

Fibrinogen Replacement

Cryoprecipitate (Cryo) and fibrinogen concentrate (FC) can both be used for fibrinogen replacement in bleeding patients. The Canadian Blood Services (CBS) component production methods allow for either Cryo or platelet production, but not both from the same donation. While CBS continues to produce Cryo, there may be need in the future to decrease or discontinue Cryo production if CBS must prioritize platelet production. Hospitals that have not yet developed policies and procedures for substituting FC for Cryo are now required to do so. Advantages of FC over Cryo include: standardized fibrinogen content, rapidity and ease of reconstitution, small infusion volume, and pathogen inactivation. Although there is no evidence of COVID-19 transmission via blood transfusion, the provision of a pathogen-inactivated blood product is preferable. Frozen plasma should only be used for fibrinogen replacement when neither Cryo nor FC is available.

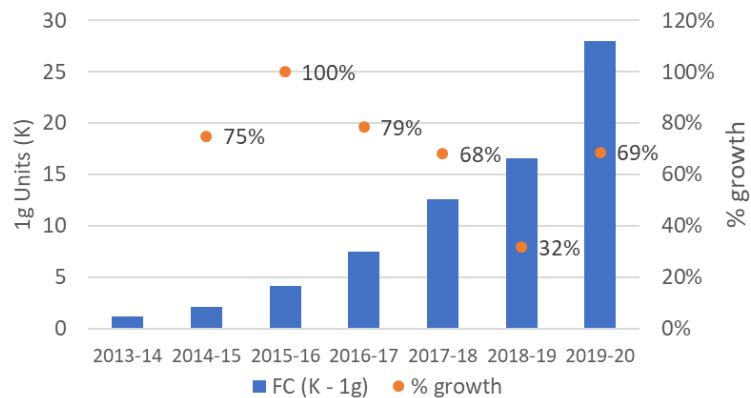
The National Advisory Committee on Blood and Blood Products (NAC) has indicated that there is insufficient evidence of superiority of one product over another and that, until further evidence becomes available, Cryo and FC should be considered interchangeable (1). The NAC statement can be found at

https://www.nacblood.ca/resources/guidelines/downloads/NAC_fibrinogen_concentrate_FINAL.pdf.

Since the NAC statement was published in 2018, the FIBRES study has been published, comparing Cryo to FC in the management of bleeding in adult cardiac surgery patients (2). This study found that FC was non-inferior to Cryo in both effectiveness and safety. There is a summary of the FIBRES study, and a list of frequently asked questions about FC, in the December 2019 ORBCoN Report Newsletter (3). The Ontario Emergency Blood Management Committee (OEBMC) has also advised hospitals to use FC and not Cryo for fibrinogen replacement in bleeding patients (4).

The transitioning from Cryo to FC in Canada (excluding Quebec) is shown in the charts below (courtesy of Dr. Kathryn Webert, CBS). Ontario is one of the last provinces to transition to FC.





The results of a recent survey showed that only a very few hospitals in Ontario have not yet implemented FC. If you are one of these hospitals, the Ontario Blood Coordinating Network (ORBCoN) is able to provide resources to assist hospitals in making the conversion. Please contact your regional ORBCoN representative for more information.

1. NAC Statement on fibrinogen concentrate. July 19, 2018. Available at www.nacblood.ca
2. Callum J, Farkouh ME, Scales DC et al. Effect of fibrinogen concentrate vs Cryoprecipitate on blood component transfusion after cardiac surgery; the FIBRES randomized clinical trial. JAMA. 2019; 322(20):1966-1976. doi: 10.1001/jama.2019.17312 (open access)
3. Callum J, Karkouti K. Fibrinogen replacement for bleeding after cardiac surgery: the results of the Canadian FIBRES trial. ORBCoN Report December 2019. Available at www.transfusionontario.org, ORBCoN Resources tab.
4. Wong A. Letter from Ontario Ministry of Health to Ontario hospitals. March 19, 2020. available at www.transfusionontario.org, Toolkits tab > Emergency Blood Management
5. RiaSTAP product monograph. CSL Behring. 2019
<http://labeling.cslbehring.ca/PM/CA/RiaSTAP/EN/RiaSTAP-Product-Monograph.pdf>
6. FIBRYGA product monograph. Octapharma. 2018
https://www.octapharma.ca/fileadmin/user_upload/octapharma.ca/Product_Monographs/FIBRYGA-PM-EN.pdf