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Risque infectieux et soin

6, 7 et 8 juin 2018
XXIXe Congrès National de la Société Française d'Hygiène Hospitalière

LINKS OF INTEREST DISCLOSURE

Name of the speaker:

☑ **I have no link of interest.**

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☑ **I have the following potential links of interest to report:**

- ☑ **None**

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Resident Performance in Complex Simulated Urinary Catheter Scenarios

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Introduction

- One in four hospitalized patients require a Urinary Catheter
  - Most common hospital acquired infection
    - Result of improper insertion and management
    - Development of guidelines
- Unclear if surgical residents have adopted these guidelines
  - Educational standards coming under closer scrutiny
  - Education is becoming standardized to ensure competency
    - American College of Surgeons and Association of Program Directors in Surgery Resident Skills Curriculum
    - Simulation has been incorporated
    - Urinary catheters defined as a basic skill

Introduction

- AIM: to assess surgical trainees ability to insert and troubleshoot difficult urinary catheters in the setting of common and complex urinary pathology

- Hypothesis: Residents will make inconsistent decisions in relation to catheter choices and clinical presentations, and they will not have achieved mastery

Materials and Methods

- Setting and Participants
  - Prospective, skills assessment study
  - 7 Midwest General Surgery training programs
  - Primary recruitment efforts for surgical residents entering their first research year

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Materials and Methods

- Research Protocol
  - Demographic and self assessment survey
    - Personal confidence in completing the requested task
    - Perceived skill reduction while in the research years
  - Directed to Urinary Catheter Station

Protocol

- 15 minutes to finish 3 of 4 urinary catheter scenarios

Scenario	Description	Known	Unknown
A	Female, Trauma	Pelvic X-ray: Pelvic Fx	Bladder Injury
B	Female, Pre-Op	None	Labial Constriction
C	Male, Pre-Op	Rectal CA, LAR	Complete Obstruction
D	Male, Retention	BPH	None

Materials and Methods

- Data collection: Catheter choices, number of attempts, attempt number that led to successful return, and errors committed while inserting the catheter

- SPSS
  - Descriptive stats, Linear Regression Analysis, Chi-Square Analysis, Logistic Regression

Results

- 45 participants (56% female)
  - PGY 2 - 4 (M = 2.7, SD = 0.9)
  - 44% - First Year Research Residents
  - 22% - Second Year Research Residents
  - 33% - Clinical Residents

Results

- Pre-sim confidence
  - AVG 4.42 (SD = 0.85)
  - No difference in PGY level
  - Lower the resident confidence, more likely they were to commit error
  - Higher presim confidence led to earlier placement of Urology Consult
- Post-sim confidence
  - AVG 3.56 (SD = 0.81)
  - No relationship between post confidence and errors

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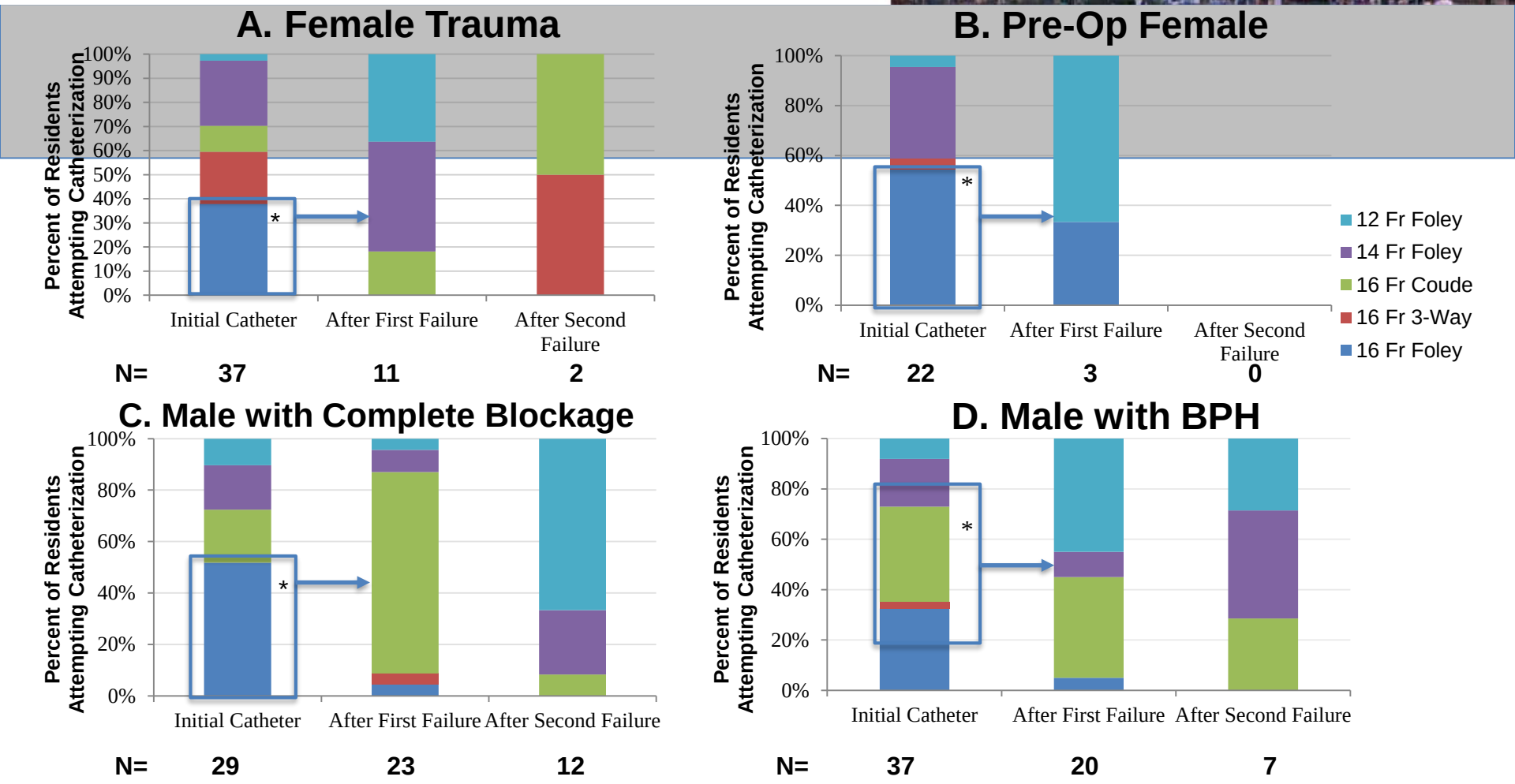

Figure 1. Most popular initial catheter choice followed by second and third most popular catheter choices when participants fail with initial catheter (* = p < .01)

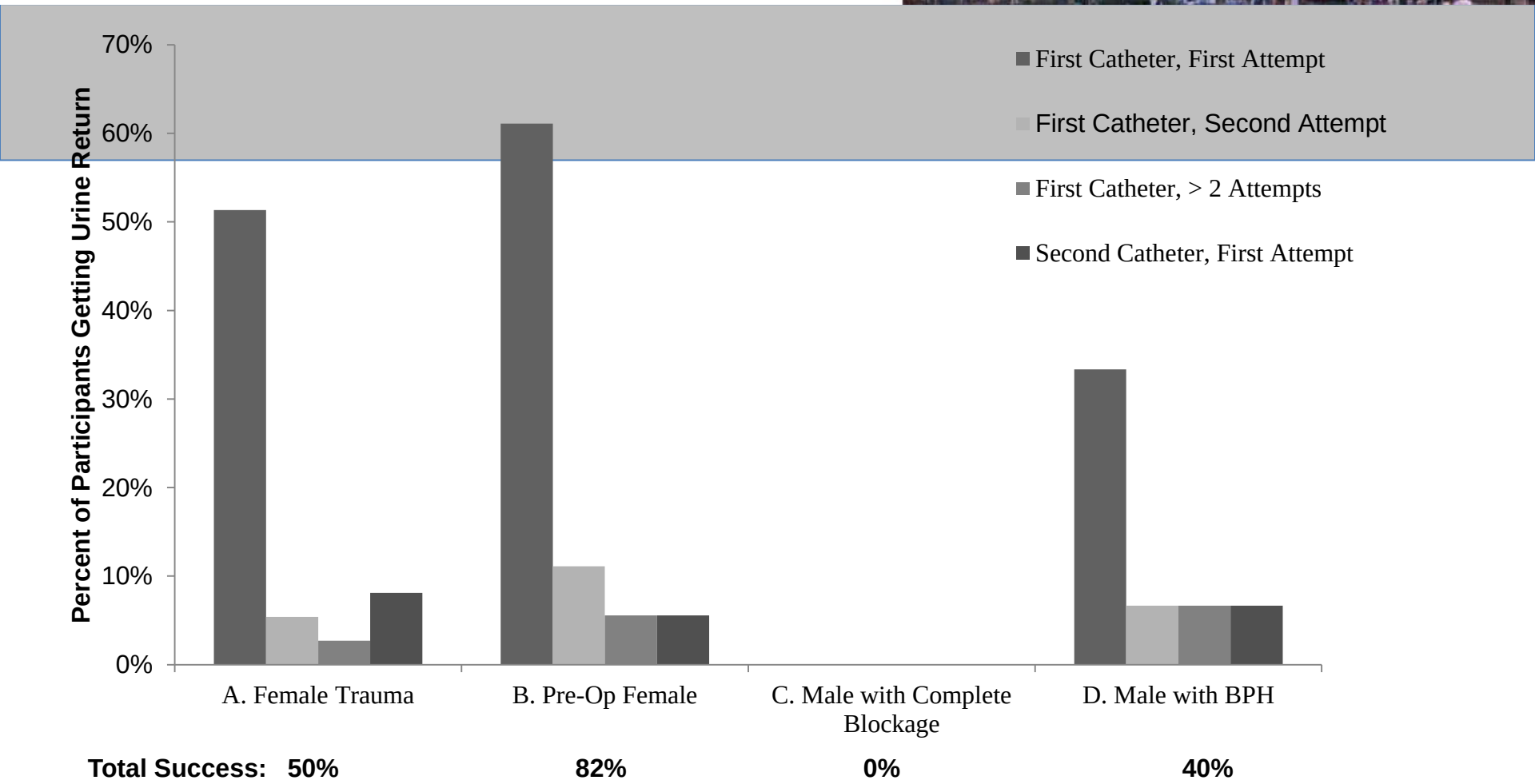

Figure 2. Success rates for scenario performances

Results

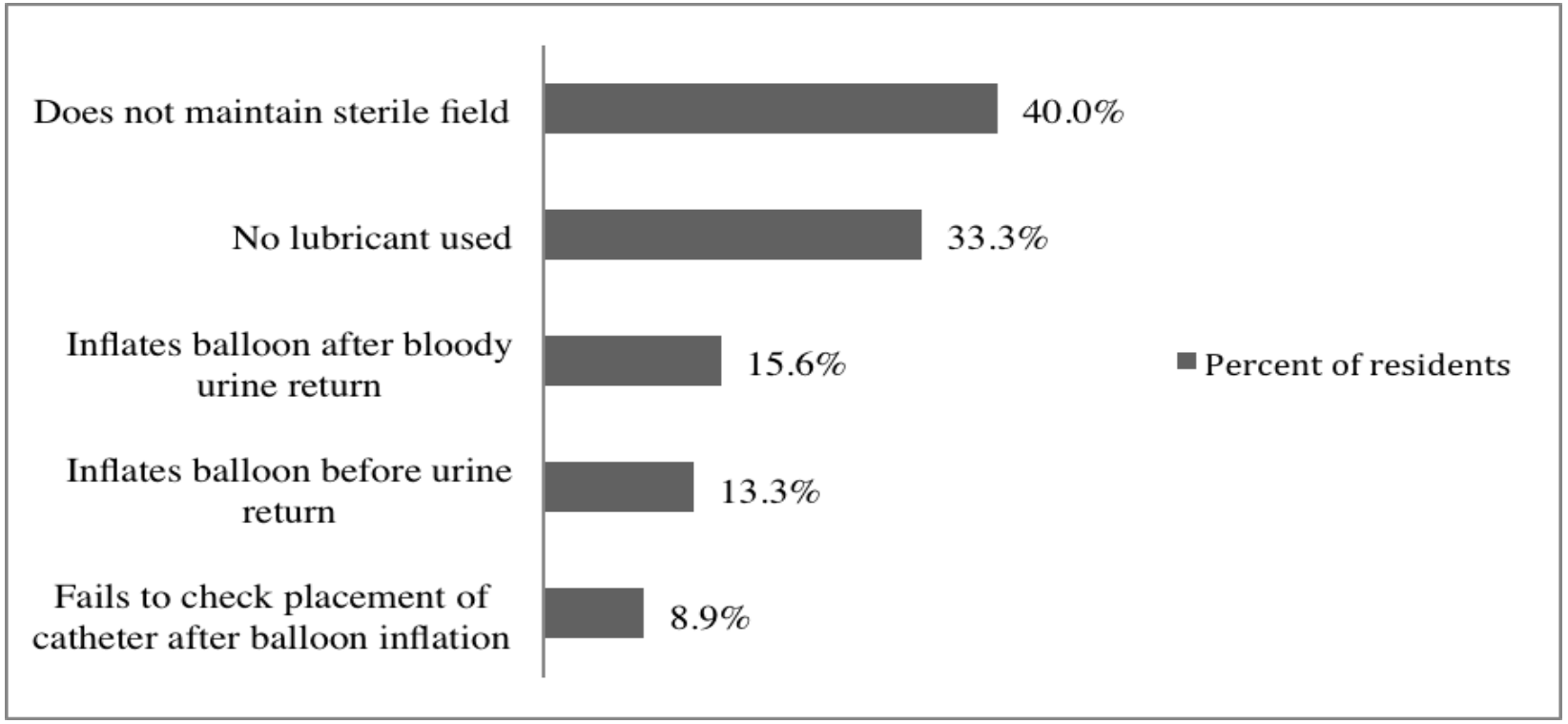

Figure 3. Percent of residents committing the most common errors at least once

Discussion

- What did we expect?
  - Female: 14 or 16 Fr first with systematic upsize
  - Male: 16 Fr foley or Coude
    - Coude if started with Foley
    - Upsize if coude
    - Verbal request to upsize
  - Less than one error per participant
- What did we find?
  - Residents are under prepared
    - Limited knowledge and experience in catheter insertion

Discussion

- Survey Results
  - Lower confidence with higher errors
  - Higher presim confidence sooner consults

- Can self assessment surveys serve as accurate predictors of performance?

Discussion

- Resident skills
  - Initial choices seem deliberate
    - A – C 16 Fr Foley, D 16 Fr Coude
  - Strategy in choice?
    - 16 Fr Coude in setting of BPH
  - Highest chance of success is first attempt

Discussion

- Technical Performance
  - Leading technical error is a major risk factor for UTI
    - 40% of participants break sterile field
  - Next leading errors can cause major iatrogenic injury
    - Lack of lubricant, improper balloon inflation
      - Potential for consultation, operative repair, UTI risk factor, and CI to catheterizing

Discussion

- Lack of experience and education
  - Responsibilities have shifted towards nursing staff
  - Leaves resident staff with little experience and ill-equipped to troubleshoot
  - Premature Urology consults
    - 72% direct consultation to Urology without attempt
    - 66% standard catheterizations

Discussion

- How do we fix this?
  - Revision of curriculum
    - Addition of complex scenarios and algorithms
  - Simulation
    - Cheap, safe, infinite opportunities for repetition
    - Opportunity to encounter difficult scenarios
  - Overall effect
    - Potential return in investment of training
      - Central venous catheter training: 7:1 return in investment
      - Additional cost savings in minimizing consults

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Thank You