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## Anesthesia-to-Post Anesthesia Care Unit Handoff Standardization

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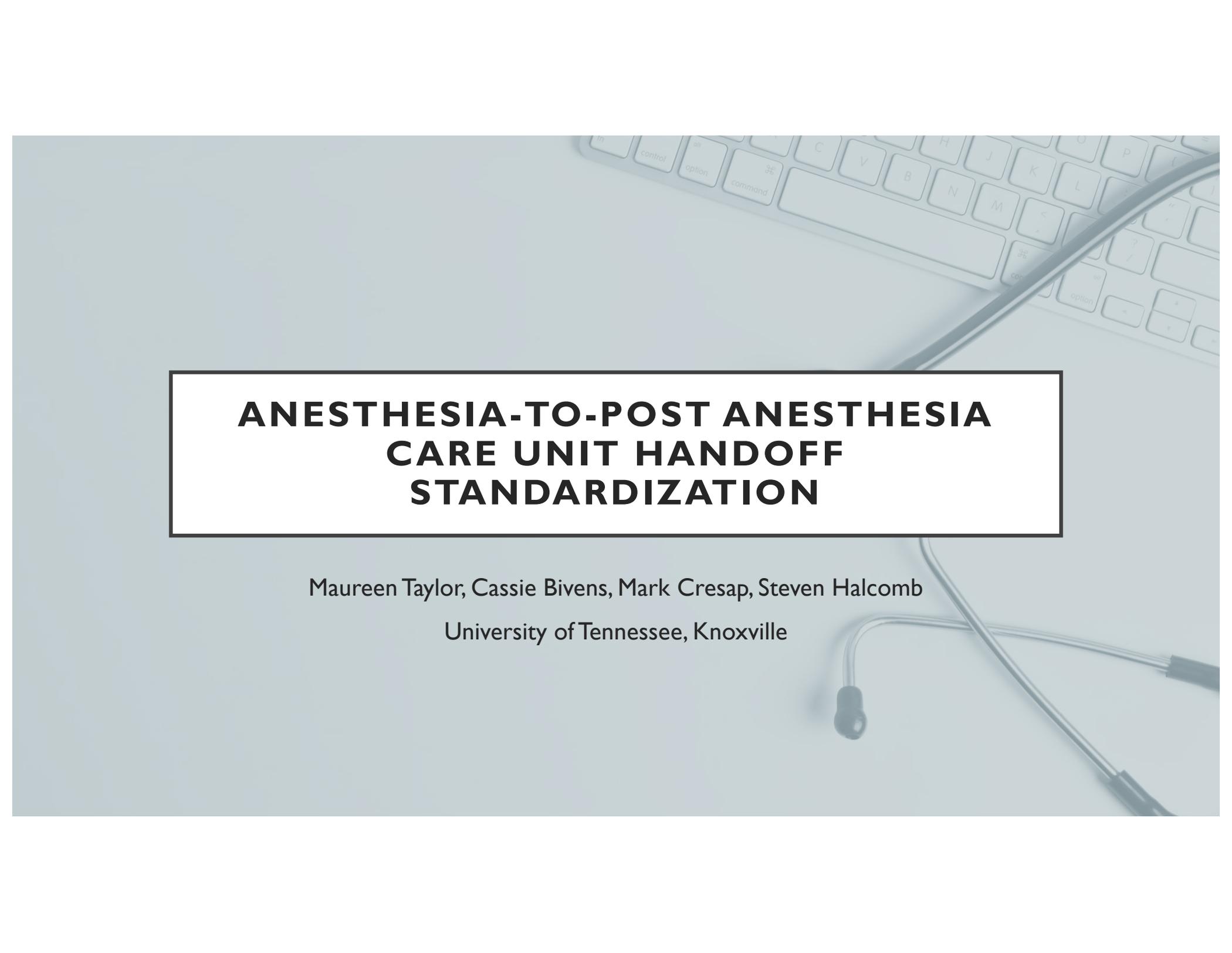
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The background of the slide is a light blue-grey color. In the upper right corner, there is a close-up, slightly blurred image of a white computer keyboard, showing keys like 'control', 'option', 'command', 'C', 'V', 'B', 'N', 'M', and '<'. In the lower right corner, there is a close-up, slightly blurred image of a silver stethoscope with black tubing and a black chest piece.

# **ANESTHESIA-TO-POST ANESTHESIA CARE UNIT HANDOFF STANDARDIZATION**

Maureen Taylor, Cassie Bivens, Mark Cresap, Steven Halcomb  
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# INTRODUCTION



## OVERVIEW OF PROBLEM

- The PACU environment:
  - Rapid turnovers
  - Large volumes
  - Rushed environments
- Cost of communication failure:
  - 30% of malpractice claims
  - 1,744 deaths
  - \$1.7 billion in malpractice costs over five years

(The Joint Commission, 2017)



## CLINICAL SIGNIFICANCE

- Evidence has shown by formalizing handoffs, nursing staff satisfaction improved from 46% to 74%, with a perception of better patient care at an overall 88% after the study (Talley et al., 2019).
- The American Association of Nurse Anesthetists (AANA) has also labeled it best practice to have a structured PACU handoff process.
- The WHO placed handoff into their High 5's Initiative
- In 2010, the guideline requirements for The Joint Commission became a standard of practice.

## CLINICAL PROBLEM

- An unstructured handoff process threatens patient safety, leads to decreased satisfaction among PACU nurses, and reduces the amount of information that is transferred (Robins & Dai, 2019).
- This high-volume area for handoff creates a demand for the standardization of practice and the potential for significant impact.
- It is estimated that upwards of 4,000 patient handoffs occur every single day within teaching hospitals, just like UTMCK (The Joint Commission, 2017).

## CLINICAL PROBLEM

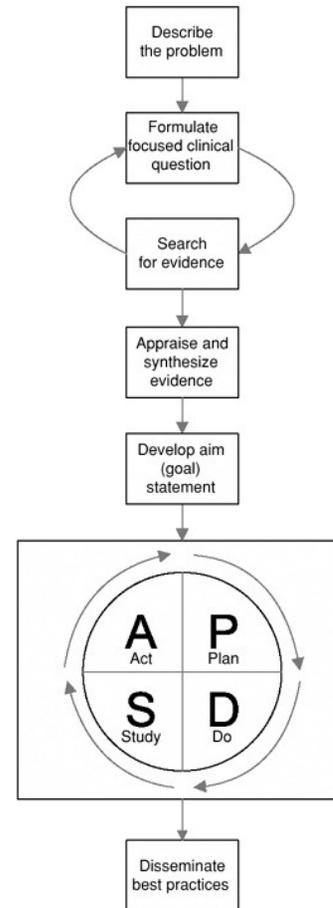
- Subjective handoffs can open the gap for communication errors leading to dissatisfaction and stress with the facility's nursing staff.
- There is no standardized handoff in the PACU at the University of Tennessee Medical Center.
- Needs Assessment:
  - UTMCK Think Tank marked handoff as an organizational priority
  - Quality Improvement Coordinator
  - PACU Nurse Manager

## PROJECT PURPOSE AND GOAL

- Purpose
  - To implement a standardized handoff tool as a resource when anesthesia providers are reporting to a PACU nurse after every case at the University of Tennessee Medical Center.
- Goals
  - Using the best evidence to implement a checklist as a handoff tool to evaluate nurse satisfaction before and after the handoff tool is implemented.
  - Nurse satisfaction will be evaluated as the nurse's perception of the quality of report received and the ability to keep the safety of the patient intact throughout the PACU stay

# GUIDING FRAMEWORK

Figure 1: EBPI Model (Levin, 2010)



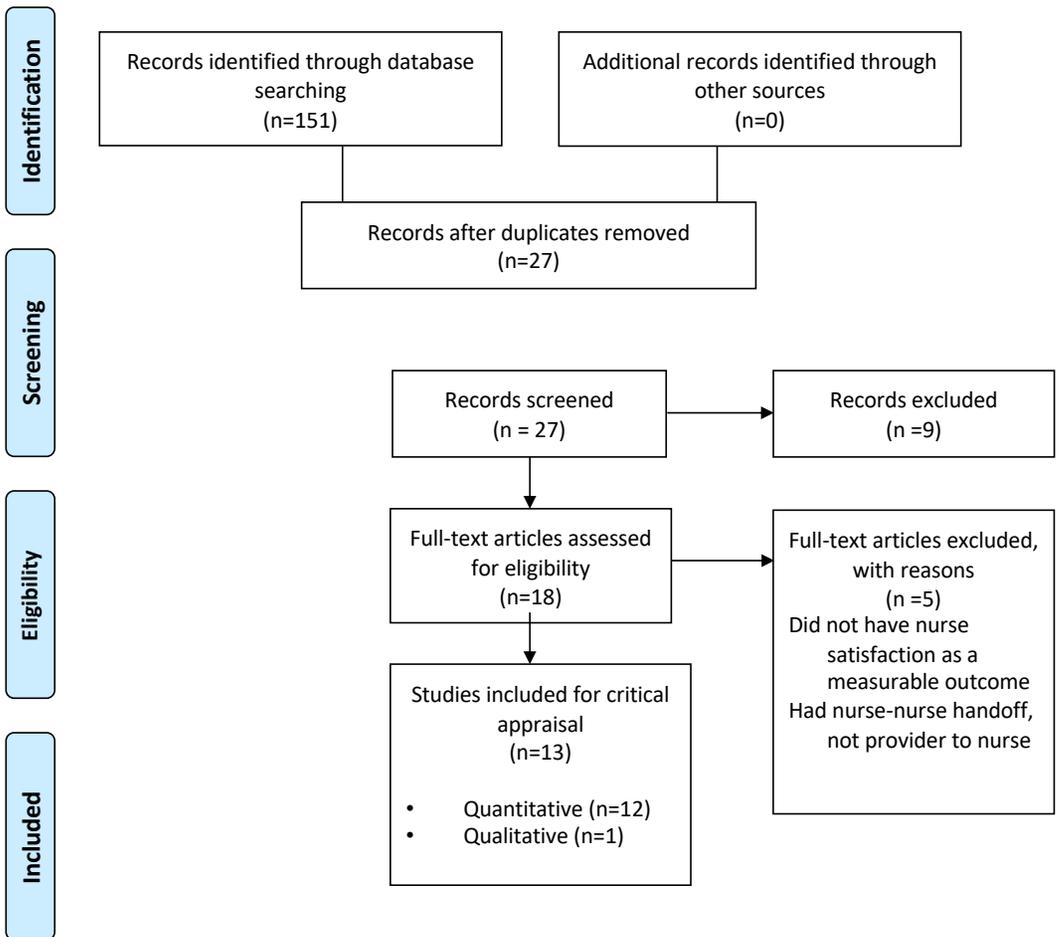
## PICOT QUESTION

“In PACU nurses, how does a standard handoff tool compared to subjective verbal reports affect nurse satisfaction within one month.”

# EVIDENCE



# LITERATURE SEARCH



# CRITICAL APPRAISAL

- All studies were systematically appraised as per the Johns Hopkins Nursing Evidence-Based Practice in order to establish the validity and reliability of the studies that will support and affect practice change
- The Johns Hopkins Nursing Evidence-Based Practice Appendix D: Evidence Level and Quality Guide was used to assign a level and quality rating for each of the 13 total articles that met the inclusion and exclusion criteria
  - Level I – 2 articles
  - Level II -3 articles
  - Level III -7 articles
- All assigned quality grade A or B, indicating good or high-quality evidence.
- A clinical practice guideline, was appraised, leveled, and graded as a non-research source using the Appraisal of Guidelines for Research and Evaluation (AGREE) II instrument

# SYNTHESIS

- From the information that was synthesized, the implementation of a standardized handoff tool was beneficial to nurse satisfaction, quality of information transferred, and patient safety
- After all appraisals were complete and assigned a level and quality rating, they were synthesized into an evidence table

## Ten different handoff tools were evaluated across the studies:

- 3 custom checklists
- WHAT tool
- I-PASS
- PATIENT
- 1 electronic checklist
- 1 study used a combination of checklists
- 1 physical checklist
- One incorporated a “time-out” as an intervention

- WHAT tool had highest statistically significance increased nurse satisfaction and communication along with the highest level of evidence with the greatest return of surveys at 94%
- Implementation of timeout with standardized handoff due to consistent significance of timeout improvement on nurse satisfaction, information transferred, quality of information, communication, and patient safety data

## CLINICAL EXPERTISE

- Clinical practice guidelines are rigorously developed based on systematic reviews of research evidence with statements of clinical practice recommendations and an evaluation of their benefits and harms (Melnyk, 2015)
- Clinical Practice Guidelines play a critical role in EBP since they help to reduce healthcare variation and improve patient outcomes (Melnyk, 2015)
- A clinical practice guideline was chosen as a non-research form of evidence and was appraised, leveled, and graded using the Appraisal of Guidelines for Research for Research and Evaluation (AGREE II) instrument
- The objective of the clinical practice guideline chosen for the DNP project is to guide improving perioperative team communication through a culture of safety that incorporates team training, simulation training, standardized transfer of patient information (commonly referred to as handovers or handoffs), briefings, time outs, surgical safety checklists, and debriefings (Fearon et al., 2018)
- Recommendations from the practice guideline suggest that the use of checklists in handovers, briefings, and debriefings provide a defense against adverse events (Fearon et al., 2018)

# PATIENT PREFERENCE

- Patients and families trust that healthcare workers will communicate and work together to ensure they receive the best possible care, along with improved outcomes
- Developing a patient's trust in healthcare professionals will help to reinforce the patient/provider relationship, which helps to increase patient rapport and confidence in their medical care.
- Handoff provides critical information that allows the nurse to make the patient experience a shared value of safety and quality (IHI, 2020).



## RECOMMENDATIONS FOR PRACTICE

There is **GOOD AND CONSISTENT** evidence to support implementation and utilization of standardized handoff tool to guide OR to PACU transfers to enhance nurse satisfaction.

Synthesis of the literature did not reveal enough evidence to support the use of specific handoff tool.

It is recommended that the practice site choose a tool that best meets the needs of the stakeholders.



AIMS FOR  
RECOMMENDED  
PRACTICE  
CHANGE

“By September 2021, 95% of all anesthesia-to-PACU-handoffs occurring within the post-anesthesia care unit at the University of Tennessee Medical Center will utilize a standardized handoff approach.”

# IMPLEMENTATION

# SETTING AND POPULATION

## Setting

- The project site is located at the largest teaching hospital in Knoxville, Tennessee which is comprised of 685 beds
- 24-bed post anesthesia recovery unit (PACU) known as “Phase I recovery”



## Population

- 69 registered nurses
- patient load of approximately 23,000 patients annually
- Others include a nurse manager, team leader PACU RN, anesthesiologist, and anesthesia resident

# PROJECT TEAM/STAKEHOLDERS

## Project Team

- DNP Student #1
- DNP Student #2
- DNP Student #3
- DNP Student #4
- Anesthesia Quality Improvement Chair
- Nurse Anesthesia Program Director
- Nurse Anesthesia Associate Program Director
- PACU Nurse Manager
- Anesthesia Providers
- PACU Staff Nurses
- National Patient Safety Goals
- Anesthesiology Performance Improvement and Reporting Exchange (ASPIRE)



## Key Stakeholders

- Project site staff: PACU nurse manager, anesthesia providers, PACU staff nurses, and anesthesia quality improvement chair
- Project associated faculty: nurse anesthesia program director, and nurse anesthesia associate program director
- National standards: Anesthesiology Performance Improvement and Reporting Exchange (ASPIRE), and the Joint Commission (JACHO)

# FINANCES

## Economically Competent Project

- Associated Costs- printing paper copies of the handoff tool
- Cost-effective- considering the potential savings vs the associated costs



## BARRIERS AND FACILITATORS

- Knowledge
- Time
- Compliance and sustainability
- Population size
- Work ethic
- Supportive leadership



## IMPLEMENTATION TIMELINE

Spring 2021 -  
Summer 2021

- Implement PDSA Cycles

Fall 2021

- Disseminate best practices

# IMPLEMENTATION PROCESS

# WRITTEN HANDOFF ANESTHESIA TOOL (WHAT)

From: Lambert, L. H., & Adams, J. A. (2018). Improved Anesthesia Handoff After Implementation of the Written Handoff Anesthesia Tool (WHAT). AANA Journal, 86(5), 361–370. Reprinted with permission.

1. PATIENT INFORMATION																															
Patient:	Date: <input type="text"/> <input type="checkbox"/> ASA:																														
Procedure:	<input type="checkbox"/> Allergies: <input type="checkbox"/> Age: <input type="checkbox"/> Weight: <input type="checkbox"/> Height: <input type="checkbox"/> NPO/Time: <input type="checkbox"/> Pre-op Vitals:    B/P    HR    RESP    SAT <input type="checkbox"/> Pre-op Rhythm: <input type="checkbox"/> Pre-op Neuro Status:																														
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2. ANESTHETIC	4. LABS (If Relevant)																														
MAC    GA    SAB    Epidural    Regional  Airway Difficulty: Easy    Storz    Glidescope Awake/FOB    N/A	<table border="1"> <tr> <td>WBC</td> <td>HGB</td> <td>HCT</td> <td>PLT</td> <td>PT</td> <td>PTT</td> </tr> <tr> <td colspan="3">Blood Available:</td> <td>Na</td> <td>Cl</td> <td>BUN</td> </tr> <tr> <td>TS</td> <td>CMX</td> <td>N/A</td> <td>K</td> <td>CO2</td> <td>CREA</td> </tr> <tr> <td colspan="5"></td> <td>Glucose</td> </tr> <tr> <td colspan="5"></td> <td>Blood Band #:</td> </tr> </table>	WBC	HGB	HCT	PLT	PT	PTT	Blood Available:			Na	Cl	BUN	TS	CMX	N/A	K	CO2	CREA						Glucose						Blood Band #:
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Blood Available:			Na	Cl	BUN																										
TS	CMX	N/A	K	CO2	CREA																										
					Glucose																										
					Blood Band #:																										
3. HISTORY	5. IV(s)/LINES																														
Hearing Impaired: N    Y Isolation: N    Y (what, where?)          B.S.: _____ Time: _____ N/A	IV Site(s):  A-line:  Central line:																														
6. MEDICATIONS																															
<table border="1"> <thead> <tr> <th>Pre-op</th> <th>Intra-op</th> </tr> </thead> <tbody> <tr> <td>Anticoags: N/A</td> <td>Protamine: Y N    Pretreat: Y N</td> </tr> <tr> <td>Last Dose:</td> <td>ABX:</td> </tr> <tr> <td>Beta Blocker: N/A</td> <td></td> </tr> <tr> <td>Last Dose:</td> <td></td> </tr> <tr> <td>ABX (last 24 hrs.):</td> <td></td> </tr> <tr> <td>Last Dose:</td> <td></td> </tr> </tbody> </table>	Pre-op	Intra-op	Anticoags: N/A	Protamine: Y N    Pretreat: Y N	Last Dose:	ABX:	Beta Blocker: N/A		Last Dose:		ABX (last 24 hrs.):		Last Dose:																		
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POST-OPS	7. INTAKE and OUTPUT																														
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	8. QUESTIONS??																														

WHAT version 15. Undated: 7/17/2017

# NURSE SATISFACTION SCREENING TOOL

From: Caruso, T., Marquez, J., Wu, D., Shaffer, J., Balise, R., Groom, M., Leong, K., Mariano, K., Honkanen, A., Sharek, P. (2015). Implementation of a standardized postanesthesia care handoff increases information transfer without increasing handoff duration. *The Joint Commission Journal on Quality and Patient Safety*, 41(1), 35-42. Reprinted with permission.

## Sidebar 1. Postanesthesia Care Unit (PACU) Nurse Satisfaction Questions\*

- I was satisfied with the PACU handoff.
- The circulating nurse report was satisfactory.
- The surgery provider report was satisfactory.
- The anesthesia provider report was satisfactory.
- I heard the entire report.
- I received information about potential problems.
- I received information about follow-up.
- Handoff start and end were clear.
- I received anticipatory guidance.
- I had a chance to ask questions.
- Distractions interrupted the handoff.

\* Scored on a five-point Likert scale (1 = "Strongly Disagree," 2 = "Disagree," 3 = "Neutral," 4 = "Agree," 5 = "Strongly Agree"), except for "Distractions interrupted the handoff" (5 = "Strongly Disagree," 4 = "Disagree," 3 = "Neutral," 2 = "Agree," 1 = "Strongly Agree").



# EVALUATION



## MEASURES OF SUCCESS

- Outcome
  - Increase the overall nurse satisfaction of report handoff in the PACU with the post-implementation of the standardized WHAT tool.
- Process
  - Nurse satisfaction will be evaluated as the nurse's perception of the quality of report received and the ability to keep the safety of the patient intact throughout the PACU stay.

## DATA EVALUATION

### Data Collection

- PACU Nurse Satisfaction Survey: Implemented at one week, one month, and two months.

### Data Variables

- Independent Variables: pre-intervention and post-intervention times.
- Dependent Variables: included in Table 9

## DATA ANALYSIS

Descriptive statistics for all data variables.

Time frame of 1 month.

Independent sample *t*-test,

Data will be analyzed using version 27 of SPSS.



## DATA SECURITY

- Data points recorded in a password protected data collection spreadsheet.
- No PHI on data collection tool.
- Data collection spreadsheet will be stored in the HIPAA/PHI certified UTK sponsored OneDrive for Business for storage platform.
- Protected lock box where copy of WHAT tools will be placed after use during handoff.
- Lockbox will always remain on UTMC campus and keys will only be given to those working on this project.

# FINDINGS

# RESULTS

## OVERALL MEAN PRE-POST SURVEY

	time	N	Mean	Std. Deviation	Std. Error Mean
satisfaction	1	12	4.0606	.66391	.19165
	2	11	3.6248	.45471	.13710

	Pre-Post Survey Results per question	
	1	2
	Mean	Mean
I was satisfied with the PACU handoff	4.1	3.9
The circulating nurse report was satisfactory.	4.3	3.7
The surgery provider report was satisfactory.	3.3	3.0
The anesthesia provider report was satisfactory.	4.2	3.8
I heard the entire report.	4.4	3.9
I received information about potential problems.	4.3	3.9
I received information about follow-up.	3.7	2.7
Handoff start and end were clear.	4.3	3.9
I received anticipatory guidance.	3.9	3.5
I had a chance to ask questions.	4.6	4.4
Distractions and interruption were limited during the handoff.	3.7	3.0

RESULTS  
CONT.

Results of the Independent Samples Test were  $t(21)=1.819$ ,  $p=0.083$ . Not significant because larger than .05 but close

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One- Sided p	Two- Sided p			Lower	Upper
satisfaction	Equal variances assumed	1.251	.276	1.819	21	.042	.083	.43581	.23955	-.06236	.93399
	Equal variances not assumed			1.849	19.517	.040	.080	.43581	.23564	-.05651	.92814



# IMPLICATIONS

## LESSONS LEARNED

- A standardized approach utilizing WHAT Tool did not significantly increase nurse satisfaction for PACU nurses at this institution.
- Poor communication and compliance contributed to small sample size that weakened strength to our findings.
- Inability to individualize nurses for pre and post survey results decreased strength in results.
- Incorporating follow up information, such as pager numbers on WHAT tool would promote satisfaction.



DISSEMINATION

## DISSEMINATION PLAN

### Stakeholder Presentation

- Project Defense

### Poster Presentation

- Research Think Tank

### PACU Education

- Unit Council meetings

CONCLUSION

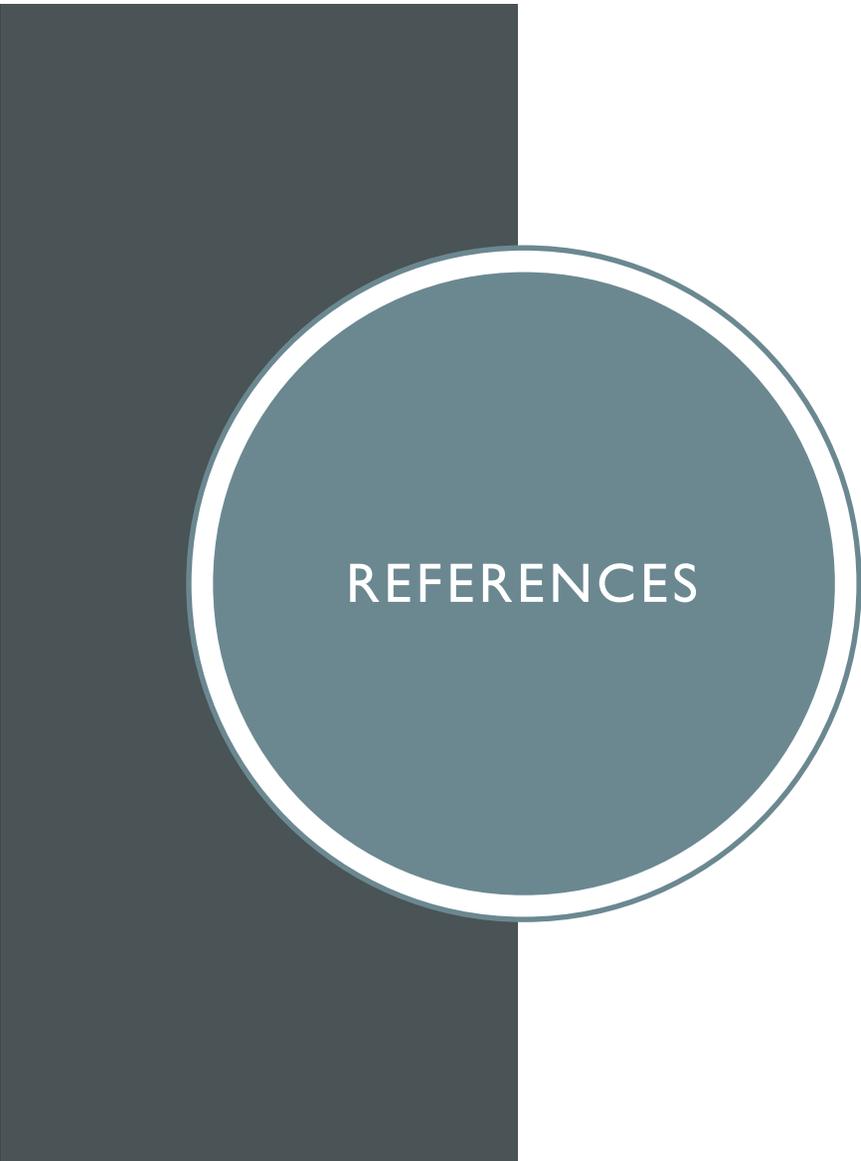


## DISCUSSION

- Unstandardized handoffs have been recognized as a priority intervention by the Joint Commission and the National Quality Forum Report.
- Standardized handoff has been shown to reduce sentinel events in the hospital setting.
- PACU nurse satisfaction and confidence in quality of care is increased when a standardized handoff is implemented.
- No current standard of practice which leads to variability of handoffs from one provider to the next.
- This project is economically competent based project.
- Proposed project has longevity and adaptable.



QUESTIONS?



## REFERENCES

- Please see pages 81-85 of Proposal document for reference list.