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Efficacy of Pediatric Surgery Mobile Application for General Surgery Residents

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Efficacy of Pediatric Surgery Mobile Application for General Surgery Residents

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IRB Number: IRB exempt

Describe role of Submitting/Presenting Trainee in this project (limit 150 words):

Pediatric Surgery Research Fellow, primary author

Background, Objectives/Goal, Methods/Design, Results, Conclusions limited to 500 words

Background/Objectives/Goal: Integration of pediatric surgery content into the general surgery curriculum poses unique challenges as the patient population, pathophysiology, and management of surgical disease is distinctive from other subspecialties. Pediatric surgery represents approximately 2% of content on the in-training exam for residents (ABSITE) and is often underemphasized in didactic material, contributing to difficulty with preparation for these clinical rotations. We hypothesize that implementation of a mobile-based application with pertinent clinical algorithms and resources for pediatric surgical education will improve resident performance and enhance learning experiences in the management of pediatric surgery patients.

Methods/Design: Seventeen residents rotating on the pediatric surgery service at Children's Mercy hospital volunteered to participate in the study over a one-year period. A 9-question multiple-choice test was administered within the first week of the rotation to determine baseline knowledge of pediatric surgery. Questions addressed appropriate pediatric medication dosing, recognition, workup, and treatment of common pediatric surgical emergencies, and knowledge of pediatric society-based guidelines. A mobile application created by surgical faculty and fellows including clinical algorithms and text-based resources was made available for use throughout the clinical rotation. A second multiple-choice test addressing similar clinical scenarios was administered immediately after the pretest allowing residents to use the application, to determine its efficacy in improving recognition of appropriate workup and prompt treatment of pediatric surgical patients.

Results: Seventeen general surgery residents were tested, fifteen were in their second year of training and two in their third year of training. One resident had prior pediatric surgery experience. Median pretest score for the cohort was 44% [33, 44] and median posttest score 100% [88, 100]. (Figure 1) Mean improvement for the cohort was $53\% \pm 15\%$ representing a statistically significant improvement in test scores.

Conclusions: Implementation of a mobile application-based tool for general surgery residents improves recognition and recall of pediatric surgical presentations and management of pediatric surgical patients. App based learning may enhance resident performance throughout clinical rotations and provide a more effective learning experience.

Figure 1: Resident pretest and posttest scores

