Patient Handoffs and Safety—Before and After

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Background

- Patient transfers have increased significantly over last 5 years
- Resident efficiency has decreased

Background

- Joint Commission of Accreditation of Health Organizations
  - Communication is vulnerable to error during times of patient hand-offs
  - 60% of sentinel events caused by failures in communication
  - Leads to uncertainty in decisions
  - May result in inefficient/suboptimal care
  - Lead to patient harm

Background

- Studies have shown:
  - No standardized sign-out process
  - Sign-out practices vary widely amongst different institutions
  - No formal training in "sign-out" skills
  - Residents may be duplicating work and spending large amount of time on patient care transitions

Background

- Joint Commission of Accreditation of Healthcare Organizations released 2009 National Patient Safety Goals
  - Requires a standardized approach to "hand-off" communications

Background

- Studies show standardized sign-out procedures reduce communication errors
- Systems of transfer and communication have been showed to reduce information loss
Background

- Research done in development of computerized systems to aid in the sign-out process
- Computerized systems improved continuity of care
  - Decreased patients missed on rounds
  - Increased portion of pre-rounding time spent at bedside
  - Improved resident reported quality of sign-out
  - Improved resident efficiency

Background

- Errors at patient handoff can contribute to discontinuity of care and adverse events
- Computerized systems reduce these
- Proposed standards recommend a computer-assisted vehicle for patient information transfer
  - Ensures accurate and up-to-date information

Background

- Infoclique sign out lacking in many areas
  - Communication
  - Accuracy
  - Efficiency
- Changed Infoclique to current sign-out system

Concerns remain regarding

- Patient safety
- Increased sign-outs due to changes to schedule to comply with 405 regulations

Background

- The ACGME regulations are as follows:
  - Maximum hours per week = 80 hours averaged over 4 weeks
  - Maximum shift length = 24 hours + 6 for transitional activities
  - Minimum time off between shifts = 10 hours
  - Mandatory time off duty = 24 hours off per week averaged over 4 weeks
  - Emergency room limits = 12 hours shift limit

During the study period Nov 17, 2008 to Mar 8, 2009, we observed 141 work hour violations over 1,645 assessable shifts (8.6%).
- These violations were committed by 39 of the 49 residents under study (79.6%).
- Number of violations per specific ACGME work hour regulation:

<table>
<thead>
<tr>
<th>Violation</th>
<th>Count</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>&gt; 27 hours / shift</td>
<td>85</td>
<td>(60.3%)</td>
</tr>
<tr>
<td>&gt; 12 hours / ED shift</td>
<td>44</td>
<td>(31.2%)</td>
</tr>
<tr>
<td>&lt; 10 hours off between service obligations</td>
<td>12</td>
<td>(8.5%)</td>
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<tr>
<td>&gt; 80 hours / week averaged over 4 weeks</td>
<td>0</td>
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<tr>
<td>&lt; 1 day off in 7 days averaged over 4 weeks</td>
<td>0</td>
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<tr>
<td>Total Violations</td>
<td>141</td>
<td></td>
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Quality Improvement Award

- UB Graduate Medical Dental Education Program offers a Quality Improvement Award
  - Encourages intellectual curiosity and promotes excellent patient care
  - Targets resident/faculty team projects designed to improve patient safety
- 2009–2010 year, priority was given to projects focusing on handoffs and patient safety

Objectives

- Identify strengths and weaknesses in current sign–out system
- Implement a computerized sign–out system and educational patient hand–off workshops
- Improve resident efficiency
- Assess improvements in resident satisfaction and patient safety after implementation of the above systems

Problems

Problem: Resident work–hours violations identified in our pediatric training program

Intervention: Implementation of new schedule

Problem: Increased number of patient care transitions
  - Signout now even more critical

Intervention: Implementation of a systematic computer web based patient sign out system.

Prospective Plan–Proposed Strategy

- 2 main areas that impact quality of resident sign–out
  - Pre–rounding
  - Verbal and written sign–out
- Evaluate resident’s views on current sign–out system
  - Surveys

Survey Results

<table>
<thead>
<tr>
<th></th>
<th>1 (most)</th>
<th>2</th>
<th>3</th>
<th>4 (least)</th>
<th>NR</th>
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<tbody>
<tr>
<td>Effectiveness of signout</td>
<td>27%</td>
<td>52%</td>
<td>17%</td>
<td>4%</td>
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<tr>
<td>Quality of signout</td>
<td>13%</td>
<td>58%</td>
<td>29%</td>
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<tr>
<td>Usefulness of printed sheets</td>
<td>50%</td>
<td>40%</td>
<td>6%</td>
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<td>2%</td>
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<tr>
<td>Usefulness of handwritten sheets</td>
<td>13%</td>
<td>15%</td>
<td>31%</td>
<td>10%</td>
<td>4%</td>
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<tr>
<td>Unanticipated adverse events</td>
<td>10%</td>
<td>20%</td>
<td>21%</td>
<td></td>
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<tr>
<td>Events that res. not prepared for during signout</td>
<td>6%</td>
<td>13%</td>
<td>50%</td>
<td>31%</td>
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<tr>
<td>Relaying of pertinent labs during signout</td>
<td>8%</td>
<td>56%</td>
<td>33%</td>
<td>2%</td>
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<td>Relaying of current meds during signout</td>
<td>10%</td>
<td>50%</td>
<td>33%</td>
<td>4%</td>
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<tr>
<td>Relaying of imaging/diagnostic tests</td>
<td>17%</td>
<td>56%</td>
<td>21%</td>
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<td>Relaying of current medical problem</td>
<td>52%</td>
<td>40%</td>
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<td>Discussion of contingency plan</td>
<td>17%</td>
<td>52%</td>
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<td>Documentation of overnight events</td>
<td>21%</td>
<td>54%</td>
<td>15%</td>
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<td>Feelings about signout duration</td>
<td>6%</td>
<td>21%</td>
<td>71%</td>
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<td>Importance of edu. session on signout</td>
<td>27%</td>
<td>23%</td>
<td>29%</td>
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Survey Results

- Residents have identified what they consider the most important area of sign–out
  - Anticipated problems and plan of action
  - Few patients currently have information in their sign–out
Prospective Plan—Planned Intervention

- Computer System
  - WardManager
- Laptop Computers for each team
- Workshops
  - Signouts
  - Documentation

Prospective Plan

- Post-survey assessment of project
  - Resident satisfaction
  - Reductions in 405 violations
  - Resident efficiency
  - Identify new areas of improvement
  - Perceived changes in patient safety

Expected Results

- It is expected that
  - Residents will be more efficient with signout
  - Errors in sign-out and patient hand-offs will be reduced
  - Pre-rounding will become more efficient
  - Pertinent problems will be less likely to be overlooked
  - Contingency plans will be discussed

Future Work

- Evaluation of reductions in medical errors after implementing this computerized sign out system.
- Evaluation of improvements in sign out accuracy and efficiency after training workshops
- Identifying how best to teach and evaluate a resident’s ability to sign out effectively

References

**Questions?**

**Purple Team Sign-Out  6/19/09  08:16**

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<th>Name</th>
<th>Medical Record Number</th>
<th>DOA</th>
<th>DOB</th>
<th>Wt</th>
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*Call GI if emesis >3 times in one hour*