COAGULATION TESTING GUIDELINES

Specimen Collection

- Collect whole blood specimen into light blue top tube (3.2% sodium citrate). When using a butterfly or winged blood collection set for venipuncture and a coagulation tube (3.2% sodium citrate) is the first tube to be drawn, first draw a discard tube. The discard tube is used to fill the blood collection tubing dead space, which will ensure proper blood-to-anticoagulant ratio. The discard tube should be a non-additive or a coagulation tube, and need not be completely filled.

- Drawing blood for coagulation testing through any lines that have been flushed with heparin should be avoided if possible. However if unavoidable, the following procedure for collection from central lines, implanted ports, and central venous catheters should be followed:
  o Turn all fluids off
  o Flush (all ports) with 5 mL of normal saline (if there was fluid in the line/s)
  o Wait 2 minutes
  o Discard first 5 mL of blood or 6-times the line volume (dead space of the catheter)
  o Collect blood tubes according to the “Order of Blood Draw” instructions

- The coagulation specimen must be collected in a way that preserves the integrity of easily activated or denatured proteins, enzymes, and cofactors. A clean venipuncture with adequate blood flow into tubes or syringe provides the best specimen.

- Specimen tube must be full. The standard proportion of blood-to-anticoagulant volume is 9:1. This is critical as incorrect blood to anticoagulant ratio will cause erroneous results. Other anticoagulants (e.g. Oxalate, heparin, or EDTA) are unacceptable. Under-filled, clotted or haemolyzed specimens must be rejected.
• The specimen should be mixed immediately by gentle inversion (end over end 5 - 6 times) to fully integrate the anticoagulant with the blood. Vigorous shaking and continued inversion of the specimen must be avoided to limit platelet activation.

• If the patient’s haematocrit is >55%, blood for coagulation testing should be collected in an adjusted volume of anticoagulant volume. The formula for correction is given as below:

\[
C = 1.85 \times 10^{-3}(100 - H) \times V
\]

\( C = \) volume of anticoagulant in millilitres remaining in the tube
\( V = \) volume of whole blood in millilitres to be added to the tube
\( H = \) haematocrit in %

• Once the specimen is collected, it should be transported to the laboratory as soon as possible. Whole blood specimens must not be sent on ice.

**Specimen Processing**

Each test may have different storage and stability (refer to individual test catalog). Hence, if testing cannot be accomplished within the period stated, the specimen must be double centrifuged to obtain platelet poor plasma (platelet count <10x10^9/L):

• Centrifuge the citrated whole blood at the pre-determined speed and time to separate the blood components from plasma.
• The plasma is then removed just above the cell line with a plastic transfer pipette into a plastic tube.
• Centrifuge the plasma in the plastic tube at the pre-determined speed and time.
• Transfer the plasma into the second plastic tube, leaving about 0.25 mL in the first plastic tube to be discarded.
• There should be at least 1 mL of plasma in the second plastic tube.
• Cap and label the plastic tube clearly.
• Refer to individual test catalog for the amount of specimen required. Generally, each coagulation test should be accompanied by one aliquot of platelet poor plasma.