

	Technical Procedure No: <u>HE.COAG 1385.1 and SC015</u>
SUBJECT:	<u>BLEEDING TIME (Surgicutt)</u>
Effective Date:	<u>08/27/07</u>
Supersedes:	<u>09/01/05</u>
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Annual Review:	<u>September 1, 2005</u>

I. **TITLE** Bleeding Time
Horizon LIS Test Code: BT

II. **PRINCIPLE**

The bleeding time test has been widely used in the diagnosis of hemostatic defects, principally thrombocytopenia, qualitative platelet defects, von Willebrand's disease, and vascular disorders. It is frequently used as a preoperative screening procedure. When vessels are injured or severed, platelets adhere to the exposed subendothelial lining of the vessel and to exposed collagen. Following the adhesion phase, platelets begin to aggregate at the wound site, forming the primary platelet plug. The purpose of the bleeding time test is to provide a measure of platelet function in small vessel hemostasis.

A bleeding time is the time required for bleeding to stop flowing from a standardized puncture on the patient's forearm. Prolonged bleeding can be caused by a decreased platelet count, abnormal platelet function or the ingestion of aspirin, ibuprofen or other NSAIDs. Anticoagulant therapy will also prolong a bleeding time.

II. SPECIMEN

The following criteria is suggested for performing a bleeding time:

- The patient's platelet count should be $> 75,000/\text{mm}^3$.
- Only one bleeding time per a 24 hour period unless the patient has received therapy (platelet infusion, DDAVP) to correct a previously prolonged bleeding time.
- Heparin should be discontinued 6 hours prior to performing a bleeding time.

- A. Explain the test to the patient and advise the patient of potential scarring.

- B. Ask the patient if he/she has taken aspirin, ibuprofen or any aspirin- containing medication within the last week. Record on the *Bleeding Time Record Form* or log book.

CAUTION: Patient specimens, controls, and reagents are potentially infectious and/or biohazardous. Observe universal precautions when handling these materials.

IV. REAGENTS, SPECIAL SUPPLIES AND EQUIPMENT

Equipment

1. Surgicutt[®] Bleeding Time Devices manufactured by International Technidyne Corporation, 23 Nevsky Street, Edison, NJ 08820.
 - a. Surgicutt[®] is the regular bleeding time device and is available for patients 16 years of age and older
 - b. Surgicutt[®] Junior is available for pediatric patients from 5 months - 15 years of age
 - c. Surgicutt[®] Newborn is available for infants up to 5 months of age
2.
 - a. Adult blood pressure cuff for adults
 - b. Neonatal blood pressure cuff for newborns
3. Stopwatch, timer, or watch with a sweeping second hand
4. Filter paper
5. Alcohol prep pad
6. Bandage (Band-Aid), Steri Strip
7. Bleeding Time Record form
8. Gauze Sponges

9. V. CALIBRATION

Stopwatch Calibration

1. Call the Atomic Clock (303-499-7111) to check the “Standard Timer.”
2. Check all other timers against the “Standard Timer” for accuracy.
3. Allowable variation between timers is:
 - Centrifuges, cytospin and timers at ≤ 3 min: $\pm 5\%$
 - Centrifuges, cytospin and timers at ≥ 3 min: $\pm 3\%$
 - Stopwatch at 1 minute calibration: ± 1 second
 - Stopwatch at 20 minute calibration: ± 2 seconds
4. Note action taken if allowable variation is exceeded.

VI. QUALITY CONTROL N/A

VII. PROCEDURE

CAUTION: Wear lab coat and gloves when performing this procedure.

Note: Additional instructions pertaining to bleeding times performed on infants < 5 months of age are indicated in *bold italic print*.

- A. Place the patient’s arm on a steady support with the volar surface exposed. Select a site approximately 2 inches below the crease of the elbow on the forearm. Take care to avoid surface veins, scars, bruises, excessive hair and edematous areas.
- B. A bleeding time test **should not be performed** on an arm that contains an I. V. The test must be performed on the opposite arm. If both arms have I. V.’s, the nurse must shut one off to allow the test to be performed. Allow 3-5 minutes to pass before performing the test after the IV has been discontinued.
- C. Clean the site with an alcohol prep pad and allow to air-dry at least 30 seconds.
- D. Place the blood pressure cuff around the arm.
 - a. Use an adult blood pressure cuff for adults
 - b. Use a pediatric blood pressure cuff for pediatric patients
 - c. Use a neonatal blood pressure cuff for newborns***
- E. Remove the Surgicut[®] device from the package and twist off the white tear-away tab on the side of the device. Do not push the trigger or touch the blade slot.

- F. Inflate the blood pressure cuff to 40 mm Hg. The time between inflation of the cuff and incision should be 30-60 seconds. **HOLD THIS EXACT PRESSURE OF 40 MM HG (or the appropriate pressure for infants indicated below) FOR THE ENTIRE PROCEDURE.**

For infants < 5 months old, use the following guidelines:

<i>Pressure 20 mm Hg</i>	<i>Infant weight of \leq 1000g</i>
<i>Pressure 25 mm Hg</i>	<i>Infant weight 1000-2000g</i>
<i>Pressure 30 mm Hg</i>	<i>Infant weight >2000g</i>

- G. Gently rest the Surgicutt[□] device on the patient's forearm PARALLEL to the anticubital crease in the arm. Do not apply pressure or push down on the Surgicutt[□] device or the cut will be made deeper than intended.
- For infants < 5 months old, rest the Surgicutt[□] device on the infant's forearm PERPENDICULAR to the anticubital crease in the arm.
- H. Gently push the trigger, starting the stopwatch simultaneously. The blade will make an incision 5 mm long by 1.0 mm deep for the Surgicutt[□] and 3.5 mm long by 1.0 mm deep for the Surgicutt[□] Junior. ***The Surgicutt[□] Newborn makes an incision 2.5 mm long by 0.5 mm deep.***
- I. Remove the device approximately one second after triggering.
- J. At 30 seconds, blot the flow of blood with filter paper. Bring the filter paper close to the incision, but DO NOT touch the paper directly to the incision, so as not to disturb the formation of a platelet plug.
- K. Blot in a similar manner every 30 seconds until blood no longer stains the filter paper or until 15 minutes have elapsed. Stop the timer.
- L. Remove the blood pressure cuff and cleanse around the incision site with an antiseptic swab. Apply a bandage (preferably a Steri Strip) across the incision. Advise the patient to keep the bandage or Steri Strip in place for 24 hours. Record the bleeding time to the nearest 30 seconds except for results < 1 minute. Results < 1 minute should be reported as < 1 minute.
- M. Dispose of the Surgicutt[□] device in a sharps container.

Note: If the wound fails to bleed or if a small vein is cut, disregard the bleeding time. Choose a new location for the test, and repeat it.

- N. Record the result on the Bleeding Time Record form (Figure 1). Complete all the information including patient name, accession #, phlebotomist initials, date/time of test, patient taking aspirin and result. Log sheet or logbooks may be used to document the bleeding time results for locations that have access to result entry into the LIS.
- O. For locations that do not have access to result entry into the LIS, a hard copy of the results should be forwarded to the laboratory.
- P. Bleeding Time Record forms, logbooks, and log sheets are to be retained for a minimum of 2 years.

VIII. CALCULATIONS/INTERPRETATIONS

- A. The bleeding time test is used as a screening test for quantitative and qualitative platelet function. The platelet count and the ability of platelets to form a plug directly affect the bleeding time. Prolonged bleeding times can be found in the following situations:
 1. Platelet count $< 75,000/\text{mm}^3$ (thrombocytopenia)
 2. Thrombasthenia
 3. Congenital or acquired coagulation deficiencies
 4. Storage pool disease
 5. Bernard-Soulier syndrome
 6. Uremia
 7. Liver failure
 8. von Willebrand's disease
 9. Aspirin ingestion (with platelet disorders, the prolongation will be exaggerated)
 10. Ingestion of drugs that inhibit platelet function
 11. Anticoagulant therapy

IX. REPORTING RESULTS

- A. Results will be entered into the LIS under the test code of **BT**.
- B. Enter the bleeding time result. The bleeding time is reported to the nearest half minute (i.e., 4 min, 4.5 min, 5 min, etc.). Results greater than 15 minutes will be reported as >15 minutes and results less than 1 minute will be reported < 1 minute.
- C. A comment should be appended to each bleeding time result documenting the phlebotomist who performed the procedure if the phlebotomist is not the same person entering the result into the LIS. BTM is a coded comment for "BLEEDING TIME PERFORMED BY:....." In the comments section of result entry, input BTM followed by the name of the individual performing the test.
Note: In the Horizon LIS, comment codes should be preceded by a backslash (\).
- D. If the bleeding time result is greater than 10 minutes AND the phlebotomist

reported that the patient has recently ingested aspirin compounds, enter the coded comment “ ASP” for “Patient reported taking aspirin or aspirin-containing compound within last 7 days.”

- E. If the bleeding time result is ≥ 15 minutes, the phlebotomist will repeat the test unless the patient reports taking aspirin or aspirin containing- medication within the last week. In the case of aspirin ingestion, the bleeding time will not be repeated but will be reported as >15 min with the comment “ ASP” appended.
- F. If the bleeding time result is ≥ 15 minutes and the test has been repeated, enter the first result in the result field. Report the repeat bleeding time as a free-text comment “Bleeding time was repeated. The repeat result was ____ minutes.”
- G. If the bleeding time result is < 1 minute, the test will be repeated. Report the result as < 1 minute. Input a comment indicating that the “Test was repeated”.
- X. **NORMAL RANGE :** 2.0-8.5 minutes
- XI. **PANIC VALUES:** N/A
- XII. **LIMITATION OF PROCEDURE**
 - A. The bleeding time may be prolonged if thrombocytopenia is present ($< 75,000$ platelets/ mm^3).
 - B. Inaccurate results may be obtained if 40 mm Hg pressure (or the proper Hg pressure for infants < 5 months old) is not maintained on blood pressure cuff.
 - C. Removing the Surgicut[®] device from the patient’s forearm before the device has been completely triggered will interfere with the proper incision.
 - D. Touching the incision with the filter paper while blotting will disturb the platelet plug and will increase the bleeding time.
 - E. Exaggerated movement of the arm during testing will increase the bleeding time.
 - F. Failure to start the timing as soon as the incision is made will decrease the bleeding time.
 - G. Vigorous rubbing with the alcohol prep while cleansing the forearm can cause hyperemia and must be avoided.
 - H. Cold increases the duration of bleeding. If the patient arrives in the test area feeling cold, he/she should be allowed to “warm up” before the test is started.
 - I. Edematous patients may have a falsely prolonged bleeding time.
 - J. Excessive hair on arms may be shaved prior to testing.

XIII. **PROCEDURE NOTES** N/A

XIV. **ALTERNATIVE METHOD** N/A

XV. **REFERENCES**

- A. Phlebotomy Essentials, McCall, R.E., Tankersley, C.M., J.B. Lippincott Co, Philadelphia, PA, 1993, Chapter 12.
- B. Surgicutt[®] package inserts, International Technidyne Corp., Edison, NJ.
Surgicutt[®] PSBD: 8-2 10/98
Surgicutt[®] PSUN: 4-1 11/97 Surgicutt[®] PSVJ: 11-2 8/97