



# Pediatric emergency resident – Nurse teaching: A survey of an innovative method

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## Abstract

**Background:** Triage is one of the most important steps in the emergency department (ED), as it helps to recognize the urgency among patients. A proper triage system identifies the most critical patients regardless of the time of presentation. Triage nurses rarely can follow up on their triaged patients to verify the accuracy of their decision.

**Methods:** A teaching session on male genitalia triage by a Pediatric Emergency Medicine (PEM) resident was given to triage nurses and a survey was sent afterwards to all participants to evaluate the confidence in their triage accuracy before and after the session. The data were collected via Google Forms® and analyzed using paired t-test score to check for significance.

**Results:** The results showed a statistically significant increase in the confidence of nurses in avoiding both undertriage and overtriage accuracy. Also, all the nurses recommended attending similar talks given by a PEM resident.

**Conclusion:** PEM resident teaching session for nurses is an innovative method to improve the accuracy and quality of triage and to help establish good interpersonal relationship skills in the pediatric ED. More studies are needed in the future to validate this technique so that it can be implemented for all presentations.

*Keywords:* education, innovation, triage, nursing

## Background

Triage is an important step in the emergency department (ED) and a proper triage system identifies the most critical patients (WHO, 2008). The goal of the process is to reduce, as much as possible, undertriage and overtriage (underestimating and overestimating the urgency of the condition respectively; Peng & Xiang, 2016).

The classic teaching of triage nurses is done by a nursing educator and does not usually include the disposition. An innovative teaching session for performance improvement by a Pediatric Emergency Medicine (PEM) resident was given to triage nurses and a survey was sent afterwards to participating nurses.

## Methods

A 20-minute teaching session on pediatric male genitalia emergencies was provided to 10 nurses by a PEM resident. The session's objective was to identify the signs and symptoms of critical male genitalia emergencies (Canadian Triage and Acuity Scale [CTAS] 1 and 2) during triage. After the session, an anonymous Google Forms® survey was sent to the participating nurses (Appendix). This performance improvement study was exempt from Research Ethics Board (REB), as it adheres to the "A pRoject Ethics Community Consensus Initiative" (ARECCI) ethics guidelines for quality improvement and evaluation projects.

## Results

Ten nurses attended the session and nine out of 10 filled out the survey (90% survey response rate). Concerning the questions about the talk, all the nurses (100%) recommended attending similar talks given by a PEM resident even though the majority (77.8%) of them have not attended such type of sessions before.

The participants felt an increase in their confidence in identifying high-acuity cases (undertriage) from a mean of 7.44/10 to 9.56/10 (21.2%; Figure 2). Also, they felt an increase in their confidence in identifying low-acuity cases (overtriage) from a mean of 6.67/10 to 9.22/10 (25.5%; Figure 2). Using paired t-test score, the difference in both undertriage and overtriage was found to be statistically significant (P value: 0.0071; CI: 0.76–3.47 and P value: 0.0013; CI: 1.39–3.94 respectively).

## Discussion

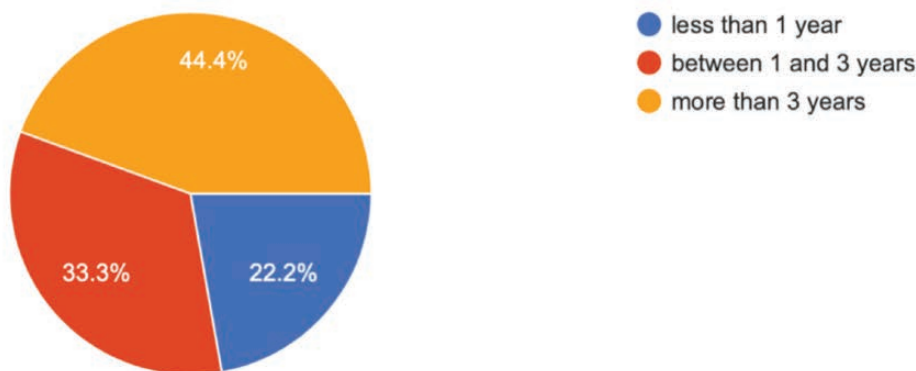
As far as we know, the PEM resident teaching session on pediatric emergency triage for nurses is a new teaching technique that was not described previously in the literature. In the ED, communication is key and, for this reason, the nursing and medical teams participate in joint simulations where they practice teamwork and crisis resource management (CRM) skills (Foronda et al., 2015; Lei & Palm, 2021).

**Figure 1**

*Nurses' Experience in Triage*

For how many years have you been a triage nurse?

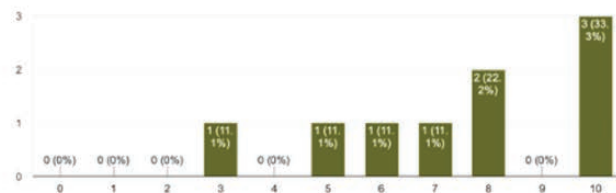
9 responses



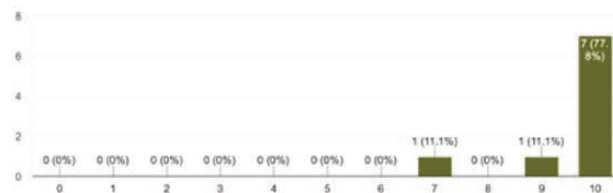
**Figure 2**

*Confiance du personnel infirmier dans la précision de leur triage avant et après la formation*

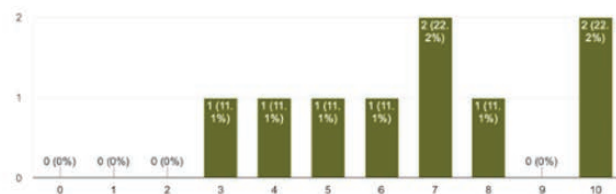
How confident were you in identifying high acuity patients presenting with male genitalia related complaints in triage PRIOR to the talk (on a scale from 0 to 10)?  
9 responses



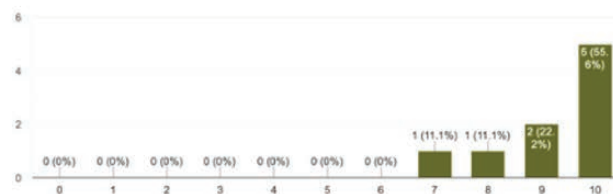
How confident are you in identifying high acuity patients presenting with male genitalia related complaints in triage AFTER the talk (on a scale from 0 to 10)?  
9 responses



How confident were you in identifying low acuity patients presenting with male genitalia related complaints in triage PRIOR to the talk (on a scale from 0 to 10)?  
9 responses



How confident are you in identifying low acuity patients presenting with male genitalia related complaints in triage AFTER the talk (on a scale from 0 to 10)?  
9 responses



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On the other hand, having a PEM resident present to the nurses on triage “red flags” and the most common benign presentations on a specific subject, offered a new perception to the nurses on what to look for during triage. This was reflected by the significant increased confidence of the nurses in their triage accuracy for reducing both overtriage and undertriage.

## Conclusion

A PEM resident teaching session for nurses is an innovative method to improve the accuracy and quality of triage and to help establish good interpersonal relationship skills in the pediatric ED. More studies are needed in the future to validate this technique, so that it can be implemented for all presentations.

## Implications for Emergency Clinical Practice

- Teaching involving residents and nurses has a high potential of improving patients care in the ED.
- Continuous medical education given by residents to nurses can help in decreasing overtriage and undertriage.

## REFERENCES

Foronda, C. L., Alhusen, J., Budhathoki, C., Lamb, M., Tinsley, K., MacWilliams, B., et al. (2015). A mixed-methods, international, multisite study to develop and validate a measure of nurse-to-physician communication in simulation. *Nurs Educ Perspect*, 36(6), 383-388.

Lei, C., & Palm, K. (2021). *Crisis resource management training in medical simulation*. StatPearls.

- Learning activities between residents and nurses in the ED is a great tool for better communication.

## About the first author

*Dr. Chady El Tawil is the chief resident of pediatric emergency medicine at the Montreal Children's Hospital and has finished his emergency medicine specialty training at the American University of Beirut prior to starting his subspecialty in emergency medicine. When he is not playing tennis or exploring new cities and cuisines, you can find him working on leadership, trauma, and quality improvement research in pediatric emergency medicine.*

## Conflict of interest

None.

## CRedit authors statement

*Chady El Tawil: Conceptualization, Methodology, Investigation, Writing- Original draft preparation, Submission.*

*Daniel Brody: Supervision, Writing- Reviewing and Editing.*

Peng, J., & Xiang, H. (2016). Trauma undertriage and overtriage rates: Are we using the wrong formulas? *Am J Emerg Med*, 34(11), 2191-2192.

World Health Organization. (2008). *Manual for the health care of children in humanitarian emergencies*. WHO Guidelines Approved by the Guidelines Review Committee.

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# Appendix

## Male Genitalia Talk Feedback

Thank you for participating in the teaching and taking the time to fill this questionnaire. Please note that this questionnaire is anonymous, and you may fill it ONLY ONCE so please make sure that your answers are final before submitting. All the questions in the survey are about the teaching on male genitalia triage.

\* Required

1. Do you consent in participating in the survey? \*

Mark only one oval.

- Yes  
 No

2. For how many years have you practiced as a pediatric emergency nurse? \*

Mark only one oval.

- less than 1 year  
 between 1 and 3 years  
 more than 3 years

3. For how many years have you been a triage nurse? \*

Mark only one oval.

- less than 1 year  
 between 1 and 3 years  
 more than 3 years

4. Have you ever participated in a talk given by a Pediatric Emergency fellow prior to this talk? \*

Mark only one oval.

- Yes  
 No

5. How confident were you in identifying high acuity patients presenting with male genitalia related complaints in triage PRIOR to the talk (on a scale from 0 to 10)? \*

Mark only one oval.

0 1 2 3 4 5 6 7 8 9 10  
Not very            Very much

6. How confident are you in identifying high acuity patients presenting with male genitalia related complaints in triage AFTER the talk (on a scale from 0 to 10)? \*

Mark only one oval.

0 1 2 3 4 5 6 7 8 9 10  
Not very            Very much

7. How confident were you in identifying low acuity patients presenting with male genitalia related complaints in triage PRIOR to the talk (on a scale from 0 to 10)? \*

Mark only one oval.

0 1 2 3 4 5 6 7 8 9 10  
Not very            Very much

8. How confident are you in identifying low acuity patients presenting with male genitalia related complaints in triage AFTER the talk (on a scale from 0 to 10)? \*

Mark only one oval.

0 1 2 3 4 5 6 7 8 9 10  
Not very            Very much

9. Do you recommend talks given by Pediatric Emergency fellows to nurses about triage? \*

Mark only one oval.

- Yes  
 No, I prefer talks given by other nurses

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