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Context

- Resident duty hour regulations mandate transfers of patient care from one team to the next, thus hand-offs are key to patient safety
- The Institute of Medicine recommends training in transitions of patient care
- Prior to autumn, 2009, Pediatric intern hand-off at Stanford occurred unsupervised, and supervisors did not routinely review data passed on
- With an understanding that interns frequently fail to sign-out accurately and yet overestimate the effectiveness of this communication^a, a new model was proposed:
 - A Whole Team Sign-Out was implemented to increase supervision : interns performed a systems-based sign-out while supervisors observed using a checklist
- The residents felt that this Whole Team approach took longer and in some cases, caused duty hour violations:
 - "[Whole Team Sign-Out] takes much longer and ...people are frustrated by sitting around waiting to sign out at the end of the day." Senior Resident
 - "I violated work hours for the first time ... and I am sure that is due to the extended time we had to stay [for Whole Team Sign-Out]." Intern

Objectives

- To provide structure in resident hand-offs
- To assess the accuracy of resident hand-offs
- To increase resident awareness of the importance of hand-offs
- To enhance communication between care teams and among care teams
- To adhere to duty hours regulations

Intervention

- Intern and supervisor hand-offs were again separated into intern-to-intern and supervisor-to-supervisor sign-out
- The Re-CAP structure (see Figure 1) was introduced to assist with the hand-off
- The supervisors taking over the night-shift were asked to use the Re-CAP structure to review the key pieces of the hand-off with the interns for accuracy
- Supervisors were asked to document the concordance of the separate sign-outs
- Surveys were used to assess the value of the hand-offs from the perspective of both night-time and day-time supervisors

Figure 1:
Re-CAP Hand-off Structure

- Re = Reconciliation/Repeat back**
 - Reconciliation = review each patient and the major problems relevant to overnight.
 - Repeat back = review the to-do list and/or anticipated problems with the actions planned in response after all Re-CAP steps are completed; i.e. closed loop communication
- C = Call me for**
 - A review of what the supervisor would like to know about immediately
- A = Anticipated course**
 - A review of the anticipated events for the patient and actions planned in response
- P = Plans for the next day**
 - A review of key details such as planned procedures, tests, or discharges

Survey of Night-Team Residents

Immediately after Re-CAP, answer YES or NO

- We agreed on which patients were sickest after Re-CAP
 - We agreed on anticipated course of each patient after Re-CAP
 - We agreed on the plans of action for each patient during Re-CAP
- ### In the morning, prior to sign-out, answer YES or NO
- The sign-out from the day-team provided appropriate plans of action for each patient
 - The sign-out from the day-team properly identified the children who were sickest overnight.

Survey of Day-Team Residents

After rounds, answer YES or NO

- The actions of the night-team were appropriate.
- The night-team did not miss any of the to-do's we signed out yesterday
- The night-team told us about all overnight events

References:

- Chang et al., "Interns Overestimate the Effectiveness of Their Hand-Off Communication," *Pediatrics* 2010; 125:491-496.
- Vidarthi et al., "Managing discontinuity in academic medical centers: strategies for a safe and effective resident sign-out," *Society of Hospital Medicine*, 2006; 1(4) 257-266.

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Results

- 21 surveys were collected between November 2009 and March 2010
 - 11 night-team surveys and 10 day-team surveys
- During the first weeks of Re-CAP, 3 resident surveys documented gaps in communication:
 - One supervisor disagreed with the intern's understanding of anticipated course
 - One key overnight detail was not signed-out to the day-team
 - One planned procedure was not signed-out to the night-team, resulting in confusion for the team and the patient
- Over time, communication seemed to improve:
 - 18 surveys documented adequate hand-offs with clear communication
- Residents felt Re-CAP was more efficient than the Whole Team Sign-Out, but still time-consuming:
 - "I think it was faster this way [separate sign-out with Re-CAP]. ...I found that even if one of us had gaps in information, it was not a problem as long as we communicated well." Senior Resident
 - 2 of the 11 night-team surveys noted minimal time to Re-CAP with interns on busy nights
 - "Re-CAP is not realistic on [busy] nights. I tell my interns indications to call me (any doubt/concern)." Senior Resident

Conclusions and Implications

- The Re-CAP model can provide structure to hand-offs
- A structured hand-off and longitudinal evaluation of its efficacy increase awareness of the importance of hand-offs
 - Increased awareness may improve communication even if residents do not use Re-CAP due to a perceived lack of time
- The Re-CAP model allows for separate intern and supervisor sign-out by offering a structure for review of information
 - This model can improve duty hour adherence
- Training medical students and new interns to use a structured format can increase accuracy of information conveyed