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Development of Evidence-based Clinical Practice Guidelines for the Prevention of Peripheral Neurological Injury During Robotic-assisted Prostatectomies for Patients in the Steep Trendelenburg Position

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Development of Evidence-based Clinical Practice Guidelines for the Prevention of Peripheral Neurological Injury during Robotic-assisted Prostatectomies for Patients in the Steep Trendelenburg Position

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Abstract

- Robotic-assisted surgery (RAS) is becoming more prevalent in modern surgical practice
- One of the most common robotic-assisted surgical procedures is laparoscopic prostatectomies in the steep Trendelenburg (ST) position
- Robotic-assisted laparoscopic prostatectomies (RALPs) pose unique risk to patients regarding peripheral nerve injuries (PNIs)
- Many hospital systems lack specific certified registered nurse anesthetist (CRNA) driven positioning guidelines
- This project aims to create a CRNA-based positioning checklist for patients undergoing RALPs to reduce the incidence rate of PNI

Keywords: *robotic-assisted laparoscopic surgery, steep Trendelenburg, positioning, nerve, injury, prostatectomies*

Introduction

Problem Identification

- Studies show that further research is needed to determine if the evolution of RAS technology has improved patient safety across surgical specialties
- RALPs are unique procedures that require the patient to be in a degree of ST for maximum surgical exposure
- In addition to the robotic system, the ST position places increased risk to patients for intraoperative PNI
- Intraoperative PNI can extend a patient’s hospital stay for days to weeks depending on the severity of injury



Significance of the Problem

- According to the American Association of Nurse Anesthesiology (AANA), the CRNA’s scope of practice includes the positioning, assessment, and monitoring of proper body alignment during surgery
- Improper intraoperative patient positioning and lack of vigilance by CRNAs are the leading causes of PNI
- PNIs can have a drastic effect on patients from numbness and tingling to permanent debilitating injury
- CRNAs are often named in anesthesia closed claims regarding PNI
- A PNI malpractice closed claim can cost the CRNA and hospital system between \$33,816.70 to \$9,550,000.00 depending on the severity of the injury accrued

PICO(T) Question

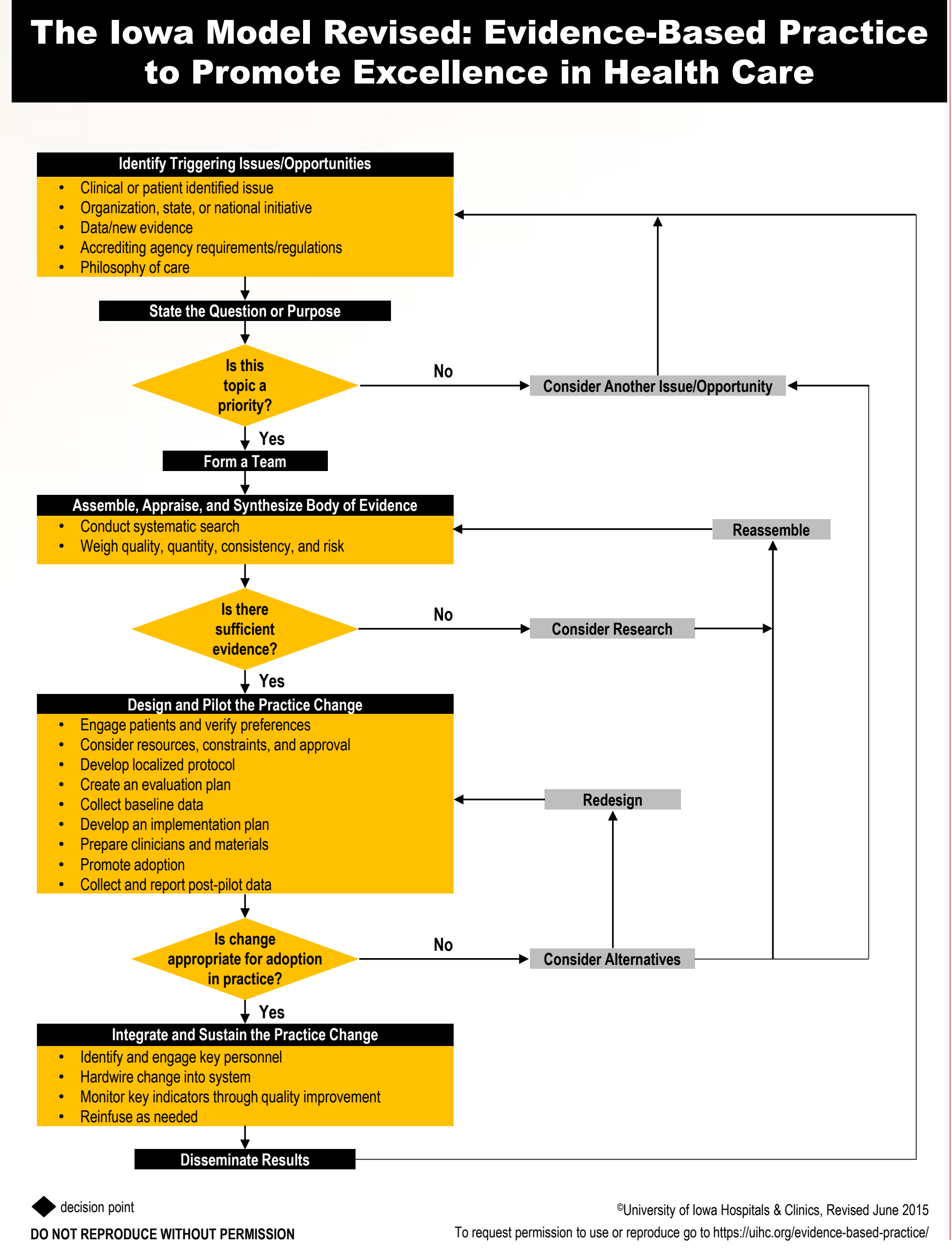
(P) In patients undergoing robotic-assisted laparoscopic prostatectomies who are in steep Trendelenburg position, (I) how does creating evidence-based clinical guidelines for patient positioning in steep Trendelenburg in the form of a preoperative positioning checklist (C) compared to patients who are having standard laparoscopic prostatectomies without the use of robotics (O) affect the patient incidence rate of postoperative peripheral neurological injury (T) during the first 24 hours of a patient's surgical admission?

Objectives

1. Develop an evidence-based practice timeout checklist that hospital systems can adopt to assist in the prevention of peripheral neurological injury during robotic-assisted laparoscopic prostatectomies for patients in the steep Trendelenburg position.
2. Develop a plan for the implementation of evidence-based clinical practice checklist
3. Develop a plan to measure the evidence-based clinical practice checklist
4. Develop criteria to disseminate the results and gauge the effectiveness and impact of implemented evidence-based checklist

Model Identification

The Iowa Model: Evidence-Based Practice to Promote Excellence in Health Care



Evaluation

Timeline

Task	Month									
	1	2	3	4	5	6	7	8	9	10
Clinical Practice Guidelines "Time Out" Checklist finalized										
Guidelines introduced to staff via email/department flyers										
Guideline roll-out during FTE monthly meeting/Training										
Implementation of "Time Out" checklist										
Collection and review of data										
Indicated adjustments made to plan/guidelines										

Outcome Analysis

- Direct data collection and comparison will be utilized from descriptive statistics
- The number of PNI during RALP in the first 24 hours over a 6-month will be collected prior to checklist implementation
- The number of PNI during RALP in the first 24 hours over a 6-month period after checklist implementation will be collected
- The numbers will be compared to examine if the incidence rate of PNI decreased proportionately after checklist implementation

Limitations

- Inability to disseminate true cause of intraoperative PNI
- Repeat data collection will yield different results and numbers
- Barriers to change
- Cost of implementation

Budget

Table of Expected Expenditures

Expenditures	Estimated Costs
• 36x24 inch posters with print	• \$30/poster x 24 displays = \$720
• 256-count poster hanging strips	• \$40 Total = \$760

Checklist



Conclusions

- The reduction of 1 PNI can save the anesthesia provider and hospital system upwards of thousands to millions of dollars
- Decreased PNIs will lead to increased patient satisfaction, shorter hospital stays, and decreased litigation fees
- Money saved can be utilized more efficiently elsewhere in the hospital system

References



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