

Lehigh Valley Health Network
LVHN Scholarly Works

Patient Care Services / Nursing

Chest Tube Dressings

Michele Canavan BSN, RN
Lehigh Valley Health Network

Devon Harper BSN, RN
Lehigh Valley Health Network

Ashley Watts BSN, RN
Lehigh Valley Health Network

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

Canavan, M., Harper, D., Watts, A. (2014, October 29). *Chest Tube Dressings*. Poster Presented at LVHN UHC/AACN Nurse Residency Program Graduation, Lehigh Valley Health Network, Allentown, PA.

This Poster 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.

CHEST TUBE DRESSINGS

Michele Canavan, BSN, RN
Devon Harper, BSN, RN
Ashley Watts, BSN, RN



Background/Significance

Current practice at LVHN: Petroleum gauze dressing at chest tube removal site

Trigger for research:

- Inconsistencies throughout network regarding chest tube dressings, lack of knowledge regarding best evidence based practice
- Using the IOWA Model of Evidence Based Practice to Promote Quality Care
- Problem-Focused Trigger → Identification of a Clinical Problem

PURPOSE

To implement evidence based practice to determine the best dressing to be used at chest tube removal site to prevent post-chest tube removal pneumothorax.

PICO QUESTION

In patients with chest tube removal sites, how does a dry occlusive dressing compared to a Vaseline/Petroleum gauze occlusive dressing affect post-chest tube removal pneumothorax rates?

P



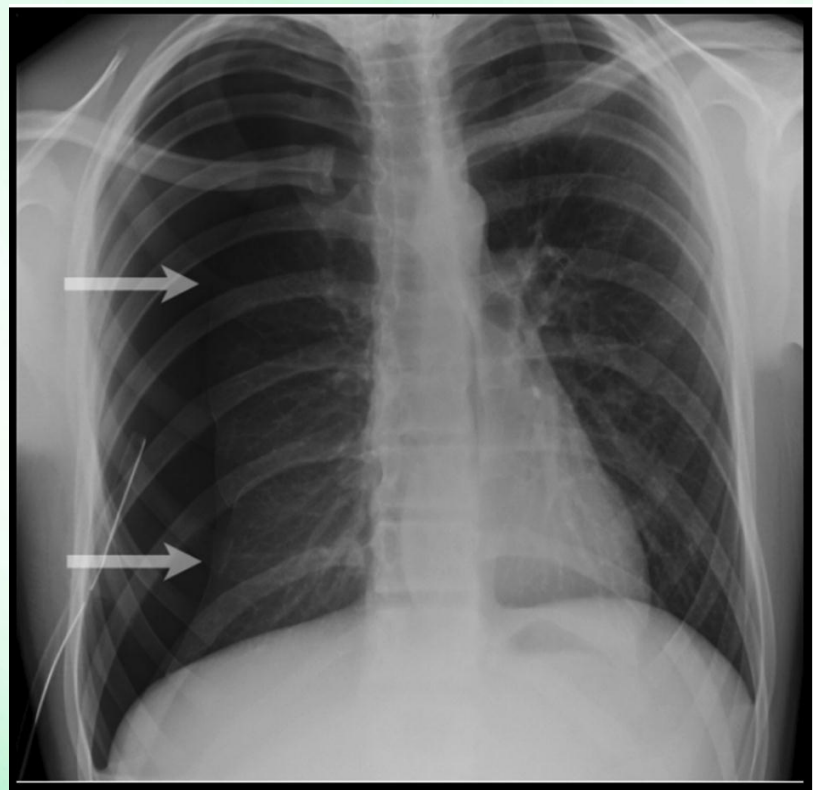
I



C



O



EVIDENCE

- **Search key terms:** chest tube, chest drain, thoracostomy, dressing, petroleum, occlusive, removal, drainage, post-operative care, bandages, wound healing
- Search Engines:
 - CINAHL
 - MEDLINE
 - Cochrane Review

THEMES IN THE EVIDENCE

“However, it is surprising that one of the single most common procedures performed by thoracic surgeons, the removal of chest tubes, has rarely been studied”
(Cerfolio, et al.; 2013)



“Concern about practice based on tradition (occlusive petroleum dressing) rather than current evidence”
(Jefferies, et al; 2013)

Hallmark Study- EVIDENCE

- “Chest Tube Dressings: Outcomes of Taking Petroleum Based Dressings out of the Equation on Air Leak and Infection Rates”, American Journal of Critical Care, May 2013
- **Methods:**
 - Retrospective data from the Society of Thoracic Surgeons (STS) database
 - Collected in a 5-year period from 2005 to 2010
 - Secondary retrospective study of 321 postoperative lobectomy cases using open thoracotomy and video assisted thoroscopic surgery (VATS) for lung cancer during the 2-year period from January 2009 to December 2010 was conducted
- **Setting/Population:**
 - Thoracic Services at Massachusetts General Hospital
 - 4361 thoracic cases requiring chest tube placement
 - **AND** 321 postoperative lobectomy cases
- **Intervention:**
 - Substituting petroleum gauze with an **occlusive dry dressing** upon chest tube insertions and post-removal
- **Outcome Measures:**
 1. Air leaks
 2. Wound infections related to the chest tube insertion sites.
- **Findings:**
 - 26 leaks (8% leak rate) 1 wound infection (0.3%)
 - **But** the chart review indicated that none were attributed to the chest tube dressing applied or the insertion site itself.

Evidence

- The study at Massachusetts General Hospital was the first to substitute a dry occlusive dressing at chest tube sites
- In 2005, the thoracic service stopped using petroleum gauze for all chest tube sites after insertion
- The retrospective study looked at 4,361 cases, and had very positive outcomes

Current Practice at LVHN

- For **pleural chest tubes** the current LVHN policy states:
 - “Apply Vaseline gauze covered with 4x4 dressing, if not specified by provider, for a pleural chest tube. Tightly cover and seal the dressing with 3 inch tape.”
- For **mediastinal chest tubes**: “Apply 4x4 dressings and 3 inch paper tape if the dressing is not specified.”
- **Current policy also states**, “The scientific evidence for management of chest tubes is limited in the nursing literature. Evidence regarding dressings alludes to providing a barrier to infection, a support for chest tubes, and maintains an airtight seal, but fell short of recommending dressing material.”

Implementation

- Small pilot study on TTU with 4 patients, 5 chest tube sites
- Site chosen due to prevalence of chest tubes on this unit as compared to other Medical-Surgical floors
- Dry occlusive dressing applied to site upon removal, 4x4 sterile dressing, and chest tube tape
- **Outcome measures:** using post-removal Chest X-ray and pneumothorax incidence upon removal

RESULTS

	Diagnosis	Post-Removal Diagnosis
Patient 1	Bilateral pneumothoraces	No pneumothorax
Patient 2	Large right hemothorax	<u>Day 1</u>- small right apical pneumothorax <u>Day 2</u>- slightly decreased in size right apical pneumothorax
Patient 3	Left pneumothorax	No pneumothorax
Patient 4	Moderate right pneumothorax	<u>Day 1</u>- slightly increase in right pneumothorax <u>Day 2</u>- resolution of right apical pneumothorax

Strategic Dissemination of Results

- Plan:
 - Medical Surgical Units: 5T, 7C, TTU presentations at monthly unit meetings
 - Nurse Residency Program Graduation 10/29
 - Develop abstract for project for UHC Website and possible presentation at conferences

Implications for LVHN/ Practice Change

- Because of the limited evidence around chest tube dressing changes, more research is needed before we can recommend a practice change.
- Further research recommended in this topic includes having a larger, randomized controlled trial using chest tube dressing changes to lend further evidence for the use of dry occlusive dressings.
- Because of the potential cost savings, and because current practice is not evidence based- more research is certainly needed in this area.

Implications for LVHN

- Potential Cost Savings:
 - Vaseline Gauze (1x8): **\$0.57/ gauze**
 - Dry Sterile Gauze (4x4): **\$0.09/ gauze**
- Per dressing site: **\$0.48 savings per dressing change**

Lessons Learned

- Utilization of resources: Medical Librarians, Unit Patient Care Specialist, Trauma Service
- Don't Give Up!– Evidence was very limited for this topic, but with help of Medical Librarians our group was able to have sufficient evidence to research this topic

References

- Cerfolio, R.J., Bryant, A.S., Skylizard, L., & Minnich, D.J. (2013). Optimal technique for the removal of chest tubes after pulmonary resection. *The Journal of Thoracic and Cardiothoracic Surgery*, 145(6):1535-1539. Doi:10.1016/j.jtcvs.2013.02.007
- Jefferies et al, Chest Tube Dressings: Outcomes of Taking Petroleum-Based Dressings out of the Equation on Air Leak and Infection Rates, American Journal of Critical Care, May 2013
- Serra-Mitjans, M., Belda-Sanchis, J., & Rami-Porta, R. (2010). Surgical sealant for Preventing air leaks after pulmonary resections in patients with lung cancer. Cochrane Database Systematic Review. Doi: 10.1002/14651858.CD003051.pub3.
- Kane, C.J., York, N.L., & Minton, L.A. (2013). Chest tubes in the critically ill patient. *Dimensions in Critical Care Nursing*, 32(3):111-7. Doi: 10.1097/DCC.0b013e3182864721.



- EBP Project Facilitator: Pat Karo, MSEd, BSN, RN-BC
- All Members of the Trauma Service including Dr. Jayme Lieberman, MD and Daniel Taylor, CRNP
- PCS TTU- Kai Bortz, MSN, RN, CMSRN, CNL
- Director TTU- Jody Shigo, MSN, RN
- Administrator, EBP and Clinical Excellence:
Carolyn Davidson- PhD, RN, CCRN, ARNP, CPHQ
- Senior Medical Librarian: Susan M. Fink, MLS
- Senior Medical Librarian: Kristine Petre, MLS
- CT Surgery, Dr. Raymond Singer, MD
- All of 5T and Jen Devine RN and Tiffany Lopez RN
- All of those who have supported us as new nurses and our EBP Research Project, we thank you!

Make It Happen

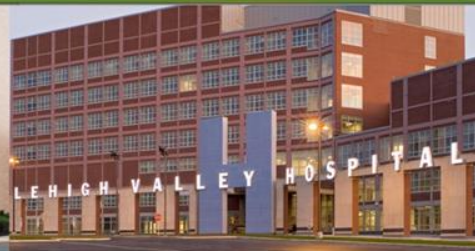
- Questions/Comments
- Contact Information
 - Michele Canavan, RN, BSN:
Michele_K.Canavan@lvh.com
 - Devon Harper, RN, BSN:
Devon_A.Harper@lvh.com
 - Ashley Watts, RN, BSN
Ashley_A.Watts@lvh.com



Cedar Crest



17th Street



Muhlenberg



Health Centers