# Staying Connected: A Novel Way to Secure Tubes and Drains to Reduced Patient Harm

Kathleen Vollman
ADVANCING NURSING THROUGH KNOWLEDGE & INNOVATION

Kathleen M. Vollman MSN, RN, CCNS, FCCM, FCNS, FAAN
Clinical Nurse Specialist / Educator / Consultant
ADVANCING NURSING
kvollman@comcast.net
Northville, Michigan
www.vollman.com

# 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 Hospital Association(AHA)
- Consultant and speaker bureau
  - 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

**Advocacy = Safety**

# Protect The Patient From Bad Things Happening on Your Watch

**Implement**
**Interventional Patient Hygiene**

# INTERVENTIONAL PATIENT HYGIENE

Hand Hygiene

- 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

Catheter Care

Bathing and Assessment

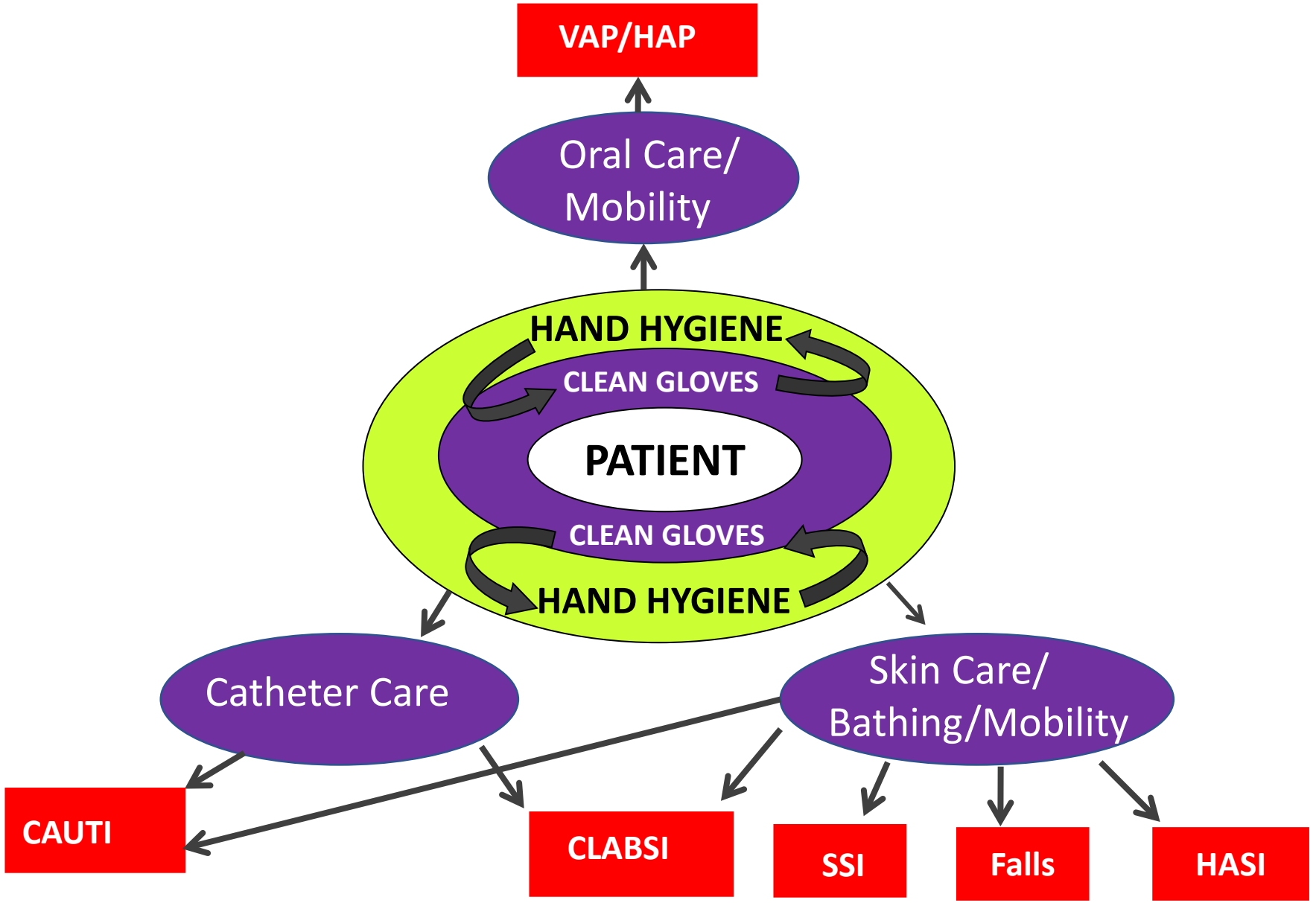
Comprehensive Oral Care Plan

Incontinence Associated Dermatitis Prevention Program

Pressure Ulcer Prevention

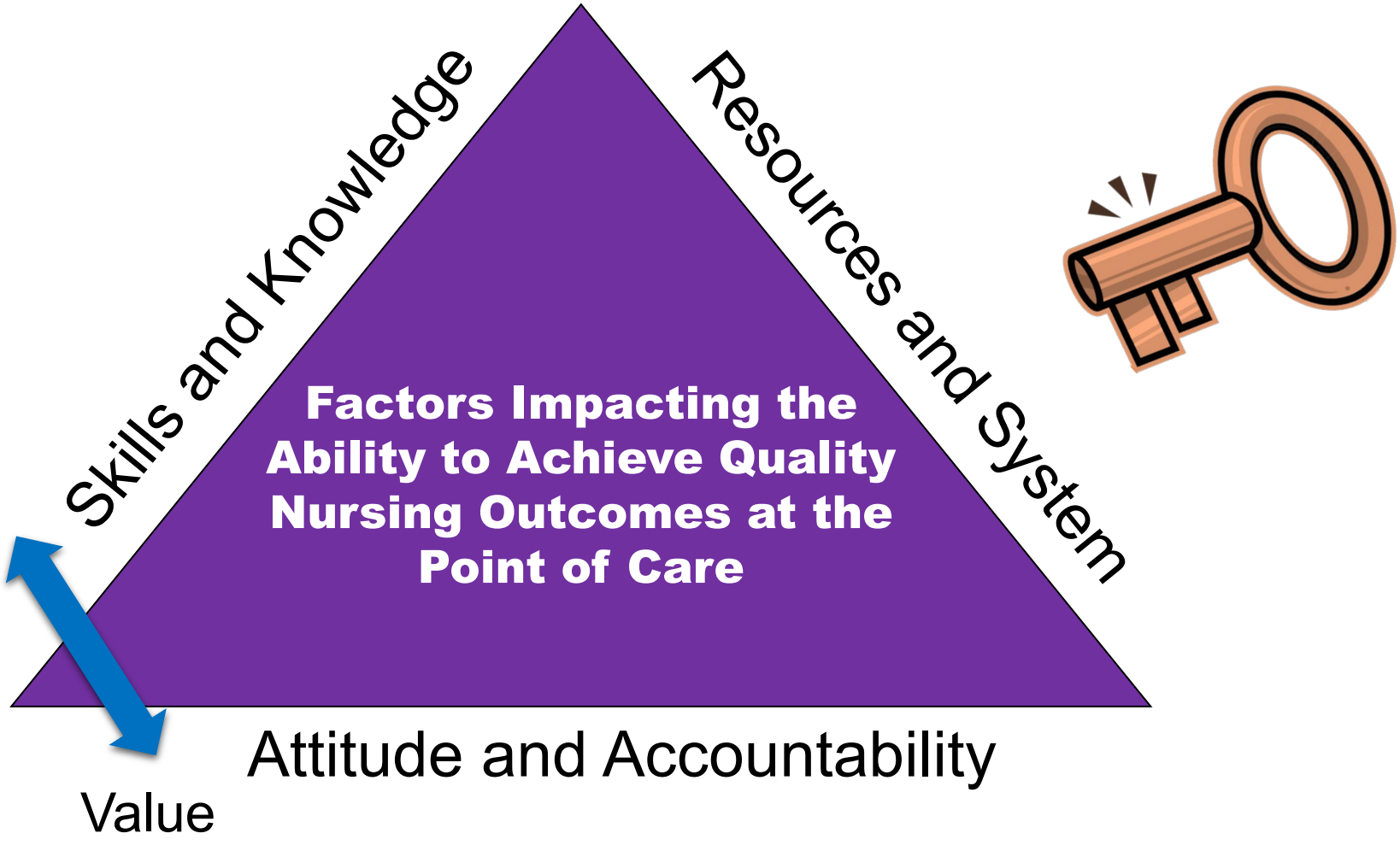
Vollman KM. Intensive Crit Care Nurs, 2013;22(4): 152-154

# INTERVENTIONAL PATIENT HYGIENE(IPH)




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

# Achieving the Use of the Evidence






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

# Tubes, Tubes and More Tubes

- PEG tubes
- Chest tubes
- Urinary Catheters
- Surgical Drains
- Ventricle Assist Device

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
- Wait 3-6 hrs after placement to use for feeding
- Stoma/catheter care:
  - 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
  - Secure excessive tubing to abdomen
  - Med delivery-liquid or dissolved medications

Alsunaid S, et al J Thoracic Dis 2021;13(8):5297-5313

# PEG Tubes/Complications

- Complication rates range from .4% to 22.5%

| Minor | Major |
| --- | --- |
| • Granuloma formations<br>• Wound infection<br>• Stomal leakage<br>• Catheter obstruction | • Hemorrhage<br>• Ileus<br>• Aspiration<br>• Buried bumper syndrome<br>• Tube dislodgement |

Nurses Impact to Reduce Complications?

Alsunaid S, et al J Thoracic Dis 2021;13(8):5297-5313

## Tube Dislodgement

- 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.

## Wounds Infection

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

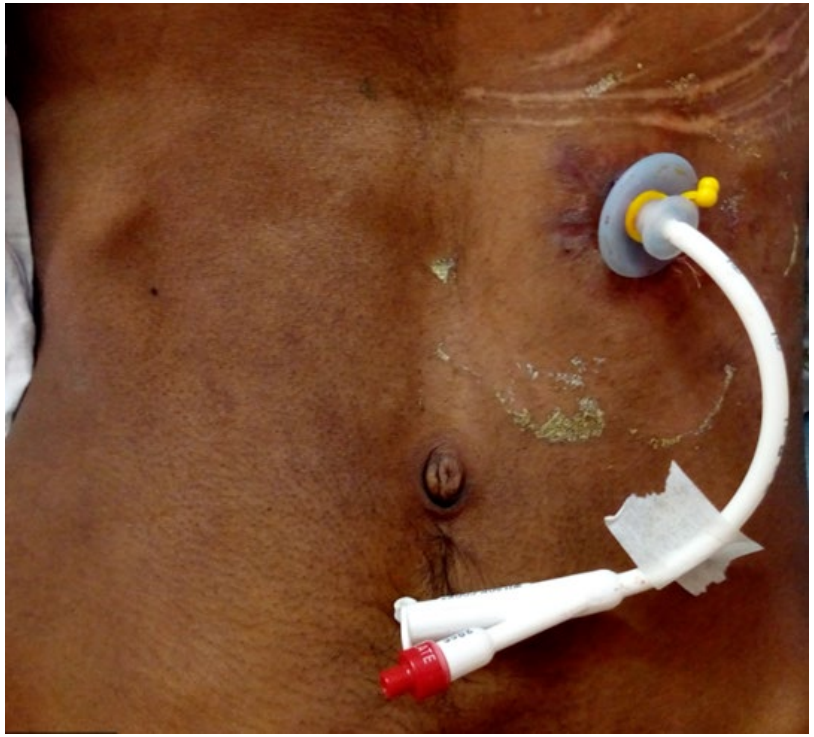
## Clogging

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

Blumenstrin I, et al. World J Gastronenterol 2014;20(26):8505-8524
Alsunaid S, et al J Thoracic Dis 2021;13(8):5297-5313

# Which One Prevents Traction on the Tube?

1



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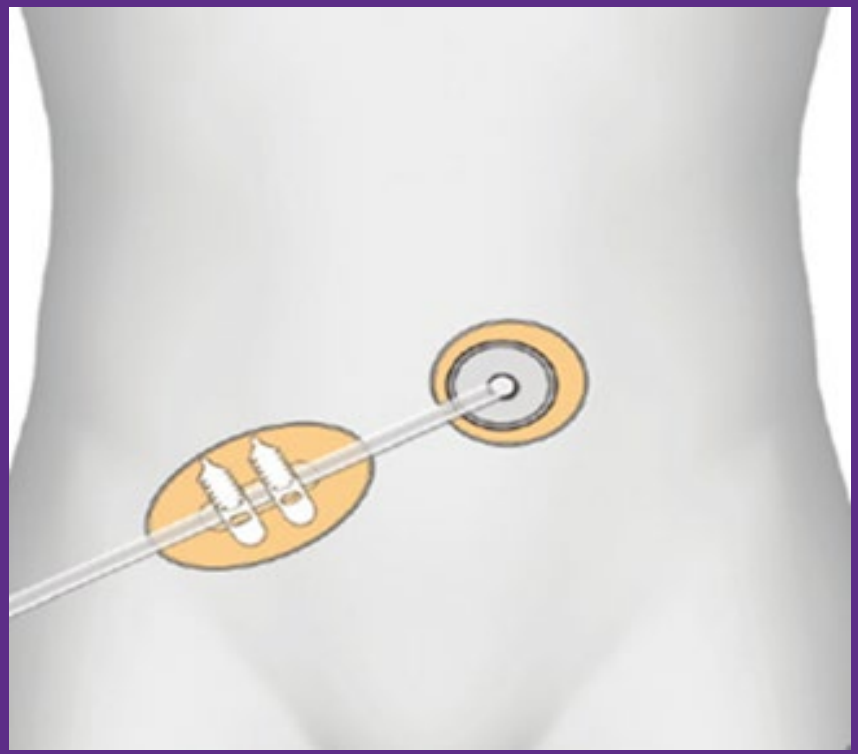


# ECMO/VAD tubes

- 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

Garaffa, Kelly and Amos, Mickey, "A Bundled Approach to Integrative Care for Peripherally Inserted Extracorporeal Membrane Oxygenation Cannula Insertion Site" (2021). Nursing DNP Projects. 41. https://openriver.winona.edu/nursingdnp/41

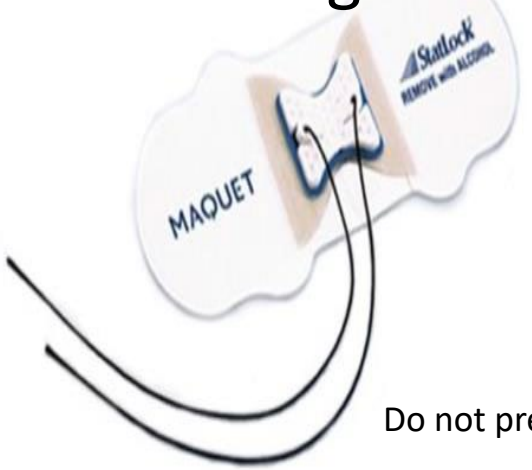
# Survey of Dressings and Securing Methods

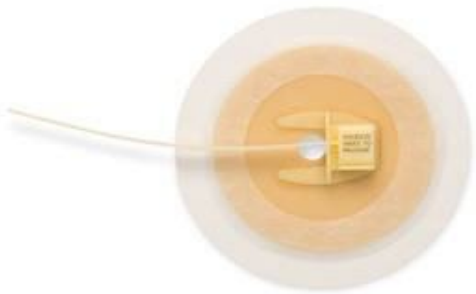
- 396 ELSO registered ECMO coordinators
- 391 individuals responded from 45 different countries
- 76% had written guidelines for cannular dressing management
- 34% rate of dislodgement, migration and accidental decannulation over 5 years
  - Cause: Inadequate cannula securement methods primary cause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

Garaffa, Kelly and Amos, Mickey, "A Bundled Approach to Integrative Care for Peripherally Inserted Extracorporeal Membrane Oxygenation Cannula Insertion Site" (2021). Nursing DNP Projects. 41. https://openriver.winona.edu/nursingdnp/41

# Previous Practice → New Cannula Site Care Bundle

- Variation in dressing sizes/use multiple dressings
- Biopatch to small
- Site cleaning supplies inadequate
- Differing anchor devices



Do not prevent migration

- 1 - 4” x 6” chlorhexidine impregnated dressing
- 1 – cavilon barrier (medium)
- 1 – Prevantics swabstick (additional one)
- 1 Cath-grip dual anchor


Garaffa, Kelly and Amos, Mickey, "A Bundled Approach to Integrative Care for Peripherally Inserted Extracorporeal Membrane Oxygenation Cannula Insertion Site" (2021). Nursing DNP Projects. 41. https://openriver.winona.edu/nursingdnp/41

# Drainage tubes

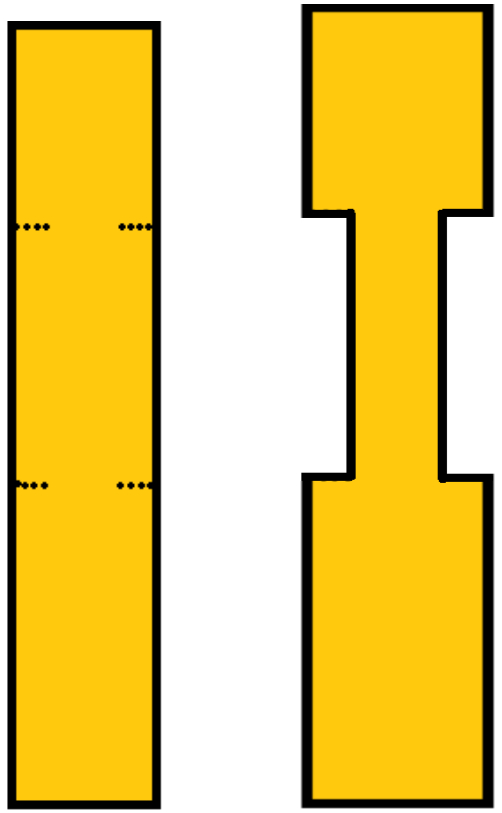
- Purpose:
  - Active bleeding assessment/leaks
  - Discharge fluid or air from the body
- Variation in dressing and fixation methods to skin
- Complication:
  - Chest tube dislodgement-32% of complications
  - Skin injury from adhesives
- Prevention:
  - Standardized dressing and fixation strategy

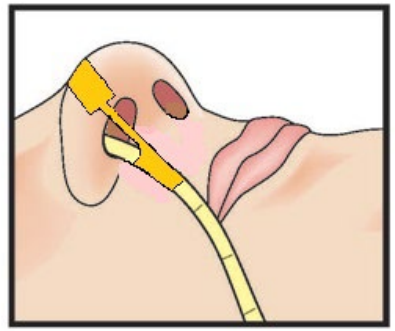

Waters J AACN Procedural Manual, 2017. Chapter 22;pg 178-183
Homma T, et al. J of Thoracic Disease 2020;12(3):493-503

# NGT's

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

- Securement
  - Prep skin





Intended to last 3 days

Asti E, et al.. *European Surgery.* 2017;49.
Ambutas S, et al. Med-Surg Nursing, 2014;23(2):96-100

# Urinary Catheters

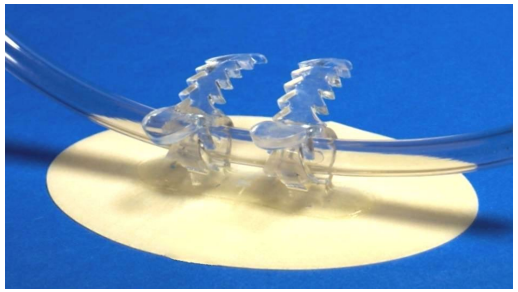
- Indications
  - Perioperative use for selected surgical procedures
  - **Urine output in critically ill patients**
    - Only when fluid status or urine CANNOT be assessed by other means
  - Management of acute urinary retention and urinary obstruction
  - Assistance in pressure ulcer healing for incontinent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

- Core Recommendations
  - Insert catheters only for appropriate indications (1B)
  - 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)
  - 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)

Meddings J, et al. Ann Intern Med. 2015 May 5;162(9 Suppl):S1-34.

# Securement

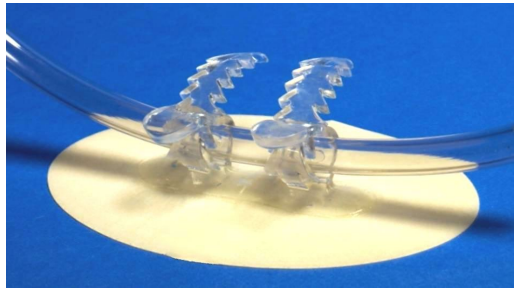
- The Problem:
  - Risk of dislodgement
  - Compromised skin integrity
  - Patient discomfort
  - Variation in practice
- Prevention
  - Adequate skin prep
  - Commercially available anchoring device vs. tape
  - Placed in kits (if possible)



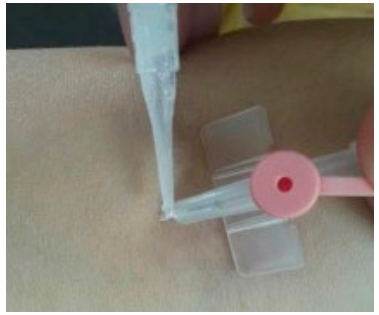
# Types of Securement

- Anchoring

- Locking devices



- Tissue adhesives

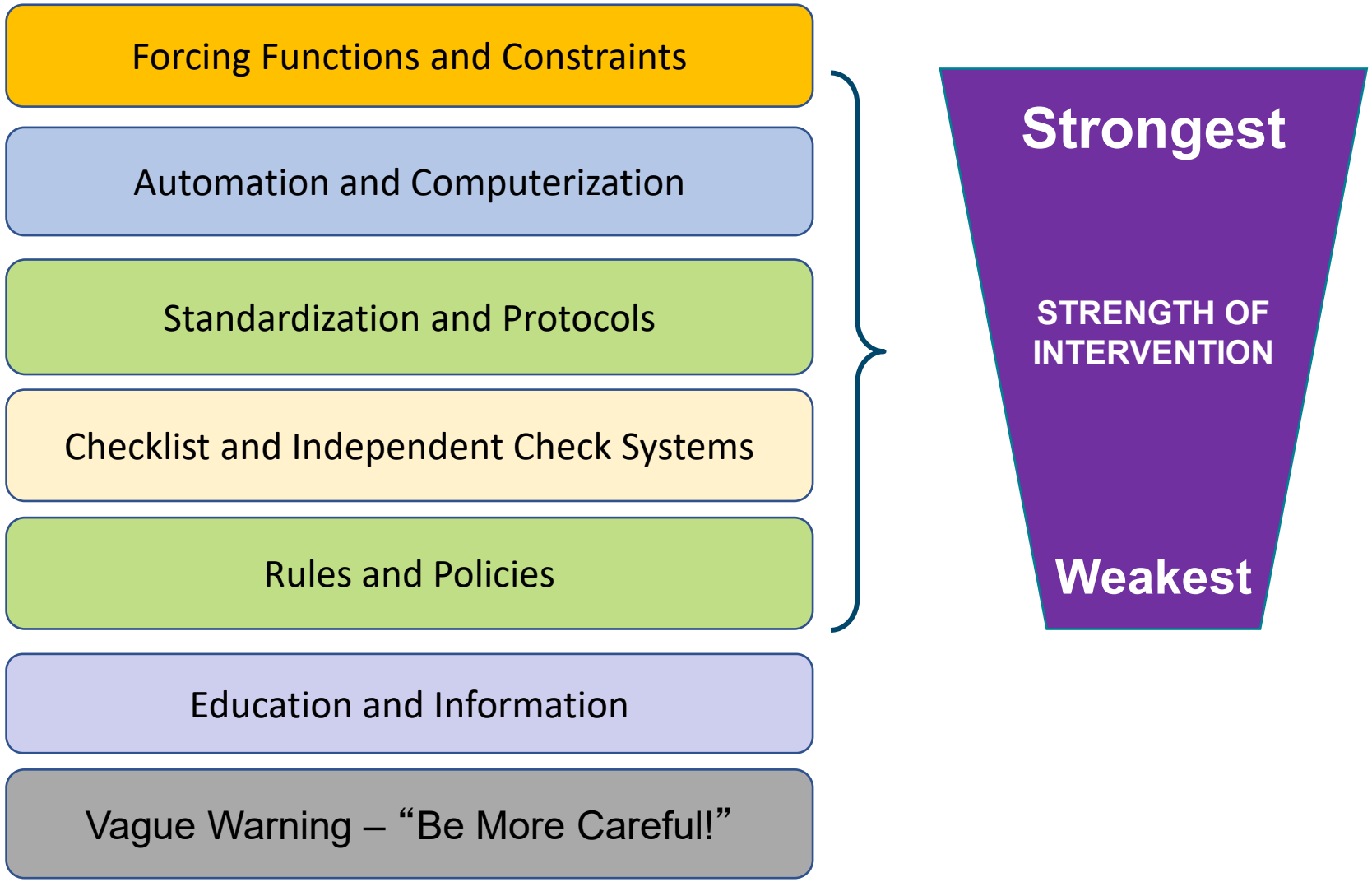


- Subcutaneous securement


- Sutures

# Evaluating Practice to Reduce Harm

# Building Resiliency into Interventions



# Model for Improving Care[1-4]

## 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

## ADAPTIVE WORK

## COMMON PROBLEMS

### Translating Evidence Into Practice (TRIP)

1. 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

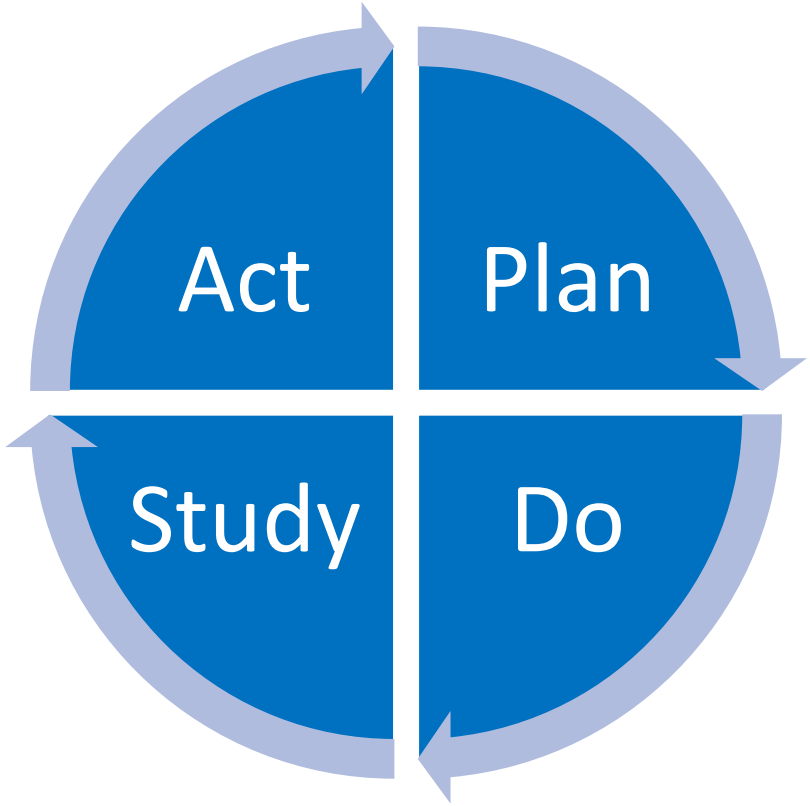
### Improving Care of Patients with Catheters or Drains

1. Adequate skin prep
2. Commercially available anchoring device
3. Placed in kits (if possible
4. 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. http://www.ahrq.gov/professionals/quality-patient-safety/hais/tools/mvp/modules/cusp/actionplan-trip-slides.html.

# Why Bother Testing a Change?




What are we trying to accomplish?

How will we know that a change is an improvement?

What change can we make that will result in improvement?

Rapid Cycle Test of Change

# Principles for Tests of Change

- Test to evaluate if a new idea or innovation will work
- Test small (low hanging fruit or quick wins), and usually less than 4 weeks in duration
- Engage those interested in testing
- Identify what the question you're trying to answer is
  - 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
- Test under a wide range of conditions

Principles for Tests of Change. Transforming Care at the Bedside Toolkit. Robert Wood Johnson Foundation, 2008.

# 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 | What do you need to test this idea? | Who will be involved in the tests? | How will you educate/inform the participants? | Where will the test occur? | When will the test occur? | How will you know it is successful? |
|---|---|---|---|---|---|---|
| | | | | | | |

When will you compare what happened to what you predicted? When will you decide what to do next?

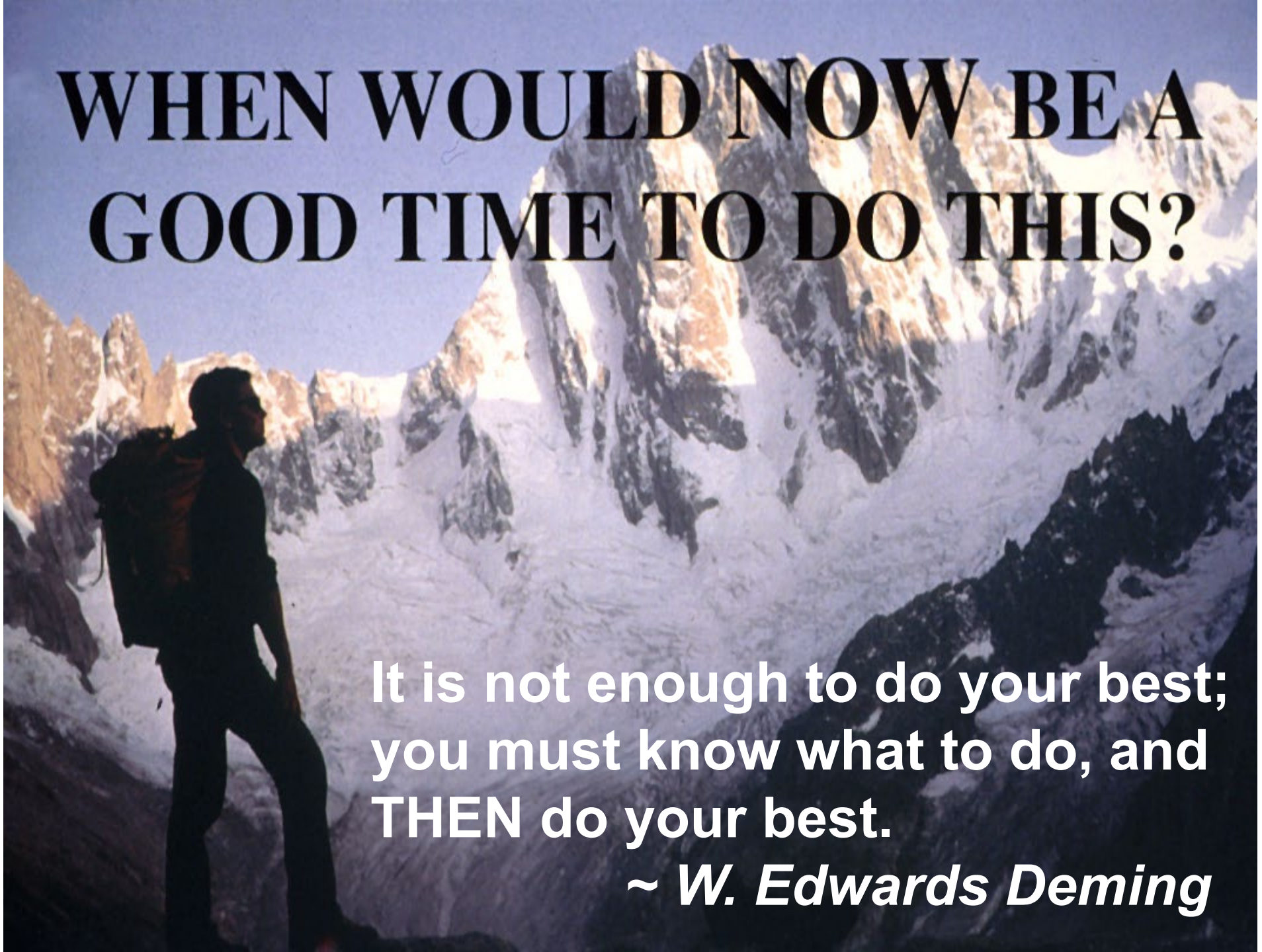
| Small test of change | What did you predict will happen? | What happened? | What are the next steps? |
|---|---|---|---|
| | | | |

**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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