

SUBJECT: Anti-Embolism Stockings	REFERENCE NUMBER: DRAFT
APPROVALS: Chief, Inpatient Care Vice President Patient care Services/ Chief Nursing Officer	ORIGIN DATE: 5/08
	REVISION NUMBER:
	REVISION DATES:

PURPOSE: Strong evidence exists that “anti-embolism” stockings (“Teds”) can cause harm, especially when used in the presence of peripheral artery disease. There is not strong evidence that they are beneficial. Clinicians must carefully weigh for each individual patient the potential for harm compared to the potential for benefit. This policy assists in reducing the chance of harm from the use of “anti-embolism” stockings.

POLICY: The use of antiembolism stockings (AES) may be indicated in the immobile/bedridden patient as a mechanical means of deep vein thrombosis (DVT)/pulmonary embolus (PE) prophylaxis in at risk patients.

PROCESS: Adherence to the following assessment, use and maintenance requirements is required. By definition, AES are elastic stockings, which provide between 18-25 mm HG gradient pressure.

A. Indications for use:

- 1) An order by a licensed independent practitioner.
- 2) For DVT/PE prophylaxis in the immobile/bedridden patient.

B. Contraindications for use:

- 1) Arterial insufficiency (peripheral arterial disease, including symptoms of claudication, lower extremity pain with elevation)
- 2) Absent peripheral pulses
- 3) Dermatitis, including stasis dermatitis
- 4) Anatomic deformity associated with Rheumatoid Arthritis or Charcot Joint
- 5) Loss of skin integrity
- 6) Massive edema of legs or pulmonary edema from CHF
- 7) Suspected or actual acute deep vein thrombosis
- 8) Lower extremity ischemia or gangrene
- 9) Vein ligation or saphenous vein harvest within 6 months
- 10) Skin graft within 6 months.
- 11) Ambulatory Patient: able to ambulate independently, with one assist, or with assistive device (exclude those patients who are post op TKA, see C.8)

C. Assessment, Care and Maintenance:

- 1) Initial assessment as noted above in a. and b.
- 2) Correct fitting of AES is important to avoid associated complaints.
 - a) Measure the patient for AES only after they have been supine for at least 30 minutes.
 - b) Measure the extremity(ies) for the appropriate size according to the manufacture's directions and brand being used. To measure for knee high, measure circumference in inches of patient's calf; measure length in inches from bend in knee to bottom of heel.
- 3) Assure the patient's leg is clean and completely dry prior to initial application of the stocking.
- 4) SAFETY CHECK: Apply the stockings according to nursing procedure and complete a safety check including:
 - a) Heel is located in the center of the heel pocket
 - b) Toes are freely mobile and the patient reports no cramping.
 - c) Smooth fit over sensitive areas (toes, heel, anterior foot, ankle)
 - d) Knit change at the knee should be just below the popliteal fossa.
- 5) Reassess lower extremity circulation within 1 to 2 hours following initial application. If circulation is diminished (i.e. toes discolored, patient reports numbness, burning sensation, etc.) remove the stockings and notify the ordering practitioner.
- 6) Remove the stockings for 30-60 minutes twice a day and conduct a reassessment. Particular at risk areas include the patient's toes, heels, malleolus, anterior ankle and top of the stocking (possible tourniquet effect). Once daily, wash the lower extremities and lubricate the skin. Allow the lubricant to absorb before reapplying the stockings.
- 7) The stockings are to be discontinued and discarded when the patient is ambulatory (i.e. able to ambulate independently, with one assist, or with assistive device).
- 8) For post op total knee arthroplasty, the surgeon or designate will order the thigh high AES to control post op swelling and request use to continue for as long as to 6 weeks post op.

D. Documentation:

- 1) Document as a progress note the initial assessment (including peripheral pulse assessment), measurements, size and education provided.
- 2) Ongoing twice a day removal, assessment and hygiene are recorded on the treatment record.
- 3) If circulation is diminished (see b #7), remove stockings and notify ordering practitioner. Additional progress notes are required. Such progress notes will include provider notification.
- 4) Skin breakdown associated with use of the stockings requires an incident report to be initiated.

E. Special Notes:

- 1) For DVT/PE prevention, use knee length AES. In some instances, such as post op total knee arthroplasty patients, the ordering practitioner may prefer to use thigh high AES to control post op swelling. To measure for thigh high, measure circumference in inches of patient's calf and thigh; measure in inches the distance from gluteal furrow to bottom of heel. If circumference of thigh is greater than 25 inches, do not use thigh high AES. If patient is to use AES when ambulatory, "full toe" AES may be preferred.
- 2) Alternative mechanical devices effective in the prevention of DVT/PE
 - a) Sequential compression devices (SCDs). AES are not required for use with SCDs. Absorbent cotton stockings or stockinette may be used.
 - b) Progressing patient to an ambulatory status as soon as clinically and physically indicated is one of the most effective measures for DVT/PE prophylaxis.
 - c) Dorsal and plantar flexion of the foot at least ten times every hour while awake.
- 3) Pharmacological agents effective in the prevention of DVT/PE:
 - a) Low molecular weight heparin
 - b) Warfarin
 - c) Subcutaneous heparin
- 4) Little known facts:
 - a) AES are not effective in treating chronic lower extremity edema in the upright patient.
 - Ambulatory compression stockings (Jobst) may be ordered for this purpose.
 - For compressive therapy, consider a consult to lymphedema clinic.
 - b) Treatment of orthostatic hypotension may include ambulatory compression stockings (Jobst)
 - c) Ankle brachial Index is a non invasive test which measures the patency of lower extremity arteries. Results < .8 indicate arterial occlusion. Normal is from 1.0 – 1.2 Although there are no data to suggest a critical level for not using AES stockings, vascular surgery advised they should not be used if the patient's ABI is < .8. This is the level when critical limb ischemia becomes a serious concern.

F. Patient/Family Education :

- 1) Describe the purpose of the stockings before application and instruct the patient to notify the nurse immediately of any burning, tingling, numbness or pain following application.
- 2) If the patient is discharged with AES, provide a written handout and review application, maintenance, laundering and problem reporting with the patient.