extent of plasma collection within the for-profit sector; the rise of the for-profit industry of Plasma Derived Medicinal Products (PDMPs) has become the principal actor in the field, thereby potentially exacerbating the effects of an already shrinking volunteer donor pool, as has been seen for other essential medicines recently; this risk is unacceptable as e.g. injectable immunoglobulins are vital to severely immunodeficient patients, with no alternative through bioengineering [16]. As it usually takes many years to validate new and disruptive technologies, or to adapt the allocation of human and financial resources, and to educate and train personnel, it seems urgent to think about revised models of transfusion medicine in all aspects [17]. It is strongly hoped that innovative thoughts, solutions, and future directions can be created and shared within the transfusion community through research collaboratives and by working parties of associations or not-for-profit organizations. Not only are substantial changes needed "*tout de suite*", but they must be focused on the ways that we are currently going in the wrong direction. These solutions should ideally serve the patients' interests both in economically wealthy countries and in low- and middle-income countries [18]

☆ DOI of original article: https://doi.org/10.1016/j.tracli.2022.07.007; https://doi.org/10.1016/j.tracli.2022.07.006

https://doi.org/10.1016/j.tracli.2022.07.005
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Please cite this article as: O. Garraud and F. Pirenne, How do I/We forecast tomorrow's transfusion? A series of experts' proposals for changes in transfusion medicine, Transfusion clinique et biologique, https://doi.org/10.1016/j.tracli.2022.07.005

because we all, humans, deserve the best care [19]. Further, transfusion—from its beginning—has been a principle of applied bioethics [20].

To elaborate on the sentiment of changes, "*Transfusion Clinique et Biologique*"—under the auspices of the French Society of Blood Transfusion (SFTS)— invited leaders in many fields of transfusion medicine to detail their visions of the future for our specialty, with the hope that this initiative will be useful to blood establishments, hospital-based transfusion services, regulatory institutions, and healthcare organizations; it is hoped also that this initiative ultimately benefits volunteer, non-remunerated blood donors, and recipients of blood components and PDMPs. The journal is proud to announce the launch of this new series of invited papers entitled "How do I/We forecast tomorrow's transfusion." We also welcome unsolicited Letters to the Editor to discuss or challenge the opinions expressed in this special edition of the journal in order that any stakeholder in the transfusion medicine field can opine on the future of our vital, life-saving discipline.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

The author is extremely grateful to Dr Mark Yazer, Pittsburgh, PA, USA, for coments on this Editorial and his tremendous help in editing it.

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