

## Supporting Continuity of Care for Poisonings with Electronic Information Exchange

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**Summary:** Exchange of information between poison control centers (PCCs) and emergency departments (EDs) is conducted almost entirely by telephone. In these high-volume and often chaotic settings, however, reliance on verbal communication increases the potential for data loss, delayed time to treatment, and medical error. The electronic exchange of information could improve continuity of care for poisonings, reduce time-to-treatment and medical errors, facilitate communication and availability of data to clinicians at the point of care, and ensure timely followup.

This project identified the data requirements for electronic information exchange between PCCs and EDs to support individual patient care and care transitions. The team is describing current information exchange scenarios as well as important clinical, operational, and legal considerations. The project team is using multiple approaches, including interviews with clinicians and stakeholders, document review, analysis of recorded PCC calls, storyboarding, as well as a four-round Delphi study to determine consensus among national experts on significant clinical, operational, and legal considerations.

The results of this study will provide concrete guidance for efficient research and development on PCC-ED information exchange, including information technology solutions, standards adoption or development, and policy. Long-term implications include the study of outcomes, quality improvement innovations, and the potential for computerized decision support.

### Specific Aims:

- Describe information requirements for electronic information exchange between PCCs and EDs. **(Ongoing)**
- Describe current data and information exchange scenarios between a regional PCC and an ED. **(Ongoing)**
- Identify salient clinical, operational, and legal considerations related to electronic exchange of data and information between PCCs and EDs. **(Achieved)**

**2011 Activities:** The research team completed a four-round modified Delphi study to identify the clinical, operational, and legal considerations important for electronic information exchange between EDs and PCCs at the end of 2010. The team's focus in 2011 was on analysis, manuscript development, and dissemination of these considerations. Results of the modified Delphi study were presented at the Society for Academic Emergency Medicine's 2011 annual meeting in June, the North American Conference on Clinical Toxicology in September 2011, and the annual meeting of the American Medical Informatics

Association in October 2011.

In addition, work continued on analyzing the PCC to ED call recordings. This included the time to identify, merge, clean, and transcribe the audio files before data analysis. Dr. Cummins and her team originally analyzed 60 calls and have sampled an additional 40 calls in 20-case increments. Analysis is ongoing. The project team will continue to sample in 20-case increments until they achieve saturation of information (e.g. no new types of data or information). Thus far, 120 unique data/information types have been identified.

In the original grant proposal, Dr. Cummins had proposed to inventory the types of information exchanged, but during call analysis the research team also found many examples of inefficient data processes and poor data quality. The team decided to develop a taxonomy of the types of data process inefficiencies and poor data quality and went back and noted frequencies in order to more fully describe the data exchange process. The additional analysis provides valuable information about the nature and frequency of inefficiencies and poor data quality, inherent in the current verbal information exchange process.

The team has begun interviews with ED providers (physicians and nurses) from Intermountain Medical Center and Primary Children's Medical Center, as well as poison-control specialists to identify current/ data information exchange and user needs related to information exchange. Twelve of an estimated 18-to-24 interviews have been completed. The team has started to develop the process diagrams depicting the sequence of information exchange, and will finish the interviews by showing the diagrams to the interviewees to get validation of the process.

As last self-reported in the AHRQ Research Reporting System, project progress and activities are mostly on track and project budget spending is on target. Due to the added task of the taxonomy of the types of data processes and data quality, as well as the unanticipated amount of time it took to prepare the audio files for analysis, Dr. Cummins is using a 1-year no-cost extension to complete the call analysis and the storyboards to describe the exchange scenarios.

**Preliminary Impact and Findings:** The response rate for the modified Delphi study was high and stable. Upon completion of the fourth round, 115 of 122 statements had reached consensus. Panelists agreed upon the importance of most outcomes including effects on communication, information availability for decisionmaking, and medical error. They also agreed upon key aspects of adoption and implementation, and favor systems that support but do not replace verbal communication and consultation.

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**Target Population:** General

**Strategic Goal:** Develop and disseminate health IT evidence and evidence-based tools to support patient-centered care, the coordination of care across transitions in care settings, and the use of electronic exchange of health information to improve quality of care.

**Business Goal:** Knowledge Creation

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