INR: International Normalized Ratio; aPTT: activated Partial Thromboplastin Time; Fib: Fibrinogen concentration; Plts: Platelets; TEG: Thromboelastograph; CPB: Cardiopulmonary Bypass; CTICU: Cardiothoracic Intensive Care Unit
†Clinical protocols are based on the best and most recent available data and are expected to be followed by all CASECAG staff unless there is a compelling clinical reason not to, or new data becomes available that suggests an alternate treatment protocol. Standardizing our approach to some of our practices is expected to reduce medical errors in the clinical environment and increase ease of work flow for the trainees.

‡Employment of a Hemostasis Monitoring Protocol is consistent with the majority of available supportive peer reviewed, published literature related to the safe and effective treatment of cardiac surgical patients.\textsuperscript{1,2} This protocol is written to optimize detection of coagulopathy in patients undergoing cardiac surgical procedures involving CPB and thus is not appropriate for other surgical patient populations.

1. Preoperative hematology and special coagulation lab values older than two weeks may be acceptable if the clinical status of the patient has been stable.

Labs sent \textit{SUPER STAT} will be processed and sent to the head of the sample testing line. To greatly expedite the processing of these samples a runner should take them to the Bishop 5 lab, log them into the lab at the specimen receiving window (involves entering date, name, MRN, time and MOR [Mather Operating Room]), then take the pink downtime requisition form to the time stamper and stamp the bottom of the document. Next simply walk to the first set of cubicles just a few feet away from the time stamper and hand the sample in a specimen bag (along with the downtime requisition form in the bag) to the STAT Technician who is identified by the bin of labs at their station with the word STAT on it. Following this protocol will result in labs being processed immediately which means CBC results in < 10 minutes and special coag results in < 25 minutes. The special coag labs take longer because the sample has to be centrifuged before testing.

\textbf{aPTT, INR and Fib} go to the lab in a citrate containing \textit{blue top tube}

\textbf{Plts and Hb} go to the lab in an EDTA containing \textit{purple top tube}

2. The baseline TEGs \textit{(drawn after intubation)} are important to establish the patient’s preoperative ability to form stable clots. If they lack the ability to do so the TEG will help determine what element in the coagulation cascade is deficient. It is important to run both a kaolin with Heparinase TEG as well as a kaolin clear cup TEG. The heparinase will neutralize up to 4 U/mL of unfractionated heparin in the sample to aid in identifying patients with residual heparin effect.

Plants and Hb go to the lab in an EDTA containing purple top tube
3. The **ACT** baseline is also *important to obtain following intubation*. It’s main function is to establish a baseline value but it can also help to identify defects in the intrinsic and common coagulation pathways.

4. The intraoperative post-CPB/Protamine labs are the most important ones obtained to provide the needed information on the etiology of any clinically relevant coagulopathy. These labs are compared to the baseline values and then referenced to the CASECAG Transfusion Algorithm. Under conditions that warrant blood product transfusion these labs should be repeated after each round of blood product transfusion to establish progress (or lack thereof) in correcting the coagulopathy. Sending these labs **SUPER STAT** is essential using the protocol described in point #1 above to hasten result reporting time.

5. CPB runs lasting > 2.5 hours are associated with increased postoperative transfusion/hemorrhage. The high heparin levels will not affect these labs parameters at this time and will provide evidence of any of the following: thrombocytopenia, hypofibrinogenemia and anemia. This will allow appropriate mobilization of transfusion resources prior to CPB separation. Sending these labs **SUPER STAT** is essential using the protocol described in point #1 above to hasten result reporting time.

References:
