Collaborative Patient Safety Effort: Addressing Phlebotomy Specimen Mislabeling

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Collaboration among healthcare facilities is an effective means to bring about positive change. Such collaboration is evident in Pennsylvania healthcare facilities. Event reports submitted through the Pennsylvania Patient Safety Authority's reporting system have prompted regional collaboratives and even a national response to a patient safety issue (i.e., standardization of color-coded patient wristbands).[1] In 2009, Pocono Medical Center, recognizing an opportunity in near-miss data, pursued a regional collaborative through the Authority to address the issue of mislabeled specimens.

Recognizing the Problem

During a January 2009 Authority presentation titled "Patient Safety Challenges in Pennsylvania" at Pocono Medical Center, participants noted that in 2007 "errors related to procedure/treatment/test" were the predominant type of event reported to the Authority (23%), of which "laboratory test problem" was the predominant subcategory (41%). This information coincided with findings at the medical center. Specifically, the medical center identified that it reported a large proportion of specimen mislabeling events under this subcategory.

Recognizing that other facilities likely had experienced mislabeled specimen near misses, the medical center contacted the Authority to facilitate—through the Authority's Patient Safety Liaison (PSL) Program—a regional improvement collaborative to address this problem.

In a typical hospital clinical laboratory, thousands of specimens are received and analyzed daily.[2] Specimen mislabeling can happen in any setting in the organization. Analysis of Authority data has shown that mislabeling events occur more often in the emergency department (ED) than other care areas, which is consistent with findings reported in the literature. In a study conducted at University Hospitals of Cleveland, Ohio, results indicated that laboratory samples drawn in the ED were 10 times more likely to be mislabeled.[3] Patient volume, emergent conditions of the patients, and demand for rapid turnaround on collection and analysis of specimens likely all affect the higher number of reported events in this setting. According to Wagar et al., these types of events would score high for severity and low for detectability using failure mode and effects analysis because the errors are not generally discovered until a clinician questions a result that is atypical for a given patient.[2] Lippi et al. discuss that errors are not detected or reported consistently because frontline healthcare staff may feel that it is not worth their time to report an event if no harm comes to the patient as a result of a misidentification error.[4]

Injuries associated with phlebotomy specimen mislabeling can have a significant clinical, financial, and emotional effect on all involved. Seventy percent of all information used by clinicians to diagnose conditions and treat patients comes from the laboratory setting.[5] Therefore, inaccurate test results could lead to serious adverse outcomes for the patient, financial costs for the institution, and high emotional tolls for patients, family, and healthcare workers who experience an adverse event.

Building the Collaborative

Preliminary work started with a team that included the medical center's patient safety officer, regulatory director, and medical chief of staff, as well as the Authority's director of education, a patient safety analyst, and myself as the PSL. The team reviewed the most recent data available (calendar year 2008 through April 2009) to identify the extent of the problem. Results indicated an enduring high proportion of reports related to mislabeled specimens. The Authority then facilitated several meetings to introduce interested medical facilities in the Northeast Region to the collaborative.

All Northeast medical facilities that provide laboratory services to patients were invited to participate in an introductory session about the problem of mislabeled phlebotomy specimens, the objectives of the proposed collaborative, the benefits of involvement, and commitment to a year-long project. Representatives attended from 10 acute care hospitals and 1 rehabilitation hospital, comprising patient safety officers, laboratory directors, other laboratory personnel, and leadership. When polled, the participants identified that this was their first exposure to an inter-hospital project of this scope.

"Accurate specimen identification is a challenge in all hospitals, and a mislabeled specimen can lead to devastating consequences for patients."[2] In order to emphasize this point, Authority Director of Education Fran Charney, RN, BS, MSHA, CPHRM, CPHQ, CPSO, FASHRM, provided a real-life case scenario in which a blood transfusion mix-up led to a patient's death. Through group discussion, it was evident that the case scenario was not an isolated situation and that it could happen elsewhere given the right set of circumstances and lack of forcing functions to prevent recurrence.

An Authority patient safety analyst presented aggregated specimen mislabeling event data reported to the Authority, stratified according to event taxonomy, subcategories, care area, day of the week, and harm score. Analysis of the Authority data revealed that in the Northeast Region one mislabeling event was reported per facility per month. Participants recognized the high likelihood of underreporting of this event, especially for Incidents (near misses) that do not result in harm to the patient.

To ensure that the participating facilities will capture the appropriate events for analysis, they were encouraged to compare specimen mislabeling events submitted to the Authority to other data, such as the number of redraws per month, the number of specimens wasted per month, or other internal coding systems. The participants identified two key elements for this purpose: (1) the definition of phlebotomy specimen mislabeling and (2) the taxonomy under which these events will be reported to the Authority. Multi-institutional collaboration is an important aspect of this project, and while each facility may define a "correctly labeled specimen" differently, it was important that the definitions be shared across facilities and that each facility commit to capturing and reporting all specimens that were not correctly labeled according to their definition. These mislabeling events will be reported under standardized taxonomies so that data can be analyzed by region, as well as by individual facility.

At each facility, efforts will begin with coordinating resources and educating the leadership and staff about the issue. Participants expect an initial "spike" in the reporting of phlebotomy specimen mislabeling events after frontline staff are educated about the need to ensure complete capture of this data. Therefore, the participants anticipate a need for dedicated resources to collect and report the event data. The initiative is scheduled for completion in one year.

Providing Guidance

For this ongoing initiative, the Authority will provide education, technical assistance, tools, resources, and an interactive forum to facilitate participants' efforts to improve patient safety relative to phlebotomy specimen mislabeling prevention. Success in this effort depends on a high level of commitment from patient safety officers, laboratory directors, information technology personnel, nursing leaders, physician champions, senior leaders, and frontline staff. However, facilities throughout Pennsylvania stand to gain knowledge and insight from the work ahead.

The anticipated benefits of this collaboration include the following:

- A collaborative learning network in the Northeast Region of Pennsylvania that will foster success in reducing/eliminating phlebotomy specimen mislabeling
- Education built upon the "Reliable Design" process, including mapping the process, identifying barriers, and implementing change measures
- A business plan for patient safety related to phlebotomy specimen mislabeling
- Exploring human factors as a variable affecting laboratory specimen labeling processes
- Continuing nursing educational hours for attendance at Authority-sponsored educational events
- Aggregate and facility-specific baseline data (e.g., number of wasted specimens, number of patient redraws, number of deleted orders)
- A bibliography of medical literature related to laboratory specimen errors
- Ongoing Authority guidance, technical assistance, tools, and educational support
- Follow-up data collection and comparison reports to measure progress

Conclusion

As recognition has grown that errors are caused by failures in systems, interdisciplinary collaboration has become necessary to redesign complex systems of care. The collective goal of this collaborative is to identify steps and system redesigns to reduce and eventually eliminate opportunities for phlebotomy specimen mislabeling. Identified best practices will be shared in future updates in the *Pennsylvania Patient Safety Advisory*. As the Authority's PSLs further engage facilities in their regions, there will be more opportunities for similar collaboratives. Joint collaboratives are just one way that the Authority continues its work to improve patient safety in Pennsylvania healthcare facilities.

Notes

1. Color-coded patient wristbands create unnecessary risk. PA PSRS Patient Saf Advis [online] 2005 Dec 2 [cited 2009 Jul 29]. Available from Internet: http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2005/dec14_2(suppl2)/Pages/dec14;2(suppl2).aspx.
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