

Improving the Quality of Pediatric Emergency Care Using an Electronic Medical Record Registry and Clinician Feedback

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Summary: Emergency departments (EDs) routinely collect substantial patient data that have the potential to provide information on the quality of care provided to acutely ill and injured children. The capacity to capture and analyze these data, however, is limited. The increasing use of electronic health records (EHRs) in EDs provides an opportunity to access patient clinical data, and efficiently track and evaluate quality of care, performance measures, and patient outcome measures. EHRs also hold the potential for developing patient registries using electronic abstraction instead of the resource and labor-intensive manual chart abstraction required with paper records. Abstracting data in an automated way from EHRs could make it possible to evaluate the quality of patient care, assess health care costs, and ultimately reduce the incidence of adverse events. Using the novel health information technology (IT) application of natural language processing (NLP), clinical data can be extracted from discrete and free-text fields of an EHR.

This project is developing a registry to collect and report quality measures of emergency care provided to children. To do this, a multi-stage process will be used to: 1) develop an emergency care visit registry for pediatric patients using EHR clinical data; 2) report performance measure outcomes by ED site and by individual clinicians; and 3) evaluate whether providing performance measure feedback to sites and clinicians improves performance and decreases variation between sites and clinicians. This project uses the infrastructure of the Pediatric Emergency Care Applied Research Network (PECARN), which was established in 2001 as a federally-funded national network for research on pediatric emergencies and emergency medical services for children. The emergency care visit data registry for pediatric patients will be known as the PECARN Registry.

During Stage I of this project, the PECARN Registry will be developed by merging data from four hospitals within the network. A test data transfer will allow each site to upload data for a 1-month period from the preceding calendar year. This will allow testing and evaluation of the database and data upload, the NLP algorithm derivation, the merging process, and the quality assurance process. After completing the test data transfer, electronic data on all pediatric ED patients from each site from the prior calendar year will be transmitted to a central data coordinating center. Subsequently, data will be uploaded monthly from each site for a period of 18 months, providing 2.5 years of data in total and representing approximately 1,040,000 pediatric ED visits.

During Stage II of this project, the Registry will be used to collect and report on 14 performance measures. Ideal benchmarks of care for each performance measure will be determined by using the Achievable Benchmarks of Care method and by convening an expert panel. The benchmarks of care

will gauge the performance measure outcomes. Quality performance measure report cards (hereafter, report cards) will be developed for ED sites and for individual clinicians at each site. The site-level report cards will contain outcomes for all 14 performance measures, and the corresponding benchmarks will be noted. The clinician-level report cards will include individual clinician outcomes on five of the fourteen performance measures. The five clinician-level performance measures are within the locus of control of the individual clinicians and amenable to physician behavior change.

In Stage III of this project, the clinician and site report cards will be generated and distributed on a monthly basis. The site-level report cards will include the performance measure outcome results from the other sites as a comparison. A time-series trial will assess whether the clinician feedback results in improvements in the performance measures themselves, as well as if they decrease variation in performance across clinicians.

The goal of this project is to provide decisionmakers with a tool to track, report, and improve the quality of emergency care for children within and across sites of care.

Specific Aims:

- Develop an emergency care visit registry for pediatric patients. **(Ongoing)**
- Use this registry to collect stakeholder-prioritized emergency care performance measures for important pediatric medical and trauma conditions at the level of both the ED and individual clinician. **(Upcoming)**
- Use this registry to report performance to individual ED clinicians. **(Upcoming)**

2011 Activities: Activities to date have involved project start-up and development work. All project personnel have been hired. Protocol development is in process and is nearing completion for institutional review board submission. Development of the registry has been initiated by mapping variables from the EHR that will be included.

Preliminary Impact and Findings: This project has no findings to date.

Target Population: Pediatric*

Strategic Goal: Develop and disseminate health IT evidence and evidence-based tools to improve health care decisionmaking through the use of integrated data and knowledge management.

Business Goal: Implementation and Use

* This target population is one of AHRQ's priority populations.