

Supplement:

The Duke Cardiac Surgical Intraoperative Transfusion Algorithm is based on point of care testing and is utilized for high risk cardiac surgical procedures. In this laboratory, viscoelastic testing (ROTEM®) paradigm, samples are sent upon body temperature rewarming during CPB. Our algorithm directs the correction of hypofibrinogenaemia (using the Klaus Fibrinogen assay or FibTEM® A10 values) and thrombocytopenia. Patients whom have undergone hypothermic circulatory arrest and the ensuing platelet dysfunction of hypothermia, receive platelet concentrate transfusion depending on platelet value during on-CPB rewarming values, when temperatures are >33 °C. Notably, because of established institutional practices, a first set of hemostasis blood samples are sent to the laboratory on CPB, and in order to account for heparin effect, HEPTeM® is sent in addition to EXTeM®. Thus, if HEPTeM® is >240 s, then it is presumed the added prolonged clotting time is as a result of additional factor deficiencies and requires FFP administration. A HEPTeM® CT <240 s indicates manufacture-established values after heparin antagonism. This value aids the practitioner in deciding on FFP administration while on CPB, in order to avoid delayed initiation of coagulation management after separation from CPB. Consideration is also made to post-CPB PCC administration, as PCC usage on CPB might be less useful owing to the larger volume of distribution and potential deposition of PCC factors onto CPB filters. With opportunities for clinical observation and laboratory values for deciding further clinical intervention, various deficiencies are managed through such blood, plasma, and factor concentrate administration. Antifibrinolytic therapy is standard practice for our cardiac surgical patients that require CPB. Notably, we have internally tested our 5U-pack of cryoprecipitate and have found fibrinogen concentration to range between 1.5-2.5 grams. PCC note, use Kcentra for coumadin reversal (on-label) and Profilnine for refractory bleeding. *Figure modified from the British Journal of Anesthesia.* AT III = Antithrombin III; CT = Clotting time; CPB = cardiopulmonary bypass; Cryo = Cryoprecipitate; FFP = fresh frozen plasma; FIB = Fibrinogen concentration; Hb = Haemoglobin; PCCs = Prothrombin complex concentrate; PLT = platelet count; RBC = Red blood cell; rFVIIa = Recombinant activated factor VIIa; U = unit.