Improving Patient Plan of Care Communication During Team Transitions

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Abstract

**Background:** Patient transitions of care, also known as handoffs, have increased in frequency due to duty hour restrictions. Increased handoffs can lead to miscommunications that lead to adverse events in patient care.

**Objective:** To improve handoff communication by increasing specific to-do comments by 20% on the pediatric inpatient handoff list

**Design:** Observational study.

**Setting:** Palmetto Health/University of South Carolina Pediatric Residency at Palmetto Health Children’s Hospital in Columbia, South Carolina.

**Participants:** PH/USC pediatric residents

**Intervention:** All pediatric residents at Palmetto Health attended a presentation regarding handoff communication. They received specific examples of vague and specific to-do comments regarding patient care. They were then instructed to have more specific to-do comments on the patient handoff list, when possible.

**Measurements:** From January 13 - February 7, 2014 handoff lists were collected prior to the intervention. From April 7 - May 2, 2014 lists were collected post intervention. The amount of vague and specific to-do comments were then analyzed and compared.

**Results:** The average number of vague to do statements in the pre-intervention group was 11/list and decreased to 5/list in the post intervention group. The number of specific to-do comments increased from 8/list in the pre-intervention group to 13/list in the post intervention group. The pre-intervention group had 56% vague statements and 44% specific statements compared to the post intervention group that had 29% vague and 71% specific statements.

**Limitations:** It is difficult to determine how much the improved if-then statements impacted patient care. There is also interpreter bias in determining what is considered vague or specific statements, which can lead to errors in data interpretation.

**Conclusions:** There was an increase in number of specific to do comments in the post intervention group compared to the pre-intervention group. Giving a presentation about effective patient communication may be a simple way to improve communication during patient handoffs.
Background
New duty hour standards have increased the frequency of transitions in care, also known as patient handoffs. Miscommunications are a leading cause of adverse events in hospitals, so optimizing the handoff process is essential for patient safety. Communication errors are a contributing cause of approximately two-thirds of sentinel events, over half of which involve handoff failures. Medical errors cause up to 98,000 preventable deaths annually in the United States. New systems that provide a more protected handoff environment, reduce house staff fatigue, and standardize the handoff procedure may be useful.

At Palmetto Health Children’s Hospital in Columbia, South Carolina, the Palmetto Health/University of South Carolina pediatric residents are responsible for thousands of pediatric admissions yearly. There is a morning and evening patient handoff performed by residents that is both verbal and written. Handoffs include the entire inpatient resident team, including both the night float residents as well as the daytime residents. The written handoff list consists of a word document that is updated by the residents. This list is located on only one computer, which leads to increased errors on the list occurring as people quickly try to update it near the handoff time. Having two patient handoffs each day leads to increased chance of miscommunication occurring. Additionally, only one resident who was present during the day is on call at night, so there is less continuity overnight with patient communication. This leads to a lack of knowledge of what to do if unexpected events occur, as well as lack of knowledge of what the plan was for foreseen circumstances. With duty hour restrictions, many residency programs across the country have a similar set up regarding their call and overnight team. Many may be experiencing similar difficulties with communication.

Objective
With this study, the intention was to increase specific if-then statements to improve continuity of care between daytime and nighttime resident teams. This was decided based on the observation that the overnight team often does not have clear instructions on next steps to take when events occur overnight, which can negatively impact patient care. It is important to address the issue of team communication, as more handoffs are being required due to duty hours.

Methods
The study occurred at Palmetto Health/University of South Carolina Pediatric Residency at Palmetto Health Children’s Hospital in Columbia, South Carolina. It involved the pediatric residents at all three PGY years. This group of people was chosen because it is the residents who determine what is listed on the handoff list and the quality of the if-then statements. The intervention involved a presentation to the residents about improving patient handoff communication. Since all residents are involved in inpatient care, regardless if they are on the inpatient rotation or are cross covering, the decision was made to give a presentation during noon conference when the maximum number of residents would be available. The
presentation included information on how to best give verbal handoffs using the IPASS mnemonic (figure 1). It also included examples of vague and specific if-then statements (figure 2).

**Figure 1.**

Elements of the I-PASS mnemonic.

<table>
<thead>
<tr>
<th>I</th>
<th>Illness Severity</th>
<th>Stable, “watcher,” unstable</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Patient Summary</td>
<td>Summary statement, Events leading up to admission, Hospital course, Ongoing assessment, Plan</td>
</tr>
<tr>
<td>A</td>
<td>Action List</td>
<td>To do list, Time line and ownership</td>
</tr>
<tr>
<td>S</td>
<td>Situation Awareness and Contingency Planning</td>
<td>Know what’s going on, Plan for what might happen</td>
</tr>
<tr>
<td>S</td>
<td>Synthesis by Receiver</td>
<td>Receiver summarizes what was heard, Ask questions, Restates key action/to do items</td>
</tr>
</tbody>
</table>


**Figure 2.**

Specific Examples of Current and Better If/Then Statements

- “Watch pt closely”
  - Better: “check resp status at 10pm and if increased oxygen demands >2L start albuterol”
- “Follow up labs”
  - Better: “follow up CBC; if hgb <7 transfuse, if WBC >20,000 start rocephin” etc
- “If acutely worsens or febrile, consider adding abx”
  - Better: “if fever >102 or worsening respiratory distress, add vanc”
The residents were then instructed to attempt to improve the if-then statements on the written handoff list. The written handoff lists were collected for one month prior to the intervention to collect data on baseline qualities of the written handoff list, and then collected for one month after the presentation was given. Items specifically reviewed were:

- how often patient data information was undocumented such as weight and primary care doctor
- missing diagnoses
- missing medications
- missing access such as PIV, port, or nasogastric tube, etc
- missing diet information
- missing oxygenation requirements.

It was also reviewed how many vague if then statements were present compared to specific statements. Example of vague if then statements include “check I/Os”, “if fever, culture”, and “follow up admit labs”. Examples of specific statements include “if fever, obtain blood culture and switch antibiotic to vanc”, “if CRP is >50 start rocephin”, and “if oxygen sats <88% obtain CXR and turn patient on right side.” The pre-intervention data was collected during one inpatient rotation with different residents than the post data.

For both the pre-intervention and post-intervention months, the senior resident collected all patient handoff lists from both morning and evening handoffs from Sunday evenings to Friday mornings of the four-week rotation. This was done so that it was the same population of residents contributing to the handoffs, as over the weekend there is more cross coverage by off service residents. It was expected that the presentation would increase the amount of specific if-then statements by twenty percent. Four weeks of handoff lists were collected to see if the intervention was effective. It was an observational study.

Subjective measures were used to look at if-then statements on the handoff list. The number of vague and specific statements was counted for each handoff list in the morning and the evening. The lists for the month prior to the intervention were then compared to the lists for the month after the intervention. Statements were excluded if they were handwritten on the patient list but not on the typed list, or if they were not instructions on things to follow up on. Examples of this include “sitter at bedside”, “Spanish speaking” or “GI to see in am.”

**Results**

Patient handoff lists were analyzed from January 13- February 7, 2014 (pre intervention) and from April 7- May 2, 2014 (post intervention). There was an average of 32 patients/handoff in the pre intervention group, compared to 23 patients/handoff in the post intervention group. Handoff time in the pre intervention group lasted 20 minutes on average compared to 16 minutes in the post intervention group. The average amount of time spent discussing each patient
was 0.625 minutes/patient in the pre group and 1.15 minutes/patient in the post intervention group. There was no difference in missing patient data, missing diagnoses listed, missing access/diet/oxygen requirements between the two groups. The average number of vague to do statements in the pre-intervention group was 11/list and decreased to 5/list in the post intervention group. The number of specific to do comments increased from 8/list in the pre-intervention group to 13/list in the post intervention group. The pre-intervention group had 56% vague statements and 44% specific statements compared to the post intervention group that had 29% vague and 71% specific statements.

**Comment Specificity per List - Before**

![Chart showing comment specificity before intervention.](chart)

**Comment Specificity per List - After**

![Chart showing comment specificity after intervention.](chart)

**Discussion**

There was an twenty-nine percent increase in the number of specific if-then comments per list after the intervention of giving a lecture on improving patient handoff communication. While it is difficult to determine how much this improved patient care, it is well studied that better communication leads to better patient care and less medical errors. The strength of this intervention was that it was a relatively simple intervention of giving a lecture. A limitation of this study is that it
is difficult to determine how much the improved if-then statements actually improved patient care. There is also interpreter bias in determining what is considered vague or specific statements, which can lead to errors in data interpretation. Additionally, it was two different groups of residents who were compared in the study. It may have been more beneficial to make the intervention half way through the rotation so that statements from the same group of residents could be compared. There is a good likelihood that the number of specific statements will decrease over time after being given the presentation, and it would be beneficial to continue to monitor handoffs to determine how quality changes over time. This has yet to be planned.

Conclusions
There was an increase in number of specific to do comments in the post intervention group compared to the pre-intervention group. Giving a presentation about effective patient communication may be a simple way to improve communication during patient handoffs. It still needs to be studied how long that improvement can persist, but overall patient care can improve when all those involved in the care of the patient work to improve the communication.

References