

Staying Connected: A Novel Way to Secure Tubes and Drains to Reduced Patient Harm Kathleen Vollman Advancing nursing through knowledge & innovation

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### Disclosures

- △ Consultant-Michigan Hospital Association Keystone Center
- Subject matter expert on Catheter-associated Urinary Tract
   Infections (CAUTI), CLABSI, Hospital-Acquired Pressure Injury (HAPI),
   Safety culture for Activity Hazard Analysis (AHA)
- Consultant and speaker bureau
  - $\triangle$  Stryker's Sage business
  - △ Baxter healthcare
  - △ Bioderm Medical
  - △ Potrero Medical



### **Objectives**

- ▲ Discuss nurse's role in reducing patient harm
- Outline the clinical problems with lack of effective tube securement
- Discuss strategies for improving care of tubes and drains



Resetting the Culture Notes on Hospitals: 1859

"It may seem a strange principle to enunciate as the very first requirement in a hospital that it should do the sick no harm."

- Florence Nightingale





### Strategies to Link Harm with Individual Patients

- Do No Harm Rounding
- Immediate learn from a deficit
- Incorporate action plans and data into daily huddle

Learn non	n Derects Tool Worksheet CLABS		
Date:	Name: MRN: Fin:		1) Was patient receiving TPN?
Attendees:	DOB:	M F	
What happened? (brief description) Patient Infection Control:	with documented CLABSI		patient? Y N S 3) Was line necessity assessed daily?
Nursing:			4) Was the dressing integrity difficul
Significant co-morbidities:			5) Was this line manipulated/used b radiology, etc)?
Location of CLABSI: Unit	Date of CLABSI		6) Was the tubing changed appropri
Date of Line Insertion: Where was the catheter inserted: OR	ed 🔲 ICU	Unit	<ul> <li>7) Was the catheter occluded at any</li> </ul>
Type of Line	No. of Lumens		If yes, was TPA used? Y
Non-tunneled (other than dialysis)	Single	Double Triple	<ol><li>Where there any problems drawing</li></ol>
Tunneled (other than dialysis)			9) Anything else, patient factors or o
Dialysis ( non-tunneled)			If yes, describe briefly
PICC			10) Do you feel this infection was pot
Port Insertion Site			11) Other Comments:
Chest JJ SC Femor	al Upper Extremity		+ What prevented it from being w
What is the indication for the line?			
Hemodynamic monitoring	Poor venous access	Long-term Antibiotics	
Vessicants or irritant drugs	Chemo	Hemodialysis	
Multiple incompatible fluids	Other	-	
Why was the line accessed?	_		
Lab draws Medication A	dministration IV Fluid Ad	dministration	
TPN Hemodialysis	Other		What can we do to reduce the risk of it h

Why did it happen? (what factors contributed) - summarize what happened to cause the defect from below					
1) Was patient receiving TPN?	1) Was patient receiving TPN?				
2) Were there any observed breaches of proper ha	2) Were there any observed breaches of proper hand hygiene by anyone involved in line care for this				
patient? Y N Unknown	patient?				
3) Was line necessity assessed daily?	) Was line necessity assessed daily?				
4) Was the dressing integrity difficult to maintain?	) Was the dressing integrity difficult to maintain?				
5) Was this line manipulated/used by any other sta	aff besides the unit's physicians/nurses (e.g., anesthesia,				
radiology, etc)?	known				
6) Was the tubing changed appropriately for the d	uration of the line? Y N Unknown				
7) Was the catheter occluded at any time while the	e line was in place? Y N Unknown				
If yes, was TPA used? Y N Ur	If yes, was TPA used? Y N Unknown				
8) Where there any problems drawing off the line	prior to the infection date? Y N Unknown				
9) Anything else, patient factors or otherwise, that may have contributed to the infection?					
If yes, describe briefly					
10) Do you feel this infection was potentially preven	ntable?				
11) Other Comments:					
What prevented it from being worse?         What happened to cause the defect?					
	Duration of central line catheter # days: (Time of insert to discontinue )				
	Is the patient being treated for any other infections?				
	Comments:				

nat can we do to reduce the risk of it happening with a different person?					
tion Plan	Responsible Person	Targeted Date	Evaluation Plan – How will we know risk is reduced?		

## Protect The Patient From Bad Things Happening on Your Watch





Implement Interventional Patient Hygiene





### **INTERVENTIONAL PATIENT HYGIENE**

- A Hygiene...the science and practice of the establishment and maintenance of health
- Interventional Patient Hygiene....nursing action plan directly focused on fortifying the patients host defense through proactive use of evidence-based hygiene care strategies



Incontinence Associated Dermatitis Prevention Program

Pressure Prevention



Bathing and Assessmen

### **INTERVENTIONAL PATIENT HYGIENE(IPH)**



Vollman KM. Intensive Crit Care Nurs, 2013;22(4): 152-154

# Achieving the Use of the Evidence

Gills and Factors Impacting the Ability to Achieve Quality Nursing Outcomes at the Point of Care

Attitude and Accountability Value

### Tubes, Tubes and More Tubes



PEG tubes



Urinary Catheters

Surgical Drains





## Survey of Participants N=20

	None to Rare	Occasional	Frequently	
Catheter dislodgement at your facility	6	9	5	
Experience situation where complication associated with dislodgement	7	<ul> <li>13</li> <li>Required an additional procedure/surgery</li> <li>Infection to a site</li> <li>Bulging &amp; skin irritation</li> </ul>		
Have a protocol for securing chest tube, PEG's & other drains	14	<ul><li>6</li><li>nasal feeding tubes</li><li>others not mentioned</li></ul>		

The role of securement for devices is to limit movement, reduce transmission of external skin bacteria into the insertion site, and reduce the occurrence of accidental dislodgement



### **PEG Tubes**

- ▲ Longer duration nutritional support
- External length of the tube should be marked/documented and periodically checked
- Mait 3-6 hrs after placement to use for feeding
- ▲ Stoma/catheter care:
  - $\bigtriangleup$  Clean daily with mild soap and dry site
  - △ Wk 1-2 provider may request antiseptic cleansing
  - △ Lightly cover with gauze first 1-2 weeks
  - △ Daily rotation of tube clockwise/counterclockwise to reduce pressure injury
  - $\bigtriangleup$  Secure excessive tubing to abdomen
  - △ Med delivery-liquid or dissolved medications





# **PEG Tubes/Complications**

▲ Complication rates range from .4% to 22.5%



### Minor

- Granuloma formations
- Wound infection
- Stomal leakage
- Catheter obstruction

### Major

- Hemorrhage
- Ileus
- Aspiration
- Buried bumper syndrome
- Tube dislodgement

Nurses Impact to Reduce Complications?

# **Tube Dislodgement**

# Wounds Infection Clogging

- ▲ Early dislodgement 1-13.4%
- Clinical and financial burden
- ▲ Prevention:
  - △ Secure a tube exiting the abdominal wall to the abdomen near the exit site without putting undue tension on it.
  - △ Secure the tube's distal portion with sufficient slack on the tube to stop it from dislodging during movement.

- Incidence ranges from 4-30%
- A Prevention:
  - △ Regular skin and stomal care
  - △ Prevent excessive traction on the tube

- Incidence ranges from 23-35%
- Causes: thick feeds, bulking agents, medications
- A Prevention:
  - △ Flush with 40-50ml before & after medication delivery
  - △ Completely dissolve meds, or use liquid medication
  - △ Warm flushes to be most effective

# Which One Prevents Traction on the Tube?





# ECMO/VAD tubes

Artificial devices that perform partial or full support for a heart and or lungs that are unable to function adequately

▲ Challenges

- △ Cannula infection-16 to 24 BSI's per 1000 ECMO days
- △ Cannula anchoring
- △ Variation in dressing management and tube securement









http://www.learnecmo. com/cannulation

# Survey of Dressings and Securing Methods

- 396 ELSO registered ECMO coordinators
- 391 individuals responded from 45 different countries
- 5 76% had written guidelines for cannular dressing management
- 34% rate of dislodgement, migration and accidental decannulation over 5 years
  - △ Cause: Inadequate cannula securement methods primary cause in 28% of reported dislodgements
  - △ Other causes—patient removal, turning and transport—could be related to securement

### New Cannula Site Care Bundle

- Variation in dressing sizes/use multiple dressings
- \Lambda Biopatch to small

MAQUET

Previous Practice

- Site cleaning supplies inadequate
- A Differing anchor devices

- 1 4" x 6" chlorhexidine impregnated dressing
- ▲ 1 cavilon barrier (medium)
- 1 Prevantics swabstick (additional one)
- \Lambda 1 Cath-grip dual anchor





Do not prevent migration

# Drainage tubes

### ▲ Purpose:

- $\triangle$  Active bleeding assessment/leaks
- $\bigtriangleup$  Discharge fluid or air from the body
- Variation in dressing and fixation methods to skin
- A Complication:
  - △ Chest tube dislodgement-32% of complications
  - $\bigtriangleup$  Skin injury from adhesives
- A Prevention:
  - $\bigtriangleup$  Standardized dressing and fixation strategy



Waters J AACN Procedural Manual, 2017. Chapter 22;pg 178-183 Homma T, et al. J of Thoracic Disease 2020;12(3):493-503

# NGT's

### ▲ Purpose:

- $\triangle$  Tx of ileus/bowel obstruction
- $\triangle$  Adm of medication
- $\triangle$  Adm of enteral nutrition
- $\triangle$  Stomach lavage
- EBR: not needed prophylactically for decompression in post op setting
- Chest x-ray confirmation on initial placement
  - △ Gastric content return
  - $\triangle$  Capnography
- ▲ Complications:
  - △ Incorrect placement
  - $\triangle$  Pressure injuries-4.8%-8.1%

### \Lambda Securement





# **Urinary Catheters**

### Indications

- Perioperative use for selected surgical procedures
- △ Urine output in critically ill patients
  - Only when fluid status or urine CANNOT be assessed by other means
- Management of acute urinary retention and urinary obstruction
- △ Assistance in pressure ulcer healing for incontinent patients
- △ Comfort during end-of-life care



#### Core Recommendations

- Insert catheters only for appropriate indications (1B)
- $\triangle$  Leave catheters in only as long as needed (1B)
- △ Ensure that only properly trained persons insert and maintain catheters (1B)
- △ Insert catheters using aseptic technique and sterile equipment (1C)
- $\triangle$  Consider use of alternatives (II)
- △ Maintain a close drainage system (1B)
- △ Secure the system (1B)
- △ Maintain unobstructed urine flow (1B)
- △ Key the collecting bag below the level of the bladder at all times (1B)

### Survey of Participants N=20

- A Responses to methods to reduce dislodgement
  - $\triangle$  9 stated using securement device
  - $\triangle$  5 stating taping
  - $\triangle$  6 unsure or other methods-restraints, sitters
- A Responses to use of a universal securement device
  - $\bigtriangleup\$  20 sounds like a great idea
    - Keep catheter close but able to see site
    - As long as the skin is protected
    - If it works on all devices, it would be great
    - Great if it work with tubes and drains
    - If proven to be successful



### Securement

### ▲ The Problem:

- $\triangle$  Risk of dislodgement
- $\triangle$  Compromised skin integrity
- △ Patient discomfort
- $\bigtriangleup\,$  Variation in practice

### \Lambda Prevention

- $\triangle$  Adequate skin prep
- △ Commercially available anchoring device vs. tape
- $\triangle$  Placed in kits (if possible)









### Evaluating Practice to Reduce Harm



### **Building Resiliency into Interventions**

**Forcing Functions and Constraints** 

Automation and Computerization

Standardization and Protocols

Checklist and Independent Check Systems

**Rules and Policies** 

**Education and Information** 

Vague Warning – "Be More Careful!"

### Strongest

STRENGTH OF

Weakest

# Model for Improving Care<sup>1-4</sup>

#### LOCAL PROBLEMS

#### Comprehensive Unit-based Safety Program (CUSP)

Prework: Measure clinician and staff perceptions of safety culture with Hospital Survey on Patient Safety Culture

- 1. Educate staff on science of safety
- 2. Identify defects
- 3. Partner with a senior executive
- 4. Learn from defects
- 5. Improve teamwork and communication

#### COMMON PROBLEMS

- Translating Evidence Into Practice (TRIP)
- Summarize the evidence in a checklist
- 2. Identify local barriers to implementation
- 3. Measure performance
- 4. Ensure all patients get the evidence
  - Engage
  - Educate
  - Execute
  - Evaluate

#### Improving Care of Patients with Catheters or Drains

#### 1. Adequate skin prep

- 2. Commercially available anchoring device
- 3. Placed in kits (if possible
- Review daily for clinical necessity; remove as soon as no longer indicated

#### TECHNICAL WORK

#### Action Plan for Translating Research Into Practice: Gap Analysis and Tests of Change: Slide Presentation. Content last reviewed February 2017. Agency for Healthcare Research and Quality, Rockville, MD. <u>http://www.ahrq.gov/professionals/quality-patient-safety/hais/tools/mvp/modules/cusp/actionplan-trip-slides.html</u>.

#### ADAPTIVE WORK

# **Overview of TRIP**



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## Why Bother Testing a Change?



### Rapid Cycle Test of Change



# **Principles for Tests of Change**

- A Test to evaluate if a new idea or innovation will work
- A Test small (low hanging fruit or quick wins), and usually less than 4 weeks in duration
- A Engage those interested in testing
- Identify what the question you're trying to answer is
  - $\bigtriangleup$  Identify what data you need to answer the question
- Collect data over specified time period for pre-post comparison
- Make informed changes based on data analysis
- A Test under a wide range of conditions

#### PDSA: Planning small test of change

In order to accomplish your AIM, what ideas are you going to test in your organization?

Small tests of change	<u>What</u> do you need to test this idea?	Who will be involved in the tests?	How will you educate/inform the participants?	<u>Where</u> will the test occur?	<u>When</u> will the test occur?	How will you know it is successful?



Small test of change	What did you predict will happen?	What happened?	What are the next steps?

**PLAN:** What will happen if we try something different?

DO: Let's try it! Describe what actually happened when you ran the test.

**STUDY:** Did it work? Describe the measured results and how they compared to your predictions

**ACT:** What's next? Describe what changes to the plan will be made for the next cycle.



# WHEN WOULD NOW BE A GOOD TIME TO DO THIS?

It is not enough to do your best; you must know what to do, and THEN do your best. ~ W. Edwards Deming





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