Recommendations for Improving Safety Practices with Short Peripheral Catheters (SPC)

Think Safety, Insert Safely

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Objectives

- Identify safety issues and concerns associated with the use of short peripheral catheters.
- Discuss the recommendations to improve patient and healthcare provider safety related to the insertion and management of short peripheral catheters.

Outline

- SPC Overview
- INS IV Safety Survey Results
- Safety Issues and Concerns
- Position Paper Recommendations
- Q&A
What is Position Paper?

- Written statement that articulates a viewpoint, position, or policy of an organization.
- Explains identified issue/problem and provides recommendations or course of action.
- NOT to be confused with Standard of Practice

Short Peripheral Catheter (SPC)

- A type of vascular access device where the tip begins and terminates in a peripheral vein.
- Vary in sizes (gauge)
- Less than 3 inches in length.
- Does not include MIDLINES
- Also called “PIV” – peripheral IV

Short Peripheral Catheter (SPC)

- Most common vascular access device used in the healthcare arena.
- Approximately 330 million sold in the US*.
- SPC placement is invasive but perceived as a simple treatment procedure.
- “It is just a peripheral IV”

* PRWeb 2013 [press release]. Becton Dickinson, C. R. Bard, and Covidien lead the way in the vascular delivery device market, reports iData Research February 21, 2013
Safety concerns

• Population growth, rising morbidity rates; aging population = increased need for VAD & infusion therapy
• Reports of increasing lawsuits against nurses involving SPC
• Reports of increased blood occupational exposure during placement

The Issues

• SPC Placement is performed without consideration for the HCP and patient safety and associated risks for potential complications.
• Lack of standardization and knowledge on SPC practices, placement techniques and variation of HCP skill and experience.

INS Safety Practice Survey 2013

• Survey goal: to identify, understand and validate HCP and patient safety issues, placement practices, and risks associated with SPC.
• 14 questions, survey on line and at INS booth during 2013 Annual Convention.
• N=345 (INS; select ONS chapter members and nurses from social media)
INS Safety Practice Survey Results

Do you insert short peripheral IV catheters in your current job?
- Yes: 308 (98%)
- No: 89 (29%)

How long have you been inserting short peripheral IV catheters?
- 1-5 years: 37 (12%)
- 5-10 years: 11 (7%)
- 10-20 years: 20 (6%)
- >20 years: 1 (3%)

Total Respondents: 345
Did Not Answer: 1

INS Safety Practice Survey Results

Were you taught to insert short peripheral IV catheters while in school?
- Yes: 262 (76%)
- No: 11 (10%)
- I don’t insert short peripheral IV catheters: 62 (18%)

If no, how did you learn to insert short peripheral IV catheters?
- Do the job training: 83 (24%)
- See one, do one: 135 (40%)
- Trial and error: 20 (6%)
- Attended an IV insertion workshop: 28 (8%)
- Other: 19 (5%)

Total Respondents: 344
Did Not Answer: 2

INS Safety Practice Survey Results

Did your job orientation or competency training include insertion of short peripheral IV catheters?
- Yes: 318 (93%)
- No: 24 (7%)

Does your current employer have a policy and procedure on the insertion of short peripheral IV catheters?
- Yes: 306 (90%)
- No: 56 (16%)

Total Respondents: 342
Did Not Answer: 4
INS Safety Practice Survey Results

If yes, have you reviewed your employer's policy/procedure on insertion of short peripheral IV catheters?
- Yes: 204 (68%)
- No: 90 (29%)
- Did Not Answer: 19 (6%)

INS Safety Practice Survey Results

Do you use technology such as vein-finding devices or ultrasound routinely during insertion of short peripheral IVs?
- Yes: 90 (33%)
- No: 204 (69%)
- Did Not Answer: 19 (6%)

INS Safety Survey Results

If you are only able to find suitable veins in areas recommended to avoid, would you still proceed with the insertion?
- Yes: 278 (82%)
- No: 46 (13%)
- Did Not Answer: 7 (2%)

INS Safety Survey Results

What cleansing agent do you use for skin prep prior to insertion of a short peripheral IV catheter?
- Alcohol 70%: 148 (44%)
- Alcohol/Lodophor: 191 (56%)
- Alcohol/Chlorhexidene gluconate: 2 (1%)
- Soap and water: 14 (4%)
- Did Not Answer: 8 (2%)

INS Safety Survey Results

What pain management strategy do you use for short peripheral IV catheter insertions?
- Transdermal anesthetics: 148 (44%)
- Intradermal injection of either lidocaine or bateriostatic saline: 2 (1%)
- Neither: 278 (82%)
- None: 14 (4%)
- Did Not Answer: 8 (2%)
INS Safety Survey Results

Which technique do you employ when accessing veins for short peripheral IV catheter insertion?

- Palpation only: 328 (97%)
- Looking at the vein/Visual only: 6 (2%)
- Both palpation and visual: 7 (2%)
- Vein-finding devices only: 24 (6%)

Total Respondents: 335

How many attempts would you make to successfully insert a short peripheral IV catheter?

- 1 attempt: 250 (75%)
- 2 attempts: 28 (8%)
- 3 attempts: 72 (21%)
- More than 3 attempts: Not applicable

Total Respondents: 335

Did Not Answer: 11

Education/Training

- No formal education and training related to SPC pre-insertion, insertion, post-insertion.
- INS Safety Practice Survey 2013:
  - 57% reported not taught in nursing school.
  - 71% reported receiving on the job training
  - 11% reported "see one, do one" approach

Literature: Jensen; Dycheter et al reported:

- Lack of standardized nursing school curriculum on SPC
- Lack of SPC specific employee orientation/ preceptorship.
- Limited or no ongoing training or competency assessment


Infusion Nursing Standards of Practice

- Standard 32: Vascular Access Devices
  - Practice criteria 1A-1G
- Standard 33: Site Selection
  - Practice criteria 1A-1H
- Standard 34: Local Anesthesia for VAD placement
- Standard 35: Site Preparation/Device Placement
- Standard 36: Device Stabilization
- Standard 44: VAD Removal
- Standard 45: Flush and Lock
- Standard 46: VAD site care/dressing
- Standard 47: Phlebitis
- Standard 48: Infiltration/Extravasation
- Standard 49: Infection
- Standard 18: Infection Prevention
- Standard 19: Hand Hygiene
- Standard 22: Safe handling, disposal of sharps
- Standard 24: Transmission based precautions.
- Standard 11: Patient education
- Standard 14: Documentation

Reference: Infusion Nursing Standards of Practice

SPC Practice Variations

- Poor aseptic / insertion technique
- Limited skill/knowledge in choosing appropriate site/vein/SPC
- Inadequate/inappropriate use of standard precautions and PPE
- Inadequate SPC stabilization
- Inadequate patient education
- Incomplete documentation
  - Insertion procedure
  - Site assessment
  - Site Monitoring
  - Patient education
- Variations affect HCP & patient safety and lead to poor clinical outcomes

Pre-insertion Assessment

- Safety and patient considerations
  - Avoiding areas of flexion
  - Type of infusate
  - Duration of therapy
  - Venous status
- RNs / HCPs need to take the time to perform pre-insertion assessment to avoid potential for complications.
Risks of Complications

- Areas of flexion = high risk due to superficial presentation of nerves and arteries
- Phlebitis
- Infection
- Infiltration/extravasation
- Arterial puncture
- Nerve injury

Occupational Blood Exposure

- Jagger et al 2011 two surveys results assessed the risk of blood exposure with SPC insertion.
  - 1 in 2 nurses experienced blood exposure on skin or mucous membrane due to splash, splatter or leakage
  - Not wearing gloves 10%-11% of the time
  - Some wear gloves but cut the finger out of glove to feel the vein,
  - Inadvertent environmental contamination exposing others to potential BBP transmission

Infection Control Practices

- Poor aseptic technique and infection prevention practices = increase patient's risk for development of a local or systemic infection.
- Hand hygiene performed before/after any interaction with an intravascular access
- Adequate skin prep w/ considerations to type of antiseptic agent, method of application, and contact time.
Infection Control Practices

- Re-palpation of vein after skin prep
- INS SOP: must be done with sterile gloves
- CDC: should not be performed after the antisepsis has been applied.
- SPC infection rates thought to be low but actual numbers could be high with most going undetected due to short dwell time and early discharges.

SPC Stabilization

- Inadequate or not done = risk for several complications
  - Loss of access, treatment delays, infiltration/extravasation
- INS SOP and ONS Access Device Guidelines recommend use of stabilization devices
- INS Safety Survey: only 46%

Site Assessment

- Reports that a situation most likely to result in a serious adverse event for the patient/HCP = incomplete assessment or failure to frequently assess, monitor, maintain the SPC site.
Site Assessment

- Results of 516 closed claim analyses and risk control assessments identified assessment and monitoring as 2 of common allegations.
  - 32% were due to HCP failure to properly monitor SCI site = compartment syndrome/infection.
- INS 2012 position paper: Recommendations for Frequency of Assessment of SPC site:

INS Safety Practice Survey: 24% use technology

Ultrasound and infrared light technologies have been reported to increase first venipuncture success rates & patient satisfaction but still in developmental stage
Documentation

• SPC placement, assessment, and monitoring is consistently lacking
• Careful documentation following organization’s policies and procedures will help prove the care provided met the standards of practice.

Patient/Caregiver Education

• Need to provide thorough patient/caregiver education related to SPC:
  – Pre-insertion
  – Insertion
  – Post-insertion
  – Removal
• Provides another safety net in the early recognition of potential complications and interventions.
• Builds a relationship trust between the patient and the HCP.

Data Collection/SPC Surveillance

• Currently lacking
• Recognize need to develop tools and processes
• Becomes a challenge due to the number of SPCs used
• Simple procedure makes it easy to forget the potential for serious complications and risks
Recommendation

• A fundamental element for performing a procedure correctly is to have adequate knowledge of the correct steps to follow.
• All registered nurses and HCPs who are responsible for SPC placement, assessment, monitoring, and removal should attend and successfully complete an educational (theoretical/didactic) program specific to SPC during orientation (hire) and at least annually.

Recommendation

• Knowledge alone doesn’t translate to a change in practice; therefore, education/training should be followed by an SPC competency assessment that includes return demonstration with a qualified preceptor/instructor and observation audits with direct feedback annually and as needed.
Recommendation

An organization’s policies and procedures for short peripheral catheter should be developed/reviewed and/or revised to incorporate the most current standards of practice from INS and CDC guidelines to include:

a. Preinsertion assessment and placement
b. Ongoing assessment and monitoring of indwelling SPCs
c. Infection prevention and Standard Precautions
d. Identification, prevention, and management of complications
e. Patient/caregiver education
f. Removal of SPC
g. Documentation
h. Surveillance/quality improvement/outcomes

Recommendation

- Development of SPC surveillance programs with "quality indicators" that will allow objective assessment and monitoring of SPCs. The indicators may include, but are not limited to, phlebitis rate; SPC infection rate; infiltration/extravasation rate; timely and accurate documentation of placement; daily review of SPC necessity; compliance to Standard Precautions during insertion, maintenance, and removal.

Recommendation

- Audits and feedback should complement the SPC surveillance program to sustain improvement in process and performance. Direct feedback during SPC insertions or review of SPC sites and documentation can assist in practice change.
Recommendation

• Personal Protective Equipment (PPE), hand hygiene, and safe injection practices form the basis of Standard Precautions. Due to the high risk of occupational blood exposure with the SPC procedure, PPE must be used and selected if the potential for blood or body fluid exposure is anticipated or highly feasible.

Recommendation

• The placement of an SPC is a procedure performed by both the infusion nurse and the non-infusion nurse. It is strongly recommended that the insertion, care, and maintenance of SPCs is implemented as a standardized curriculum in all undergraduate nursing programs to provide novice nurses with basic knowledge/skills as they join the nursing workforce.

Recommendation

• Develop and implement an effective method to focus and improve safety compliance to include safety awareness campaigns on a regular basis.
Recommendation

- Incorporate vein visualization technology as a routine strategy for patients with difficult or poor venous access.
- Visualization technology can improve success rates, decrease unsuccessful insertion attempts, and improve patient satisfaction.

Tools / Resources

- SPC Insertion Checklist
  - Modeled after the CDC Checklist for Prevention of Central Line Associated Blood Stream Infections
  - Covers assessment, insertion, site assessment, monitoring, removal, and safety strategies.
  - It is available for download to INS members in the Infusion News section of the INS Knowledge Center.

- SPC Safety cards
  The Short Peripheral Catheter (SPC) Insertion Card Deck provides step-by-step instruction for successful venipuncture in children and adults. The deck highlights proper site selection, insertion techniques, as well as care and maintenance methods. It also includes recommendations for identifying common complications such as phlebitis, infiltration, and extravasation. Key information is presented in concise, bulleted points, and is augmented by useful figures.
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Q&A