Stressors & Coping Strategies Unique to Undergraduate Nursing Students Based on Adult Attachment Style

Halina Wyss, PhD, RN

Amber Vermeesch, PhD, MSN, FNP-C, RN, CNE

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Problem

- Nursing students face high levels of perceived stress
- High levels of perceived stress can affect learning, performance, and retention in nursing programs

(Puildo-Martos, Augusto-Landa, Lopez-Zafra, 2011)

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Background: Stress

- Perceived stress in the nursing profession is linked to
  - reduced physical and psychological health
  - reduced job satisfaction
  - increased sickness
  - increased turnover
  - poor job performance

(Gibbons, Dempster, Moutray, 2011; Melincavage, 2011; Puildo-Martos, Augusto-Landa, Lopez-Zafra, 2011)

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Background: Attachment Style

- Early attachment experiences become represented in the brain as an *internal working model* or a complex schema of images, beliefs and attitudes towards attachment relationships
- Human stress response is an evolutionary adaptation triggered by environmental threats

(Adshead, 2010; Bowlby, 1965; Hooper, Tomek, & Newman, 2011)

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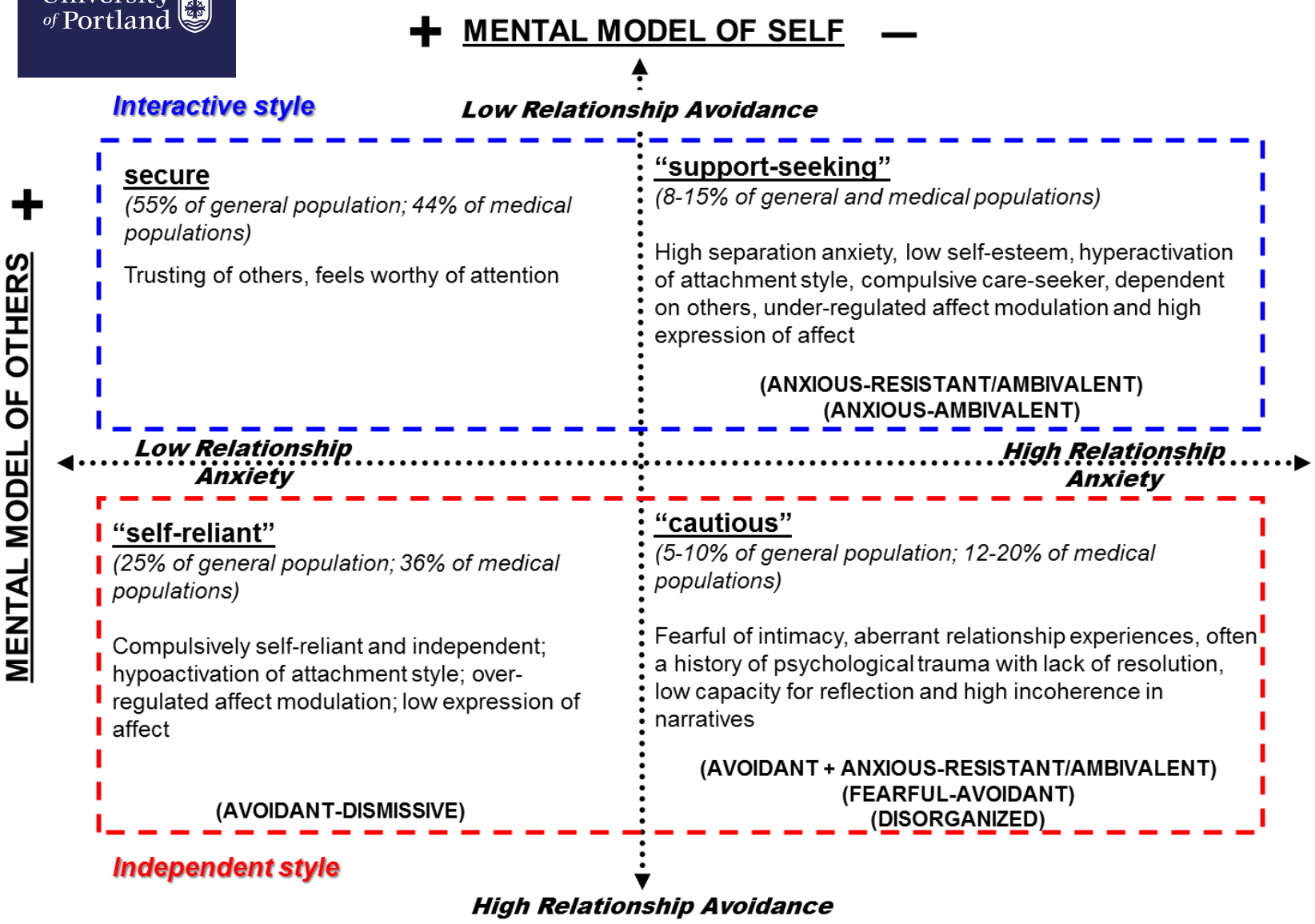
COMPOSITE ATTACHMENT THEORY MODEL



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Background: Attachment Style

- Within this evolutionary framework, insecure attachment may increase levels of perceived stress
  - affect intensity or duration of the physiological stress response
  - interfere with the success of social support in buffering stress response

(Maunder & Hunter, 2001)

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Aim/Objectives

- Identify stressors, stress-reducing tactics, and barriers to utilizing resources of nursing students based on adult attachment style to provide recommendations to an existing peer mentorship program

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Methods/Strategy

- Qualitative design
- 122 senior undergraduate nursing students
- Qualtrics® survey including questions regarding
  - stressors
  - coping strategies
  - barriers to coping
  - self-identified attachment style using *The Relationships Questionnaire (RQ)* (Bartholomew& Horowitz, 1991)

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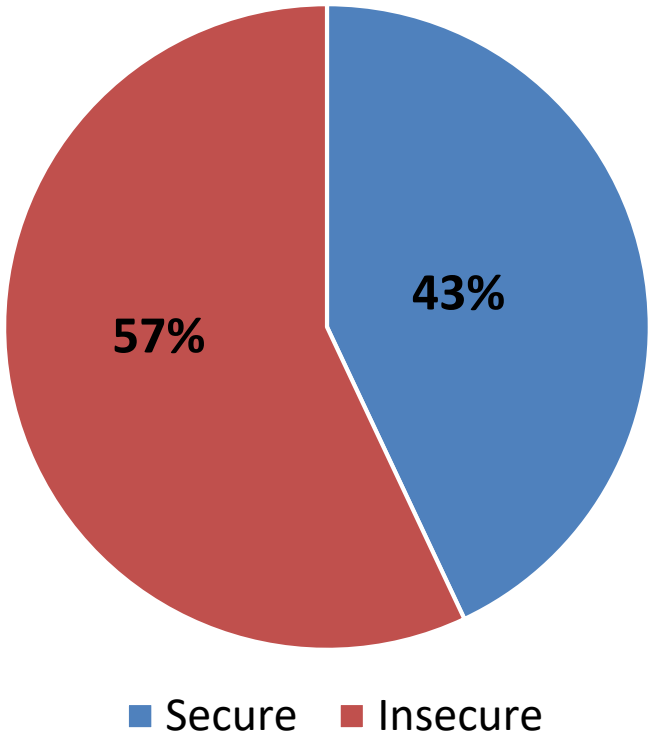
Results



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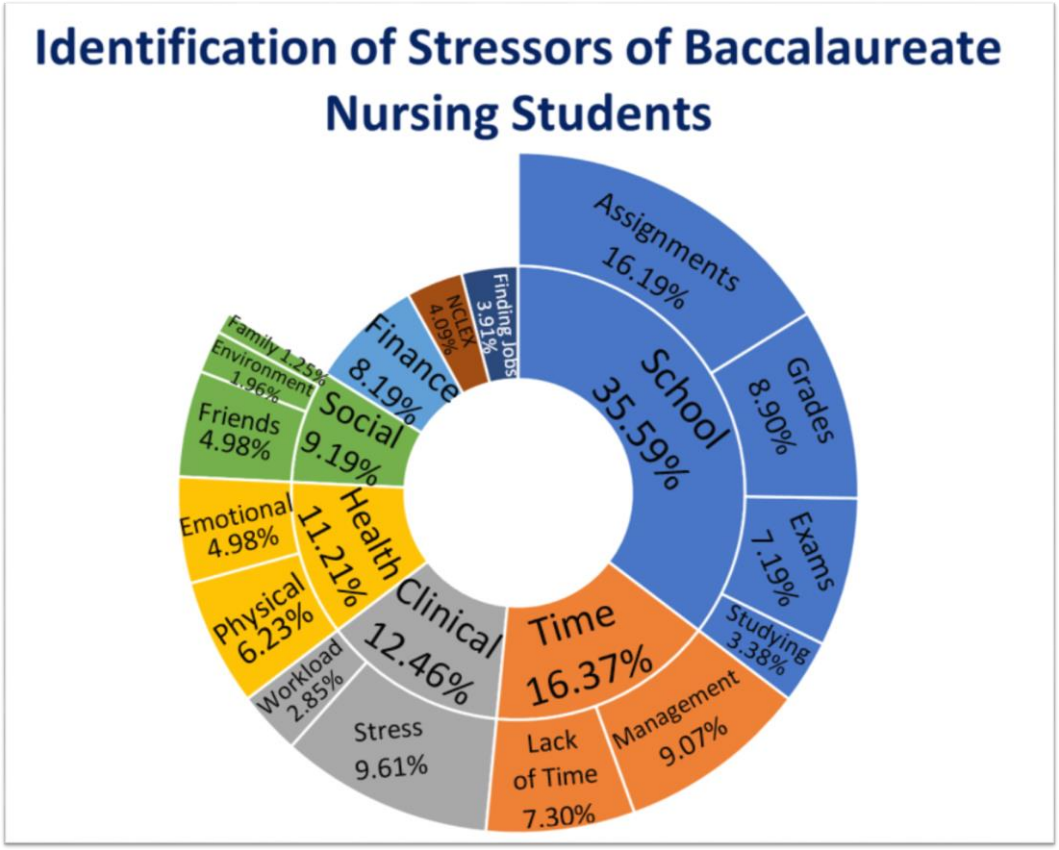
Results



8 Major Themes of Identified Stressors

1. School
2. Time management
3. Clinical rotations
4. Overall physical/mental health
5. Social/family life
6. Finances
7. NCLEX
8. Job searching

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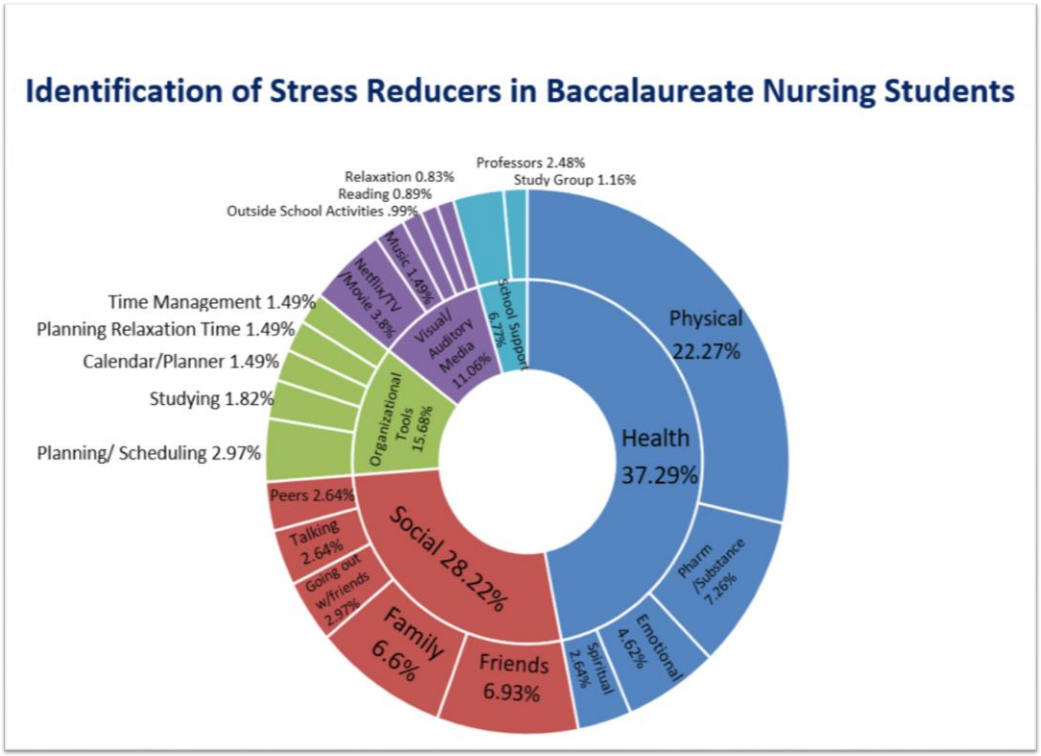
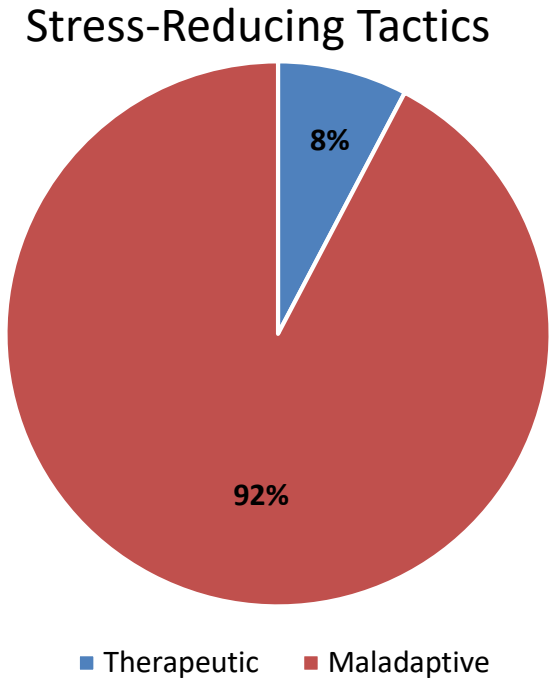
Outcomes

444 Stress-Reducing Tactics Identified





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Results

70.5% of the maladaptive coping strategies correlated with insecure attachment styles

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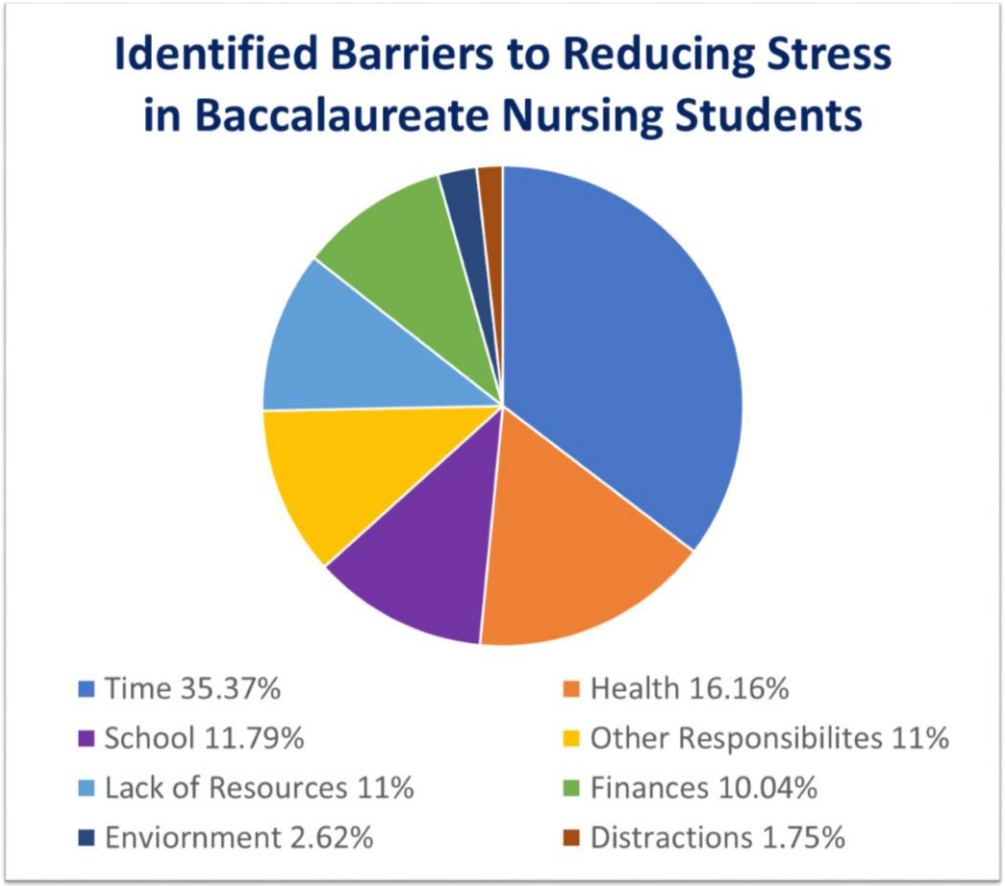
Results

- Identified barriers to utilizing stress reducing resources included
  - time
  - health
  - school
  - other responsibilities
  - lack of resources
  - finances



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Recommendations

Peer mentorship programs should be tailored to incorporate attachment styles in order to

- better support students
- reduce perceived stress
- increase effective coping mechanisms

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Limitations

- Sample size
- Potentially unique stressors due to university demographics
  - Catholic
  - Private
  - Traditional vs transfer students
- Self-report tool used to identify attachment style

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Hospitalized Patients with Substance Use Disorders: Increasing Nurse Confidence & Reducing Unplanned Discharges

April 15, 2019

Clint Oliver, RN, BSN, CMSRN

Patients with SUD

- Possible risks to hospitalized medicine patients with co-morbid substance use disorders (SUD):

- Pain/Anxiety
- Withdrawal/Cravings
- Misalignment of Goals
- Substance Use in the Hospital
- Aggression
- Unplanned Discharges: Elopement, AMA

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PICOT Question

- Does providing medical-surgical nurses education about caring for hospitalized patients with substance use disorders
- improve the nurses confidence, attitudes, and documentation of risks
- when comparing a baseline survey with one given two months after education?

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Literature Review Reveals

- Nurses often have negative attitudes toward patients with SUD
- Negative effect on the nurse-patient relationship
- Patients with SUD may have undertreated pain
- Best practices for <u>outpatient setting</u>

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Literature Recommends

- Nurses receive education about caring for patients with SUD
- Education will improve perceived confidence
- Reducing stigma and negative attitudes toward this patient population

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Project Design

- Develop training about caring for hospitalized patients with SUD to present at Education Days
- Conduct pre and post surveys of nurses receiving education
- Determine if education will:
  - Improve perceived confidence
  - Reduce negative attitudes
- Chart review:
  - Compare nursing handoff notes from April 2017 to April 2018, looking for key words
  - Noted patient discharge disposition

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Nurse Education Process

- Education Days:
  - 30-40 minute presentation
  - 2 lecturers, small groups
- Education Objectives:
  - Recognize SUD as a chronic disease of the brain that can be treated
  - Review 6 risks to hospitalized patients with SUD
  - Describe potential strategies to mitigate risks using therapeutic communication techniques
  - Review the 6 stages of change and document in care plan

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Survey Process

- Asked nurses about confidence and attitudes when caring for patients with SUD
- Pre survey: N=68
- Paper, 10 questions
- 5-point Likert scale
- Anonymous, completed prior to education

Post survey: N=39

- Survey Monkey online, identical to pre-survey
- Sent 2 months after education
- Anonymous, 3 week window to complete
- $25 gift card incentive

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Results: Pre- and Post-Education Surveys

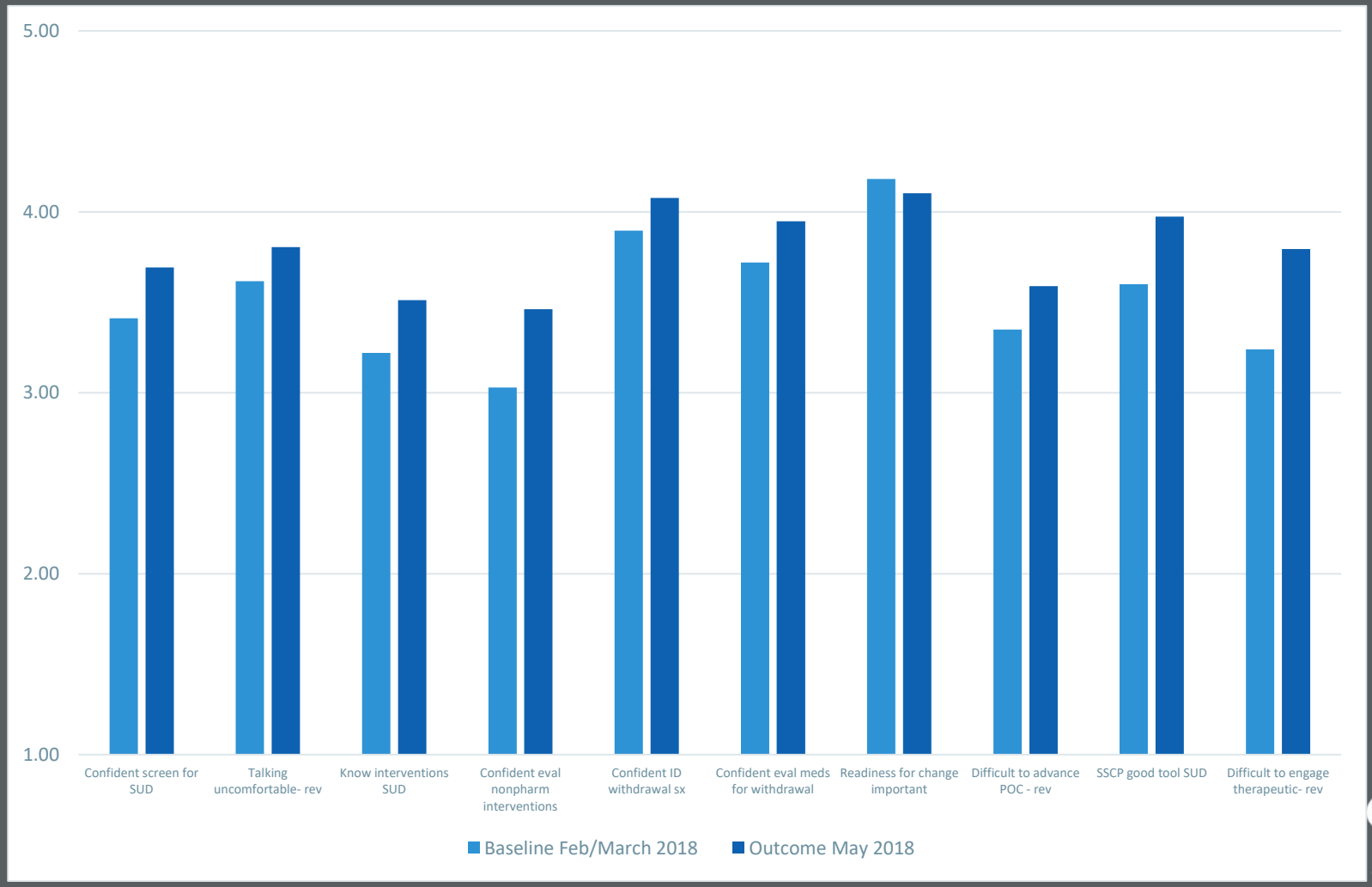

Chart Review Process

- RN identification of risks using key words
- RN documentation of interventions
- RN documentation of stage of change using key words
- Significant event notes and reason for event
- Discharge disposition: planned vs unplanned

Chart Review Process

- 3 units with education intervention:
  - Baseline chart review (2017) n=45
  - Post education chart review (2018) n=26
- 3 units without intervention (control):
  - Chart review (2017) n=26
  - Chart review (2018) n=10
- Charts selected based on DRGs:
  - bacteremia, endocarditis
  - osteomyelitis, opioid use d/o

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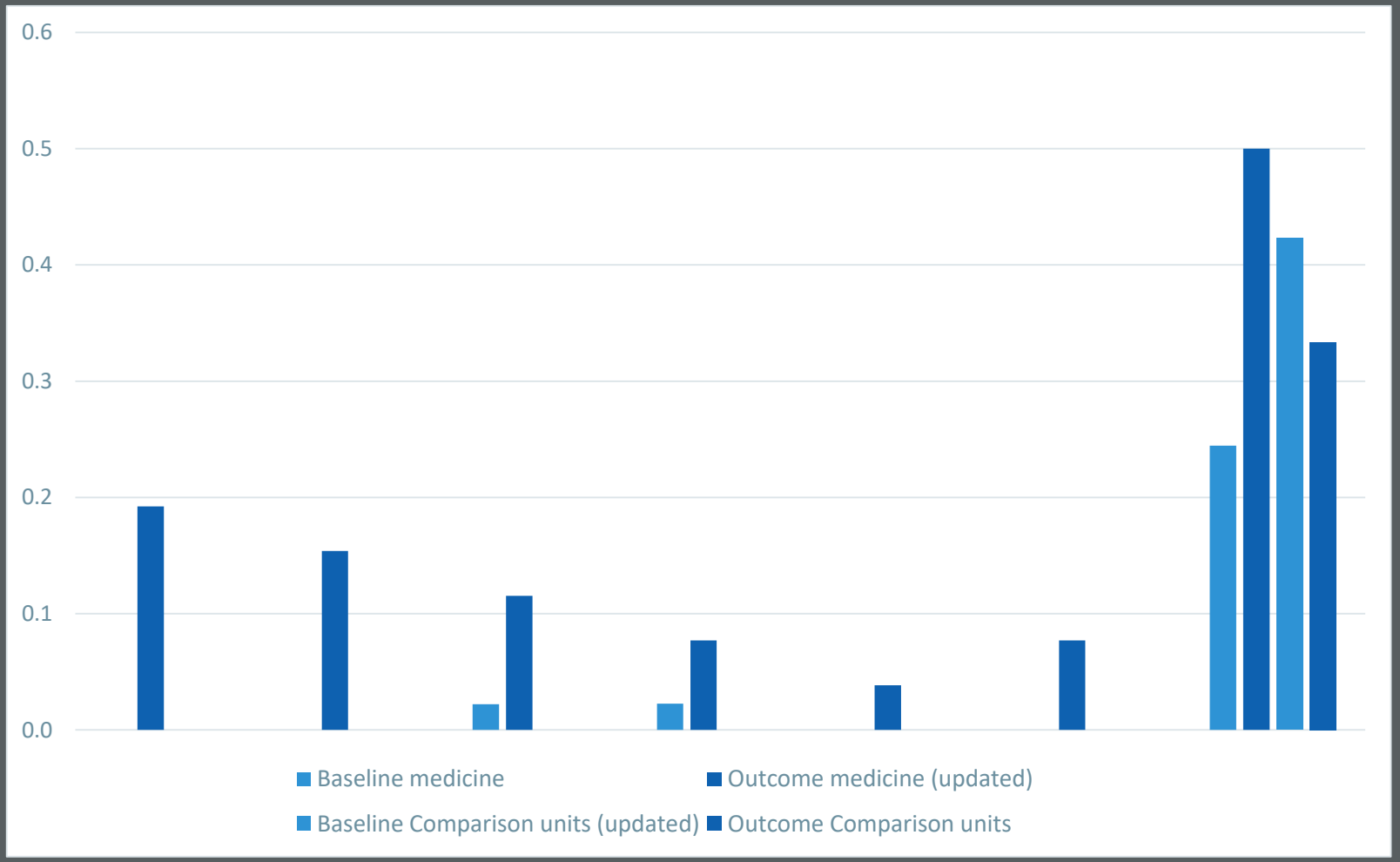
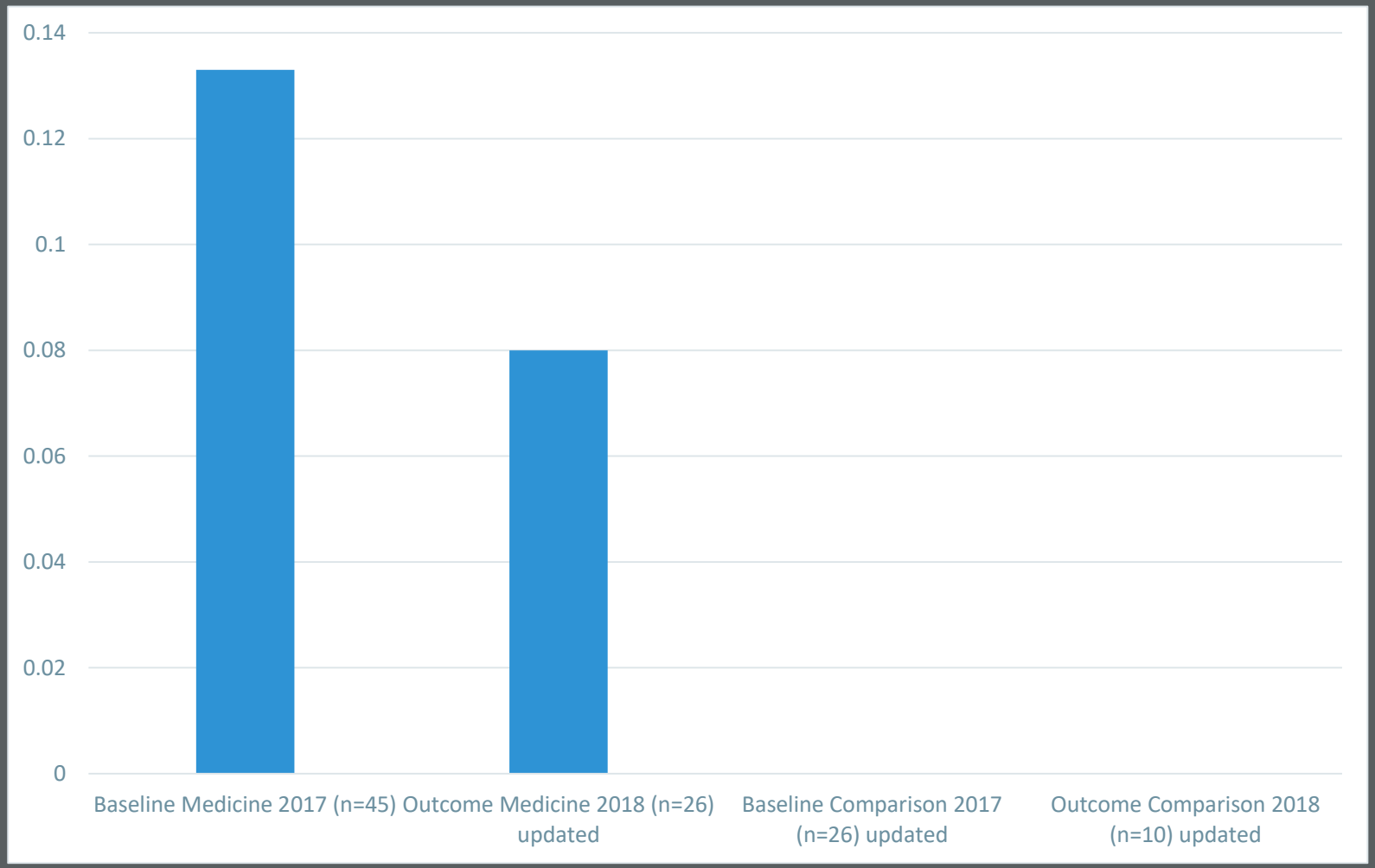
Results: Stage of Change and Significant Event Documentation



Results: Elopement and AMA



Conclusion and Recommendations

- Education improved nurses perceived confidence in caring for patients with SUD
- Improved confidence = patients completed treatment with fewer behavioral events
- Sustaining nurse confidence: standardized education, expert leadership, debriefing
- Determine long-term benefit of regular nurse education
- Interdisciplinary collaboration & institutional support
- Further quality improvement and research needed

Thank You

References

Thank you to Dianne Wheeling, Debi Eldridge, Michelle Barnhart, and Deanna Eichler!

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Simple Communication Tool for Improved Inpatient Diabetic Interventions & Meal Reviews

Marcia A. Moffatt, RN, BSN, CCRN-K

Press Ganey & HCAHPS (Hospital Consumer Assessment of Healthcare Providers & Systems)

Monthly Report

- What is the good and the bad?

Categories Nursing can affect from admission to discharge

- Nurse skill, noise around the room, call light answered quickly

Other areas outside of Nursing's Influence?

- Phlebotomy
- Diagnostic Imaging
- Kitchen

Room Service & The Diabetic Patient

A Familiar Scenario

- Patient calls the dietary line to order their breakfast
- Caregivers have no idea meal is on its way
- The dietary staff comes with the tray and

1) Takes 3-5 minutes to track down or page the nurse
2) Leaves the tray at the nurses' station
3) Leaves the tray with the patient with instructions to call the nurse
    - Patient starts to eat meal before blood sugar is done

Cold Eggs = Meal Satisfaction? No

What If…

The nurse knew the meal was on its way?

- Glucose read done before the tray arrived
- Correct Insulin dose given within the appropriate time
- A more planned or well-timed task

The dietary staff knew if the blood sugar was done?

- Not spend time and effort to confirm CBS done
- Set up the tray for the patient
- Patient gets food at the right temperature—maybe hot

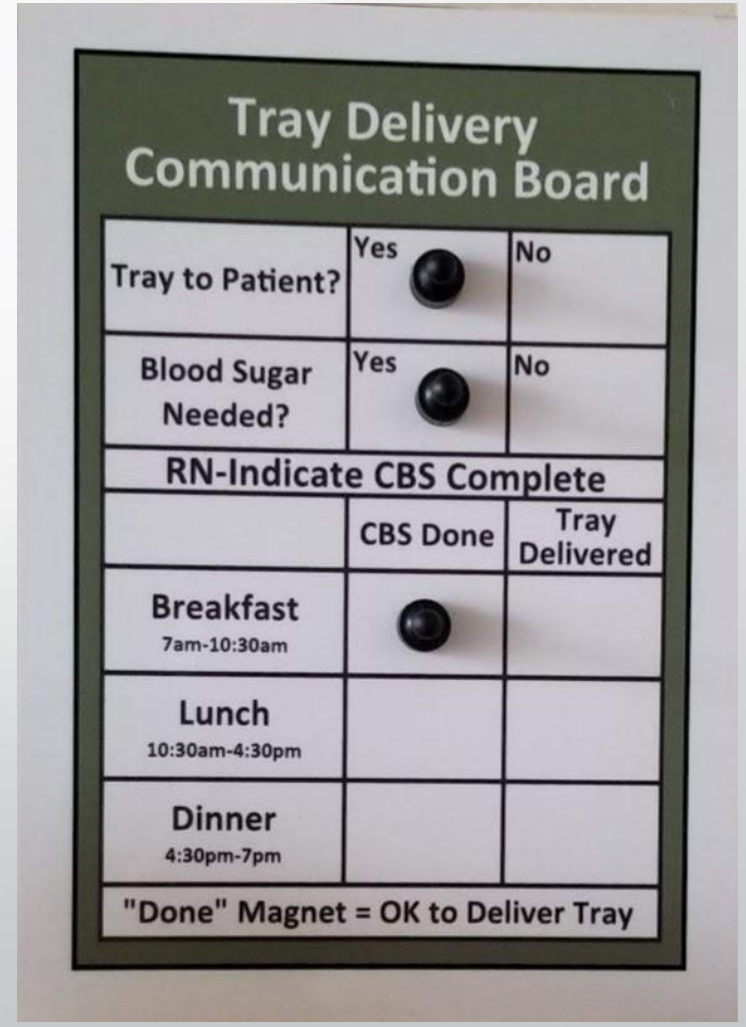
Dietary-Nurse Communication Board

Deliver Tray

- **No CBS needed**

Deliver Tray

- **CBS needed**
- **CBS for breakfast**
  - **Done**



Complimentary Changes in Practice

Kitchen Pages RN

- Informs nurse tray is leaving the kitchen
- Gives nurse 5-7 minutes to get glucose check done
- Patient does not have to wait for finger-stick

Location of Boards

- See from the hallway
- No need to gown up for isolation if no direct tray delivery

Mounted in Room with Velcro

- Suicide patient safety—easily removed

Success In The Numbers

Temperature

40.0% → 82.5%

Nursing Perspective

- Love having the pre-notice
- Less unplanned interruptions
- Newer delivery staff unfamiliar with board

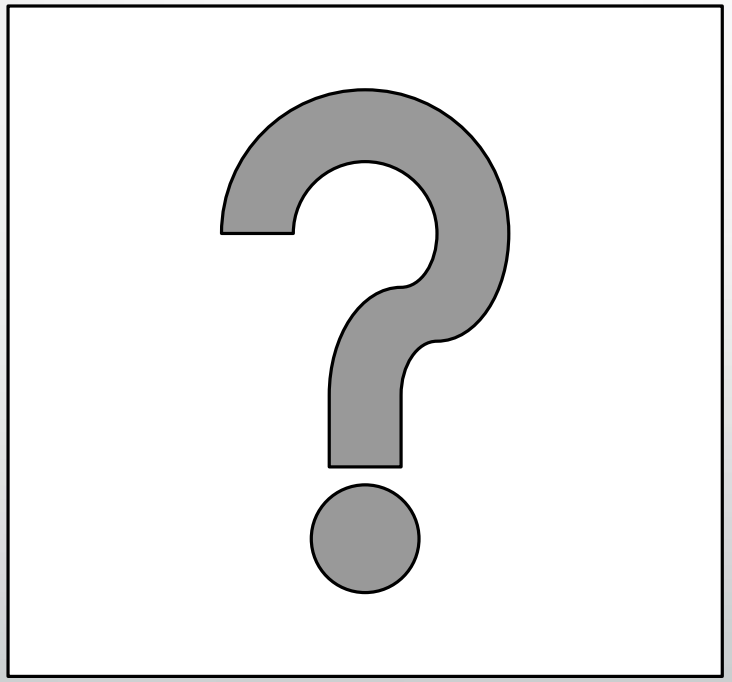
Quality

43.9% → 83.9%

Dietary Perspective

- No searching for the nurse
- Faster delivering trays
- Sometimes not kept up

Questions



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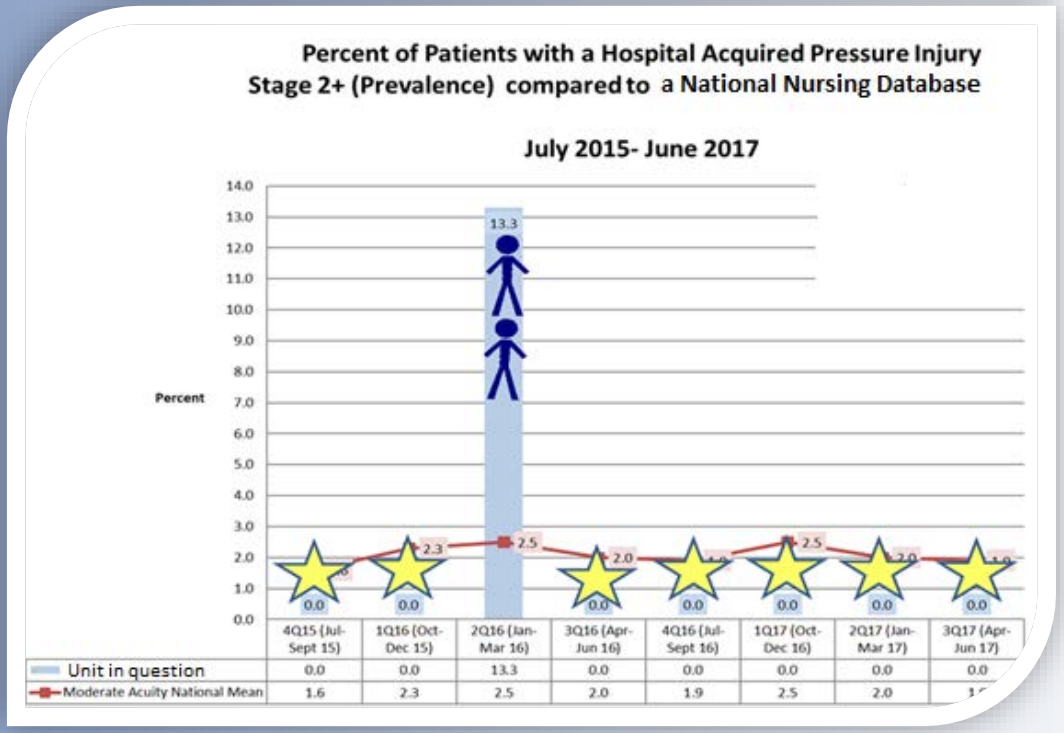
Clinical Nurses Change the Culture of Pressure Injury Prevention

Andrea Tachella, BSN, RN

Background

- Staff nurses on an inpatient medical-oncology unit, recognized an increase in hospital-acquired pressure injuries (HAPI).



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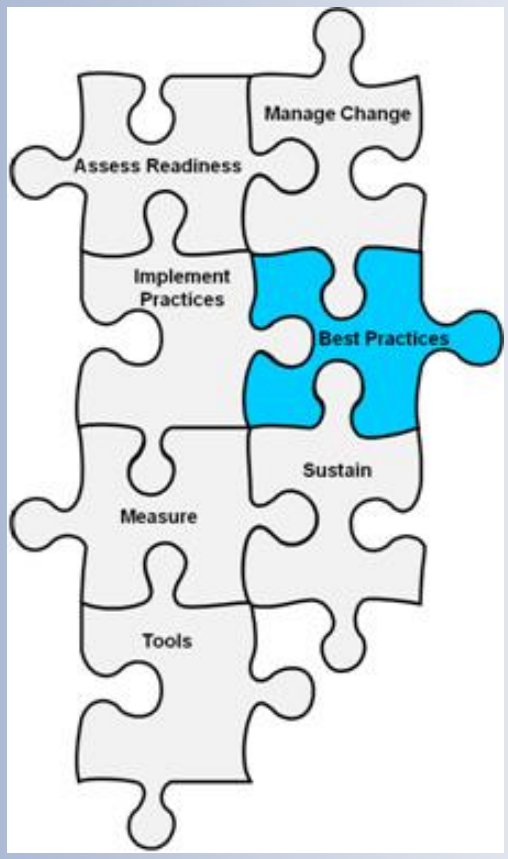
Purpose

- The overall goal of this initiative was to decrease the incidence of HAPI on this ward.



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Methods

- Created HAPI workgroup
- Wound Treatment Association (WTA) program

- Conducted chart reviews to find fall outs and drive education opportunities.
- Wound photography

- Share on-the-spot evidence-based training about HAPI prevention and early intervention

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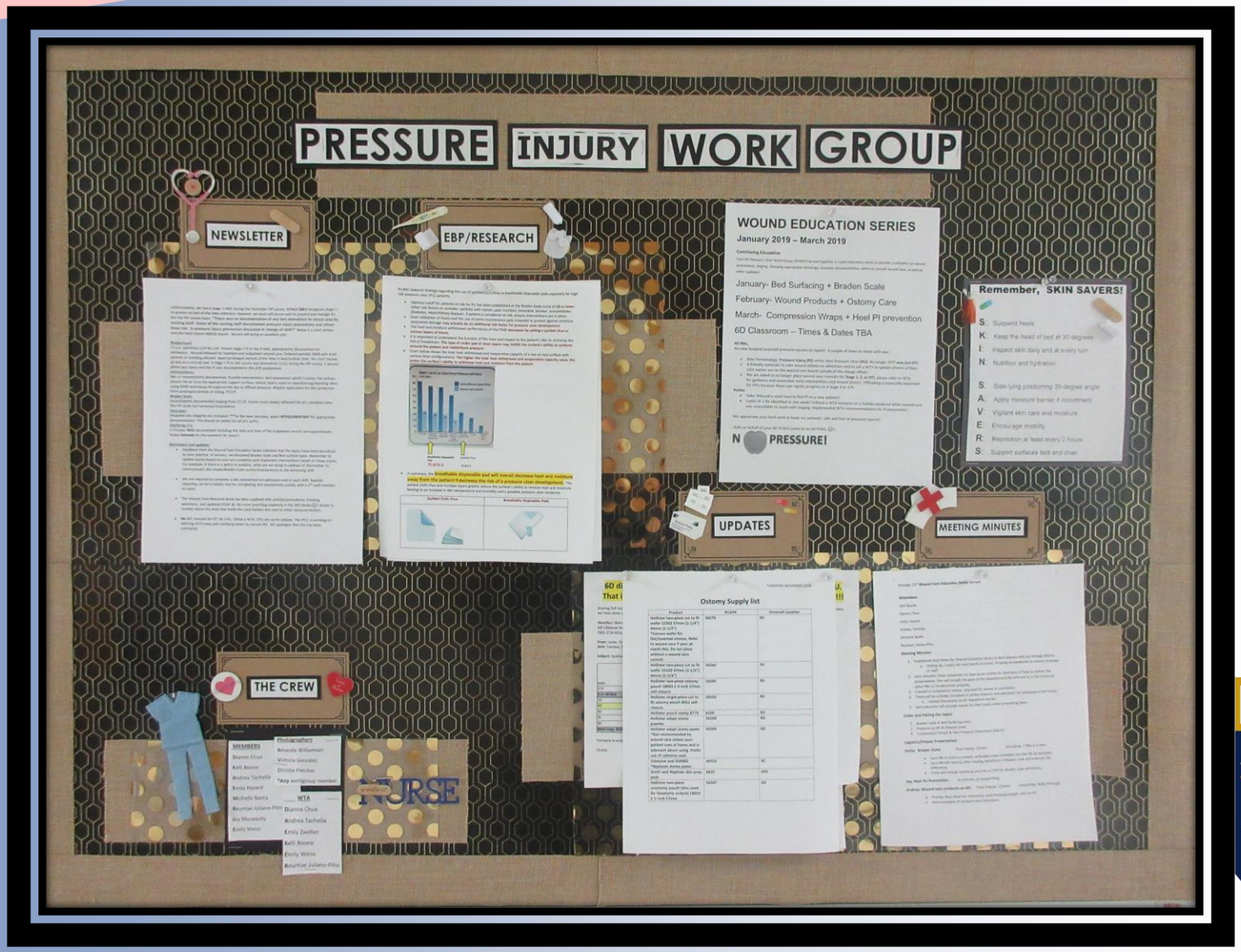
Bulletin Board



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September/October Newsletter

Hi team! We unfortunately missed **a heel SDTI** on a 93 y.o. patient admitted for CHF.

Description of pressure ulcer

Admitted 9/14. A 2x2cm purple colored non-blanchable area to the R posterior heel was discovered 9/16.

Pressure ulcer interventions in place

Limited prior to wound discovery. After wound discovery, heels were floated on pillows. A wound photo was taken. A wound consult was placed.

Recommended pressure ulcer interventions

Perform a thorough skin assessment on admission and every shift. This patient was admitted during shift change is a busy time. Utilize a quick bedside report to assess with the next shift. Allevyn dressings are excellent choices for protecting areas like the heel. Offload pressure areas by floating heels on pillows (kudos for implementing this Jamie!) or using Rooke boots. Wound care has asked that we attempt to manage stable wounds. Refer to a PIWG member for interventions. If the wound is greater than a stage 2 or worsens despite our interventions, consulting wound care is suggested. Update the plan of care accordingly.

Remember

- When documenting pressure ulcers and selecting "no change", "improving", or "deteriorating", best practice is to document how you came to that conclusion. Describe the wound to establish your baseline. You may also chart that you referenced a wound photo, read a recent wound care consult, assessed or discussed the wound in detail with the previous shift, etc.

FYI

- There is a handy Skin Savers resource on our bulletin board, check it out!
- Penile pouches are now available in the Omnicell.
- Dianne created a new bed rental guide to assist us in choosing and ordering the appropriate specialty surface for our patients. This resource is found in the wound care binder and charge resource binder.

Kudos

- Dianne, RN→Removed multiple layers when she found a high-risk patient with a TAP system, bed sheet, and cloth chux under him!
- Anthony, RN→Noticed that a patient with a pressure ulcer was on a foam mattress and promptly transferred him to a p500 bed!
- Mathew, CNA→Provided education to a family on why their loved one was on a TAP system instead of a regular bedsheet! An excellent reminder that we **ALL** help reduce pressure ulcers. Thanks Mathew!

Methods

- Used standardized data collection practices to collect data quarterly during the hospital wide HAPI prevalence studies.
- Data were submitted to a national nursing data base. The national database analyzed the data and provided a quarterly rate and national benchmark.

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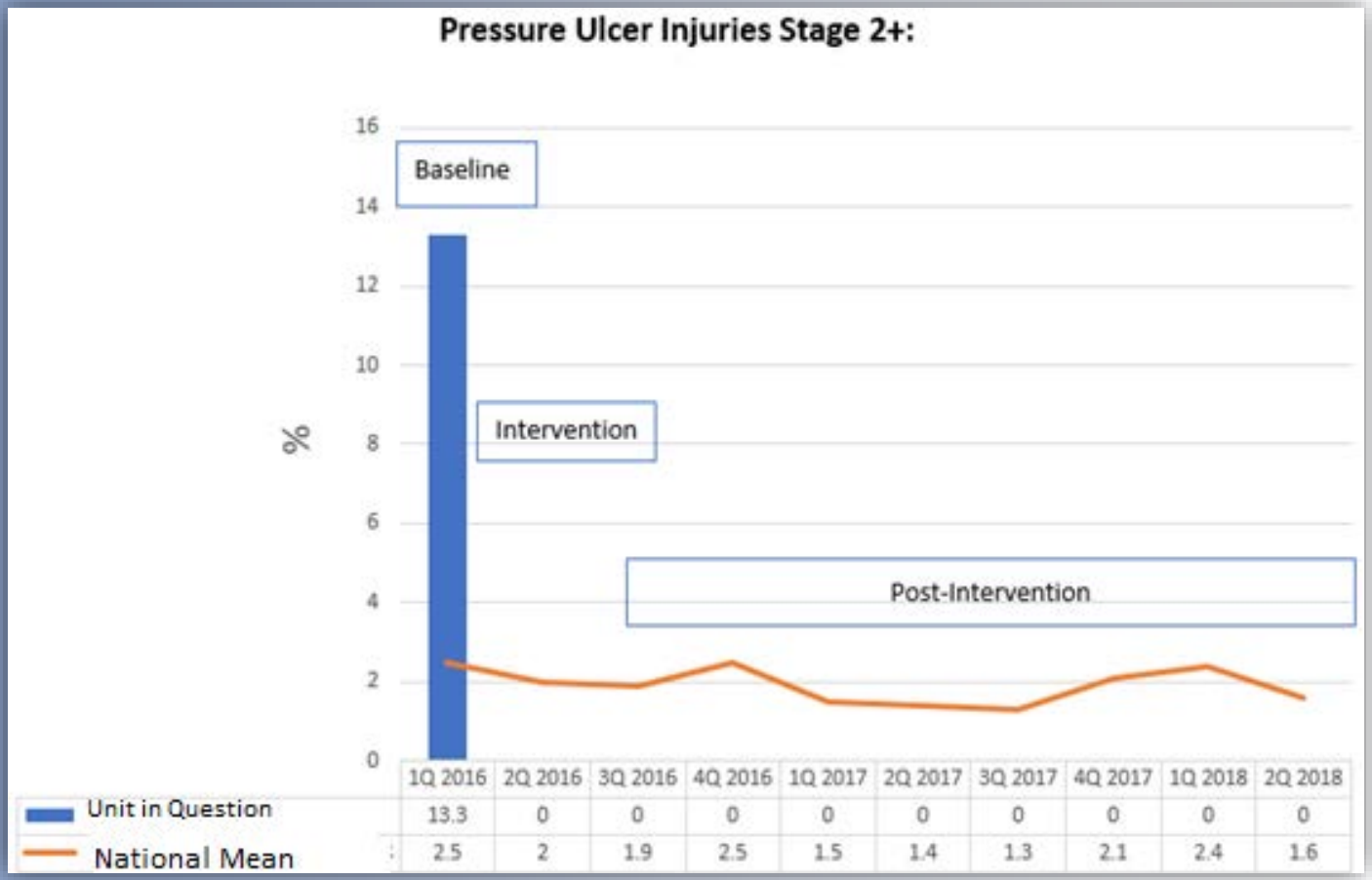
Results



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Barriers to Success

- Time and resources to educate
- Wound Photography
- Real time data

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Moving Forward

- Weekly chart reviews
- Define WTA role
- Implement continued education classes on inpatient wards throughout the hospital
- Develop Nursing Assistant specific education
- Education to Transition to Practice Program

N  PRESSURE!

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Acknowledgements

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2. This project was reviewed by the VA Portland Health Care System Research and Development Service and it was determined to not be research. No further research approvals were required.

3. *The contents of this presentation do not represent the views of the U.S. Department of Veterans Affairs or the United States Government.*

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QUESTIONS?

Program evaluation of skills training for syringe pump use of intravenous furosemide

Allison (Petersen) Engle, RN, BS, BS

Portland Veterans Affairs Healthcare System
Veteran's Affairs and Oregon Health and Science University
Evidence-based Practice Fellowship September 2017- June 2018

Introduction

- Situation & Background
- Research Question & Project Development
- Project Overview & Timeline
- Results
- Limitations
- Recommendations and Implications

Situation & Background

- ***Hurricane Maria***, Puerto Rico, 2017
- Devastation causes a shortage of IV medication, solutions, & bags
- Healthcare Systems across the U.S. must respond urgently and safely to the emergent situation
- Evaluate delivery method and develop training modality for new procedures

It Takes a Team!

- Victoria “Vicki” Church, RN, MS, CNS-BC (Project Lead)
- Damian Vazquez, MMI, BSN RN
- Nicole Carter, MS, RN, AGCNS-BC, CMSRN
- Brenda Grossnickle, MSN, RN, CMSRN
- Amar Patel, PharmD
- Nicole Russo, BSN, RN, CIC
- Allison (Petersen) Engle, RN, BS, BS

Evidence-based Practice Question

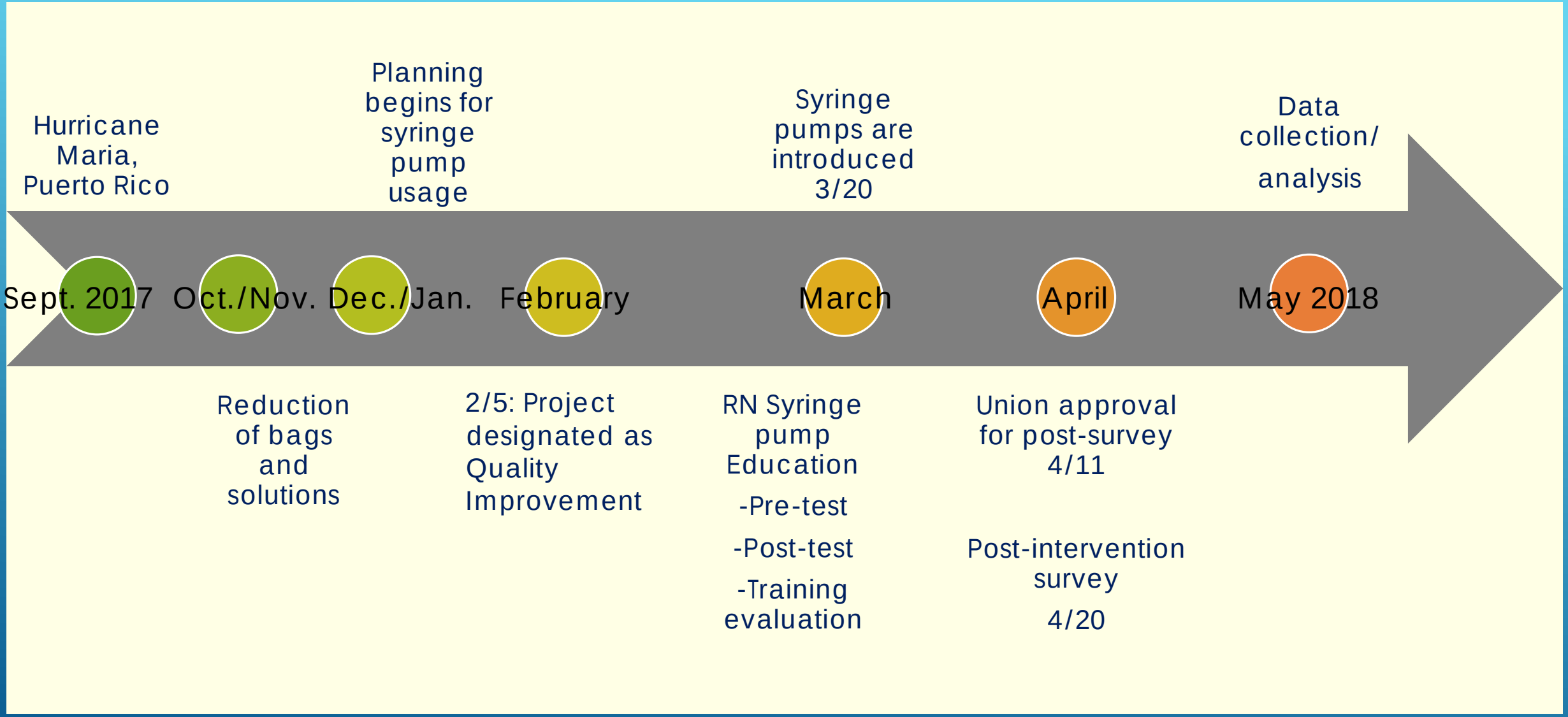
How effective is the training modality for syringe pump use of IV Furosemide (100 mg or greater) when evaluating *safety, cost, nurse satisfaction, and knowledge retention*?

Syringe Pump

Training Structure & Delivery

- Training Modality: Hands on/ psychomotor
- Timing: 30 minutes
- Education: Repeat demonstration with assessment of skills
- Small group learning
- No print materials or f/u

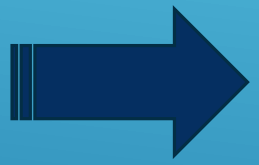
Timeline: September 2017- May 2018



Program Evaluation

Improved job performance:

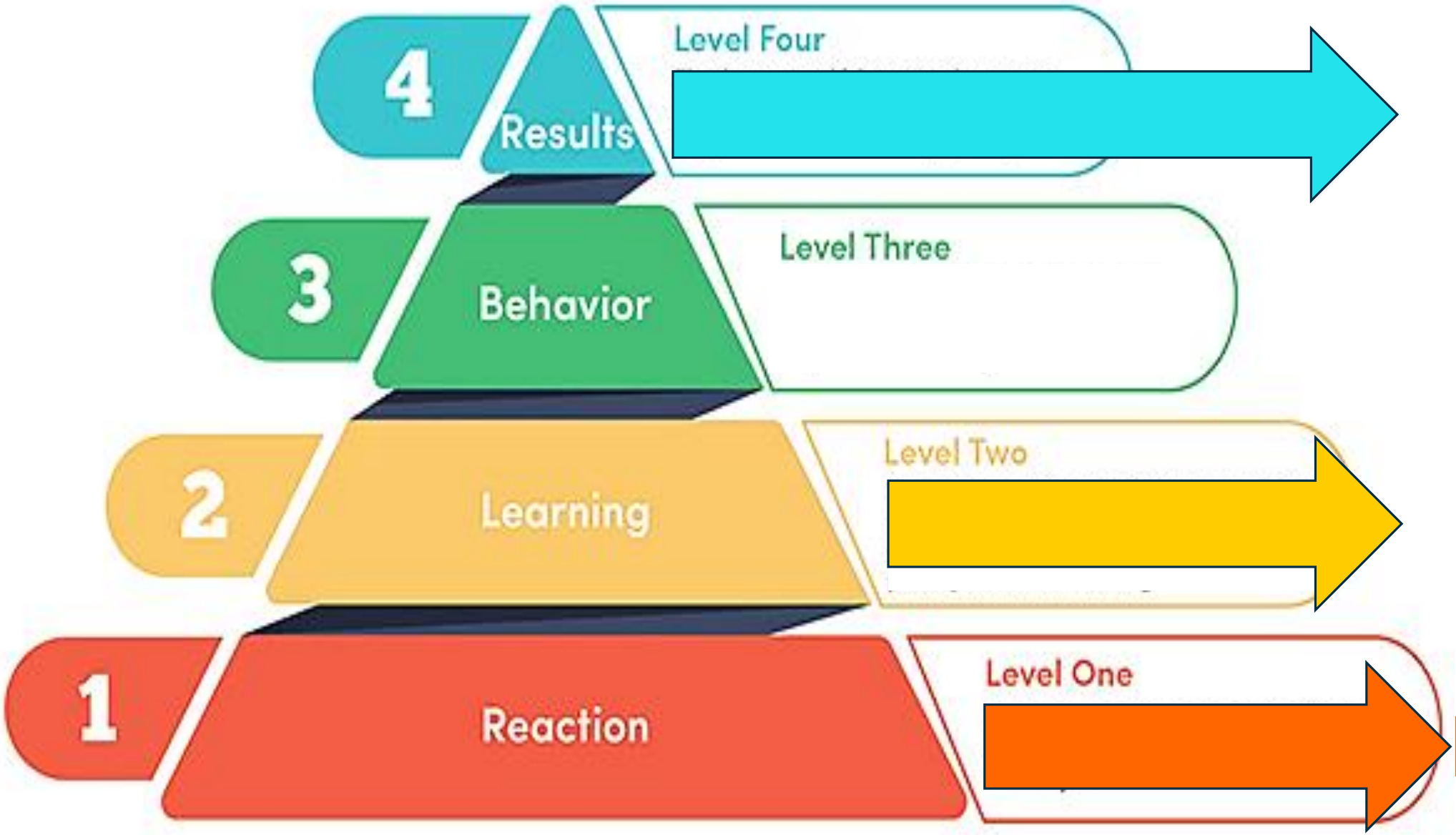
Acquisition of new skills and knowledge



OUTCOME VARIABLES

- Safety: MERS, self-reported errors
- Cost: Supplies and Training
- Knowledge retention after educational intervention
- RN satisfaction with training and skill delivery

Kirkpatrick's Four Levels Of Training Evaluation



Safety

Cost

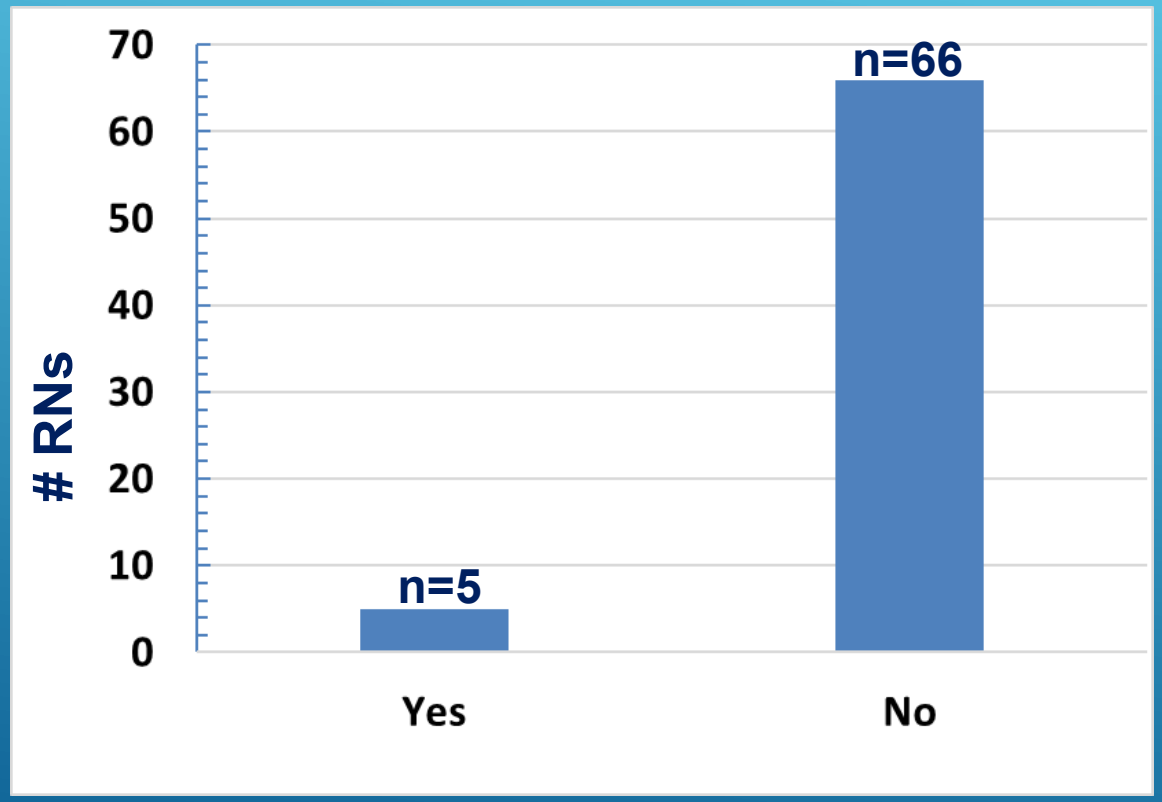
Knowledge retention

RN satisfaction

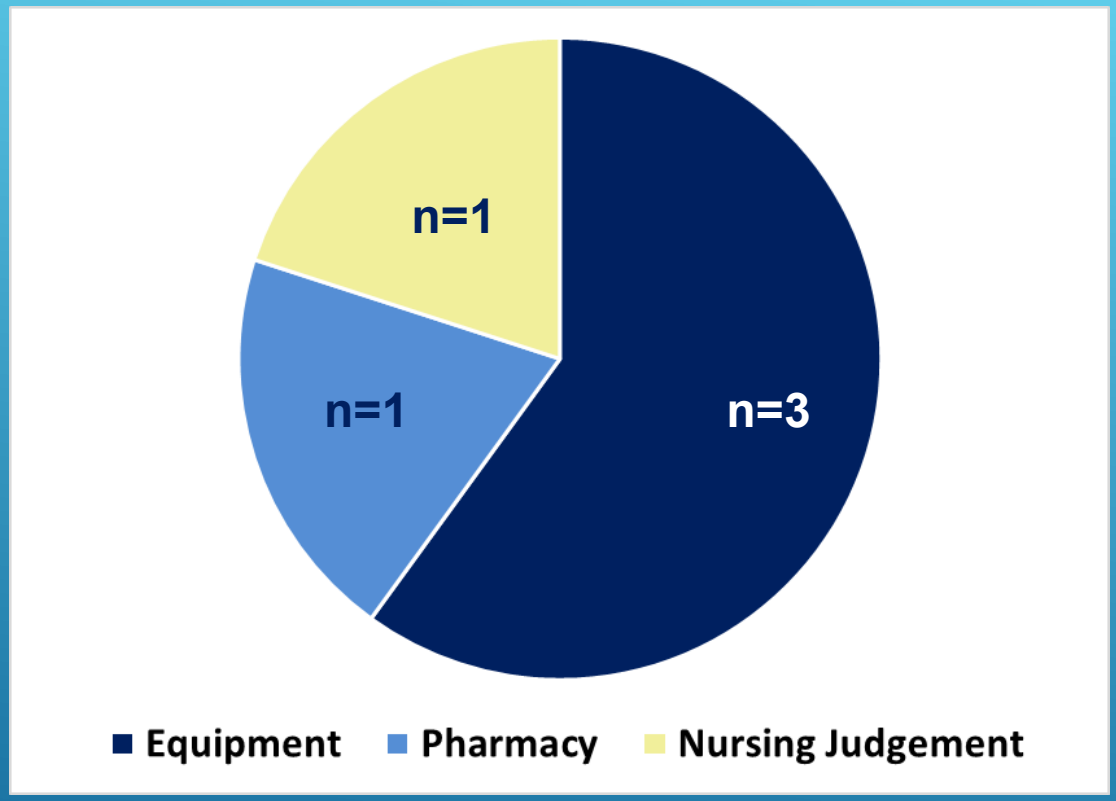
Results: Safety

1 month f/u survey

"I have experienced an Error or Adverse Event since 3/20/18."



Error or Adverse Event by Type



Results: Safety

Medical Error Reporting System (MERS) (February- April 2018)

Date	Shift	Error Type	Implications
2/13/2018	Night	Incomplete dose	Prior to syringe pump use.
3/27/2018	Night	Missed Dose	Using syringe pumps.

Results: Cost

IV furosemide (bag)	Cost per Item	Total Cost of Delivery
D5 100 mL Mini Bag	$1.00	
Tubing	$4.80	
Medication	$3.64- 5.19	**$9.44- 10.99**
Syringe Pump Furosemide	**Cost per Item**	**Total Cost of Delivery**
Syringe	$0.22	
Tamper evident cap	$0.35	
Tubing	$4.80	
Medication	$3.64- 5.19	**$9.01- 10.56**

4/17/- 5/17/18 Total Doses- All Areas/ Wards	IV Bag	Syringe Pump
272	$2,567.68- 2,989.28 (month)	$2,450.72- 2,872.32 (month)
	$30,812.16- 35,871.36 (year)	**$29,408.64- 34,467.84 (year)**

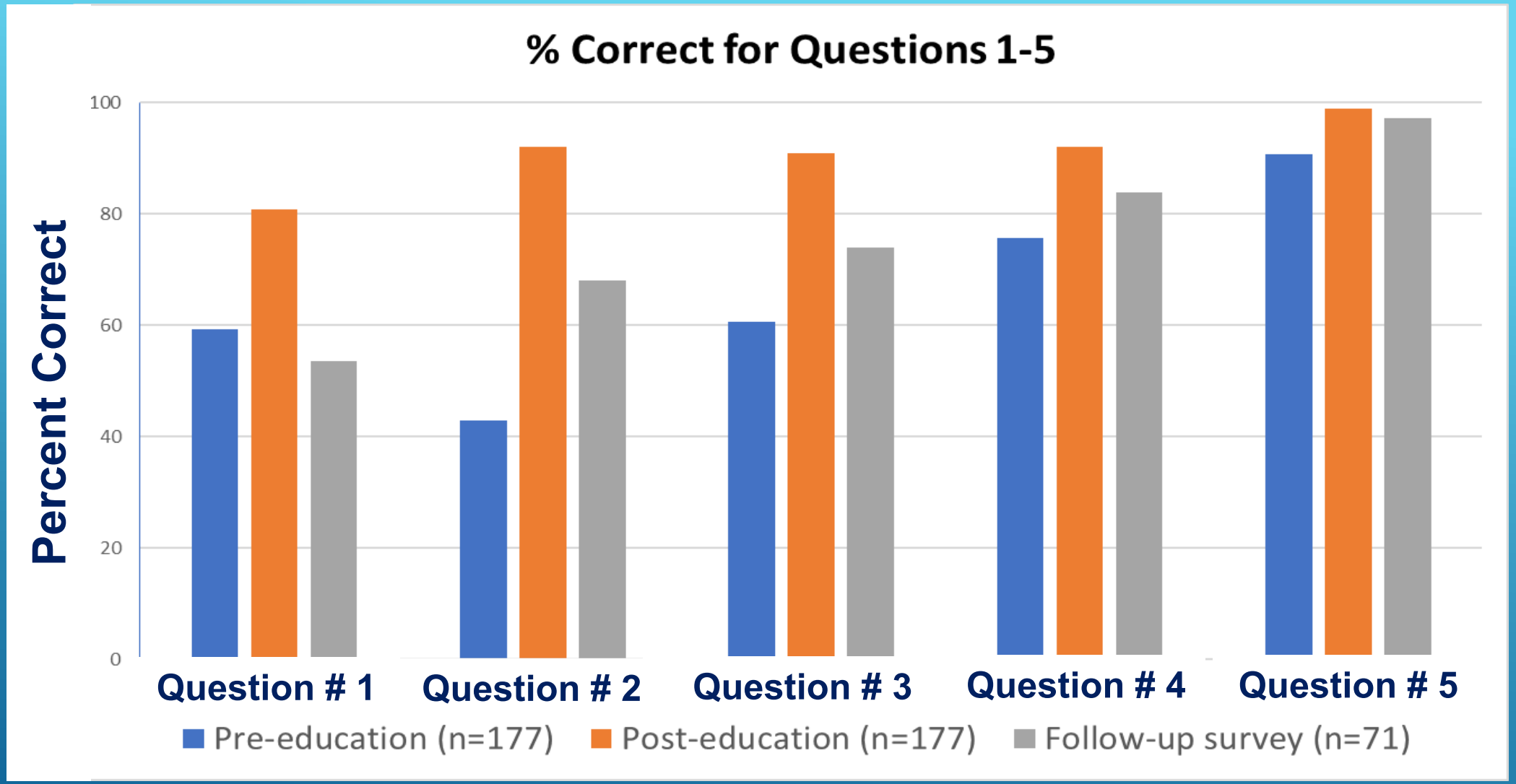
Results: Cost

Education/ training

(Est. Hourly RN Wage: $40 x 0.5) x 254**= $5,080**

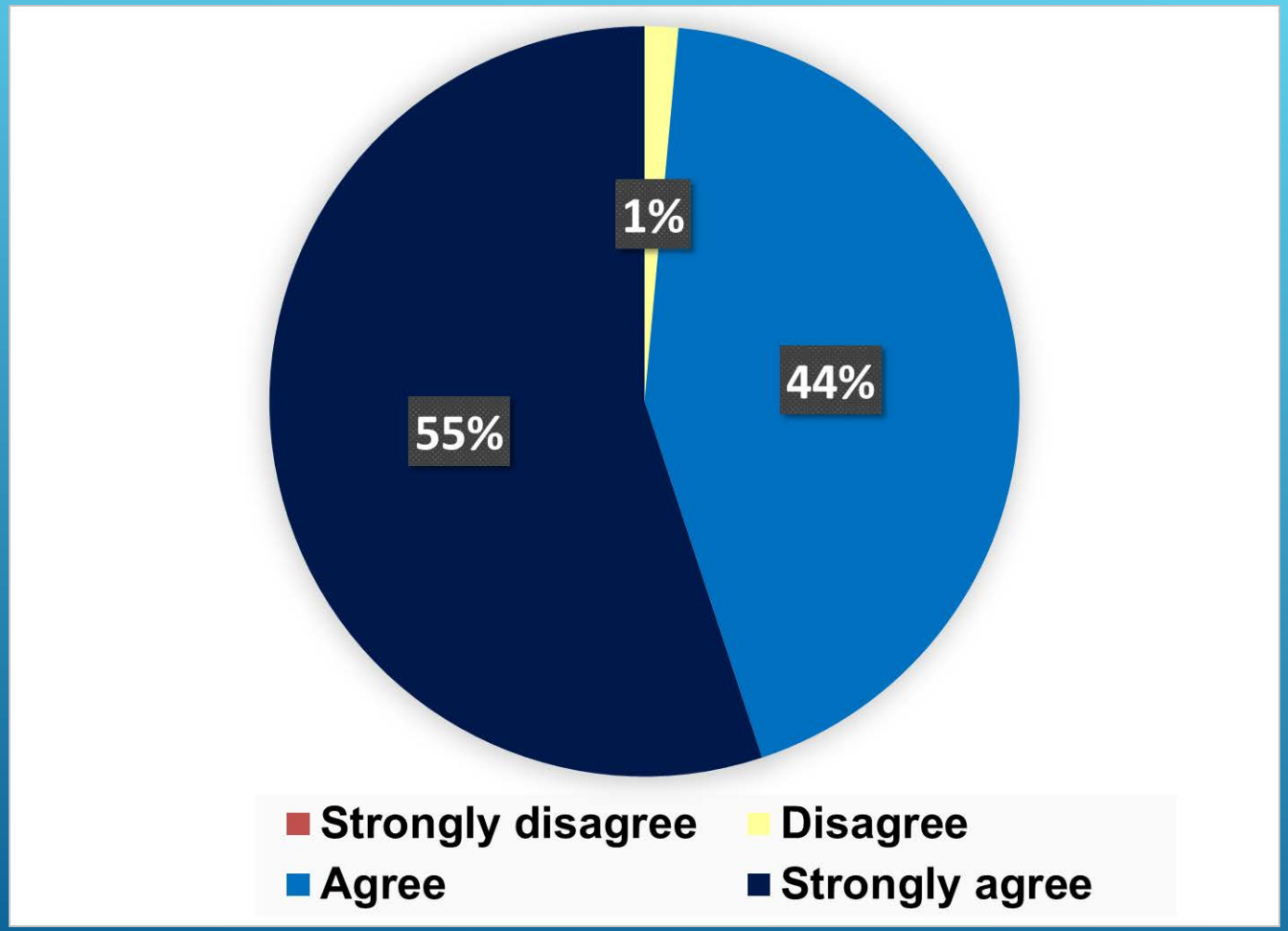
Does not include investment in syringe pump equipment or intervention planning, development, & implementation

Results: Knowledge Retention



Results: RN Satisfaction

One Month Follow-up Survey: “I am satisfied with the education/ training I received”



Results: RN Satisfaction

One month f/u survey qualitative data

Positive	Neutral	Negative	Feedback
Enjoyed training	Other IV mediations should be used for syringe pumps	No follow-up/ reinforcement of learning	Need written Handouts/ procedure
Feel competent		Did not try skills out after training	
Simple, easy procedure and skill		Unable who to ask for help	
Education was effective in teaching skills needed		Unclear where to access resources related to syringe pumps	
"This was the best in-service I have ever experienced in 23 years. Truly!!!"			

Limitations

- Data collection one month pre and post intervention may not be sufficient to draw conclusions about MERS reporting systems and errors.
- Selection Bias (self-reporting)
- Structural limitations that impacted training (simulation did not match rollout)
  - Syringes with wrong color cap and/or label
  - Not able to obtain syringe pump in less than 30 minutes
  - Wrong programming of syringe pumps

Implications

Effective training modalities optimize key outcome variables while conserving time and resources.

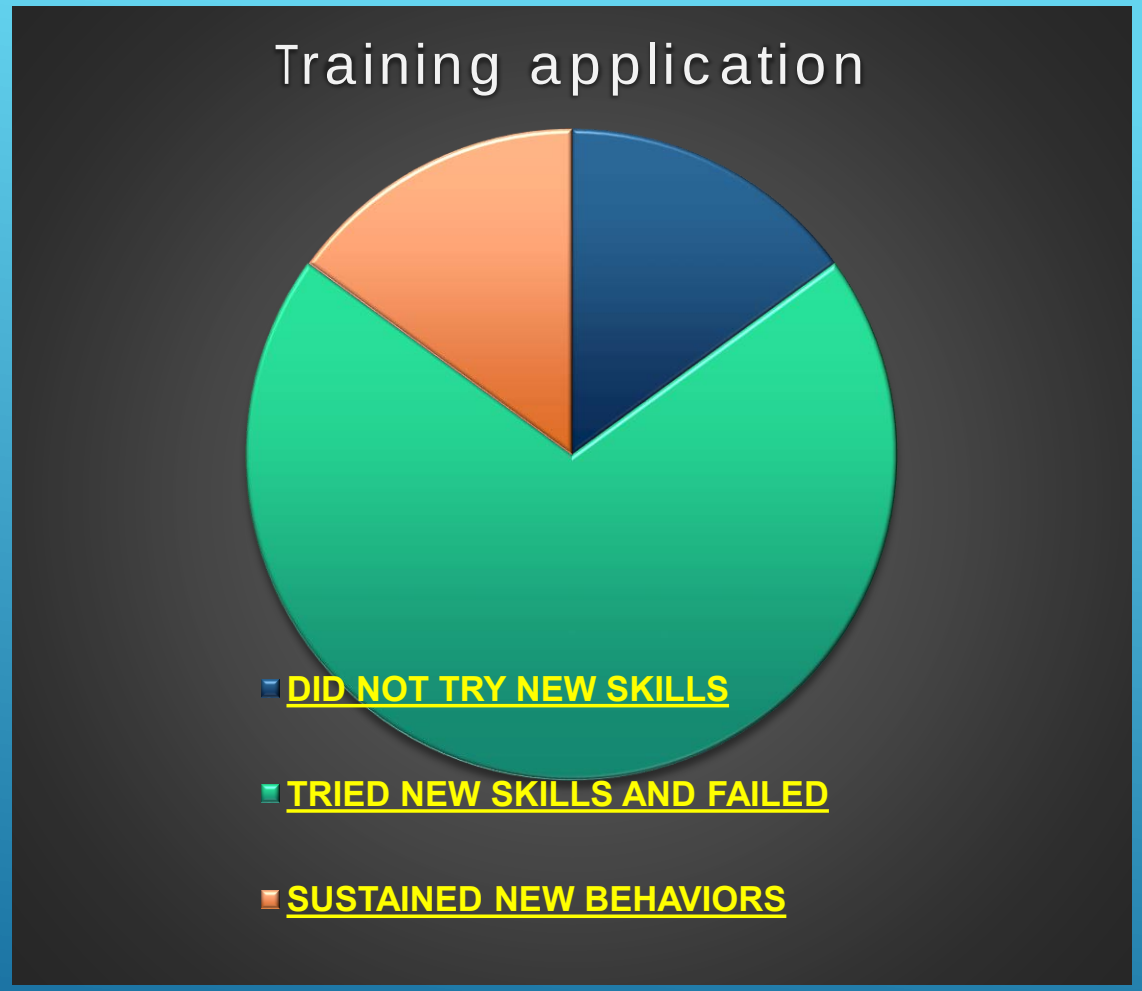
Effective training may prevent Adverse Drug Events. The cost of one ADE is estimated at $1851.44, although variable by setting (Poudel et al, 2017) (Vallano, 2012).

Recommendations

- Pre-education/ intervention knowledge and materials (asynchronous training)
- Increased follow-up with added written procedures to augment training
- Increased availability of subject matter expert after intervention
- Involving nurses in project development process/ Rapid Improvement
- Training evaluation standards and benchmarks

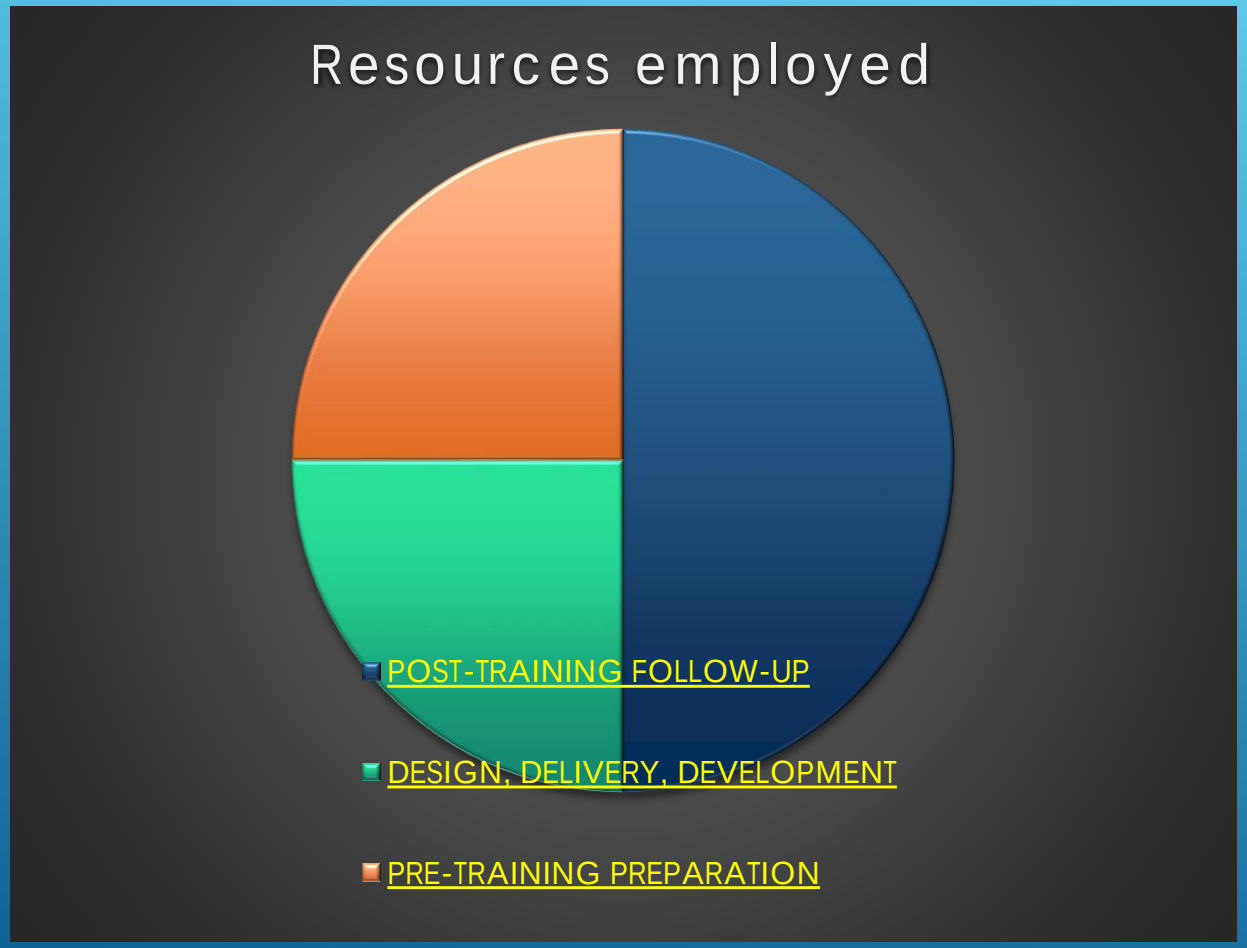
Traditional Training Approach

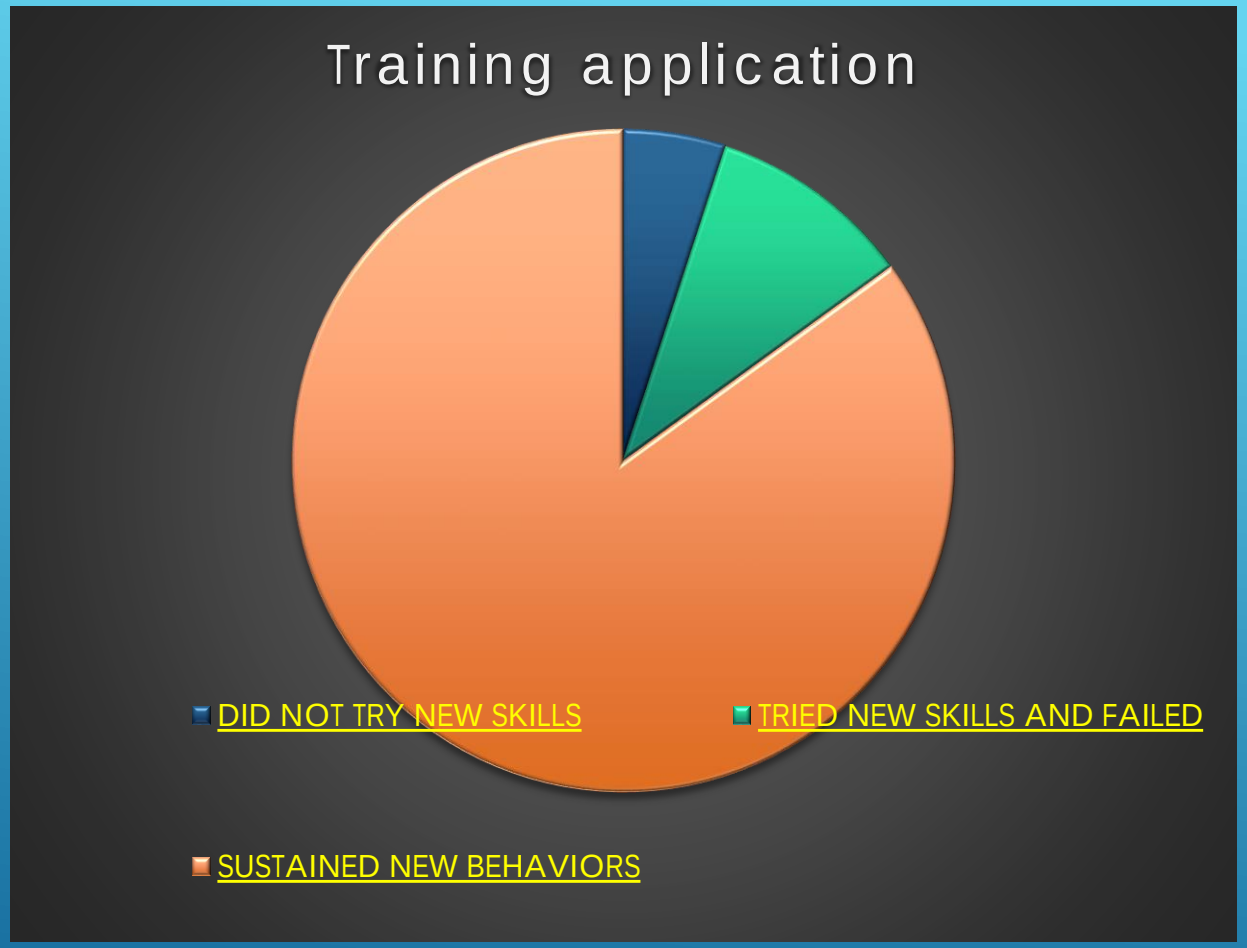
(Brinkerhoff, 2006)



Recommendation: Learning And Performance Training Approach

(Brinkerhoff, 2006)





Additional Recommendations

- **Syringe Pumps for other medications (e.g. antibiotics)**

- **Measure LOS in HF patients**
  - Increased accuracy of dosing with syringe pumps
  - Less fluid used per dose with syringe pumps

- **Measure Infection rates with new tubing**
  - Syringe pump tubing changed with each dose of medication

Conclusion

- Crisis situation and emergent training
- More follow-up leads to better outcomes
- Nurses retained knowledge of skills 1 month post intervention
- Overall safety of syringe pumps was effective with no major adverse events or errors/ no increase in error rate
- Nurse satisfaction was positive
- Cost analysis indicates possible long-term sustainability

With gratitude to Nicole Carter for her mentorship as an outstanding professional role model and continued support. She opened doors to new learning opportunities and provided resources at just the right time.

Special thanks to Steve Weinberg, 8D Clinical Manager, for his creation of dedicated time for this fellowship. Through encouraging staff nurses to engage in research and quality improvement, he creates positive change and growth at the VA.

In appreciation of Dr. Margo Halm as a resource and source of ongoing guidance & support during this project. Her expertise is valued.

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Accelerated Post-operative Extubation following Cardiovascular Surgery

Ann Alway MS, RN, CNS, CNRN, Cheeri Barnhart, MSN, RN, NE-BC,
Crystal Dryden BSN, RN, Logan Priollaud, MD

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Accelerated Post Operative Extubation

- Defined as Extubation in the Operating Room
- History evolves with Cardiovascular Anesthesiologists
- History at Salem Hospital, 2015 Anesthesia developed protocol
- CV-ICU nurses very reluctant but offered collaboration

Montes FR, et al. (2000). The lack of benefit of tracheal extubation in the operating room after coronary artery bypass surgery. *Anesthesia Analog* 91:776-780.

Badhwar V. et al (2014). Extubation in the operating room after adult cardiac surgery safely improves outcomes and lowers cost. *Journal of Thoracic and Cardiovascular Surgery*. 148(6). 3101-3109

Objectives

- Describe two risks of Accelerated Postoperative Extubation following Cardiovascular Surgery

- Describe the two benefits of Accelerated Postoperative Extubation following Cardiovascular Surgery

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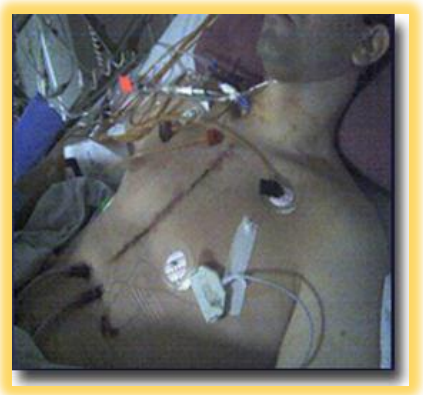
Risks of Accelerated Extubation

- Acute Respiratory failure with possible sequelae
- Pain Management
  - Nurses avoiding full dosage of range-ordered medication to protect airway
- Agitation Management
  - Chest Tube(s) removal risk
  - Surgical sternal wound at risk
  - Central venous access device at risk
  - Temporary Pacemaker wires removal risk



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Benefits of Accelerated Extubation

- Improved verbal communication between patient and nurse
- Propofol not necessary-potentially less pressor use
- Fewer complications related to intubation
- Less anxiety related to artificial airway
- Shorter length of hospital stay
- Earlier mobility

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Retrospective Cardiovascular Surgical case reviews 2016, 2017, 2018

- Clinical teams extubated 1047 patients in the CV-ICU
- Anesthesiologists extubated 52 (4.7%) in the operating room

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Accelerated Extubation over Three Years

- 1/52 patients required reintubation
  Due to Acute Respiratory Distress

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Hospitals & Clinics

Some Comparisons

	Extubated on the Unit	Extubated in the OR
Length of Stay	5.70 days	4.68
Estimated Cost Saving		$150,000.00 (n=52)

Chamchad D., et al (2010). The impact of immediate extubation in the operating room after cardiac surgery on intensive care and hospital lengths of stay. *Journal of Cardiothoracic and Vascular Anesthesia* 24(5): 780-784

Chan JL, et al (2018). A multidisciplinary protocol-driven approach to improve extubation times after cardiac surgery. *Annals of Thoracic Surgery*. 105(6). 1684-1690.

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Accelerated Extubation Successful 98%

- Certain Select Patient Populations
- Anesthesia Approaches during surgery
- Nursing unit resources immediately post-op

Subramaniam K et al. (2017). Predictors of operating room extubation in adult cardiac surgery. *The Journal of Thoracic and Cardiovascular Surgery*. 154: 16560-1665

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Questions

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Peripheral Vasopressor Administration Protocol: Safety and Feasibility

Tracey Loudon, MN, RN, CNS, CCNS, CCRN-K
& David Schmidt, PhD, MD
Kaiser Sunnyside Medical Center

KAISER PERMANENTE®

Background

- 20 Bed Mixed Medical Surgical ICU and Neuro Critical Care
- Primary and Comprehensive Stroke Certifications
- Neuro Interventional Radiology procedures
- Population of patient returning form Neuro IR with peripheral vasopressor infusion
- RNs were asking is this safe?

Purpose

The purpose of this quality improvement project was to provide guidance and support safe administration of peripheral administration of vasopressors.

Problem

- Neuro IR patients returning with peripheral vasopressors infusing
- Hemodynamic instability (fluids and pressors)
- Central venous catheter standard, in this population, was it necessary?
- Short term hypotension post procedure
- National movement to decrease use of central venous catheters

Methods

- Literature review & evidence table
  - Systematic review, Pilot study, other evidence
- Drafted protocols for PV administration and PV extravasation
- Protocols reviewed and edited
  - CNS & Critical Care Director
  - Vascular Access Team
  - Critical Care Committee
  - Pharmacy & Therapeutics

Protocol Development Key Components

Infusion Nursing Standards of Practice	Single Arm Consecutive patient study: Prospective and Retrospective	Pilot	Systematic Review	Kaiser
• Patency assessment • Site selection – avoid flexion • AC greatest risk • IV site < 24 hours old • Flushing guidelines • Patients that are unable to communicate are at greatest risk	• Ultrasound >4 mm • Upper extremity only • 20 or 18 gauge • No hand/wrist or antecubital • Blood return confirmed prior • Stop infusion Q 2 hours assess • Assess Q 2 hours • 72 hour max duration • Standard concentration of drug • Included a treatment protocol for extravasation	• 2:1 staffing ratio • Dilute concentration phenylephrine (40 mcg/mL) their standard concentration: 160 mcq/mL, Sunnyside: 200 mcq/mL) • Dose limit: 2 mcq/kg/min • 18 gauge or larger • Site Upper extremity above wrist • RN to review policy prior to accepting assignment • Order set included POE concentration of pressor (distinction between PV or central) • Order renewed Q 12 hours • Hourly assessment	• 85 articles (1946-2014) • 270 patients • Tissue injury associated with an average duration of infusion of 55.9 hours (+/- 68.1 hours). • 85% of injuries were antecubital or distal to • Most events associated with PIV site distal to wrist • Most data is from case reports, further study is “warranted” to clarify the safety of PV • Local tissue injury data • Extravasation data • Complications associated with distal sites long duration	• Avoid flexion • Upper extremity only • 22 or 20 gauge • Transparent securement dressing • Site less than 24 hours • Duration 48 hours maximum • Verify patency • Hourly assessment • BP contralateral site • One VP only • Standard concentration only • Do not exceed standard dosing • Stop infusion for complaint of pain, redness or burning

Key Components PV Administration

- Site selection
  - Upper extremity only
  - Avoid flexion areas (joint)
  - Select large vessel
  - 22g or 20g needle
- Two sites (one back up)
- Site less than 24 hours old
- PIV must flush without resistance
- Aspirate/flush
- Good site no S/S of swelling or other
- Transparent securement dressing
  - Avoid CHG patch obscures site
- Assess primary site hourly for s/s extravasation
- Compare both arms
- Compatible fluid okay with PV
- Standard concentration (no double strength)
- 48 hour max duration
- Stop infusion for complaint of pain, redness, or burning
- Treatment protocol if extravasation is suspected.

Patient Selection

Which patients are at risk?

TABLE 4

Factors Contributing to the Risk for Infiltration and Extravasation[22,23]

Patient-Specific Risk Factors	Catheter-Specific Risk Factors	Pharmacologic Factors	Other Risk Factors
Small, fragile, or thrombosed veins	Large catheter size relative to vein size	Solutions with very high or very low pH	Inexperience or lack of skill of the person inserting the catheter
Patient activity	Insertion into site that is likely to be affected by movement (eg, the dominant hand or areas of joint flexion)	Solutions with very high or very low osmolarity	
Lymphedema	Unstable catheter or poorly secured access needle	Vasoconstrictive potential	
Age (elderly and pediatric patients are at increased risk)	Multiple venipuncture sites	Cytotoxic substances	
Obesity	Catheter port separation or catheter fracture		
Underlying chronic medical disease (diabetes, peripheral vascular disease, cancer)			
History of multiple IV cannulations or venipunctures			

(Dychter, et al. 2012, pg 88)

TABLE 2

Peripheral Arm Assessment

Patient has small, fragile veins	Yes or No
Consider age, diabetic, long-term steroid use	
Patient has sustained many previous venipunctures	Yes or No
Consider recent hospitalization, ecchymotic arms, frequent labs or intravenous (IV) medications, history of IV drug abuse	
Patient has limited extremity vein selection	Yes or No
Consider history of axillary lymph node dissection, sentinel lymph node biopsy, lymphedema, cerebrovascular accident, amputation, dialysis fistula	
Patient has decreased sensation and/or circulatory impairments	Yes or No
Consider stroke, previous surgeries, infection, or neuropathy	
Patient has altered mental status/impaired cognition	Yes or No
Patient has 2 or more palpable or visible veins are absent in medial aspect of lower arm when manual blood pressure cuff is applied with compression	Yes or No

If any of these assessment items result in a yes response, further intervention and follow-up are required.

Peripheral Vasopressor Extravasation Protocol

- For suspected or confirmed extravasation in an extremity of:
  - Epinephrine
  - Dopamine
  - Dobutamine
  - Phenylephrine
  - Norepinephrine

- For use in the arm only, consult required for the hand or other locations

Excluded Vasopressin (no antidote)

Conclusion

- Vasopressors via peripheral route are safe provided…
- Plan
- Education
- Process
- Evidence driven
- Learnings

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Does Ibuprofen Increase Blood Pressure in Postpartum Women with Preeclampsia?

Sofia Costas MBA, BSN, RNC

Sherry Hutton BSN, RN

Cindy Kenyon BSN, RNC

Problem

In 2013, The American College of Obstetricians and Gynecologists (ACOG) made a recommendation to withhold Ibuprofen in postpartum women with preeclampsia.

While the United States is facing an opioid epidemic, postpartum women with preeclampsia are receiving narcotics for pain control because of the belief that ibuprofen increases blood pressure.

Objective

- The aim of this Institutional Review Board (IRB) approved study was to evaluate the impact of ibuprofen on Mean Arterial Pressure (MAP) in the immediate postpartum period of women with preeclampsia.

- MAP is defined as the average pressure in a patient's arteries during one cardiac cycle. True MAP can only be determined by invasive monitoring or complex calculations using a formula of the systolic blood pressure (SBP) and the diastolic blood pressure (DBP).

- MAP = ((2*diastolic)+systolic)/3

Methods

- A retrospective chart audit of 633 perinatal patients who delivered at Providence St. Vincent from January 2017 to December 2017 who had severe hypertension (HTN) (BP ≥160/105) during their hospital stay.

  Inclusion:

  Diagnosed with preeclampsia.

  Received magnesium sulfate during the postpartum period

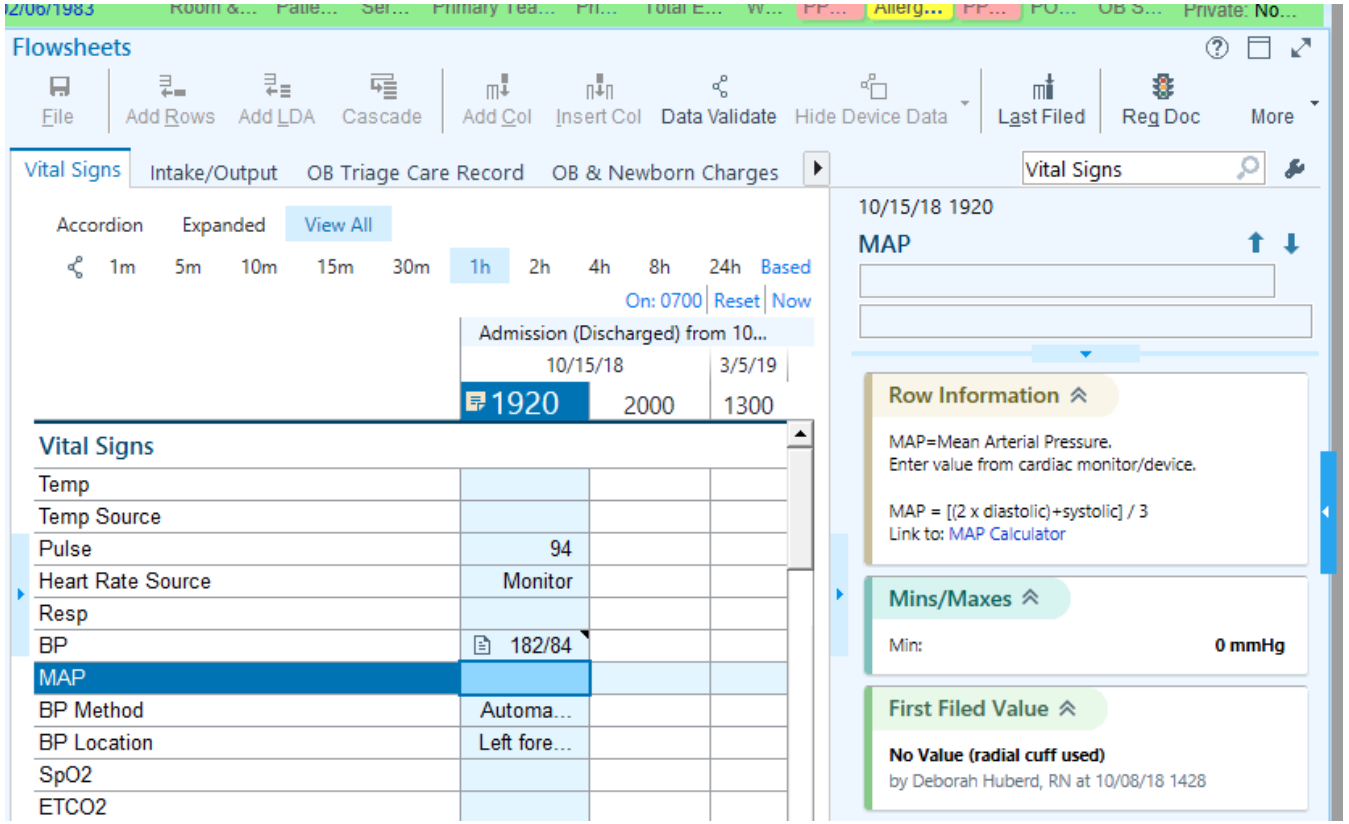
  Received treatment for severe HTN after delivery

  Exclusion Criteria:

  Severe BP (160/105) at 2 hrs. post delivery- Time that baseline BP was obtained

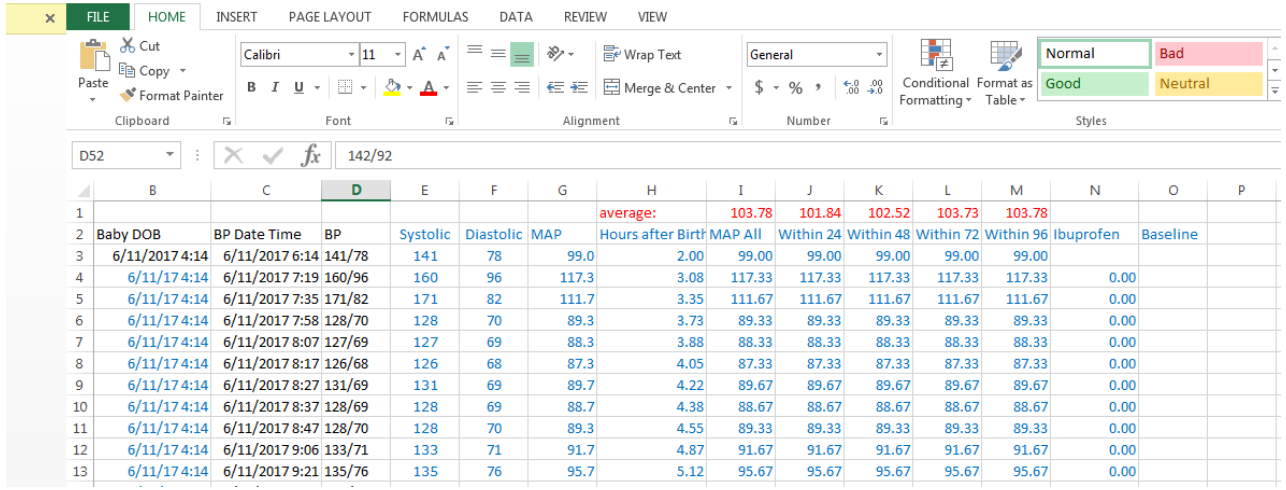
- 169 patients met our inclusion and exclusion criteria. 66 received ibuprofen, 103 did not.
- Our study includes 60 randomly selected preeclamptic postpartum patients.
- 30 received ibuprofen postpartum 30 did not.

It would have been easy if the MAP was auto calculated



Methods

- We entered the time BP was taken and every SBP and DBP into excel spreadsheet.
- Formula was created to determine MAP.
- Average MAP was calculated for every 24 hour period.

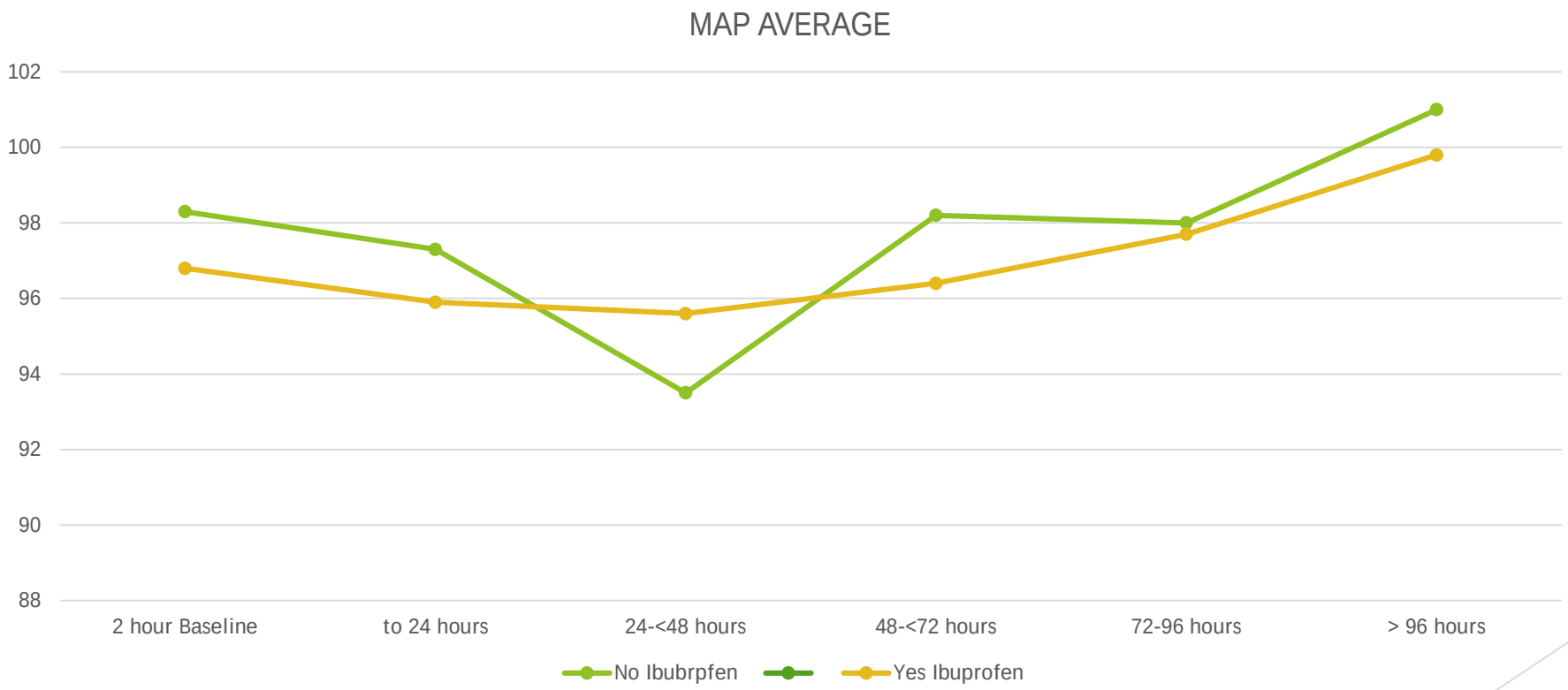


	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1							average:	103.78	101.84	102.52	103.73	103.78			
2	Baby DOB	BP Date Time	BP	Systolic	Diastolic	MAP	Hours after Birth	MAP All	Within 24	Within 48	Within 72	Within 96	Ibuprofen	Baseline	
3	6/11/2017 4:14	6/11/2017 6:14	141/78	141	78	99.0	2.00	99.00	99.00	99.00	99.00	99.00			
4	6/11/17 4:14	6/11/2017 7:19	160/96	160	96	117.3	3.08	117.33	117.33	117.33	117.33	117.33	0.00		
5	6/11/17 4:14	6/11/2017 7:35	171/82	171	82	111.7	3.35	111.67	111.67	111.67	111.67	111.67	0.00		
6	6/11/17 4:14	6/11/2017 7:58	128/70	128	70	89.3	3.73	89.33	89.33	89.33	89.33	89.33	0.00		
7	6/11/17 4:14	6/11/2017 8:07	127/69	127	69	88.3	3.88	88.33	88.33	88.33	88.33	88.33	0.00		
8	6/11/17 4:14	6/11/2017 8:17	126/68	126	68	87.3	4.05	87.33	87.33	87.33	87.33	87.33	0.00		
9	6/11/17 4:14	6/11/2017 8:27	131/69	131	69	89.7	4.22	89.67	89.67	89.67	89.67	89.67	0.00		
10	6/11/17 4:14	6/11/2017 8:37	128/69	128	69	88.7	4.38	88.67	88.67	88.67	88.67	88.67	0.00		
11	6/11/17 4:14	6/11/2017 8:47	128/70	128	70	89.3	4.55	89.33	89.33	89.33	89.33	89.33	0.00		
12	6/11/17 4:14	6/11/2017 9:06	133/71	133	71	91.7	4.87	91.67	91.67	91.67	91.67	91.67	0.00		
13	6/11/17 4:14	6/11/2017 9:21	135/76	135	76	95.7	5.12	95.67	95.67	95.67	95.67	95.67	0.00		

Methods

- Baseline was obtained at 2 hours postpartum.
- Each patient's MAPs for each 24 hour interval were averaged.
- The MAPs were compared in women who received Ibuprofen versus those who did not.
- T-tests were used to determine statistical significance of the MAPs of the two groups of patients compared at the following intervals: 24, 48, 72, 96 and >96 hours.

Average MAP for each 24 hour period



Results

- When comparing the average overall MAP pressures between the two groups of patients, the difference was not significant pressures at any of the following time intervals: 24 (p=0.46),48 (p=0.56), 72 (p=0.45), 96 (p=0.49) and > 96 (p=0.47) hours.

Ibuprofen	2 hour Baseline	to 24 hours	24-<48 hours	48-<72 hours	72-96 hours	> 96 hours
NO	98.3	97.3	93.5	98.2	98	101
Yes	96.8	95.9	95.6	96.4	97.7	99.8
p	0.46	0.46	0.56	0.45	0.49	0.47

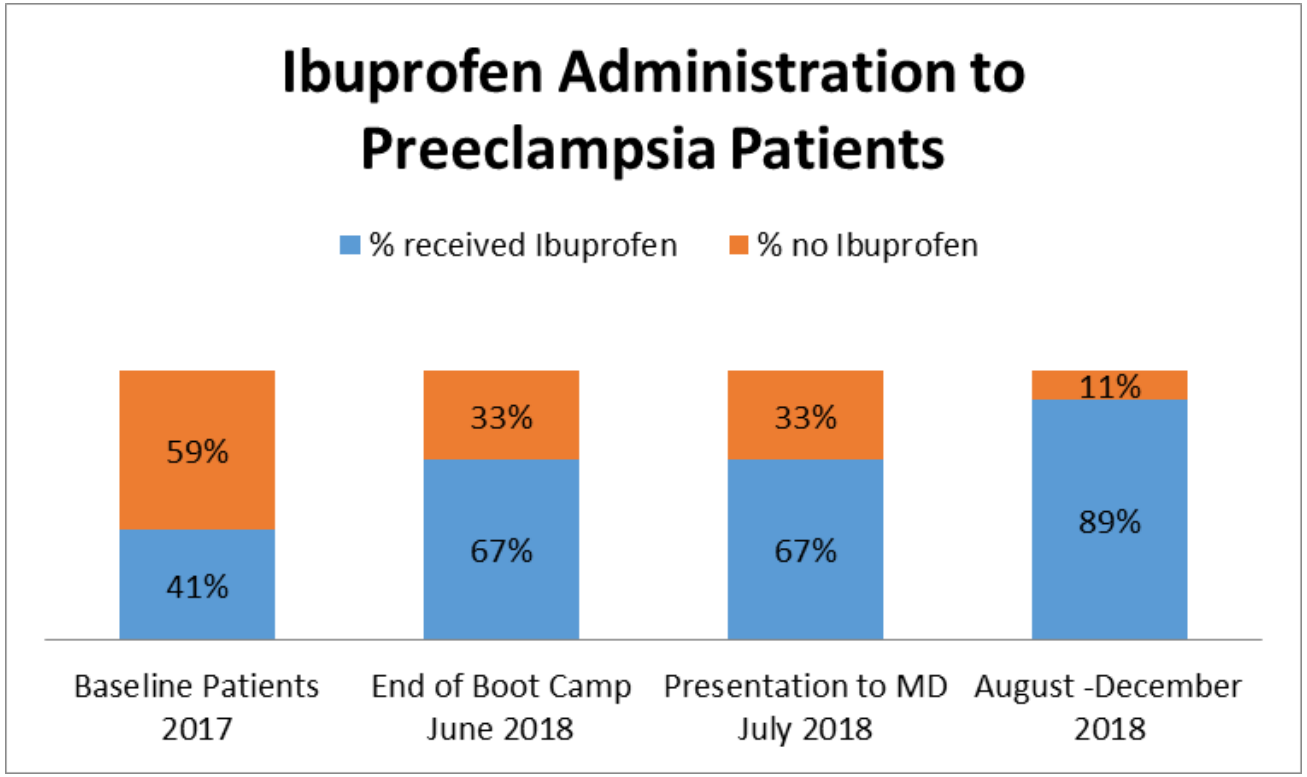
Recommendations

- Our results revealed that there was no significant difference in MAP for preeclampsia patients who received Ibuprofen in the postpartum period compared to the patients who did not receive ibuprofen. This finding is consistent with the current literature.

- Based on this finding Ibuprofen following birth should be included in the pain control plan in hopes to reduce narcotic use

Findings AKA what has happened since we did our study

- MAP is now available in Epic
- The % of patients with preeclampsia receiving Ibuprofen had increased



Future Considerations

- Change in practice offering non narcotic medications prior to giving narcotics, finding some still go straight to oxycodone without offering Ibuprofen even though it is ordered.
- Currently evaluating the mg of narcotics per postpartum length of stay. Comparing patients who received ibuprofen and Tylenol vs those who have not

Questions