

## **Abstracts from the 15th Annual Pediatric Critical Care Colloquium**

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#### **USE OF A WEB-BASED TOOL TO ENHANCE MEDICAL STUDENT LEARNING IN THE PEDIATRIC INTENSIVE CARE UNIT AND INPATIENT WARDS**

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##### **Introduction**

Numerous web-based clinical tools exist and are easily accessible to medical students. The educational value of these tools remains largely untested. ISABEL is a web-based pediatric differential diagnostic tool developed by the ISABEL medical charity in the United Kingdom. Using sophisticated textual pattern recognition software to search through standard pediatric texts, ISABEL generates a differential diagnosis after patient data has been entered. A recent study demonstrated that ISABEL displayed at least one 'additional clinically important' diagnostic possibility in 85/206 cases admitted to pediatric intensive care units (41.3%, CI 34.6–48%). We hypothesized that ISABEL may serve as a useful adjunct to improve the ability of medical students to generate an appropriate differential diagnosis.

##### **Methods**

After IRB approval was obtained, consented medical students were randomly assigned to two groups: ISABEL usage group or a control group. ISABEL students were allowed access to the web-based tool in addition to traditional resources to generate differential diagnoses. They were given confidential passwords, an introduction to the website and were strongly encouraged to use the tool with each new patient encounter. The control group did not have access to the site and used traditional sources to generate differential diagnoses. Objective analysis of the tool was done using a standardized post-rotation test given to all students. A post-study questionnaire and interviews provided qualitative data.

##### **Results**

Forty-three students (22 ISABEL and 21 control) were enrolled. Of the 22 students in the ISABEL group, 15 completed the trial. Student analysis of the tool was positive overall; 12/15 students (80%) reported the tool was as helpful or more helpful when compared to traditional resources, 10/15 students (66%) reported ISABEL often or always provided an additional diagnosis not initially considered. There was no difference in post-rotation test scores between the two groups (ISABEL 73 vs. control 74,  $p = .67$ ). All students

interviewed agreed that the use of web-based tools should be incorporated into medical education after formal evaluation and validation of such tools.

##### **Conclusion**

Medical students using ISABEL were able to expand their differential diagnoses the majority of times they used the tool. They found the tool easier to use than traditional texts. The lack of an objective difference between groups was likely due to the small numbers and lack of a sensitive test to detect true differences. Web-based tools can be an important instrument in medical education but require formal evaluation and validation prior to their use.