



Preface to special series—transfusion therapy: principles and practices

The transfusion of blood and blood components is the most common tissue transplant performed. More than 118 million blood donations are made annually in the world (1). Blood transfusion is generally a safe procedure, but the human source, the necessity for storage, the requirement for matching the component to the recipient in most instances, and the large number of steps from collection to infusion can introduce dangerous risks for the transfusion recipient. Additionally, regulatory agencies, commercial interests, non-profit advocacy organizations, and health care facilities all play significant roles in making blood or a blood component available for transfusion.

In this context, the publication by the *Annals of Blood* of a 22-chapter compendium addressing the principles and practices of transfusion therapies is a timely addition to the field. It is a privilege to serve as editor for this series of articles. My goal has been to publish a practical, easy-to-read, up-to-date, internally consistent clinical guide that makes recommendations based on high-quality evidence.

While many unanswered questions remain, there have been recent advancements that have improved the safety and efficacy of transfusion therapies. This special series looks at the broad scope of transfusion medicine practices. For example, chapters have been included that are devoted to specific components, clinical diseases, and specialized technologies and therapies. Additionally, patient blood management and hemovigilance have been included as standalone chapters.

Although considerable progress has been made, many achievements have not yet been implemented or fully integrated into clinical practice. Examples of such emerging technologies include whole blood pathogen reduction, oxygen therapeutics, and lyophilized and cold-stored platelets. Additionally, data to define with certainty when a transfusion should be ordered for a particular patient at a particular moment in time are still not available. In any given circumstance, we do not know the precise mitochondrial oxygen requirements for individual organ function or the concentration of coagulation factors or platelets needed to prevent or treat hemorrhage. This series has been created to provide physicians practical guidance for patient care in spite of these and other limitations of knowledge. We are far from being able to offer rigid guidelines, but we can provide sound advice.

It is tempting to speculate what may or may not be included in the next edition of this compendium. Will we better understand how patient outcomes are influenced by the storage age of red blood cells? Will cellular elements of blood be cultivated *ex vivo* for therapeutic use? Will we better understand which donors provide superior products? Will we be better able to prevent adverse events of transfusion?

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Ethical Statement: The author is accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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