The Accreditation Council for Graduate Medical Education has developed milestones for trainees which include procedural skills under the core competency of patient care.\(^1\) Laceration repair is a procedure the Pediatric Residency Review Committee states pediatric residents should have training in, and progress in that training should be monitored.\(^2\)

There is no validated tool to evaluate pediatric resident laceration repair performance. Simulation has been previously utilized to validate tools for the assessment of procedural skills in this learner population.\(^3\)

**Background**

- To test the validity of a novel tool for the evaluation of resident laceration repair performance in a simulated laceration repair procedure in the Pediatric Emergency Department (PED).

**Objective**

- A novel tool was developed to evaluate PED resident laceration repair performance.
- It is adapted from the validated Objective Structured Assessment of Technical Skills,\(^4\) and consists of two components: a global rating scale (GRS) and a checklist.
- The GRS contains 12 items assessed on a 5-point Likert Scale, while the checklist tool contains 18 tasks that are or are not completed independently and correctly.
- Tested and piloted in PED during laceration repairs with patients.

**STUDY TOOL**

- Procedures were given a standardized case scenario in which they were required to place three simple interrupted sutures.
- Participants were provided a selection of suture materials and tools to complete the laceration repair.
- Videos were recorded using two cameras with wide and zoomed-in views of the procedure and edited together for review.

**OBTAINING STUDY VIDEOS**

- Videos were recorded using two cameras with wide and zoomed-in views of the procedure and edited together for review.

**VIDEO REVIEW & DATA ANALYSIS**

- Each video was evaluated by five physicians using the checklist and GRS tools.
- To estimate agreement between the evaluators, concordance correlation coefficients (CCC) were calculated for both the GRS and checklist tool.
- Average scores were calculated for each resident and compared across different levels of resident training and reported laceration repair experience.
- For each question, scores ranges were calculated for each proceduralist, and then median range was calculated for each question as a measure of variability between reviewers.

**Results**

- 13 interns, 4 second year, and 13 third year residents were filmed performing laceration repairs.
- The CCC showed fair concordance across reviewers for both the checklist (0.55, 95% CI 0.38-0.69) and the GRS (0.53, 95% CI 0.36-0.67).
- Scores for both tools improved with increased years of training and reported procedural experience.
- The ranges of scores for each 5-point item on the GRS when averaged varied between 0.0-2.0 points.

**Conclusions**

- Both the GRS and Checklist tools showed fair agreement across reviewers.
- Procedural scores improved by training and experience.
- The tools are not precise enough for summative evaluation, but may be able to distinguish between trainees who have and have not attained competence in laceration repair for formative feedback.
- Gradient scoring of the GRS allowed individual item scores for each reviewer to provide a more refined evaluation than the simple binary checklist item scores.
- Further research is needed to determine if training evaluators could improve agreement.

**References**