three numbers can save a life:
the carolinas specimen mis-labeling collaborative

January 5, 2012
Summary

The Initial Proposal to Palmetto Health and the SC Hospital Association

In March of 2011, Outcome Engenuity made the following offer to Palmetto Health:

“With little system redesign (procedural aspects only), a focus on the right behaviors, and the right notions of justice, we believe you can take your rate from 14 mislabeled specimens per month to 1 mislabeled specimen per month. We think this change would be evident from within 30 days of our visit, although we would propose 90 days as the timeframe for evaluation.

Outcome Engenuity would need to bring two consultants on-site for a period of 4 to 5 days. Those consultants would build what is called a “socio-technical probabilistic risk assessment.” The team would require the active participation of a small (4 person) team representative of those individuals who are central to the specimen labeling process (e.g., 2 nurses, 2 laboratory technicians). We would actually be helping them build the model. It would take each of them 6 hours a day, for 4 days. Through this assessment, we would generate very short term strategies (procedural and behavioral) to immediately and dramatically reduce the risk of mislabeling.”

The offer to Palmetto Health was contingent upon a few items:

1) That they could reasonably accurately count the current rate of mislabeled specimens

2) That they would commit the resources of four individuals to help build the model during the week

3) That they would be willing to immediately share the report (how to get to 1 per month) with all staff who are directly involved in specimen mislabeling

4) That they would be willing to share the 90-day results (good and bad) with the SC Hospital Association and the Agency for Healthcare Research and Quality (i.e., make the results public)
Palmetto Health accepted the provisions, and the risk modeling began. Throughout the week on-site, the team collectively built what Outcome Engenuity refers to as a "socio-technical probabilistic risk assessment." This risk model was not built on event investigative records, but instead represented a quantitative assessment of how a potential mislabeling event could occur. The model predicts a series of "cut sets" that describe unique causal paths to one discrete event. Combined in a "fault tree model", it provided the team the ability to model the interconnection of human errors and at-risk behavioral choices that could eventually lead to a mislabeled specimen.

The model being built, the team at Palmetto went on to identify strategies that would maximize patient safety while at the same time minimize any burdens that those strategies would create for nurse and lab technicians. The core design objective was to realize the 90+% reduction in mislabeled specimens, while valuing the autonomy that nurses and lab technicians need to get the job done in a complex and ever changing environment.

Key elements of these strategies were put into the risk model so that an anticipated risk reduction could be predicted. The model projected a 98% reduction in the rate of events through proper implementation of the Final Check.

### Scenario Normalized Percent Reduction

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Normalized Per Year</th>
<th>Percent Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>167</td>
<td>N/A</td>
</tr>
<tr>
<td>Eliminate Medical Record and Account Number Checks</td>
<td>169</td>
<td>N/A</td>
</tr>
<tr>
<td>Add Final Check on All Labeling</td>
<td>3.9</td>
<td>98%</td>
</tr>
<tr>
<td>Eliminate At-Risk Behavior on Name and DOB checks</td>
<td>2.3</td>
<td>99%</td>
</tr>
</tbody>
</table>

**The Interventions at Palmetto Health**

*Add the Final Check*

The key intervention at Palmetto Health, and the one we see as broadly applicable across hospitals, is the implementation of a post-labeling, verbal confirmation of the last three digits of the medical record number, as read from the each specimen label and the patient’s arm band. This check, as
simple as it is, is the single reason for the 98% reduction in mislabeled specimens.

**Hold employees accountable for the Final Check following the tenets of a Just Culture**

The Final Check is to be implemented in a Just Culture environment, meaning that nurse and technicians are accountable for choosing the behavior each and every time they label a specimen, while knowing that they will sometimes make mistakes or even forget the check.

**Reverse course on the Red Rule**

Palmetto Health had made specimen labeling a “red rule” which created a significant punitive deterrent for staff who did not follow the specimen labeling protocol. In practice, however, the red rule did not hold staff accountable for following the procedure, but instead waited for a mis-labeled specimen, and then in response to a mis-labeled specimen, inferred non-compliance with the red rule and took disciplinary action. In effect, the red rule held staff accountable for an incorrectly labeled specimen, and not for failure to comply with the specimen labeling procedure.

**Eliminate the pre-labeling Medical Record and Account Number Checks (keep name/DOB Check)**

Palmetto Health’s specimen labeling policy required confirmation of four discrete items on the label and arm band: 1) Name, 2) DoB, 3) Account Number, and 4) Medical Record Number, prior to affixing the label onto the specimen. In an effort to minimize non-value-added steps, Palmetto eliminated the re-labeling check of account and medical record numbers, two 10 digit number confirmations that had a very low level of compliance to start.

**Require employees to “raise your hand” and report when mistakes are caught during the final check**

The Final Check afforded staff to catch the specimen labeling error at bedside, rather than being caught upon discovery in the lab. When caught at bedside, the nurse or technician would have a duty to report and to participate in an investigation of the problem.

**The 90 Day Collaborative**

The South Carolina Hospital Association and North Carolina Center for Hospital Quality and Patient Safety, in conjunction with Outcome Engenuity, wish to invite a group of hospitals (target 10) to participate in a 90-day collaborative to implement within their organizations the “Final Check” and its associated risk reduction components. Hospitals who participate are expected to be within their “Just Culture” journey, thus being open to the accountability measures associated with the “Final Check.” It is anticipated that hospitals within a normal industry range or mislabeled specimens will demonstrate a 90+ percent reduction in mislabeled specimens. The tentative timeline for the project is as follows:
Initial Face to Face Meeting of Collaborative Group – January 20, SCHA
Implementation work complete within hospitals – February 20
Data collection period – February 20 – April 17
Final webinar / report out – April 18

Outcome Engenuity is committed to assisting each hospital with the interpretation of the Palmetto risk model, and with tailoring of the intervention to the unique perceived needs of each hospital. That said, this collaborative is about the universality of central themes – about system design, the management of behavioral choices, and about justice and accountability.

The South Carolina Hospital Association and the North Carolina Center for Hospital Quality and Patient Safety will coordinate the selection of hospitals for this collaborative.

[Special thanks must go to Shelly Rorie, system director, patient safety & risk management and her team at Palmetto Health. Without their work, this collaborate would not be possible. Thank you Palmetto Health.]