

Use of the Iowa Model in Developing Evidence Based Practice in the PeriAnesthesia Setting

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OBJECTIVES

1. Nurse will describe the elements of Evidence Based Practice.
2. Nurse will describe process for implementing EBP in the PeriAnesthesia setting using the IOWA Model.
3. Nurse will describe what a PICO question is and how it is used in EBP.
4. Nurse will describe how to develop an Evidence Based Practice Guideline to use in the PeriAnesthesia Setting.

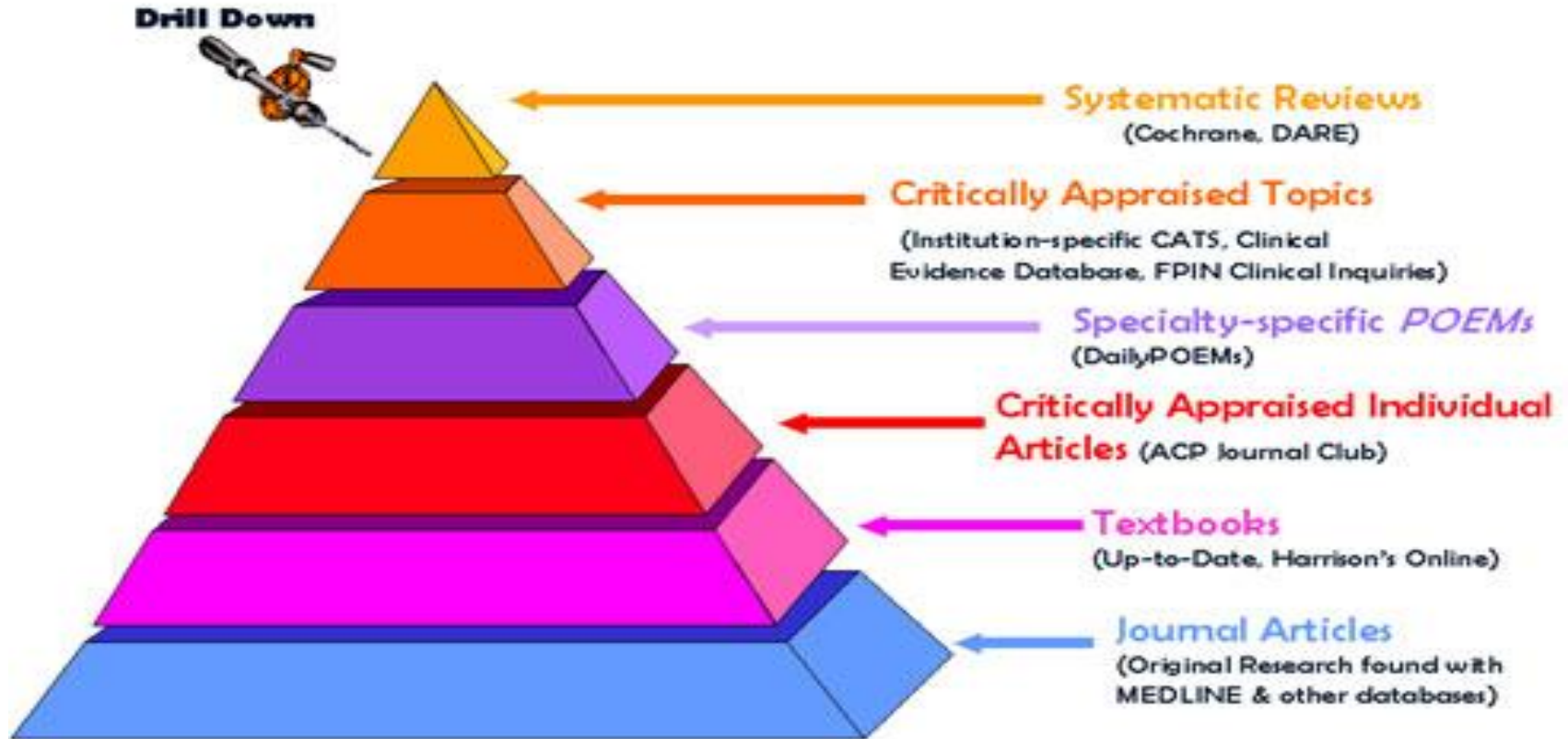
Fundamental Principles of Evidence-based Practice

Evidence Triad

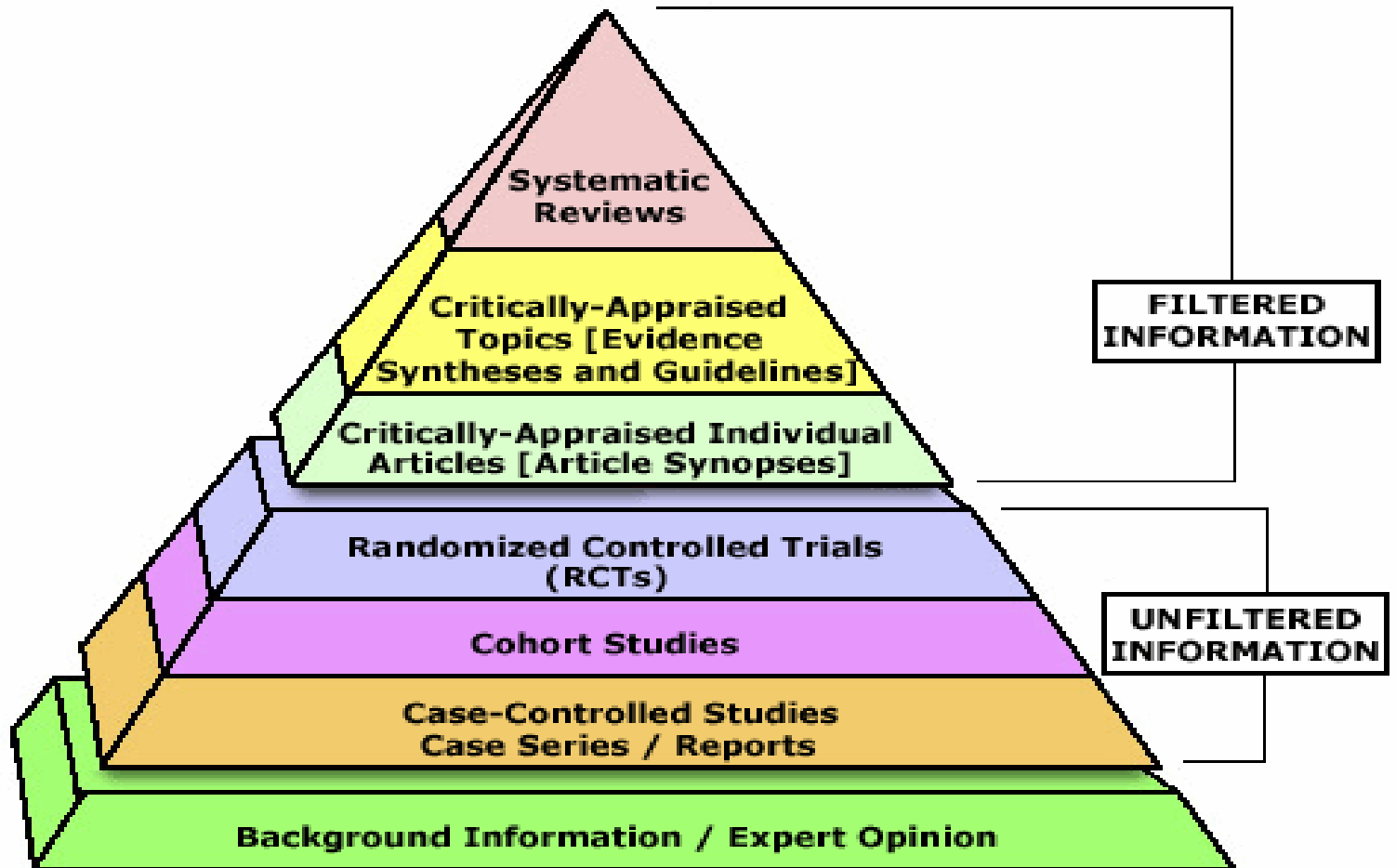


EVIDENCE PYRAMID

Based on the "Usefulness of Medical Information"



EVIDENCE PYRAMID



The IOWA Model of Evidence Based Practice

- Developed by Marita G. Titler, PhD, RN, FAAN,
 - Director Nursing Research, University of Iowa Hospitals and Clinics, Iowa City, Iowa,
- Developed to:
 - describe knowledge transformation
 - to guide implementation of research into clinical practice

IOWA Model of EBP

1. Triggers

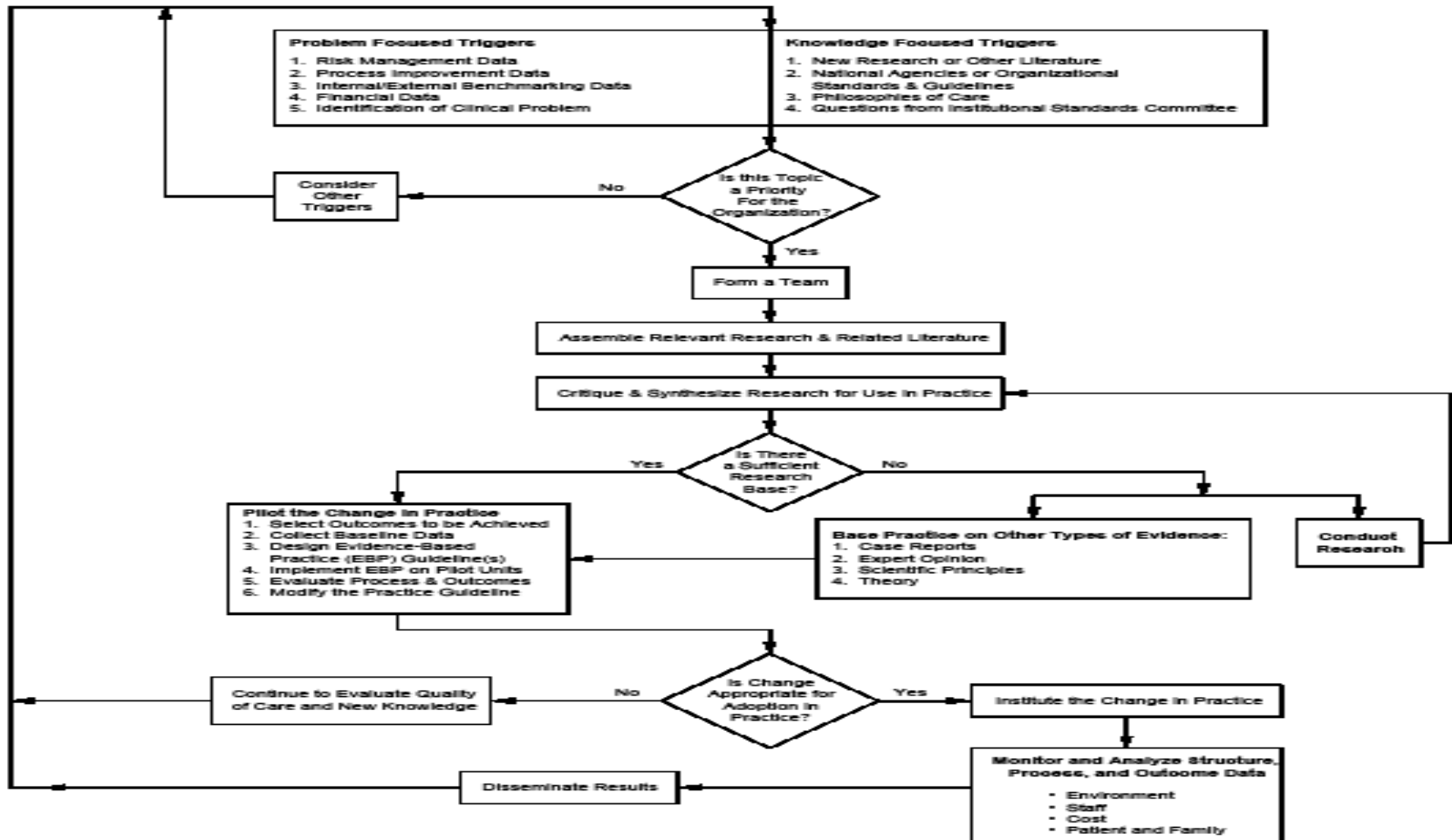
1. Problem-Focused
2. Knowledge-Focused

2. Is topic a priority for organization?

3. Is there a sufficient research base?

4. Is change appropriate for adoption in practice?

The Iowa Model of Evidence-Based Practice to Promote Quality Care



◊ - a decision point

Reference

Titler, M.G., Kiebler, C., Steelman, V., Rakel, B., Budreau, G., Everett, L.Q., Buckwaller, K.C., Tripp-Reimer, T., & Goode C. (2001). The Iowa Model of Evidence-Based Practice to Promote Quality Care. *Critical Care Nursing Clinics of North America*, 13(4), 407-509.

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Rooming-in: Changing the culture to increase breastfeeding percentages

Geneva Bundy, MSN, RN

Texas Health Arlington Memorial Hospital Mother/Baby
TCU Center for Evidence Based Practice and Research Fellow

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The Iowa Model of EBP to Promote Quality Care

- Problem Focused Triggers
 - Risk Management Data
 - Process Improvement Data
 - Internal/External Benchmarking Data
 - Financial Data
 - **Identification of Clinical Problem**
- Knowledge Focused Triggers
 - New Research or Other Literature
 - **National Agencies or Organizational Standards and Guidelines**
 - Philosophies of Care
 - Questions from Institutional Standards Committee

PICO Question

PICO

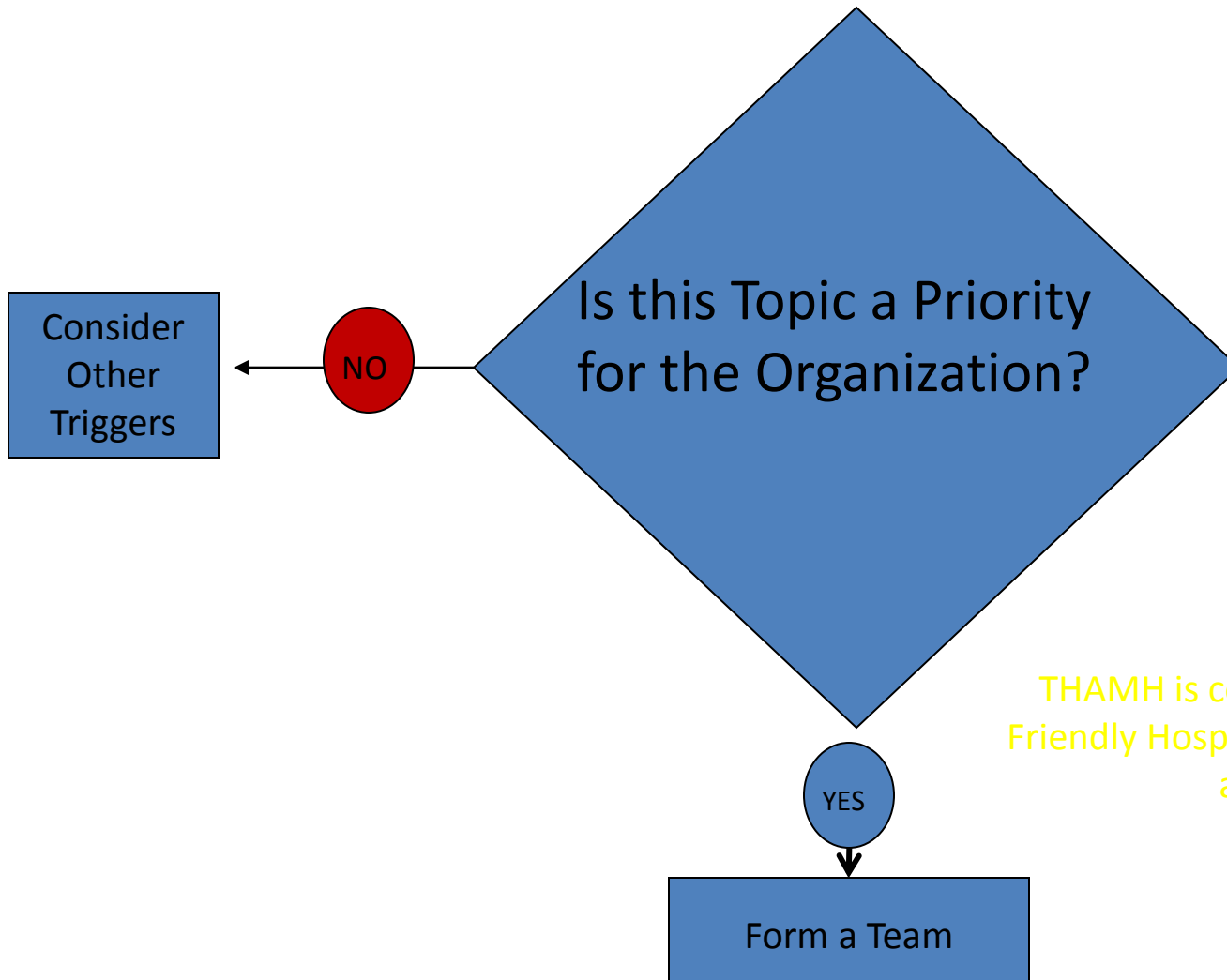
- **P**roblem- Low breastfeeding percentages
- **I**ntervention- Developed guidelines to increase rooming-in
- **C**omparison- Traditional nursery care
- **O**utcome- Increased breastfeeding percentages in the immediate post partum period

Does implementation of 23 hour rooming-in versus traditional nursery care during hospitalization increase breastfeeding percentages in the immediate post partum period?

Abstract

- Evidence shows that breastfeeding is the most beneficial nutrition for newborns, so why at Texas Health Arlington Memorial Hospital do breastfeeding percentages fall below the Healthy People 2010 goal of 75% in the immediate post partum period?
- Our unit partnership council, lactation consultants, and divisional leadership examined literature suggesting that rooming-in increases breastfeeding percentages in the immediate post partum period.
- Breastfeeding percentages continue to fall below national goals suggesting that the practice of traditional open nursery care is not conducive to high breastfeeding rates. Our goal was to develop guidelines to encourage mothers to "room-in" with their newborns.

Decision Point #1



THAMH is committed to achieving Baby Friendly Hospital™ designation, along with all THR Hospitals.

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Form a Team

- Unit Partnership Council
 - 10 Member Group
 - Staff RNs, LVN, PCT, Secretary, Educator, Lactation Consultant
 - Rooming-in on Agenda at each Monthly Meeting
- Lactation Consultants
 - Monthly LC Meetings
 - Breastfeeding Support Group

The Baby Friendly Hospital™ Initiative: 10 Steps to Successful Breastfeeding

1. Have a written breastfeeding policy that is routinely communicated to all healthcare staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help Mothers initiate breastfeeding within a half-hour of birth.
5. Show mothers how to breastfeed, and how to maintain lactation even if they should be separated from their infants.

The Baby Friendly Hospital Initiative: 10 Steps to Successful Breastfeeding

6. Give newborn infants no food or drink other than human milk, unless medically indicated.
7. Practice rooming in—allow mothers and infants to remain together 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no artificial teats or pacifier to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital.

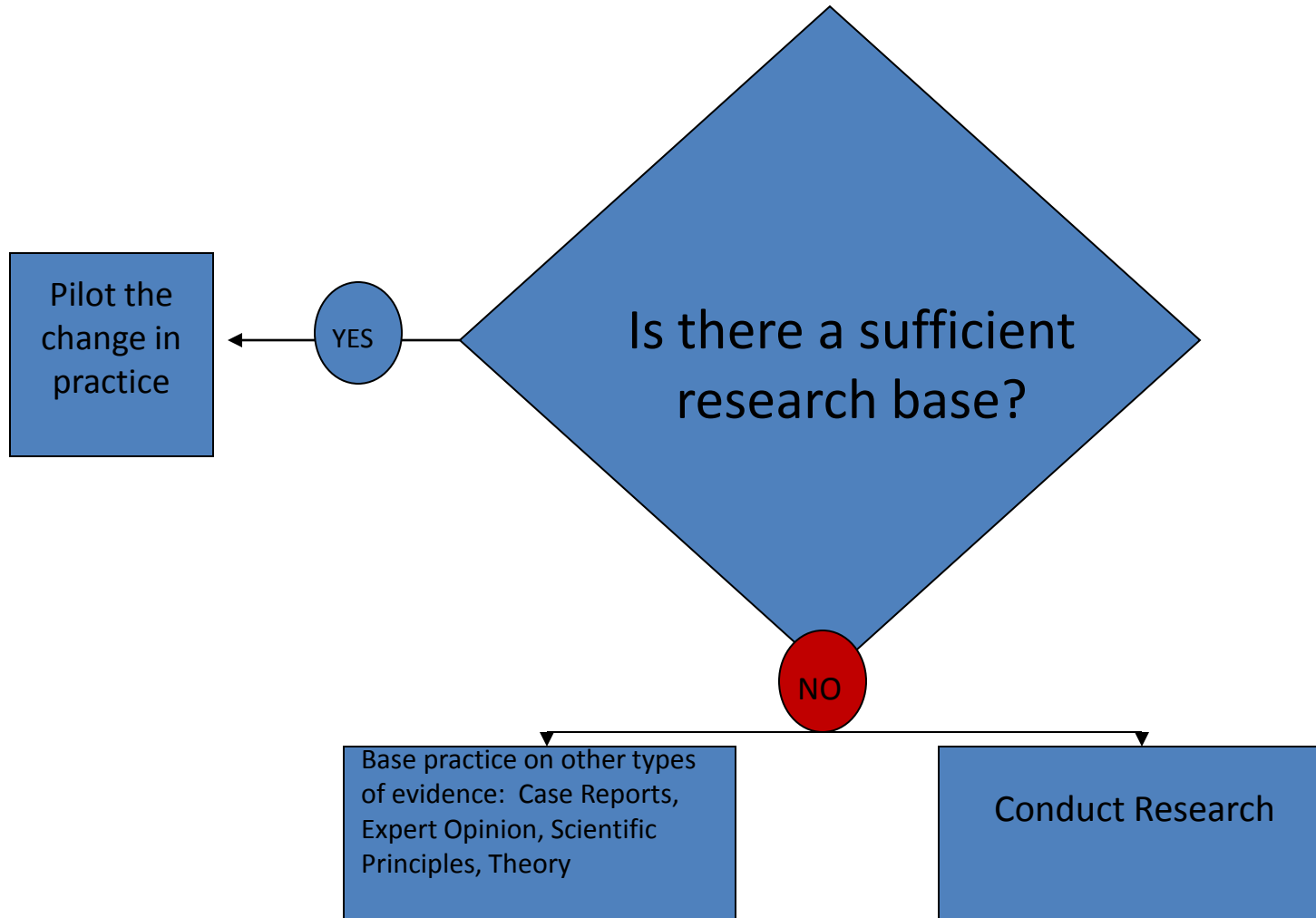
Assemble Relevant Research and Related Literature

- Rooming-in facilitates breastfeeding. (Crenshaw, 2007)
- Breastfeeding frequency is greater and supplementation with human milk substitutes (formula) occurs less often when mothers and infants room in. (Crenshaw, 2007)
- Hospital practices and policies impact the establishment of effective breastfeeding. (Philipp, 2003)
- National survey of US Baby-Friendly Hospitals found the most difficult steps to achieve for BFH designation are steps 2, 6, and 7. Step 7 is to practice rooming-in, which allows mother and infant to remain together 24 hours per day. (AAP, 2005)
- Extended breastfeeding duration was found among infants born in hospitals following Baby-Friendly principles. (Merewood, 2007)
- “Actions such as separating the mother from child immediately after birth, postponing initiation of breastfeeding....contribute to early weaning.” (de Araujo, 2007)
- Mean Breastfeeding Initiation Rate 2001-BFH = 83.8% US average = 69.5%
- In Hospital Exclusive Breastfeeding Rate 2001-BFH = 78.4% US in hospital = 46.3% (AAP, 2005)

Critique & Synthesize Research for Use in Practice

- Breastfeeding rates increased from hospital stay (23%) to 4 weeks postpartum (61%). “The home environment provided easy access to the infant, allowed the mother to adjust and learn about her newborn and freedom to feed on demand, thus discontinuing formula feedings.”
Bakoula, (2007)
- National Survey of US Baby-Friendly™ Hospitals found the most difficult steps to achieve for Baby Friendly Hospital Designation are Steps 2, 6, and 7. **Step 7 is to practice rooming-in**, which allows mother and infant to remain together 24 hours per day
AAP (2005)
- Evidence from a study in Colorado reveals that 5 of the 9 BFHI practices studied had a significant effect on breastfeeding duration rates at 8 weeks postpartum: “breastfeeding in the first hour after birth, feeding the infant only breast milk in the hospital, **infant rooming-in**, not using a pacifier in the hospital and the hospital providing a telephone number to call for breastfeeding help after discharge.”
Murray, (2007)

Decision Point #2



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Pilot the Change In Practice

- Select Outcomes to be Achieved
 - 80% Room-in with newborn for 23 hours per day
- Collect Baseline Data
- Design EBP Guidelines
- Implement EBP on Pilot Units
- Evaluate Process & Outcomes
- Modify the Practice Guidelines

Pilot the Change In Practice

- **Select Outcomes to be Achieved**
- **Collect Baseline Data**
 - Nursery Log for One Month
 - Time in Nursery > 1 hour
 - Average nightly census ranging from 1.58-9 newborns
- Design EBP Guidelines
- Implement EBP on Pilot Units
- Evaluate Process & Outcomes
- Modify the Practice Guidelines

Pilot the Change In Practice

- Select Outcomes to be Achieved
- Collect Baseline Data
- Design EBP Guidelines
 - Revision of Breastfeeding Guidelines
 - Breastfeeding Procedural Guidelines- Page 2 #2.7
 - Focus on Staff and Patient Teaching
 - Consistent Communication
- Implement EBP on Pilot Units
- Evaluate Process & Outcomes
- Modify the Practice Guidelines

Pilot the Change In Practice

- Select Outcomes to be Achieved
- Collect Baseline Data
- Design EBP Guidelines
- Implement EBP on Pilot Units
 - April 2009- Implementation Started
 - Signs placed in each room
 - New Beginnings and Newborn Safety Information
 - New Breastfeeding Procedural Guidelines Initiated
 - Patients no longer offered “Feed In All Night”
- Evaluate Process & Outcomes
- Modify the Practice Guidelines

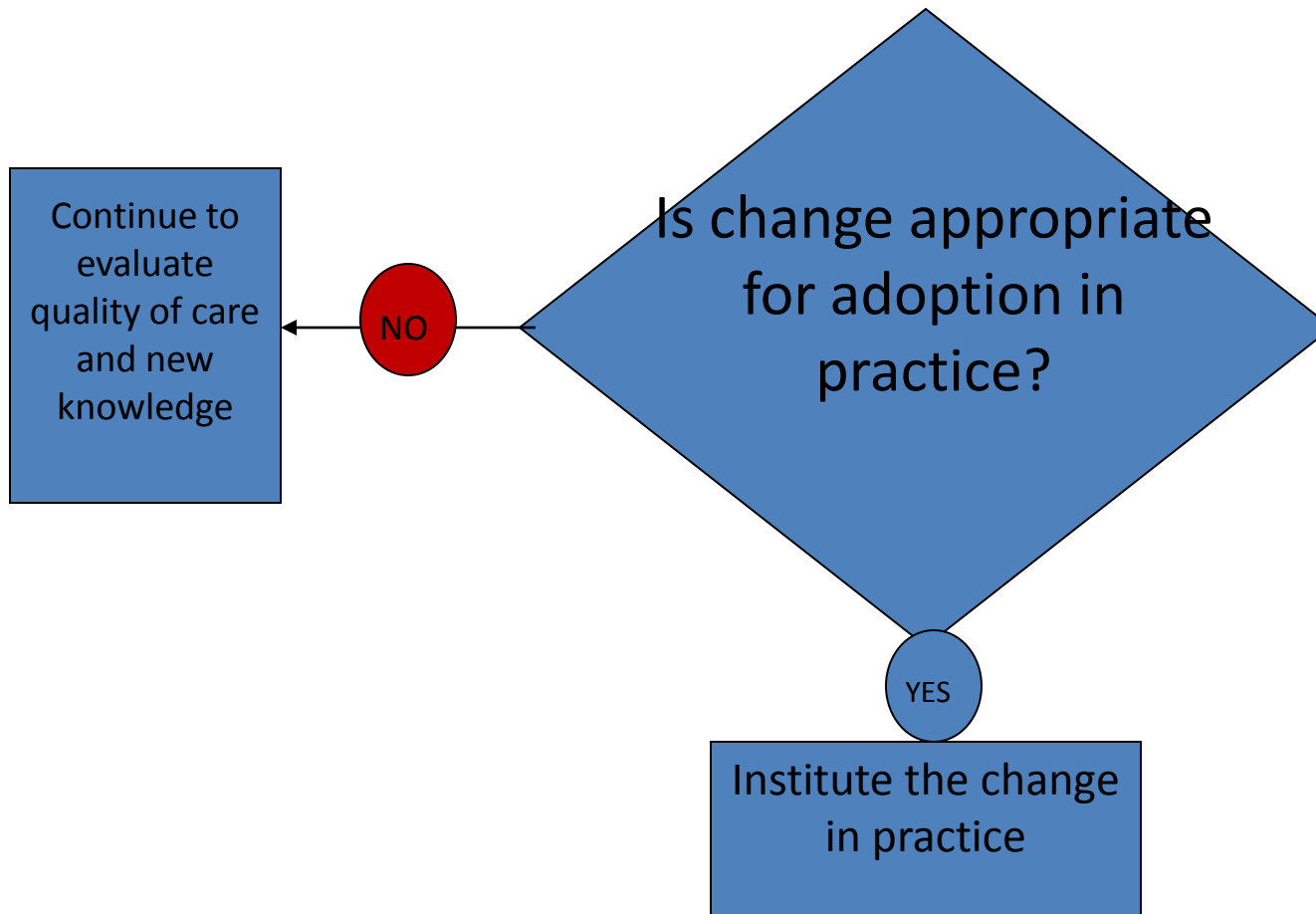
Pilot the Change In Practice

- Select Outcomes to be Achieved
- Collect Baseline Data
- Design EBP Guidelines
- Implement EBP on Pilot Units
- Evaluate Process & Outcomes
 - April 29, 2009- Mock Survey for Baby Friendly
 - 50% of mothers interviewed reported newborn separated > 1 hour per day and up to 6 hours for sleep.
 - Mothers reported that 1 hour after delivery, newborn went to nursery for 1-3 hours
 - Recommendations: Further staff education and collaboration with physicians who provide prenatal care to increase prenatal patient education
- Modify the Practice Guidelines

Pilot the Change In Practice

- Select Outcomes to be Achieved
- Collect Baseline Data
- Design EBP Guidelines
- Implement EBP on Pilot Units
- Evaluate Process & Outcomes
- Modify the Practice Guidelines
 - May 29, 2009- “Workout” session with staff from Labor & Delivery and Mother/Baby
 - How can we decrease the amount of separation between mother and newborn?
 - New process developed for newborn recovery to decrease separation time, educational opportunities discussed, collaboration between units to ensure success for Baby Friendly™.

Decision Point #3



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Monitor and Analyze Structure, Process and Outcome Data

- Environment
- Staff
- Cost
- Patient and Family

Where are We?

- Instituted the Change in Process
- Baby Friendly™ Hospital Survey
 - October 2009
 - December and January conducted process improvement project related to formula use.

It's Official!!!

- March 24, 2009
- Texas Health Arlington Memorial Hospital has been designated a Baby Friendly™ Hospital by the World Health Organization in partnership with UNICEF. We are proud to say that our mothers and newborns room together along with the other 10 steps to successful breastfeeding to make newborn nutrition through breastfeeding a priority.

The Iowa Model Works!!

- The Iowa Model is only one template for conducting an EBP project.
- Take it one step at a time—
You CAN do it!!

Preventing Mucositis

An Evidence-Based Practice Approach Using the Iowa Model & TCU Fellowship Program

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Texas Health Arlington Memorial Hospital Navigator
TCU Center for Evidence Based Practice and Research Fellow

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ABSTRACT

Oral mucositis may be devastating for patients undergoing treatment for cancer.

At Texas Health Arlington Memorial, there was no structured protocol for preventing or treating mucositis.

This project demonstrates how a translational research approach was used to develop a mucositis protocol based on the latest evidence.

Problem and Knowledge Focused Triggers

Problem Focused

- Risk Management Data
 - infection control
- Financial Data
 - increased length of stay

Knowledge Focused

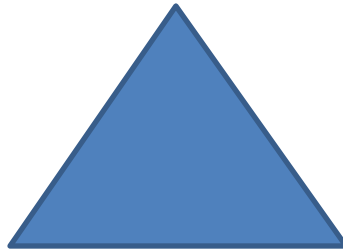
- New Research
 - stages of mucositis
- National Guidelines and Organizational standards
 1. Oncology Nursing Society
 2. Multinational association of supportive care for clinical oncology
 3. National Comprehensive Cancer Network

PICO QUESTION

- **P**OPULATION
- **I**NTERVENTION
- **C**OMPARISON
- **O**UTCOME

Does use of a specific protocol decrease mucositis in patients who are receiving treatment for cancer?

PRIORITY FOR THE ORGANIZATION



Yes

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FORM A TEAM

NURSING
DIETARY

RESEARCH
EDUCATION

PHARMACY
MEDICAL

SPEECH



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Mucositis Team



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ASSEMBLE RELEVANT RESEARCH & RELATED LITERATURE

- CINAHL
- PUB MED
- EBSCO
- TEXAS HEALTH FORT WORTH
LIBRARIAN
- COCHRANE DATABASE OF SYSTEMATIC
REVIEWS

KEY WORDS

- MUCOSITIS
- CANCER
- CHEMOTHERAPY
- RADIATION
- INFECTION
- PEER REVIEWED JOURNALS
- RANDOMIZED TRIALS
- HUMANS
- ADULTS
- ENGLISH

ASSEMBLE, CRITIQUE & SYNTHESIZE RESEARCH

SYSTEMATIC REVIEWS

Clarkson, J. E., Worthington, H. V., Eden, B. (2007). Interventions for preventing oral mucositis for patients with cancer receiving treatment (review) Cochrane Database System Review, Issue 4, CD000978.

CLINICAL PRACTICE GUIDELINES

Harris, J. D., Eilers, J., Harriman, A., Cashavelly, B. J., & Maxwell, C. (2007). Putting evidence into practice: Evidence based interventions for the management of oral mucositis. *Clinical Journal of Oncology Nursing*, 12, 141-152.

Keef, D. M., Schubert, M. M., Etling, L. S., Sonis, S. T., Epstein, J. B., et al. (2007). Updated clinical practice guidelines for the prevention and treatment of mucositis. *Cancer*, 109, 820-831.

ASSEMBLE, CRITIQUE & SYNTHESIZE RESEARCH

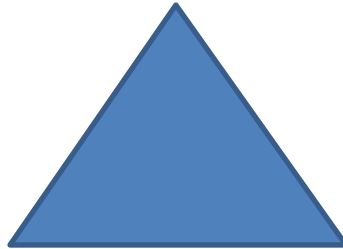
RESEARCH

- Bessinger, W., Schubert, M., Ang, K., Brizel, D., Brown, E., Eilers, J., et al. (2008). NCCN task force report: Prevention and management of mucositis in cancer care. *Journal of the National Comprehensive Cancer Network*, 6(Supp. 1).
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PINCH TABLE

- CRITICAL APPRAISAL TOOL FOR SYSTEMATIC REVIEW
- RESEARCH CRITIQUE FORM
- NON RESEARCH LITERATURE FORM
- SUMMARY FORMS

IS THERE A SUFFICIENT RESEARCH BASE?



Yes

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RESEARCH BASE SUPPORTS

- ORAL CARE PROTOCOLS DEVELOPED BY MULTIDISCIPLINARY TEAMS
- THE PROTOCOLS SHOULD INCLUDE EDUCATIONAL COMPONENTS FOR PATIENTS AND STAFF
- VALIDATED TOOL REQUIRED
- DENTAL PROFESSIONALS IMPORTANT

PILOT THE CHANGE IN PRACTICE

- SELECT OUTCOMES TO BE ACHIEVED:

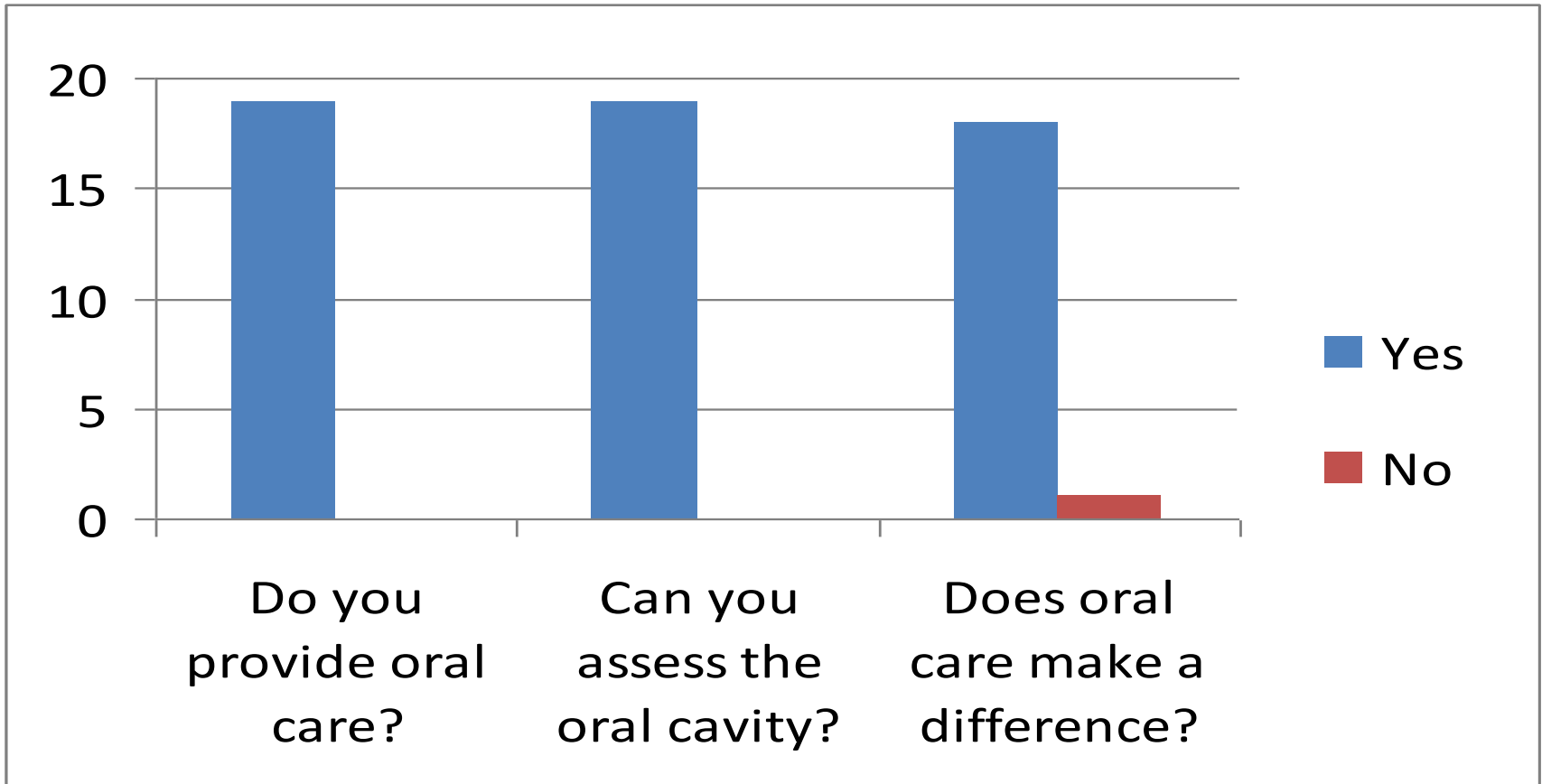
Staff knowledgeable in risk factors and comfortable assessing the oral cavity

Patients performing oral care

COLLECT BASELINE DATA

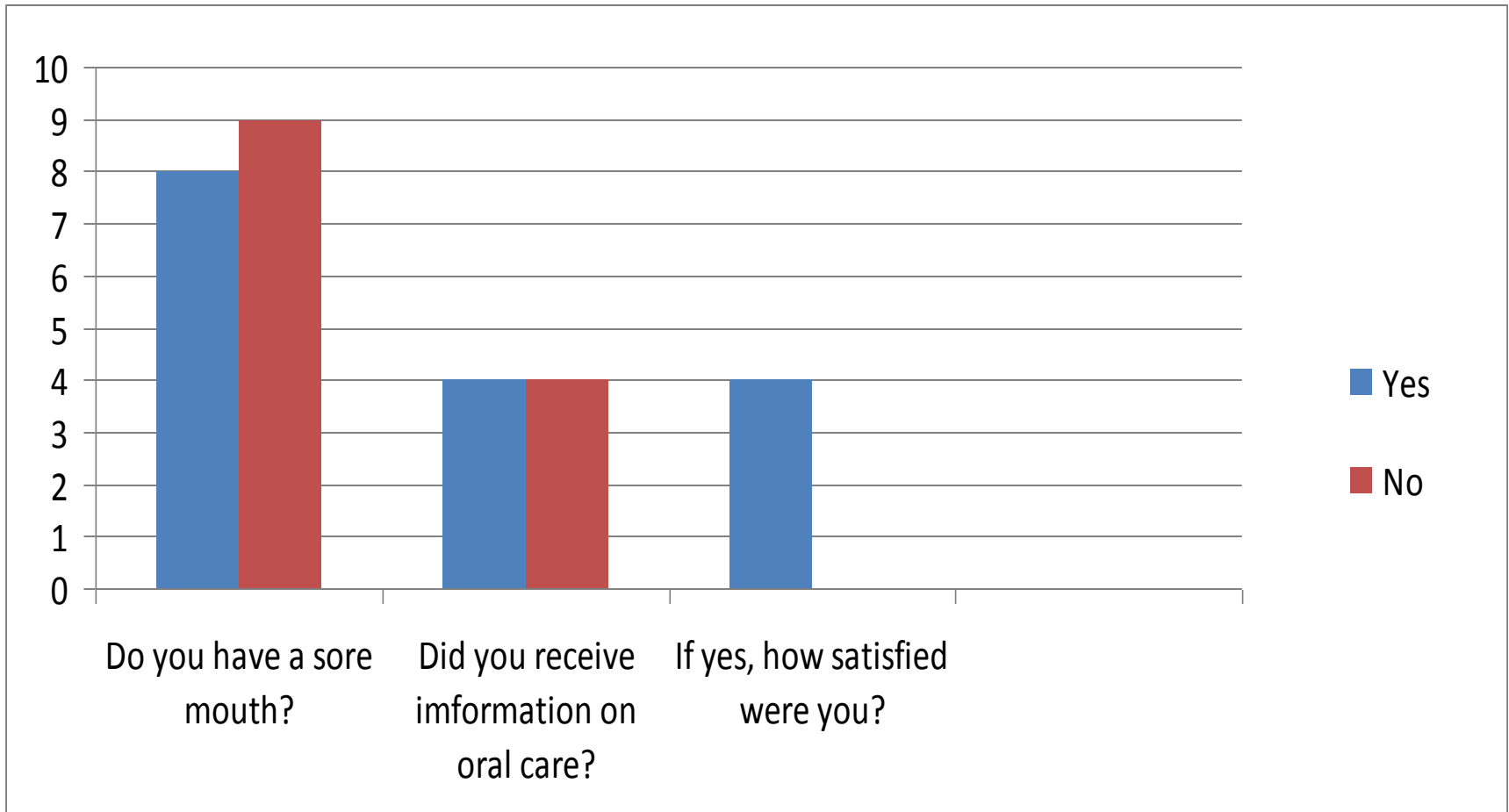
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RANDOM STAFF SURVEY



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RANDOM PATIENT SURVEY



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DESIGN EVIDENCE BASED PRACTICE (EBP GUIDELINES)

- Develop policy
- Choose oral assessment tool
- Develop an algorithm
- Implement EBP on pilot units

POLICY

Mucositis Protocol

- The nurse will implement the interventions in the following protocol based on the patient's clinical condition and in the nurses' best judgment.

VALIDATED ORAL ASSESSMENT TOOL

TABLE 1
Sample Data Collection Form Indicating the Parameters and Sites for the Objective Scoring Used for Chemotherapy Patients

Chemotherapy

Patient ID: _____ Patient initials: _____
 site / _____ / _____ / _____ pt.# _____ first middle last
 Date: ____ / ____ / ____ Time (24 hour clock): ____ : ____

Patient is today: Inpatient Outpatient
 (circle) (circle)

Investigator: I _____

Location	Ulceration/Pseudomembrane* (circle)				Erythema** (circle)			
Upper lip	0	1	2	3	0	1	2	3
Lower lip	0	1	2	3	0	1	2	3
Right cheek	0	1	2	3	0	1	2	3
Left cheek	0	1	2	3	0	1	2	3
Right ventral and lateral tongue	0	1	2	3	0	1	2	3
Left ventral and lateral tongue	0	1	2	3	0	1	2	3
Floor of mouth	0	1	2	3	0	1	2	3
Soft palate/fauces	0	1	2	3	0	1	2	3
Hard palate	0	1	2	3	0	1	2	3

*Ulceration/Pseudomembrane:
 0 = no lesion
 1 = < 1 cm²
 2 = 1 cm²-3 cm²
 3 = > 3 cm²

**Erythema:
 0 = none
 1 = not severe
 2 = severe

TABLE 2
Sample of the Collection Form for Subjective Data Regarding Mouth Pain and Swallowing

Radiation

Patient ID: _____ Patient initials: _____
 site / _____ / _____ / _____ pt.# _____ first middle last
 Patient Diary Date: ____ / ____ / ____ Time (24 hour clock): ____ : ____
 Mouth pain

Please indicate by a vertical line on the scale line below how severe the pain is NOW

No pain _____ Most severe pain

Impact on swallowing

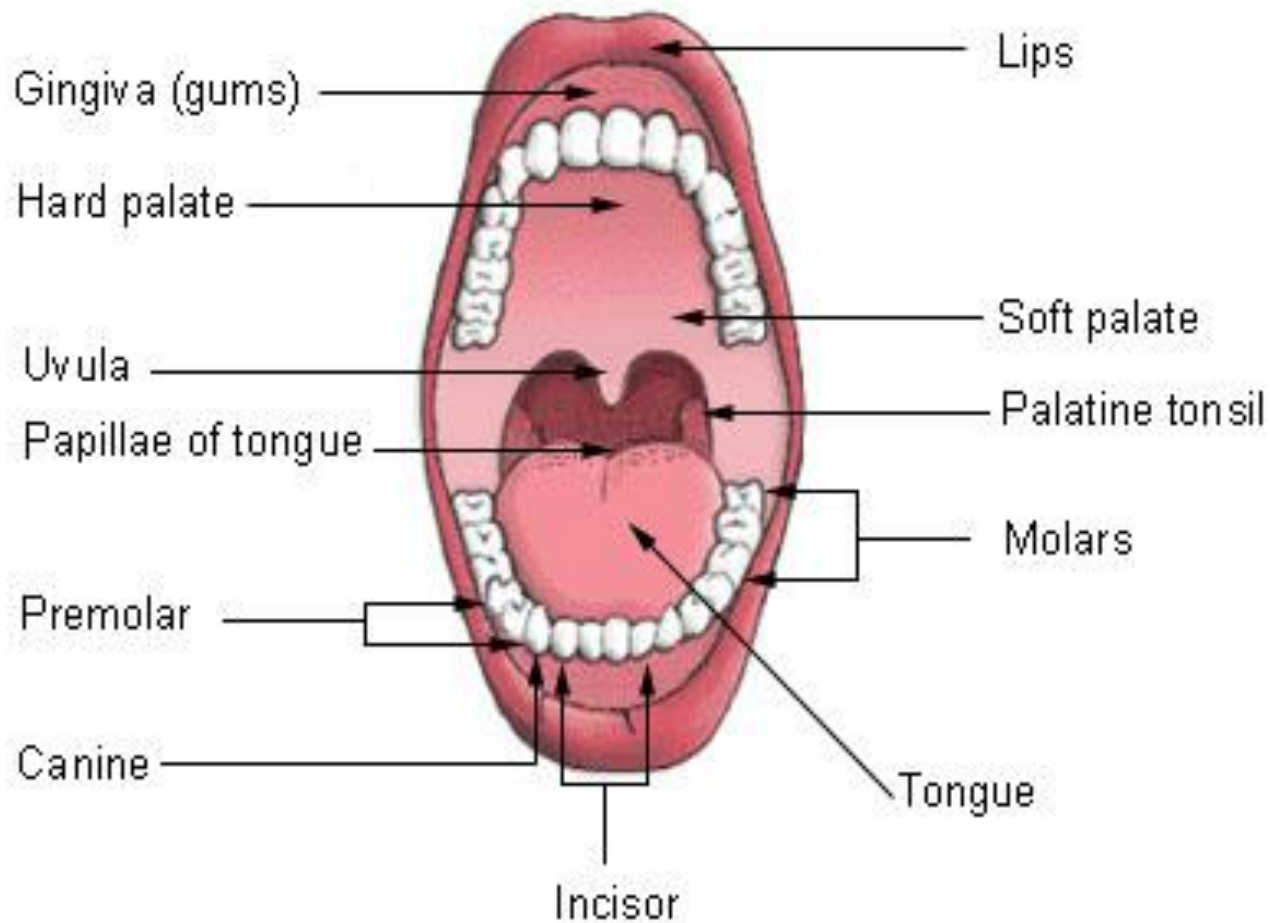
Please indicate by a vertical line on the scale below how well you can swallow.

No trouble in swallowing _____ Cannot swallow anything at all (even saliva)

Please indicate how well you can swallow foods or liquids by checking below:

Function: _____
 Normal _____
 Only soft, solid foods _____
 Only liquids _____
 No foods or liquids _____

Mouth (Oral Cavity)



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MUCOSITIS

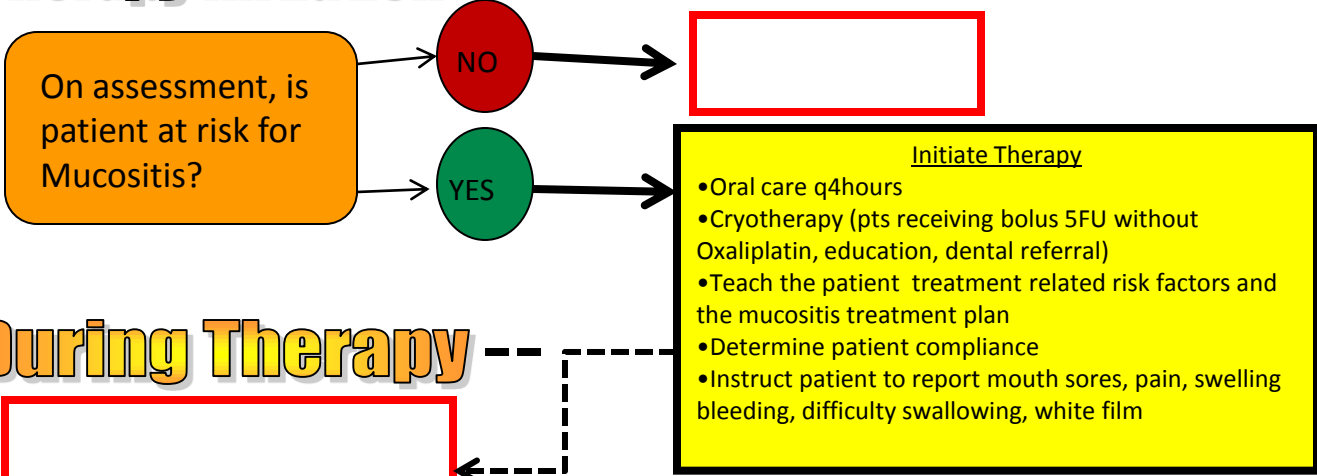


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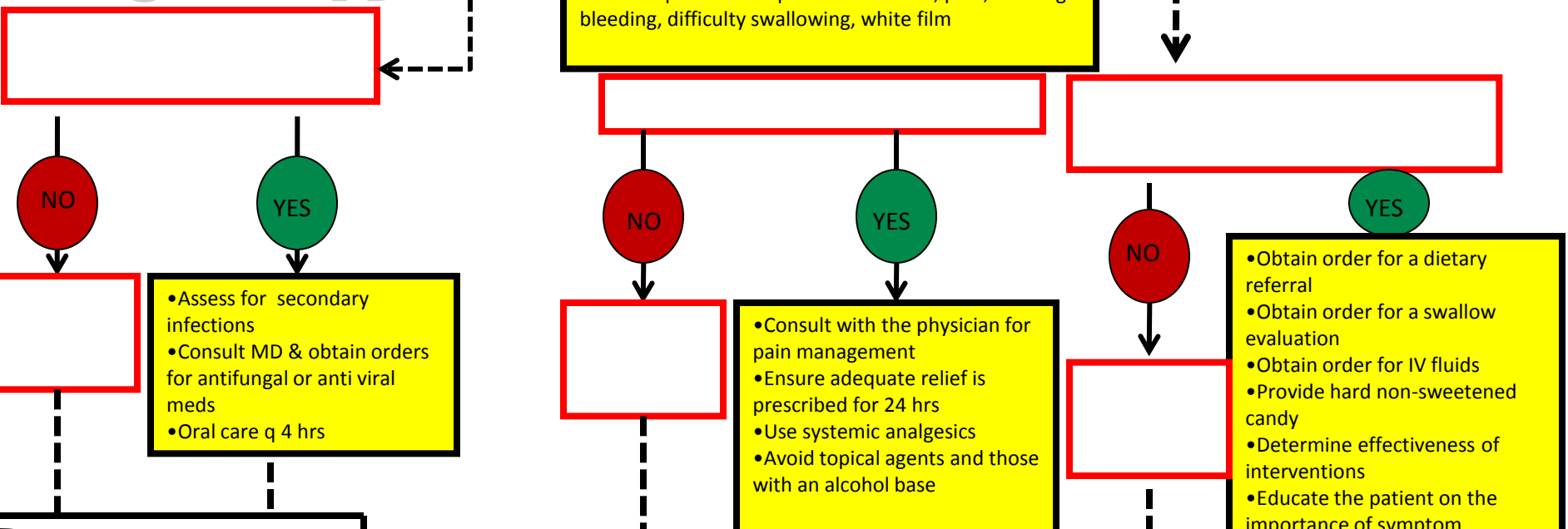
ORAL CARE SOLUTION

Rinse mouth after meals and at bedtime with a bland rinse of salt, soda and saline. 1Tsp soda, 1Tsp salt to 500 mls of saline. Take 30 mls of the solution and rinse for 30 seconds and expectorate.

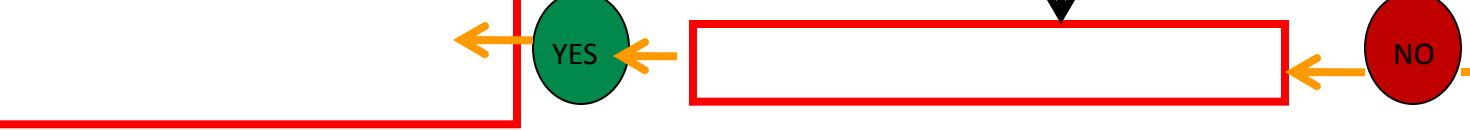
Therapy Initiation



During Therapy



Recovery



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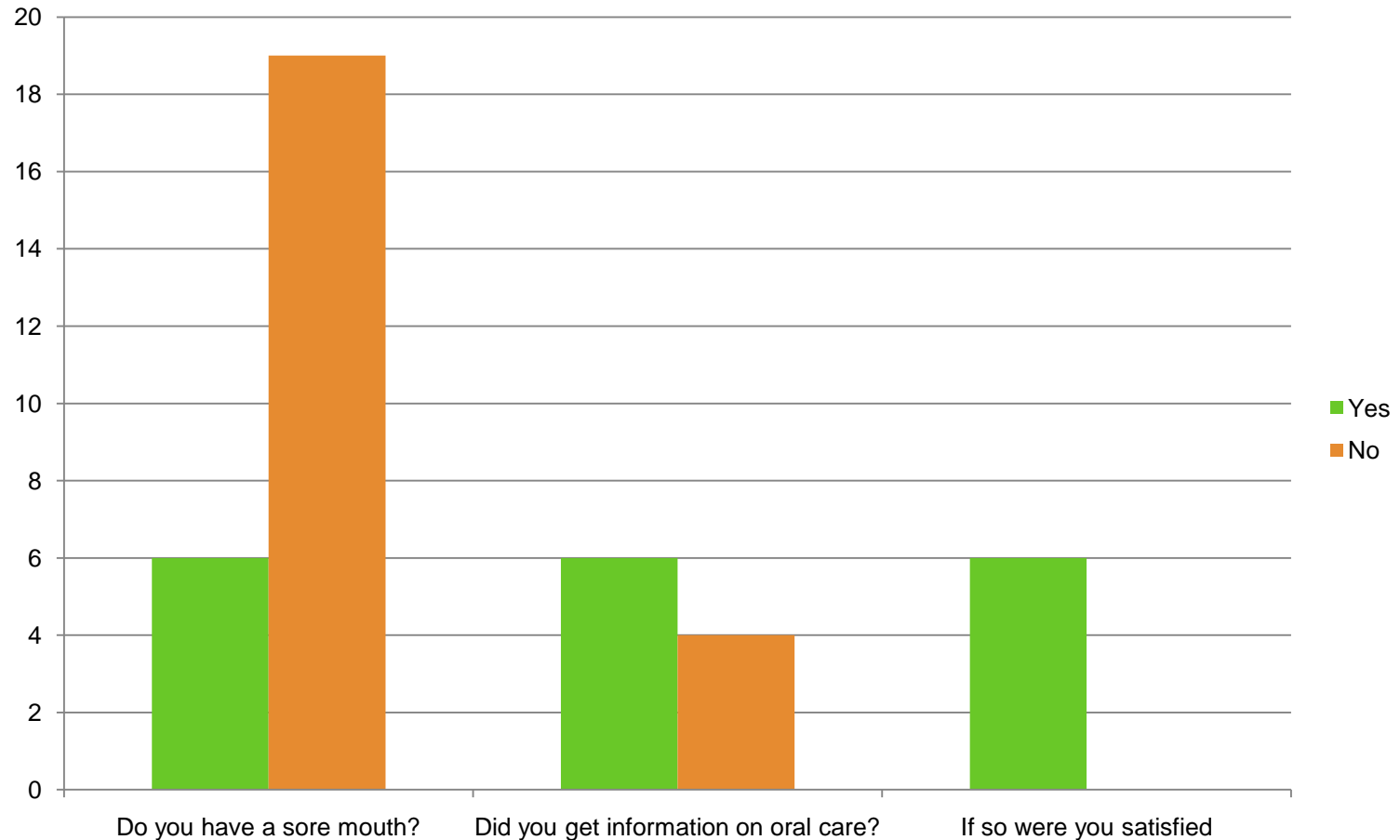
IMPLEMENT EBP ON PILOT UNIT

- In- service staff
- In-service physicians
- Educate patients with verbal and written information

EVALUATE PROCESS & OUTCOMES

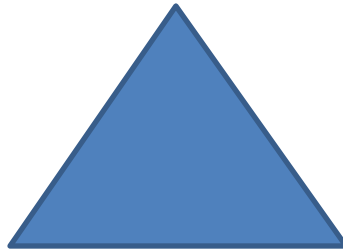
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Patient Survey Post Staff Education



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IS CHANGE APPROPRIATE FOR ADOPTION IN PRACTICE?



Yes

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MODIFY PRACTICE GUIDELINES

- PHARMACY

MIRACLE MOUTH WASH REMOVED FROM PHARMACY

- CENTRAL SUPPLY

SOLUTIONS WITH PEROXOMINT REMOVED

- CARE CONNECT

- ORAL CARE FLOW SHEET IN CARE CONNECT

-

INSTITUTE THE CHANGE IN PRACTICE

- THE POLICY HAS BEEN APPROVED BY THE PRACTICE COUNCIL
- THE POLICY IS CURRENTLY IN THE MEDICAL RECORDS COMMITTEES
- THE RECOMMENDATIONS ARE FOR SYSTEM WIDE IMPLEMENTATION

MONITOR AND ANALYZE STRUCTURE, PROCESS AND OUTCOME DATA

- ENVIRONMENT
- STAFF
- COST
- PATIENT & FAMILY

SUMMARY

- FIND SOMETHING YOU ARE PASSIONATE ABOUT. YOU CAN DO IT TOO

Applying the IOWA Model of Evidence Based-Practice in the Perianesthesia Setting.

USING END TIDAL CO₂ (ETCO₂) FOR PREDICTING EVENTS IN THE PATIENT AT RISK FOR AIRWAY OBSTRUCTION

TRIGGERS

Problem Focused

Identification of Clinical Problem:

A problem has been identified that some patients who have general anesthesia or moderate sedation experience apnea post procedure when receiving opioids for pain.

As a result there have been increased incidences of patients experiencing respiratory arrest and death.

Knowledge Focused

New Research or Other Literature:

The literature has demonstrated that some individuals are at risk for apnea and/or obstruction of airway after receiving opioids post procedure.

As a result there have been increased incidences of patients experiencing respiratory arrest and death.

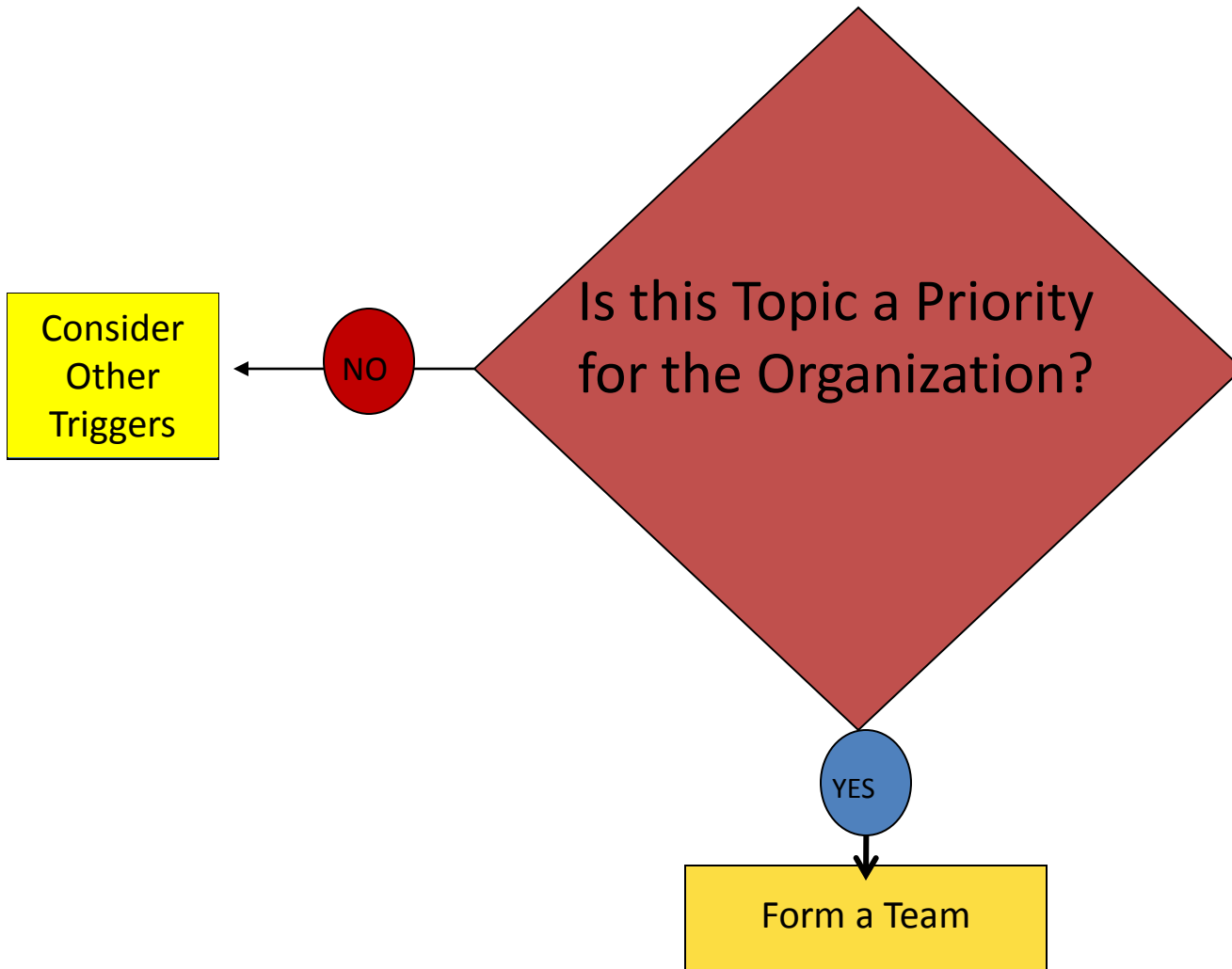
PICO

- P**atient/Problem-Postoperative patients receiving opioids through patient controlled analgesia (PCA) are at increased risk for respiratory depression and potentially fatal outcomes if not appropriately monitored.
- I**ntervention- Postoperative patients on PCA + End Tidal CO₂ (ETCO₂)
- C**omparison/Control-Postoperative patients on PCA + Pulse Oximetry (SaO₂)
- O**utcome-Earlier detection of Respiratory events

PICO QUESTION

Does the use of end tidal carbon dioxide (ETCO₂) monitoring through capnography provide earlier detection of respiratory deterioration resulting in earlier intervention and rescue when compared to Pulse Oximetry?

Decision Point #1



FORM A TEAM



Assemble Relevant Research and Related Literature

Smith LH. Opioid safety: is your patient at risk for respiratory depression? *Clin J Oncol Nurs* 2007;11(2):293-6.

Gupta RM, et al. Postoperative complications in patients with obstructive sleep apnea syndrome undergoing hip or knee replacement: a case-control study. *Mayo Clin Proc* 2001;76(9):897-905.

Boushra NN. Anaesthetic management of patients with sleep apnoea syndrome. *Can J Anaesth* 1996;43(6):599-616.

Young T, et al. Epidemiology of obstructive sleep apnea: a population health perspective. *Am J Respir Crit Care Med* 2002;165(9):1217-39.

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Fu ES, et al. Supplemental oxygen impairs detection of hypoventilation by pulse oximetry. *Chest* 2004;126(5):1552-8.

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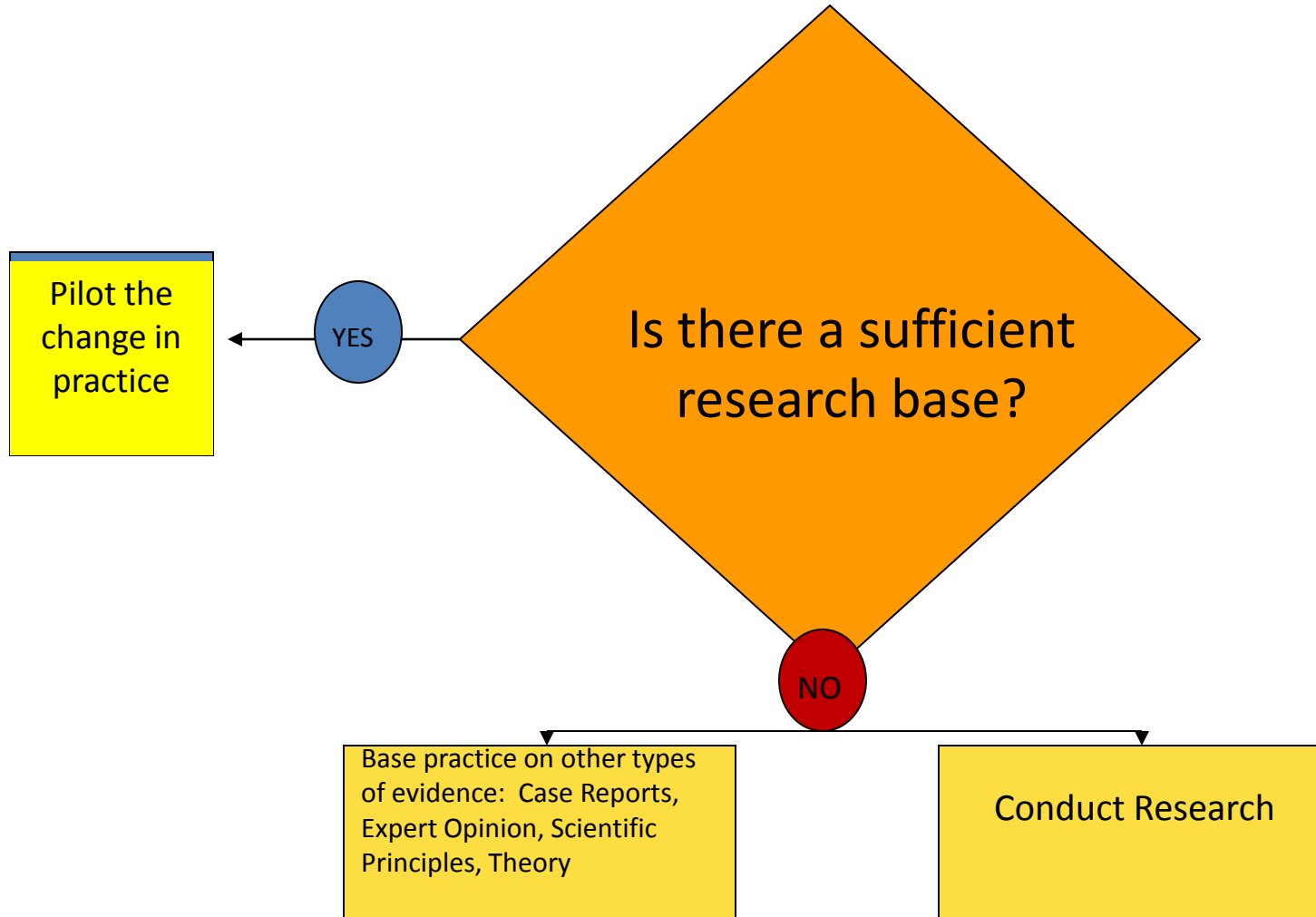
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Miner JR, et al. End-tidal carbon dioxide monitoring during procedural sedation. *Acad Emerg Med* 2002;9(4):275-80.

Critique & Synthesize Research for Use in Practice

- Several studies reported capnography monitoring identified more respiratory events when in use than pulse oximetry alone.
- These respiratory events included apnea, hypercarbia, and respiratory depression where respiratory rate was less than five breaths per minute.

Decision Point #2



Pilot the Change In Practice

- **Select Outcomes to be Achieved**
 - 50% reduction in respiratory events
- Collect Baseline Data
- Design EBP Guidelines
- Implement EBP on Pilot Units
- Evaluate Process & Outcomes
- Modify the Practice Guidelines

Pilot the Change In Practice

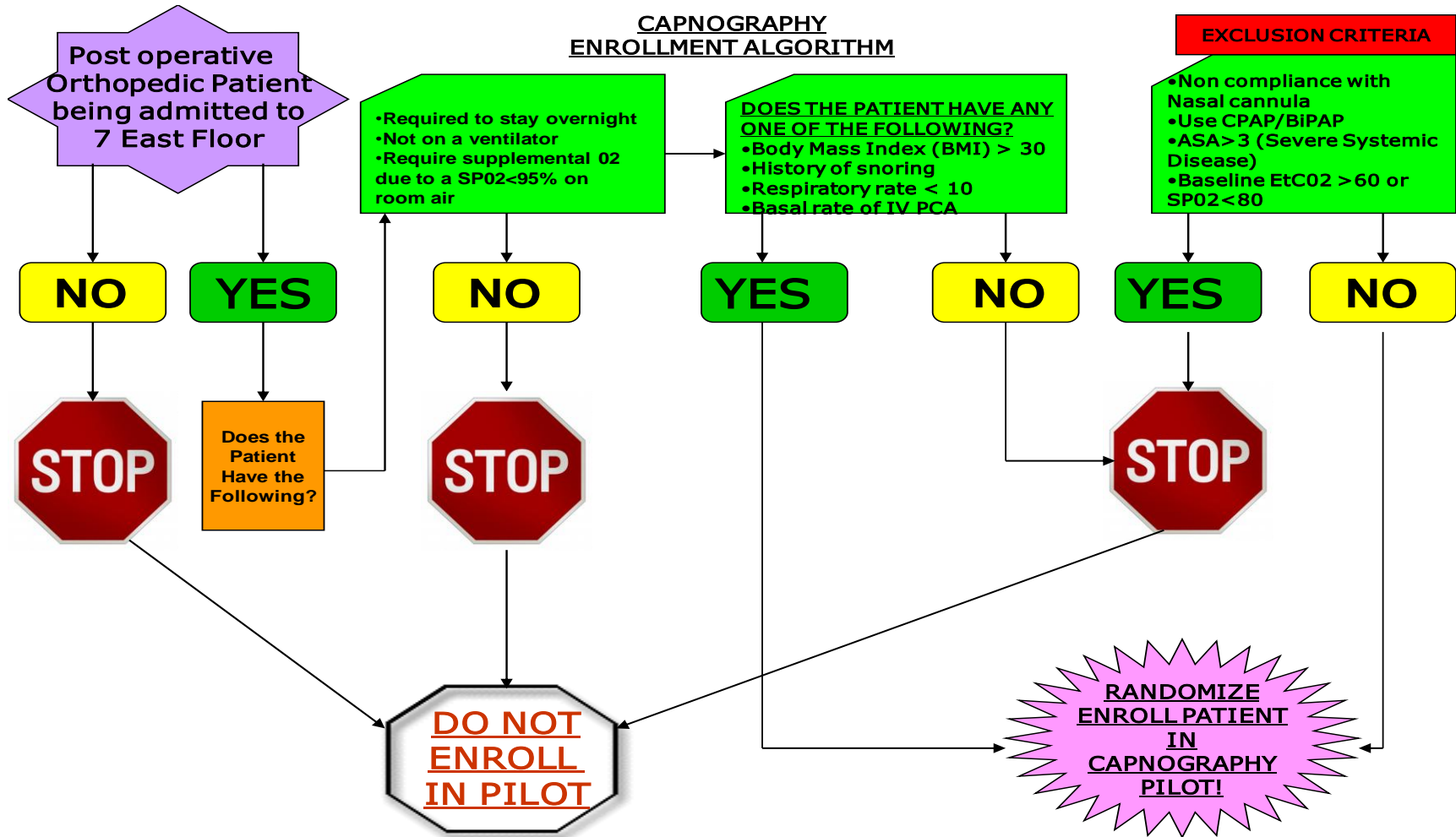
- Select Outcomes to be Achieved
 - 50% reduction in respiratory events
- Collect Baseline Data
 - RRT data with Narcan[®] reversal
- Design EBP Guidelines
- Implement EBP on Pilot Units
- Evaluate Process & Outcomes
- Modify the Practice Guidelines

Pilot the Change In Practice

- **Select Outcomes to be Achieved**
 - 50% reduction in respiratory events
- **Collect Baseline Data**
 - RRT data with Narcan[®] reversal
- **Design EBP Guidelines**
- Implement EBP on Pilot Units
- Evaluate Process & Outcomes
- Modify the Practice Guidelines

Pilot the Change In Practice

- Select Outcomes to be Achieved
 - 50% reduction in respiratory events
- Collect Baseline Data
 - RRT data with Narcan[®] reversal
- Design EBP Guidelines
- Implement EBP on Pilot Units
 - In- service staff (PACU & Patient Care Areas)
 - In-service physicians (Anesthesia & Orthopedics)
 - Educate patients with verbal written information
- Evaluate Process & Outcomes
- Modify the Practice Guidelines



Pilot the Change In Practice

Select Outcomes to be Achieved

- 50% reduction in respiratory events

Collect Baseline Data

- RRT data with Narcan[®] reversal

Design EBP Guidelines

Implement EBP on Pilot Units

Modify the Practice Guidelines

Pilot the Change In Practice

Select Outcomes to be Achieved

- 50% reduction in respiratory events

Collect Baseline Data

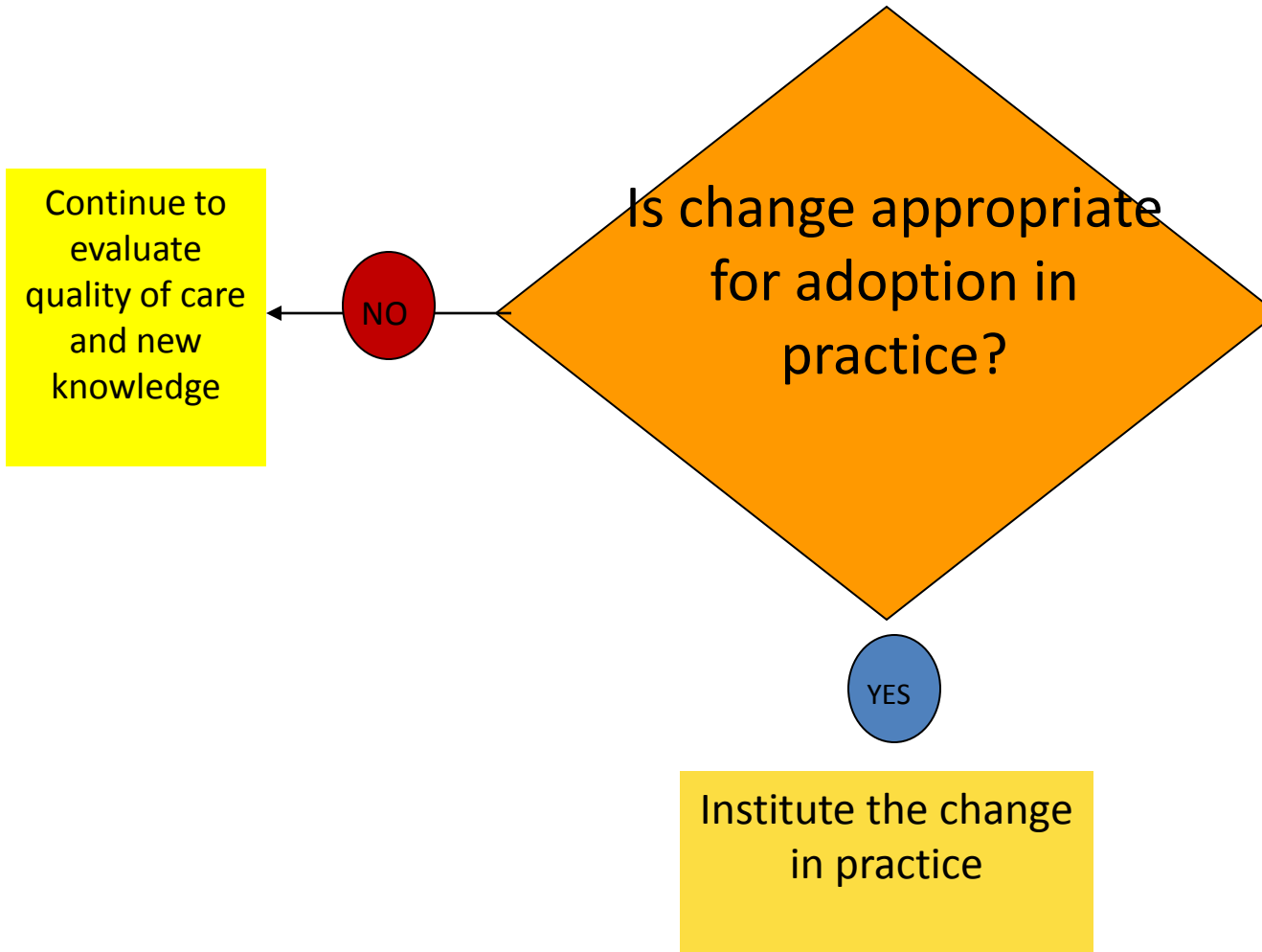
- RRT data with Narcan[®] reversal

Design EBP Guidelines

Implement EBP on Pilot Units

Evaluate Process & Outcomes

Decision Point #3



Monitor and Analyze Structure, Process and Outcome Data

- Environment
- Staff
- Cost
- Patient and Family

CONCLUSIONS

- Capnography monitoring can help identify early changes in respiratory decline compared to standard monitoring (pulse oximetry and respiration rate assessment by observation or auscultation).
- These findings are similar to other studies of capnography use in procedural sedation (Ayas, Bergstrom, & Scwab, 1998).
- Previous studies and trends in opioid related respiratory events have identified that providing supplemental oxygen and measuring oxygen saturation alone may not provide an accurate assessment of respiratory function.
- Capnography improves detection of undiagnosed obstructive sleep apnea (OSA), apnea (no breath events), and early decline in respiratory function in high risk patient in the general care nursing unit and can lead to early intervention in those individuals who may be experiencing a deterioration in their condition.

SUMMARY

The IOWA Model is just one of several models for developing Evidence Based Practice.

If followed as prescribed you can develop EBP changes on your units as well.

Look in your units to see what needs to be changed and the interest in changing it...you can do this too!

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