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Risk Factors for VTE in Orthopedic Surgery

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Risk Factors for VTE in Orthopedic Surgery

Kellie Musick, BS, BSN, RN



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- Kate Gibbs, MHA, CCLS QI Consultant
- Alex Hermelin, BSN, RN, CPN KT Scholar
- Amber Hunley, MSN, RN-BS RN Residency Program Manager
- Meredith Kopp, BSN, RN, CNOR, CPHQ OR QI Coordinator

A3 Overview

A3 for Problem Solving

Focus: Operating Room – Risk Factors for VTE in Orthopedic Surgery	Owner: Nurse Residency Program	Date: October 23, 2018	Date Approved:
A3 Team: Kellie Musick		Department Director Signature:	KT Scholar: Alex Hermelin QIC: Kate Gibbs
Clarify the Problem <ul style="list-style-type: none"> Children's Mercy experienced a 92% increase in the Venous Thromboembolism (VTE) rate from FY17 to FY18 (0.38 to 0.73). FY19 data, shows a current rate of 1.35. <ul style="list-style-type: none"> July: 10 events, rate = 1.335 August: 7 events, rate = 0.882 September: 11 events, rate = 1.372 October: 12 events, rate = 1.417 November: 14 events, rate = 1.706 December: 12 events, rate = 1.345 SCD stands for sequential compression device. It consists of sleeves that are placed around the calves of the patient that hook up to a machine. The machine pushes air in and out of the sleeves around the legs to perform a squeezing action. This action will help prevent blood clots from forming in the legs, which can lead to venous thromboembolism. Children's Mercy practice in the operating room is to have surgical patients 10 years and older having spinal surgery and patients 12 years and older having a non-spinal surgery scheduled for greater than 60 minutes wear SCD's. The SCD's should be turned on prior to entering operating room. 	Develop and Implement Countermeasures <ul style="list-style-type: none"> An educational email was sent to SDS staff on November 21, 2018. This email included information about the current VTE rate at Children's Mercy Adele Hall, where SCD sleeves and machines can be found throughout SDS and the OR, SCD criteria for perioperative patients, and a copy of the visual reminder that was posted at the computer stations in SDS. A visual reminder was created and added to all of the computer stations in SDS on December 11, 2018. A new time-out form was created and put into orthopedic operating rooms on January 14, 2019. 		
Break Down the Problem <ul style="list-style-type: none"> A chart audit was done on SCD compliance in the main operating room at Adele Hall for July-September 2018. Data showed that the orthopedic specialty had the lowest compliance. Next, a chart audit completed on SCD compliance in orthopedic surgery at Adele Hall, July-September 2018, reported that the compliance was 81%. Same day surgery and the operating rooms are impacted by SCD use. Same day surgery nurses are prompted to put the SCDs on the patients before the operating nurse takes the patient to surgery. The operating room nurses double check that they are on the patient and make sure that it is charted during the case. A survey was sent out to SDS and OR staff nurses to help determine knowledge deficits regarding SCDs and the barriers of placing SCDs on perioperative patients. The top barriers for placing SCDs on perioperative patients stated by SDS nurses were the following: SDS nurse forgets or gets too busy, multiple time constraints can affect remembering, patient reluctance, surgeon preference not to use them if they state their case will not last up to the scheduled time of 60 minutes, feeling rushed, and surgeon variability of preference. 	Check Results and Process <ul style="list-style-type: none"> Data was collected by running weekly chart audits. These audits included all of the operating room cases that were scheduled for longer than 60 minutes and the patient was older than 12 years old. The audits were then separated by team specialty, which is how orthopedic SCD compliance was recorded. The percentage was then added to a run chart. This is how the weekly SCD compliance was achieved. Post countermeasure surveys were sent out to SDS nurses on January 28, 2019 and to the OR orthopedic nurses on January 29, 2019. Results for the visual icon and educational email show that 60% of the SDS nurses found the visual aid to be helpful in remembering SCDs. 40% of the SDS nurses stated that it got in the way of the computer screen, prefer the blue sheets that they already use, and it is another thing to have to look at when there are several visual reminders already. Results for the time-out form show that 100% of the Orthopedic OR nurses found the new time-out form to be helpful in remembering SCDs. 		
Set a Target <p>Increase SCD compliance in the orthopedic surgery specialty during surgical procedures at Adele Hall from 81% to 90% by February 28, 2019.</p>	Standardize and Follow Up <ul style="list-style-type: none"> The orthopedic operating room nurses found the new time-out form as a helpful reminder to use SCDs. As a result, the time-out form will be implemented throughout the entire operating room for consistency and to improve the overall SCD compliance. SCD compliance will continue to be run by the OR QI Coordinator, and the data will continue to be shared with the OR staff at the end of every month. In the future, OR nursing staff should be educated on placing orders when SCDs are not in use for a patient who meets the criteria. Continue to monitor monthly SCD compliance rates to try and figure out why there is inconsistency. 		
Identify Root Cause <ul style="list-style-type: none"> Based on the top barriers that were determined from the survey sent to SDS and OR nurses, the following root causes were identified: <ul style="list-style-type: none"> Lack of knowledge about SCD's (focus) Surgery lasted longer than expected/scheduled SDS and OR staff forget to apply/too busy (focus) Surgeon preference not to use them 			

Clarify the Problem

- Children's Mercy experienced a 92% increase in the Venous Thromboembolism (VTE) rate from FY17 to FY18 (0.38 to 0.73). FY19 data, shows a current rate of 1.35 (about 12 events).
- SCD stands for sequential compression device. It consists of sleeves that are placed around the calves of the patient that hook up to a machine. The machine pushes air in and out of the sleeves around the legs to perform a squeezing action. This action will help prevent blood clots from forming in the legs, which can lead to venous thromboembolism.
- Children's Mercy practice in the operating room is to have surgical patients 10 years and older having spinal surgery and patients 12 years and older having a non-spinal surgery scheduled for greater than 60 minutes wear SCD's. The SCD's should be turned on prior to entering operating room.

Breakdown the Problem

- A chart audit was done on SCD compliance in the main operating room at Adele Hall for July-September 2018. Data showed that the orthopedic specialty had the lowest compliance. Next, a chart audit completed on SCD compliance in orthopedic surgery at Adele Hall, July-September 2018, reported that the compliance was 81%.
- Same day surgery and the operating rooms are impacted by SCD use. Same day surgery nurses are prompted to put the SCDs on the patients before the operating nurse takes the patient to surgery. The operating room nurses double check that they are on the patient and make sure that it is charted during the case.

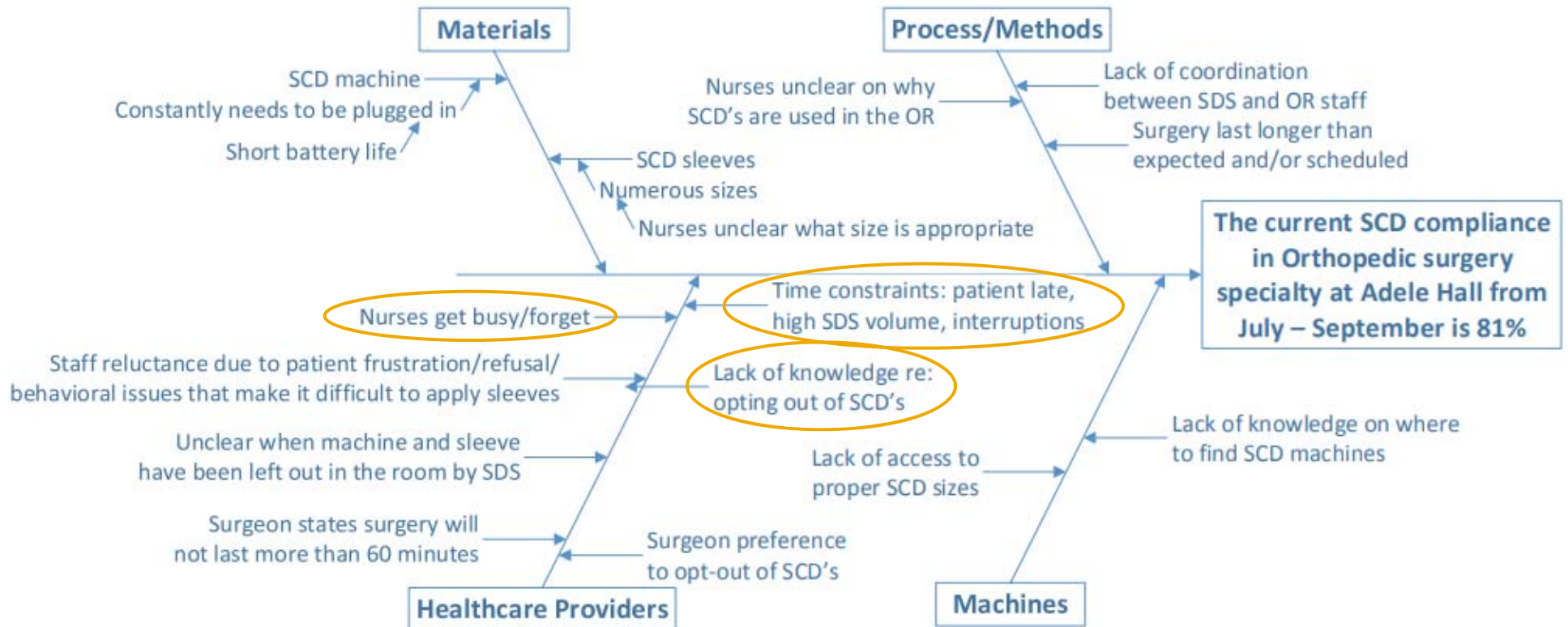
Breakdown the Problem

- A survey was sent out to SDS and OR staff nurses to help determine knowledge deficits regarding SCDs and the barriers of placing SCDs on perioperative patients. The top barriers for placing SCDs on perioperative patients stated by SDS nurses were the following:
 - SDS nurse forgets or gets too busy
 - Multiple time constraints can affect remembering
 - Patient reluctance
 - Surgeon preference not to use them if they state their case will not last up to the scheduled time of 60 minutes
 - Feeling rushed
 - Surgeon variability of preference

Set a Target

Increase SCD compliance in the orthopedic surgery specialty during surgical procedures at Adele Hall from 81% to 90% by February 28, 2019.

Identify Root Cause

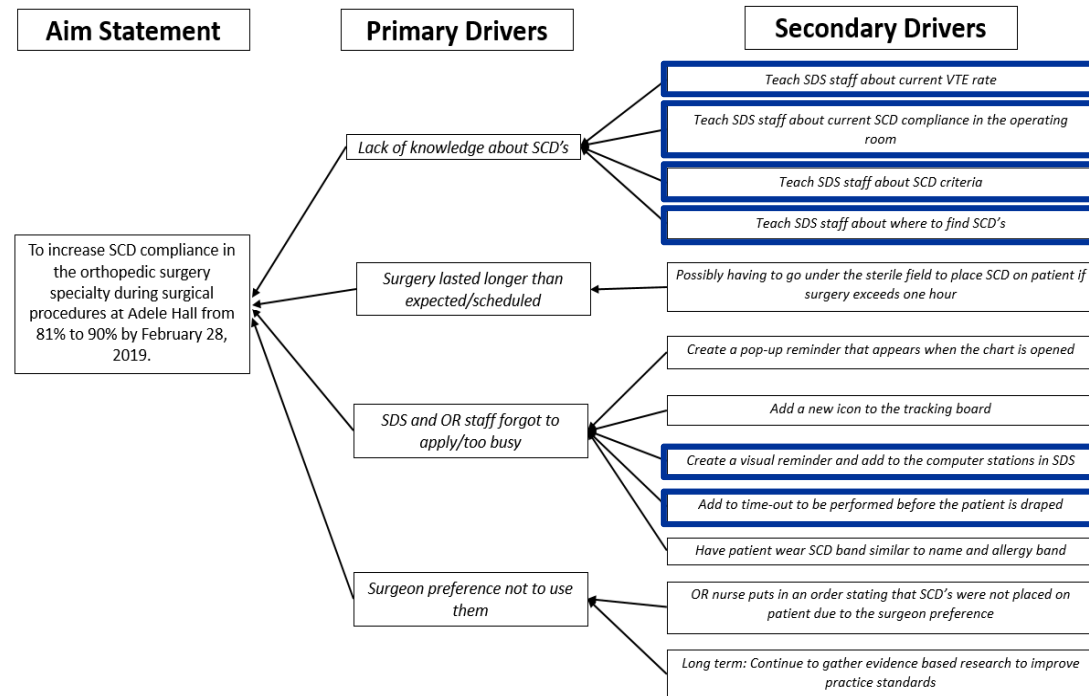


Identify Root Cause

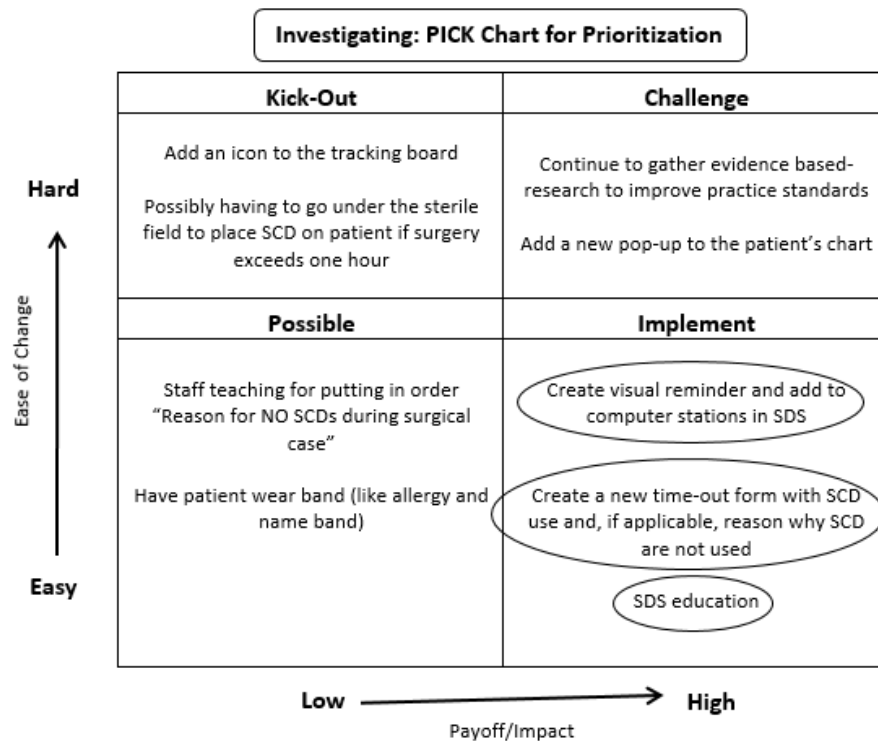
- Top barriers identified from SDS and OR nurses (survey)
 - Lack of knowledge about SCD's
 - Surgery lasted longer than expected/scheduled
 - SDS and OR staff forget to apply/too busy
 - Surgeon preference not to use them

Develop and Implement Countermeasures

Develop and Implement Countermeasures: Driver Diagram



Develop and Implement Countermeasures



Develop and Implement Countermeasures

- An educational email was sent to SDS staff on November 21, 2018. This email included the following information:
 - o Current VTE rate at Children's Mercy Adele Hall
 - o SCD sleeves and machines location in SDS and the OR
 - o SCD criteria for perioperative patients
- A visual reminder was created and added to all of the computer stations in SDS on December 11, 2018.
- A new time-out form was created and put into orthopedic operating rooms on January 14, 2019.

Develop and Implement Countermeasures



Ortho Time Out Form

(Start by introducing all members of the perioperative team)

This is (2 patient identifiers). They are here for (read procedure directly from consent), and the patient is marked on the (). He/She has an allergy to (). We will be giving (list antibiotic). The patient's weight is (kg) and we have (mL) of (list local anesthetic/other medication) available. The wound class is () and the fire risk is (). Correct imaging is displayed.

If the patient meets the criteria for SCD's: Does the patient have SCD's on?

If SCD's are not on and the patient meets the criteria for it, please place an order and describe why they were not used during procedure.

Does anyone have any special concerns regarding this procedure? Does everyone agree?

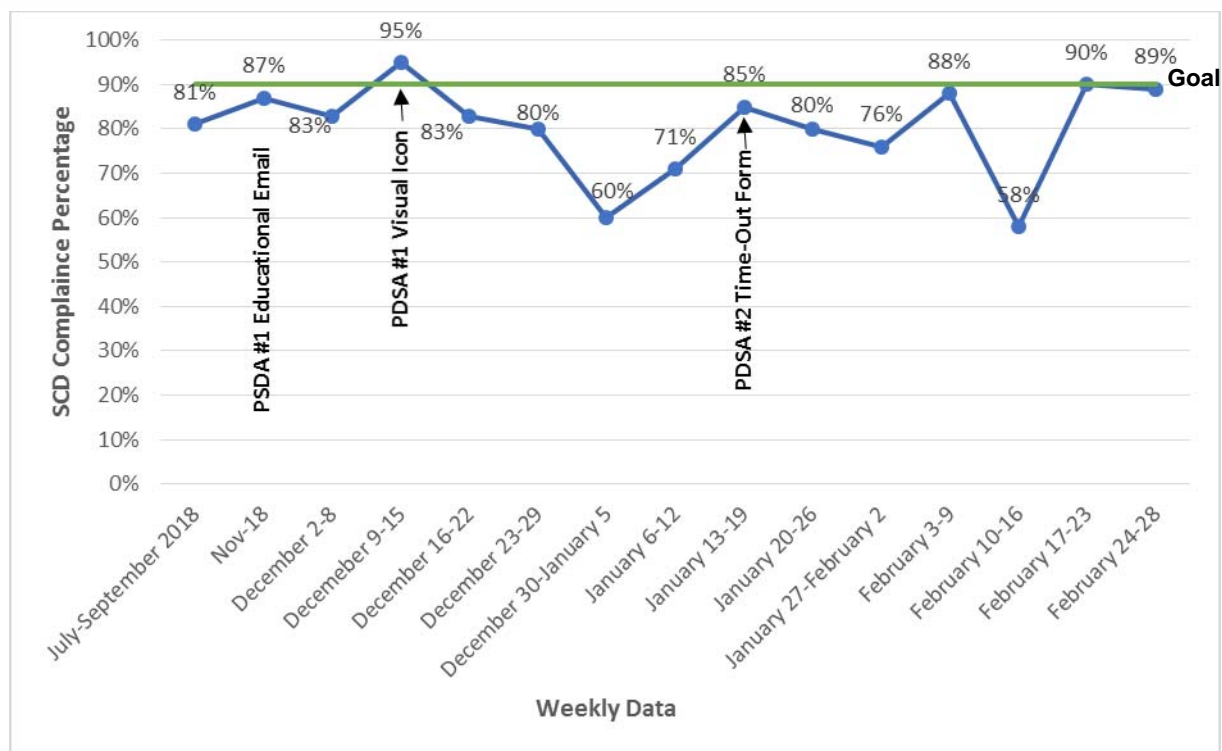
Check Results and Process

Data was collected by running weekly chart audits.

- These audits included all of the operating room cases that were scheduled for longer than 60 minutes and the patient was older than 12 years old.
- The audits were then separated by team specialty, which is how orthopedic SCD compliance was recorded.
- The percentage was then added to a run chart.

This is how the weekly SCD compliance was achieved.

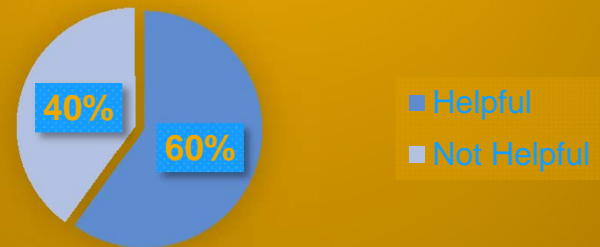
Check Results and Process



Check Results and Process

- Post countermeasure surveys were sent out to SDS nurses on January 28, 2019 and to the OR orthopedic nurses on January 29, 2019.
- Results for the time-out form show that 100% of the Orthopedic OR nurses found the new time-out form to be helpful in remembering SCDs.

Post Countermeasures for SDS Survey



Standardize and Follow Up

- The orthopedic operating room nurses found the new time-out form as a helpful reminder to use SCDs. As a result, the time-out form will be implemented throughout the entire operating room for consistency and to improve the overall SCD compliance.
- SCD compliance audits will continued to be run by the OR QI Coordinator, and the data will continue to be shared with the OR staff at the end of every month.
- In the future, OR nursing staff should be educated on placing orders when SCDs are not in use for a patient who meets the criteria.
- Continue to monitor monthly SCD compliance rates to try and figure out why there is inconsistency.

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Questions