Solution: A Powerful Interface (Whose Blood is This Anyway?)

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IDENTIFICATION:
An emergency department in a large, urban teaching hospital had a history of ongoing significant specimen labeling errors (unlabeled and mislabeled specimens). The specimen labeling procedure involved creating requisitions and labels by hand, and required bedside labeling of specimens. Despite diligent oversight the error rate was unsatisfactorily high (0.41%).

Baseline data included:
- Weekly Lab reports from Pathology Data collection systems identified rates of cancellations of tests due to unlabeled and mislabeled specimens and requisitions for tests.
- Reports also provided error rates of other departments in the institution.

PROCESS:
- Retrospective data review
- Qualitative survey of collector attitude
- Review of data collection – National and Hospital Standards vary
- Review of procedure for specimen collection
- Identify barriers- standard of education, lack of space for collection and labeling, questionable responsibility (lab techs vs. staff collectors), missed disposal of labels from chart folders
- Review of lab staff performance / lab environment
- Education and re-education of collector staff
- Visual reminders
- Investigate individual events – time, person, department area of treatment, environment activity – seeking evidence of trends or patterns
- Disciplinary actions for repeated errors
- Investigation of practice in other JHH units – differences of practice; dedicated phlebotomist Investigation of practice in other institutions
- Continued encouragement from Leadership for vigilance and accuracy

SOLUTION:
The first intervention was implementation of a comprehensive emergency department electronic documentation and information system, including physician order entry; the second was introduction of bar coded patient wrist bands and bar coded specimen labels, along with an interfaced bedside, barcode-driven specimen and patient verification system. Retrospective data evaluation included the total number of specimens collected pre and post-intervention, the total
number of specimens cancelled due to labeling errors, the percentage of errors and reasons for cancellation.

Outcomes:
We describe a four and one-half year observational study (May 2005- January 2009) with a two component intervention implemented on April 29, 2008. Results: 532,151 specimens were collected pre-intervention with 2182 errors (0.41%) and 136,711 specimens were collected post-intervention with 158 errors (0.12%). a nearly 4 fold reduction in errors as a result of the intervention. Analysis of the remaining errors reveals that the majority occur when this new process cannot be used, such as specimens for the blood bank or surgical pathology.

Sustaining measures:
- Ongoing work flow meetings
- IT meetings for software and access point, interfacing; Hospital IT and Pathology IT
- Hardware meetings – upgrades of scanning equipment
- Testing
- Financial considerations
- Facilities – electric and data installations
- Maintenance and Troubleshooting planning (hardware and software)
- Education construction, staff instruction and support
- Project Maintenance