1. PURPOSE AND INTENT

1.1 To provide guidance and support for the safe insertion, care and maintenance and removal of an Esophagogastric Tamponade Tube (EGTT). Registered Nurses in WRHA Critical Care Units, WRHA Cardiac Sciences, and Emergency Departments may assist with insertion; and provide ongoing care for patients requiring EGTT placement. This guideline is also intended to provide guidance and support to assist the Physician with the insertion of the EGTT.

2. PRACTICE OUTCOME

2.1 Cessation of variceal bleeding and resolution of hypovolemic shock.

3. BACKGROUND

3.1 Esophageal and gastric varices develop because of portal hypertension and vascular congestion. Rupture of the dilated veins may result in gastrointestinal hemorrhage and hypovolemic shock. Without immediate bleeding control, death occurs. Tamponade therapy exerts direct pressure against the varices with a gastric or esophageal balloon and may be used for patients unresponsive to medical therapy (including endoscopic hemostasis and vasoconstrictor therapy) and those too hemodynamically unstable to undergo endoscopy or sclerotherapy.

3.2 Esophagogastric tamponade tubes are used to control bleeding from gastric or esophageal varices. The suction lumens allow the evacuation of accumulated blood from the stomach or esophagus and intermittent instillation of saline to help evacuate blood or clots.
4. COMPONENTS

4.1 Esophagogastric Tamponade Tube

NOTE: Common names of the EGTT include:
Sengstaken-Blakemore Tube, Blakemore Tube, Minnesota Tube

4.2 EGTT tray may include (or staff may need to add):

4.2.1 Basin
4.2.2 Forcep x2 with gauze to protect clamped items
4.2.3 Plastic Y connector
4.2.4 Manometer

4.3 Gloves and appropriate personal protective equipment (PPE)

4.4 Tonsil suction set up

4.5 Low intermittent suction set up for 2 drainage ports – either separate or Y connected

4.6 2 - Catheter adaptors (connector consisting of a leur lock female end and a graduated end)

4.7 2 - Stopcocks

4.8 Sphygmomanometer (manual blood pressure cuff monitor with cuff removed)

4.9 60 mL Catheter tipped syringe

4.10 60 mL Leur-lock syringe

4.11 Water soluble lubricant

4.12 Measuring tape

4.13 500 mL bottle NS for irrigation

4.14 Tape

4.15 Scissors

4.16 To maintain ordered traction to established EGTT:

4.16.1 Bedframe supporting traction pulleys; or bed IV pole as equivalent

4.16.2 500gm/1 pound weight or 500mL NS bag as equivalent

4.16.3 1kg/2 pound weight or 1000mL NS bag as equivalent
5. **GUIDELINES**

5.1 **PREPARATION:**

If planning on utilizing oral route, ensure patient is intubated prior to attempting insertion.

If utilizing nasal route and patient is not intubated, ensure intubation supplies are kept at bedside at all times. Scissors and an extra EGTT must be kept at patient’s bedside at all times. If any signs of airway obstruction are assessed, the EGTT must be removed as in 5.5 Emergency Removal.

5.1.1 Follow Routine Practices, perform hand hygiene and use appropriate PPE as per PCRA.

5.1.2 Consider utilizing 2 staff for procedure; person 1 who remains clean with no patient contact, person 2 who has contact with patient and assists with preparation and insertion.

5.1.3 Transfer patient to appropriate bedframe with over bed traction if time permits or as soon as possible.

5.1.4 Set-up traction using the weight as ordered by physician.

5.1.5 Position patient supine with head of bed greater than or equal to (≥) 30º unless contraindicated.

5.1.6 Record baseline vital signs: heart rate (HR); blood pressure (BP); respiratory rate (RR); oxygen saturation (SpO2) and tidal volume (VT); peak airway pressure if applicable.

5.1.7 Ensure tonsil suction set-up at bedside.

5.1.8 Set up low intermittent suction (60-120mmHg) lines for esophageal and gastric drainage (use a Y connector if limited suction source available).

5.1.9 Measure EGTT as follows:

5.1.9.1 Measure patient from nare or corner of mouth (depending on planned insertion site) to earlobe, then to tip of xiphoid process. Add 10 cm to distance measured.

5.1.9.2 Mark EGTT at measured length, or at a minimum of 50 cm, with a piece of tape.

5.1.10 Connect stopcock to catheter adapter. Attach adaptor to gastric balloon port.
5.1.11 Connect second stopcock to second catheter adapter. Attach second adaptor to esophageal balloon port.

5.1.12 Test gastric and esophageal balloon integrity as follows:
   5.1.12.1 Attach 60 mL luer-lock syringe to gastric port stopcock, ensuring stopcock is off to extra port.
   5.1.12.2 Fill gastric balloon with air (500mL) and turn stopcock off to EGTT.
   5.1.12.3 Clamp gastric balloon port of EGTT with gauze padded forceps.
   5.1.12.4 Repeat above steps with esophageal balloon, using volume of air indicated on package.
   5.1.12.5 Submerge balloons in basin filled with water. If air bubbles are observed, or if there are any signs of balloon deflation dispose of EGTT and obtain replacement.
   5.1.12.6 Remove EGTT from basin.
   5.1.12.7 Actively deflate both balloons completely with syringe and reclamp.

5.2 INSERTION:
   5.2.1 Follow Routine Practices, including hand hygiene and use of appropriate PPE.
   5.2.2 Prepare and administer sedation as ordered. **Ensure patient has received adequate sedation to tolerate insertion of EGTT and minimize agitation which may lead to balloon displacement.**
   5.2.3 Monitor continuously throughout procedure and document HR; BP; RR and SpO₂ every 5 minutes.
   5.2.4 Assist physician with topical anaesthetic application to posterior pharynx or nasal passage (depending on planned insertion site).
   5.2.5 Apply water soluble lubricant to distal 15 cm of the EGTT. Assist physician with insertion of EGTT up to tape mark.
   5.2.6 Assist physician with partial inflation of gastric balloon as follows:
      5.2.6.1 Attach 60 mL luer-lock syringe filled with 50 mL air to stopcock of gastric balloon port.
      5.2.6.2 Open stopcock to syringe and instill air to gastric balloon port. If resistance is felt, immediately stop, remove all air, and assist physician with repositioning of EGTT.
      5.2.6.3 Close stopcock to gastric balloon port of EGTT and clamp with gauze padded
Practice Guideline:

Esophagogastric Tamponade Tube (EGTT): Assisting with Insertion, Care and Removal

Approval Date: April 28, 2017

Approved By: Standards Committee
Professional Advisory Committee

Supercedes: N/A

5.2.6.4 Remove luer-lock syringe.
5.2.7 Obtain portable abdominal X-ray to confirm placement.
5.2.8 Assist physician to inflate gastric balloon with air to total 250-500 mL (usual volume is 250 mL). Refer to steps 5.2.6.1–5.2.6.4 until goal volume is met.
5.2.9 Assist physician with gastric lavage if required:
   5.2.9.1 Instill room temperature normal saline (NS) in gastric drainage port of EGTT using the 60 mL catheter-tipped syringe.
   5.2.9.2 Gently aspirate, assessing amount and quality of fluid withdrawn.
   5.2.9.3 Discard aspirated fluid.
   5.2.9.4 Repeat above steps until clear of clots.
5.2.10 Attach suction tubing to gastric and esophageal suction lumens and ensure intermittent suction is turned on.
5.2.11 Physician will pull EGTT back until slight resistance is felt. Assist physician with attaching EGTT to over bed traction with ordered weight. If over bed traction is not available, hang ordered weight over stationary IV pole at the foot of bed, ensuring it is free hanging and aligned straight to where EGTT exits the mouth or nose.
5.2.12 Apply tape around EGTT at point of exit from mouth or nose to mark placement.
5.2.13 Obtain repeat portable abdominal X-ray to confirm gastric balloon remains fully inflated in stomach.
5.2.14 If bleeding continues, assist physician with inflation of esophageal balloon to maximum pressure of 61 cm of H₂O (45 mmHg) as follows:
   5.2.14.1 Attach manometer to stopcock of esophageal balloon port. Open stopcock to manometer.
   5.2.14.2 Compress bulb repeatedly until tamponade of bleeding has been achieved. Use minimum pressure capable of maintaining tamponade, up to maximum of 61 cm of H₂O (or 45 mm Hg). Assess and document pressure reading at end-expiration.
   5.2.14.3 Close stopcock to esophageal balloon port of EGTT and clamp with gauze padded forceps.
   5.2.14.4 Remove manometer.
5.2.15 Remove PPE and perform hand hygiene after completing task.

5.3 CARE AND MAINTENANCE:

Notify physician immediately if any signs of rebleeding occur.
Any manipulations of gastric and esophageal balloon pressure are to be done by the physician.
Traction is never to be removed while esophageal balloon is inflated.

5.3.1 Maintain patient with head of bed ≥ 30° (unless contraindicated).
5.3.2 Ensure traction is in proper alignment and free hanging at all times. After the initial 24 hours, physician will reassess need for traction on a daily basis.
5.3.3 Patient may be turned as long as traction alignment is maintained.
5.3.4 Assess exit marking hourly and with change in patient position. Notify physician if tube has migrated out 3 cm or greater.
5.3.5 Provide oral and nasal care every 2 hours. Nasal care consists of removing dried blood or secretions from the nasal orifice and proximal nares and applying a water soluble lubricant to keep the mucosa moist.

5.3.6 Monitor and document balloon pressure hourly if esophageal balloon is inflated, as follows:
- 5.3.6.1 Connect manometer to stopcock, then unclamp esophageal balloon port.
- 5.3.6.2 Open stopcock to manometer to measure pressure at end-expiration.
- 5.3.6.3 Close stopcock.
- 5.3.6.4 Reclamp esophageal balloon port with gauze padded forceps.
- 5.3.6.5 Remove manometer.

5.3.7 If esophageal balloon pressure is greater than (> 34 cm of H$_2$O (25mmHg) and no signs of bleeding present, assist physician with decreasing the balloon pressure by 7 cm of H$_2$O (5 mmHg) every 3 hours as follows:
- 5.3.7.1 Repeat steps 5.3.6.1 to 5.3.6.2.
- 5.3.7.2 Slowly release air until desired pressure is attained.
- 5.3.7.3 Close stopcock.
- 5.3.7.4 Reclamp esophageal balloon port with rubber tipped forceps.
- 5.3.7.5 Remove manometer.
- 5.3.7.6 If signs of bleeding present, assist physician with re-inflation of esophageal balloon by 7 cm of H$_2$O (5mmHg) as described in 5.2.14
- 5.3.7.7 Document changes to esophageal balloon pressure.

5.3.8 If esophageal balloon is inflated, assist physician with complete deflation of esophageal balloon every 6 hours as follows:
- 5.3.8.1 Connect manometer to stopcock, then unclamp esophageal balloon port.
- 5.3.8.2 Open stopcock to manometer.
- 5.3.8.3 Press the manometer pressure release valve fully, allowing all air to escape.
- 5.3.8.4 Leave balloon deflated for 15 minutes.
- 5.3.8.5 Once time has lapsed or if signs of rebleeding occur, assist physician with re-inflation of balloon as per steps in 5.2.14.

5.3.9 Maintain low intermittent suction to gastric and esophageal suction lumens. Assess drainage hourly. Notify physician if combined drainage(not including flushes) is greater than 100mL per hour.

5.3.10 Maintain patency of esophageal and gastric suction lumens as follows:
- 5.3.10.1 Irrigate esophageal suction lumen with 5-10mL of NS every 2-4 hours or as needed.
- 5.3.10.2 Irrigate gastric suction lumen with 50mL of NS every 30 minutes or as needed.
5.4  TRANSPORTATION:
Correct placement of EGTT must be maintained during transportation. Ensure EGTT is secured appropriately and assess exit marking on tube with any patient movement.
5.4.1 Ensure Respiratory Therapist and Physician are present during preparation and throughout patient travel, for airway safety.
5.4.2 Maintain consistent traction weight during transport: either maintain ordered traction frame on bed, or utilize portable traction device when frame not practical. You can utilize Kerlix, 1L NS and an IV bed pole. This will give 1 kg of traction.

5.5  EMERGENCY REMOVAL:
Scissors and an extra EGTT must be kept at patient’s bedside at all times. Accidental deflation or rupture of gastric balloon may lead to acute respiratory distress/airway obstruction. Notify physician immediately if any signs of airway obstruction are assessed and remove EGTT as follows:
5.5.1 Hold EGTT close to patients nose/mouth.
5.5.2 Place traction weight on bed, or cut traction rope if unable.
5.5.3 Cut EGTT distal to hand, ensuring to sever both balloon ports to allow complete deflation.
5.5.4 Remove EGTT.

5.6  REMOVAL:
Deflation and removal of the EGTT should be done in stages allowing time for assessment of rebleeding. Never deflate gastric balloon while esophageal balloon is still inflated.
5.6.1 Assist physician with deflation of esophageal balloon as follows:
   5.6.1.1 Unclamp esophageal balloon port.
   5.6.1.2 Using syringe, aspirate air from esophageal balloon port.
   5.6.1.3 Observe for signs of rebleeding for 12-24 hours, or as directed by physician.
   5.6.1.4 If rebleeding occurs, notify physician immediately and prepare to assist physician with reinflation of the esophageal balloon as described in 5.2.14.
5.6.2 Assist physician with deflation of the gastric balloon as follows:
   5.6.2.1 Remove traction from EGTT.
   5.6.2.2 Secure EGTT to patients’ nose/cheek using tape.
   5.6.2.3 Unclamp gastric balloon of EGTT.
5.6.2.4 Using syringe, aspirate air from gastric balloon port.
5.6.2.5 Observe for signs of rebleeding for 12-24 hours, or as directed by physician.
5.6.2.6 If rebleeding occurs, notify physician immediately and prepare to assist with re-inflation of gastric balloon as outline in 5.2.6. **EGTT placement must be reconfirmed prior to full inflation of gastric balloon.**

5.6.3 Upon written physician order, remove EGTT with physician present.
5.6.3.1 Remove intermittent suction from EGTT.
5.6.3.2 Using syringe, actively aspirate any remaining air in esophageal and gastric balloons. Clamp balloon ports prior to removing syringe.
5.6.3.3 If unable to aspirate from balloon ports, cut EGTT ensuring to sever both balloon ports.
5.6.3.4 Remove EGTT.

5.7 **DOCUMENTATION:**
Document procedure, on-going monitoring, and patient tolerance in unit specific records, such as the Critical Care Flow sheet, Integrated Progress Note, and in Electronic Patient Record where available.

6. **REFERENCES**
6.10 Greenwald, B. (2004). Two devices that facilitate the use of the minnesota tube. Gastroenterology Nursing, 27(6), 268-70
Journal, 36(10), 684-685.

6.12 Health Sciences Centre. (2006). Sengstaken-blakemore tube: assisting with insertion and maintenance of by RNs in MICU, SICU, PACU, and emergency.


7. RESOURCES:

12.1 Critical Care Clinical Resource Nurses
12.2 Critical Care Nurse Educators

8. PRIMARY AUTHOR(S)