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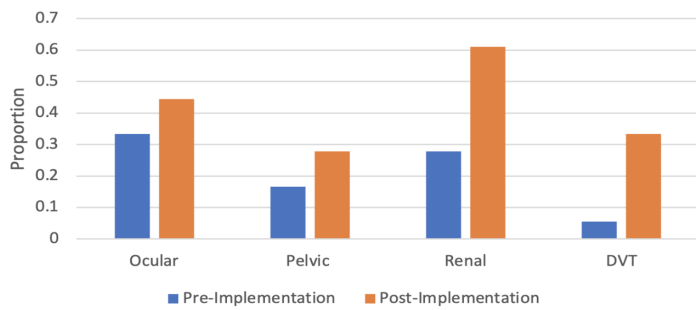


Figure 1. The proportion of residents reporting confidence with performing the least commonly used U/S exam types.

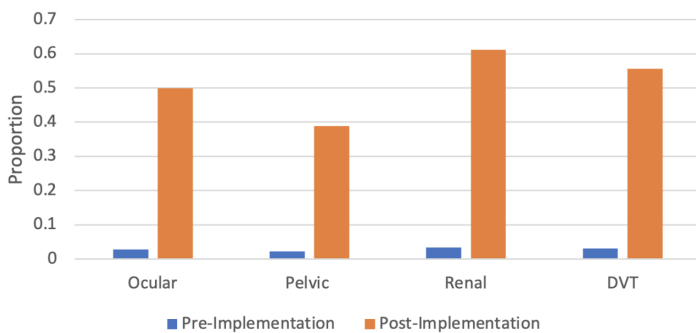


Figure 2. The proportion of residents reporting confidence with interpreting the least commonly used types.

33 Emergency Medicine Resident Use of a Differential Diagnosis Generator for Critical Patients in the Emergency Department

Kate Romero, Lauren McCafferty, David Berger, Matthew Booher, Madhavi Purekar, Nai-Wei Chen, Brett Todd

Learning Objective: We aimed to evaluate the use of a differential diagnosis tool by emergency medicine residents in the critical care area of an emergency department to determine patient presentations where the tool would be most valuable and widely used.

Background: Generating a differential diagnosis (DDx) is a vital skill for emergency medicine (EM) residents to develop in their care of critically ill patients. Electronic DDx tools allow a physician DDx to be cross-checked with artificial intelligence to broaden the DDx in complex cases, and may assist in resident DDx generation. Currently, DDx tools have not been well studied in EM high-acuity scenarios. It is unclear which patient presentations challenge EM residents most in their DDx generation.

Objective: We aimed to evaluate the use of a DDx tool by EM residents in the critical care area of an emergency

department (ED) to determine patient presentations where the tool would be most valuable.

Methods: We performed a prospective observational study of usage of a DDx tool in an academic ED. The tool was evaluated in the high-acuity area of the ED in patients requiring immediate evaluation. A resuscitation resident rotates each month in the area and evaluates each patient. The resident queried the DDx tool on the patient’s symptoms and completed a data collection tool. Data was summarized by frequencies for use in DDx creation with attention to body system categories. Chi-squared or Fisher’s exact tests were employed on comparison.

Results: The DDx tool was used for 98 patients, of whom 60.2% were female and 7% were pediatric. The tool was not used for 87 patients seen by the resident. Compared with non-DDx tool use, the DDx tool was used significantly for more patients with gastroenterology (GI), infectious disease (ID), metabolic/renal, and neuropsych complaints, and significantly less for trauma patients (Table 1).

Conclusions: A DDx tool has potential to enhance DDx generation in the resuscitation setting for EM residents, particularly for assessing patients with chief complaints consisting of GI, ID, metabolic/renal, and neuropsych involvement. It has less utility for trauma diagnosis, likely because trauma protocols follow strict, stepwise management.

Table 1. Chief complaints and DDx tool use.

Chief Complaint	Number of cases with each symptom complex	DDx tool used (n=98)	DDx tool not used (n=87)	p value
Gastroenterology	15	12	3	0.03
Hematology/Oncology	5	3	2	1.00
Infectious Disease/Immunologic	10	9	1	0.02
Toxicology	4	1	3	0.34
Allergic Reactions	5	1	4	0.19
Cardiology	49	25	24	0.87
Dermatology	1	0	1	0.47
Metabolic/Renal	17	14	3	0.01
Musculoskeletal	2	2	0	0.50
Neuropsychiatric	41	29	12	0.01
Reproductive	7	5	2	0.45
Respiratory	27	19	8	0.05
Surgical	1	0	1	0.47
Trauma	36	7	29	<0.001