



Improving the Performance and Documentation of Infant Genital Examinations in the Newborn Nursery

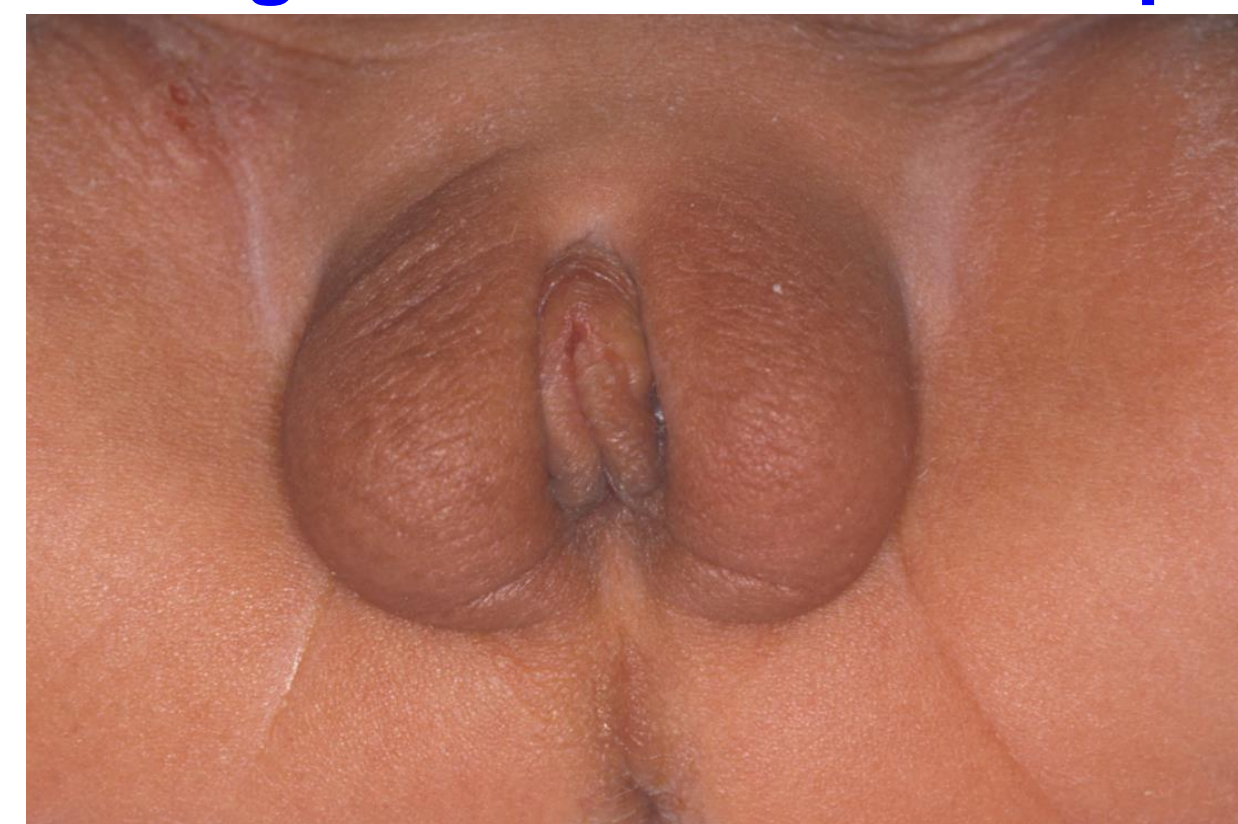


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Background:

- Screening for differences in sex development (DSD) is highly reliant on the performance of an accurate and complete genital physical examination of infants.
- Providers must have a thorough understanding of variants in infant genital exams.
- Incidence is relatively common:
 - Hypospadias
 - 1 in 200 live births
 - DSD
 - 1 in 1000-4000 live births
- Adult learners in the medical field prefer:
 - Interactive methods
 - Learning by doing
 - Emphasis on practical content

Ambiguous Genitalia Example



Key Learning Principles Applied:

- **Education is contextual**
 - Integrate classroom instruction with experiential hands-on learning in newborn nursery
- **Enhance the quality of learning through goal-directed practice coupled with targeted feedback**
 - Learners receive individual, formative, and focused feedback

Project Objective:

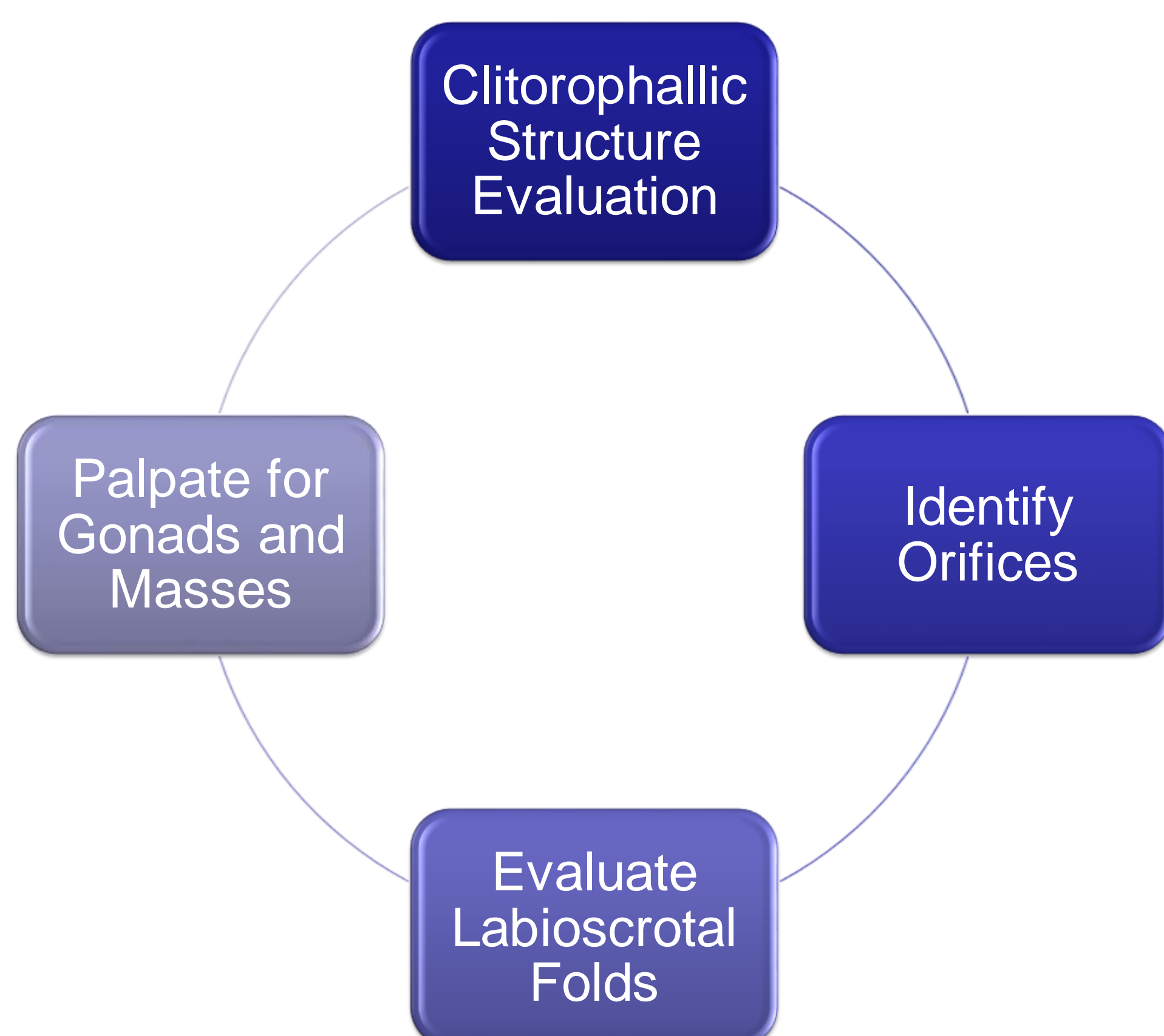
Improve learner confidence and skill in performing and describing infant genital examinations.

Intervention Design:

- **Interactive classroom lecture (30 minutes)**
- **Newborn Nursery Integration (25 minutes)**
- **Education Session Survey (5 minutes)**

Infant Genital Exam Education Session Content:

- **Objectives**
 - Identify and describe typical infant genital structures
 - Apply systematic approach to infant genital examination
 - Define ambiguous genitalia
 - Choose next steps including communicating with families
- **Infant genital image description practice**
 - 1 typical male, 1 typical female, 2 with ambiguous genitalia
- **Systematic approach to infant genital exam**



Survey Design:

- Retrospective pre and post education session subjective evaluation
 - Confidence in performing infant genital exam and describing findings
 - Likert questions: "Not at all", "A little", "Somewhat", "Mostly", "Completely"
 - Deemed confident if responded "Mostly" or "Completely"
- Had they received previous infant genital exam training and if so what was the format
- Open ended questions
 - "What was the most valuable aspect of this education session?"
 - "How will you apply what you learned going forward?"
- Demographics
 - Program and Year in Training
 - Assigned sex at birth (ASAB)
 - Gender identity

Hands-on Practice



Validation Process

- **Recorded Cognitive Interviews**
 - 1 Outpatient General Pediatric Attending
 - 1 Pediatric Endocrinology DSD Specialist
 - 1 Newborn Nursery Attending
 - 1 Director of Research

Results:

Participants:

- Overall response rate 100% (n=39)
- Gender Identity: 100% Cisgender
- ASAB: 87% Female, 13% Male
- Previously received training: 3% (n=1)
 - Lecture: Child Abuse and Protection Rotation

Table 1: Learner Demographics

	Number Participated	Female ASAB (%)
Pediatric Residents	14	100
Family Medicine Residents	9	67
Physician Assistant Students	11	100
Medical School Students	4	50

Thematic Analysis of Open-Ended Questions:

Most Valuable Aspect:

1. **Hands-on experience**
 - "Great, low stress session. Complementary method by observed and hands-on experience with immediate feedback"
 - "Appreciated opportunity to consolidate and learn with a hands-on opportunity"
2. **Practice describing exam findings**
 - "I thought I could [complete and describe] the exam but realized there was a lot I didn't know."
 - "Having [us] describe what we were seeing during the lecture and exam was helpful"
3. **Urgency of ambiguity on exam**
 - "Learning when to consult endo stat"
 - "How to accurately examine [for] ambiguous genitalia and the importance of how quickly it needs to be identified"

Application going forward:

1. **Systematic approach**
 - "Using the systematic 4 step approach to not miss findings"
 - "I will palpate for gonadal tissue on every exam"
2. **Communicating results**
 - "Because of [this session], I will always remember a proper exam, documentation, and how to discuss next steps with families"
 - "Thank you for teaching us things to say vs not say to parents of the child"

Figure 2: Confidence in Performing an Infant Genital Exam

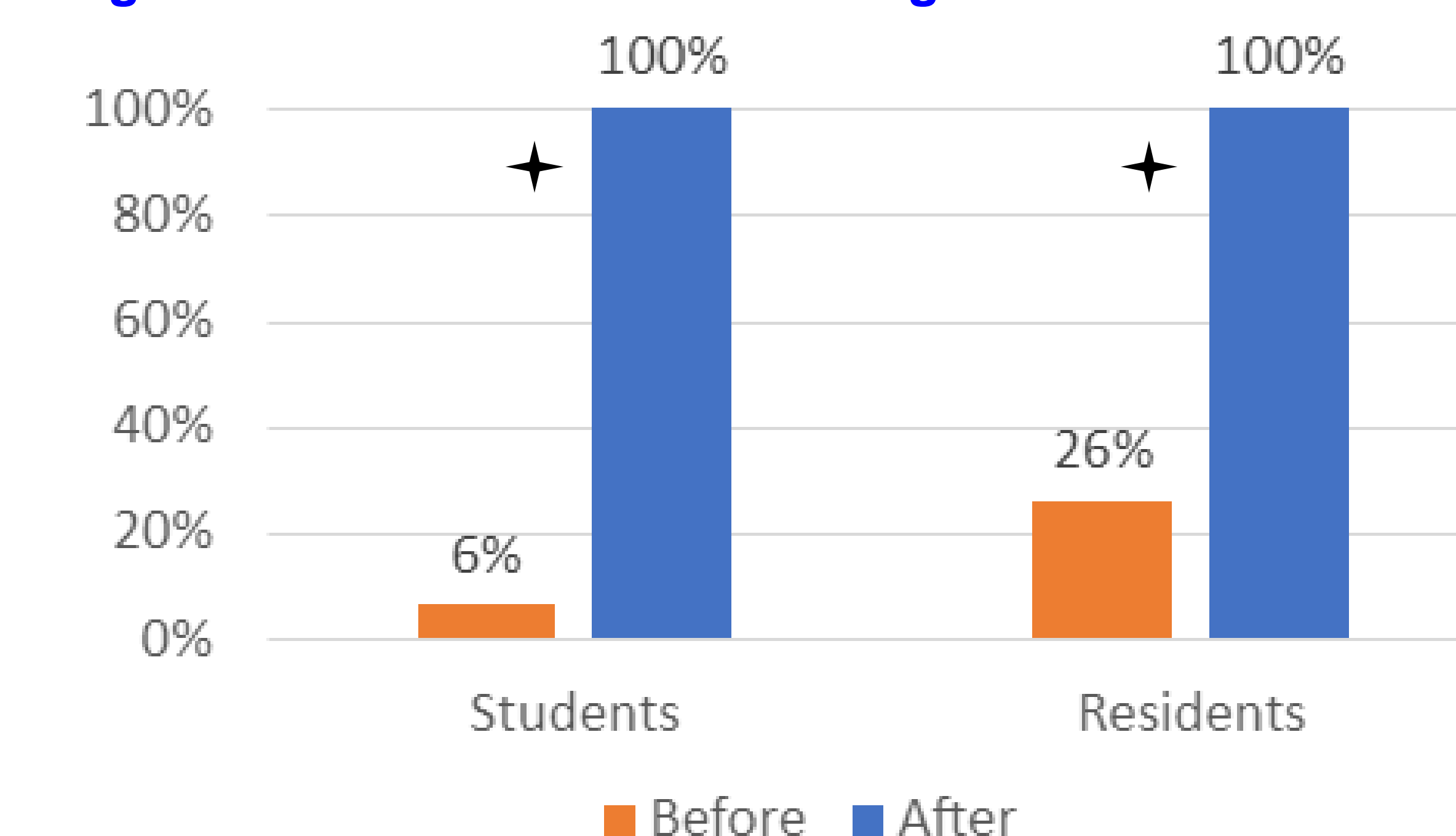
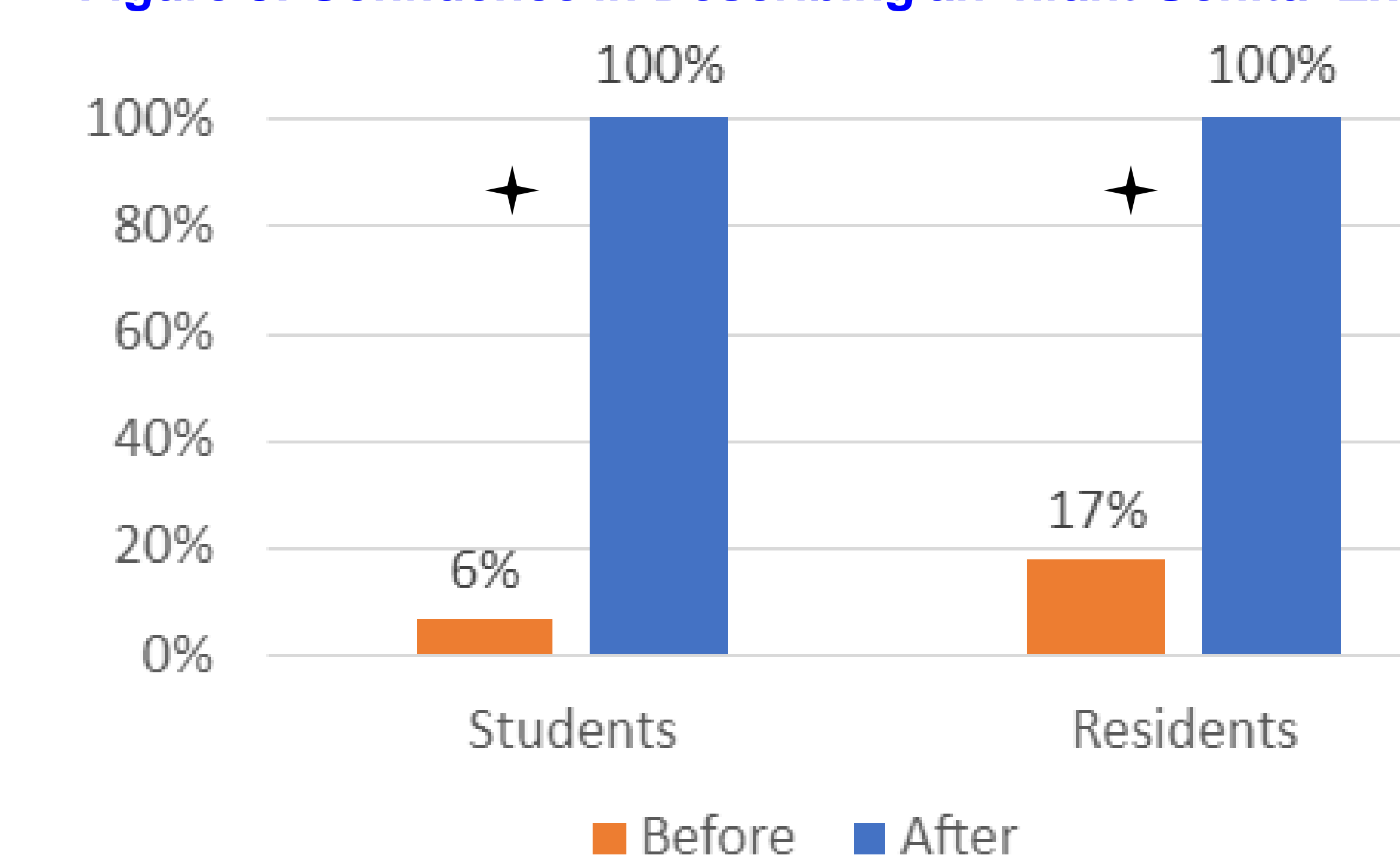


Figure 3: Confidence in Describing an Infant Genital Exam



★ Statistically significant paired t-test p<0.05

Discussion:

- Strikingly low percentages of students and residents are confident in performing and describing an infant genital exam, confirming the need for further education.
- The 1-hour education session statistically increased confidence in performing and describing an infant genital exam.
- Education sessions with hands-on practice and formative feedback can keep adult learners engaged and increase confidence in their skills.
- Applying a systematic approach to all infants can increase confidence in accurately performing and describing genital examinations.

Future Directions:

- **Evaluate enduring impact of session**
 - Newborn nursery attending survey
 - Witness residents/students implementing systematic approach during rotation
 - Pediatric resident survey
 - >1 month after session, application of systematic approach on other rotations
- **Sustainable outputs**
 - Pocket size handouts of the systematic approach
 - Video modules demonstrating infant genital exam techniques

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Conflicts of Interest: Nothing to report.

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