

Affecting Change in the Administration of Subcutaneous Anticoagulation Therapy

Morgan L. Fulmer BSN, RN
Lehigh Valley Health Network, morgan_l.fulmer@lvhn.org

Nicole L. Karasek BSN, RN
Lehigh Valley Health Network, nicole_l.karasek@lvhn.org

Rachael Mazzante BSN, RN
Lehigh Valley Health Network, rachael.mazzante@lvhn.org

Matthew A. Briscese BSN
Lehigh Valley Health Network, Matthew_A.Briscese@lvhn.org

Christine D. Leech BSN, RN
Lehigh Valley Health Network, Christine_D.Leech@lvhn.org

See next page for additional authors

Follow this and additional works at: <https://scholarlyworks.lvhn.org/patient-care-services-nursing>



Part of the [Nursing Commons](#)

Let us know how access to this document benefits you

Published In/Presented At

Fulmer, M. L., Karasek, N. L., Mazzante, R. Briscese, M. A., Leech, C. D., Wapinsky, K. V. (2016, October 28). *Affecting Change in the Administration of Subcutaneous Anticoagulation Therapy*. Presented at: Lehigh Valley Health Network, Allentown, PA.

This Presentation is brought to you for free and open access by LVHN Scholarly Works. It has been accepted for inclusion in LVHN Scholarly Works by an authorized administrator. For more information, please contact LibraryServices@lvhn.org.

Authors

Morgan L. Fulmer BSN, RN; Nicole L. Karasek BSN, RN; Rachael Mazzante BSN, RN; Matthew A. Briscese BSN; Christine D. Leech BSN, RN; and Kaylyn V. Wapinsky BSN

AFFECTING CHANGE IN THE ADMINISTRATION OF SUBCUTANEOUS ANTICOAGULATION THERAPY

**Morgan Fulmer, Nicole Karasek,
Rachael Mazzante, Matthew Briscese,
Christine Leech, Kaylyn Wapinsky**

A PASSION FOR BETTER MEDICINE.™



Learners' Objective:

- To describe the process and lessons learned in the implementation of identified EBP projects, from clinical question to practice change.

Background

- Many patients are prescribed heparin injections prophylactically multiple times throughout the day to reduce their risk of venous thromboembolism.
- These injections may cause discomfort and agitation, therefore, decreasing patient satisfaction.
- To improve the patient experience, two nurse resident evidence based practice projects focused on the administration of anticoagulation therapy.

Standardized Subcutaneous Anticoagulant Administration

Significance

- A pre-data survey completed on 5K and 7C found there is a large inconsistency between how RNs administer anticoagulation therapy injections.
- The survey focused on the following:
 - Syringe and Needle size
 - Utilization of airlock technique
 - Length of injection in seconds

Pre-education Survey Results

DO YOU UTILIZE THE AIRLOCK TECHNIQUE?		
Yes	12 RNs	37.5%
No	20 RNs	62.5 %

SYRINGE SIZE		
1 mL	11 RNs	34.4 %
3 mL	21 RNs	65.6 %

INCONSISTENCY

LENGTH OF INJECTION (in seconds)		
0-5	20 RNs	62.5 %
6-10	8 RNs	25 %
>10	4 RNs	12.5 %

NEEDLE SIZE		
25 G, 5/8"	15 RNs	46.9 %
27 G, 5/8"	17 RNs	53.1 %

Purpose

- The purpose of the evidence based practice project completed on 5K and 7C was to utilize the literature to educate RNs on the correct administration of subcutaneous anticoagulants, therefore, creating a standardized administration technique.

Evidence

- A 3 mL syringe and a needle size of 25 gauge, 5/8 of an inch reduced bruising size compared to the use of a 1 mL syringe
- Slower injection speed (20-30 seconds) leads to better outcomes in bruising and pain
- Utilization of airlock technique leads to better outcomes in bruising and pain
- Use of a 25 gauge, 5/8 inch needle is in the accordance with current LVHN policy

PICO Question

- Does providing medical-surgical nurses a TLC education module on subcutaneous anticoagulation administration based on evidence-based research, compared with no education, create a standardized administration technique?
 - **P:** Nurses administering subcutaneous anticoagulation therapy to adult patients on medical-surgical units.
 - **I:** Providing education via TLC module to medical-surgical nurses regarding the correct administration technique for subcutaneous anticoagulant therapy based on evidence-based research
 - **C:** No educational intervention
 - **O:** Create a standardized administration technique

Intervention

- TLC module was created by the group summarizing the evidence for proper administration of subcutaneous anticoagulant therapy.
- Module was uploaded and assigned to all RNs on 5K and 7C by unit PCS.
- Communication was sent to staff by unit PCS and nurse residents to remind them to complete the module.

Results

- 42/55 (76%) RNs on 5K and 7C completed the TLC education module on subcutaneous anticoagulation therapy
- 21/42 (50%) RNs who reviewed the TLC module completed the post-intervention survey
- The results conclude that the education module was effective in teaching RNs the correct technique to administer subcutaneous anticoagulants.

SHOULD YOU UTILIZE THE AIRLOCK TECHNIQUE?		
Yes	21 RNs	100%
No	0 RNs	0%

SYRINGE SIZE		
1 mL	0 RNs	0%
3 mL	21 RNs	100%

CONSISTENCY

LENGTH OF INJECTION (in seconds)		
0-10	2 RNs	9.5 %
10-20	2 RNs	9.5%
30	17	81%

NEEDLE SIZE		
25 G, 5/8"	19 RNs	90.5%
27 G, 5/8"	2 RNs	9.5%

References

- Akbari Sari A, Janani L, Mohammady M, Nedjat S. Slow versus fast subcutaneous heparin injections for prevention of bruising and site-pain intensity. *Cochrane Database of Systematic Reviews* 2014, Issue 7. Art. No.: CD008077. DOI:10.1002/14651858.CD008077.pub3.
- Akpinar, R.B. (2013). The effect of local dry heat pack application on recovering the bruising associated with the subcutaneous injection of heparin. *Journal of Clinical Nursing*, 22, 2531-2535. doi: 10.1111/jocn.12216.
- Avsar, G., & Kasukci, M. (2013). *International Journal of Nursing Practice. Assessment of Four Different Methods in Subcutaneous Heparin Applications with Regard to Causing Bruise and Pain*, 19, 402-408. doi:10.1111/ijn.12079
- Chan, H. (2001). Effects of injection duration on site-pain intensity and bruising associated with subcutaneous heparin. *Journal of Advanced Nursing*, 35(6), 882-892. Retrieved June 4, 2015, from EBSCO Host.
- Pourghaznein, T., Azimi, A.V., & Jafarabadi, M. A. (2013). The effect of injection duration and injection site on pain and bruising of subcutaneous injection of heparin. *Journal of Clinical Nursing*, 23, 1105-1113. doi:10.1111/jocn.12291.
- Ross, S., & Soltes, D. (1995). Heparin and haematoma: Does ice make a difference? *Journal of Advanced Nursing*, (21), 434-439.
- Vanbree, N., Hollerbach, A., & Brooks, G. (1984). Critical evaluation of three techniques for administering low-dose heparin. *Journal of Nursing Research*, 33(1), 15-19. Retrieved June 4, 2015, from EBSCO Host.
- Zaybak, A., & Khorshid, L. (2008). A study on the effect of the duration of subcutaneous heparin injection on bruising and pain. *Journal of Clinical Nursing*, 17, 378-385. doi:10.1111/j.1365-2702.2006.01933.x

Use of Cryotherapy in Reduction of Pain During Subcutaneous Heparin Injections

Purpose

- The purpose of the project, done by nurse residents on 6K and 4T, focused on the utilization of cryotherapy prior to subcutaneous injections.

Background

- Many studies have shown that utilizing ice therapy before injection reduces pain scores (0-10) for patients receiving heparin subcutaneously.
- Currently at LVHN, there are no established best practice protocols to utilize cryotherapy for subcutaneous injections.

Evidence

Evidence Table

Level of Evidence	Number of Studies	Summary of Findings	Year
Level I Experimental	1	<ul style="list-style-type: none"> 30 Second duration of cold compress to injection site decreases level of pain as well as bruising at injection site 	2015
Level III Non-experimental, Qualitative	2	<ul style="list-style-type: none"> Application of two minute cold application can be effective in preventing and reducing the occurrence of bruising and decreases the perception of injection pain. Overall relationship of ice application (decrease 0-10) and patient's perception of discomfort is validated. 	2012 1995
Level IV	1	<ul style="list-style-type: none"> Less pain noted after 72 hours post injection. Bruising significantly decreased with cryotherapy 	2006

PICO Question

In adult medical-surgical patients 50 years of age and over, does the utilization of cold application at the injection site prior to administration reduce pain compared to the current heparin subcutaneous injection procedure?

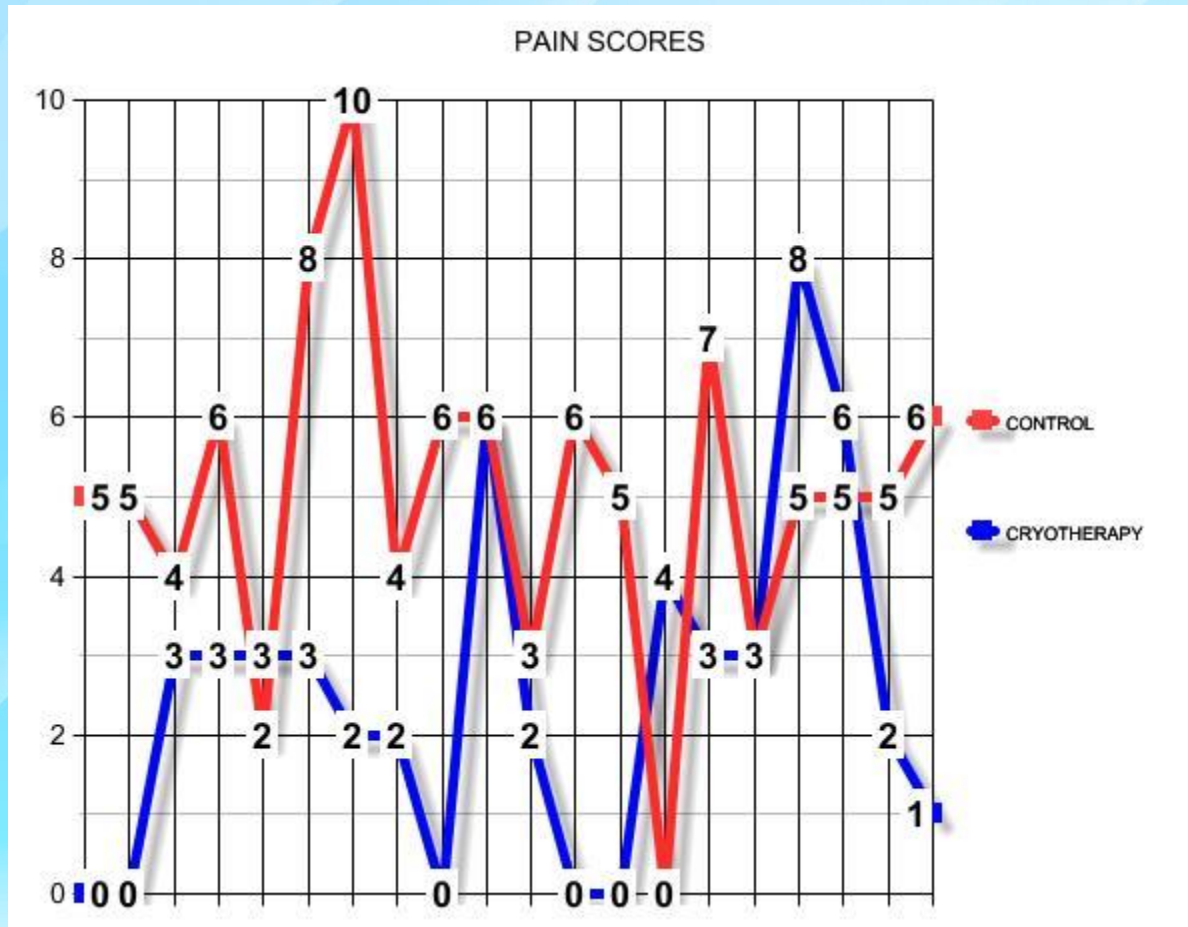
PICO QUESTION

- P: Adult medical surgical patients
- I: Ice administration for 5 minutes prior to subcutaneous heparin injections
- C: No ice administration prior to injection
- O: Decrease in pain (numbered scale)

Intervention/Comparison

- Pain scores were collected for both a control group and an experimental group.

Results



Results

- Applying ice to the injection site prior to subcutaneous heparin injection decreased overall pain scores for explored patient population. An overall decrease in pain has potential to increase overall patient satisfaction while hospitalized.

References

- Avşar, G., & Kaşıkçı, M. (2012.). Assessment of four different methods in subcutaneous heparin applications with regard to causing bruise and pain. *International Journal of Nursing Practice*, 402-408.
- Dursun, M., & Akpınar, R. (2014). The effect of topical applications performed before subcutaneous heparin injection on development of bruise and hematoma. *SiSli Etfal Hastanesi Tip Bulteni / The Medical Bulletin of Sisli Hospital Sisli Etfal*, 296-302.
- Ross, S., & Soltes, D. (1995). Heparin and haematoma: Does ice make a difference? *Journal of Advanced Nursing*, 434-439.
- Şendir, M., Büyükyılmaz, F., Çelik, Z., & Taşköprü, I. (2015). Comparison of 3 Methods to Prevent Pain and Bruising After Subcutaneous Heparin Administration. *Clinical Nurse Specialist*, 174-180.

Outcomes

- Revised LVHN policy on subcutaneous injections to reflect the evidence and specify the following administration parameters:
 - Use of 3 mL syringe
 - Use of 25 gauge, 5/8 inch needle
 - Administer over 30 seconds
 - Inject utilizing the airlock technique
 - Use of cryotherapy prior to injection is recommended to minimize pain and bruising
- All RNs educated in revised policy via TLC

Next Steps

- More research should be conducted including variation in time of ice application in correlation with pain scores.

Learnings

- Some hospital policies lack specificity and can be a springboard for research.
- Potential EBP/research topics are embedded in your daily practice.
- It is difficult to energize RNs with education and to change their current practice.
- Time management affects compliance to new initiatives.

The Ultimate Revelation

- A focused EBP project, completed by a small group of newly licensed RNs, can impact the entire network and potentially the entire profession of nursing on a global level if disseminated!

Questions/Comments?

- Nicole Karasek, 7C
- Rachael Mazzante, 7C
- Morgan Fulmer, 5K



Cedar Crest



17th Street



Muhlenberg



Health Centers