

Applying EBP to ReBoot Orthopedic Spine Patient SCD Protocol

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Introduction

PICO Question

In adult spine surgery patients, does the use of knee-length SCD sleeves versus the current practice of thigh-length SCD sleeves, effect postoperative VTE rates or patient experience?

Our Northeastern, 900+ bed, level 1 trauma center has 40+ operating rooms (ORs) with an attached 10 OR inpatient orthopedic center (BJI).

The Spine Service Line (SSL) composed of both Orthopedic and Neuro spine surgeons completed 859 spine surgeries in 2024 across both areas of campus.

Applied in the operating room by circulating nurses prior to the induction of anesthesia, surgical spine patients were the only patient population to routinely be given bulky, thigh-length Sequential Compression Device (SCD) sleeves rather than knee-length sleeves for mechanical Venous Thromboembolism (VTE) prophylaxis.

The SCD sleeve use is maintained on the patient through the postoperative phase of care where patients often complain about the bulky, uncomfortable thigh-length sleeves, decreasing compliance and potentially adding knee-length sleeves for their inpatient stay.

In comparison, all other orthopedic patients receive knee-length SCD sleeves with successful VTE prevention results.

Facility policies and guidelines for sleeve choice were either vague or conflicted with current practice – One policy for VTE prophylaxis did not specify the type of SCD sleeve used and a second one recommended knee-length SCD sleeves.

Literature Review

- Multiple researchers have found that reducing VTE risk can be done with early mobilization and intraoperative and postoperative SCD use (Kepler, et al., 2018; Alvarado, et.al., 2019; Epstein, 2005), but none of their studies specified knee- vs. thigh-length sleeves.
- Patient care guidelines from the North American Spine Society, American Society of Hematology, and American College of Chest Physicians suggest mechanical VTE prophylaxis in surgical patients, but do not specify knee- vs. thigh-length sleeve use.
- SCD sleeves must be sized correctly to be effective - thigh-length sleeves can cause a tourniquet effect if they are too tight around the upper legs (Burlingame, 2010). And patient thigh and calf size differences can make it difficult to have correct fitting thigh-length sleeves.
- Post-op compliance is better for staff and patients with knee-length sleeves as they are more comfortable for patient experience and easier to use than thigh-length (Larkin, et al. 2012) (Burlingame, 2010) (Brady, et al., 2007) (Stone & Chamberlin, 2011).

Methods

The workgroup for this project included an OR staff nurse and nurse scientist/nurse educator.

We followed **The 5-Step Model of EBP** to guide our project.

1.) Ask

- Formulated PICO question after recognizing patient care changes in surgical spine population in recent years to include changes in surgical techniques, smaller incisions, shorter surgical times, multimodal pain control and early postoperative mobilization
- In discussion with staff, identified that thigh-length sleeves can be more cumbersome to apply compared to knee-length sleeves

2.) Acquire

- Performed a literature search and reviewed facility policies, medical guidelines and practice at sister hospitals

3.) Appraise

- Concluded that knee-length SCDs are safe and effective for mechanical VTE prophylaxis for surgical spine population
- Formally presented recommendation for practice change from using thigh-length SCD sleeves to knee-length SCD sleeves in surgical spine patients at SSL meeting with audience including surgeons, nurses, and department leaders and gained their approval for the change project
- Introduced recommended practice change via SBAR tool to Hospitalist team and gained their approval

4.) Apply

- Provided staff education along the continuum of care - OR, PACU and postoperative care floors
- Determined go-live date for orthopedic spine patients at BJI (July 1, 2025), updated surgeon preference cards, and worked with materials department to increase supply of knee-length SCD sleeves
- Implemented with Neuro spine patients by October 2025

5.) Assess

- Monitored patient outcomes per usual protocols
- Collected staff feedback

Results

For 319 spine cases from July through October, 2025, data shows no negative outcomes from knee-length SCD sleeves, and no VTEs reported.

We calculated an average of \$6.30 in savings per SCD sleeve unit, or over \$5400.00 per year. This number is expected to rise as surgical volume increases.

Standardized patient care is now in alignment with hospital policy and sister health system facilities.

Multiple OR staff members have shared they appreciate the change to knee-length SCD sleeves because they are easier to apply, have more sizes available, and reduce the potential of bunching at the knees in prone position that can lead to patient harm.

Floor staff and PTs have expressed positive results in the change as it is easier for patients to ambulate with knee-length SCD sleeves, and patients feel more comfortable overall.

We continue to monitor for potential increased patient postoperative SCD use compliance and satisfaction.

Discussion

Perioperative nurses implement care that is carried out through the patient's inpatient journey. Practicing with a questioning attitude and providing scientific evidence rather than accepting "the way we have always done things" strengthens our voice and elevates our partnership with surgeons to:

- Positively affect patient care and experience
- Improve staff satisfaction with processes
- Decrease cost of care and redundant products
- Minimize environmental impact (decrease volume of materials)

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