Handovers of Patient Care: What Will It Take to Ensure Safe Outcomes?

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Session Objectives

- Determine the optimal methods for exploring transitions/handovers of care
- Describe international trends and research findings in transitions of patient care
- Review Educational assessment methods
- Discuss barriers, enablers, and successful interventions for local implementation
Picture of Julie
Picture of Rich
Introductions

- Who is in the room?
  - How many nurses?
  - How many physicians?
  - How many from an academic health center?
  - How many of you conduct handovers?

- What are your expectations for today’s session?
Taxonomy of Hospital Handoffs

Extra-hospital handoffs
- **Discharge**
  - Home or rehab
- **Admission**
  - EMS-ED or ED to floor
- **Inter-hospital transfer**

Intra-hospital handoffs
- **Service transfer**
  - Escalation or de-escalation of care (in and out of ICU)
  - Different specialty (med-surgery, OR to PACU)
- **Shift change**
  - Is the sender returning? (night float with cross-cover)
- **Service change**
Timing Is Everything for Sprint-Relay Success

By Sean P. Flynn
Special to The Washington Post

Friday, April 15, 2005; Page D16
Hand-offs and Patient Safety

- Shift changes (handoffs, sign-outs) represent transitions that can impact the quality of patient care and patient safety.
  - Some estimates put the percentage of adverse events related to shift changes as high as 80%!
- The literature in this area has been dominated by the nursing profession.
- Wide variation across institutions, professional roles, shifts, and individuals.
- No studies to date have tried to reduce unwanted variation.
Role of Hand-off in Patient Care

- Part of the “clinical microsystem” life cycle
  - Intern perspective: No big deal, “just part of the work”
  - Nurse perspective: “We are the constant presence at the bedside”
Handoffs in Medicine and Nursing

- Because of the nature of the work, the limited time spent on each service and local variation, most trainees simply “show up” on service begin their rotations without any formal training or practice.

- The result is that they quickly adopt whatever form of handoff is accepted on that service whether it is safe and effective.

- Perfect example of the operation of the informal or hidden curriculum in medicine and nursing.
Global Calls to Improve Handoffs

The Joint Commission, 2006

- National Patient Safety Goal: a standardized approach to hand-off communications and provide an opportunity for staff to ask and respond to questions about a patient's care

World Health Organization, 2006
Communication in Healthcare

- Failures in communication are the most common root cause of sentinel events reported to JCAHO.

Global Calls to Improve Handoffs

Institute of Medicine 2008

- Teaching programs “should train resident in how to hand over their patients using effective communications”

Australian Commission on Quality and Safety in Health Care, 2008
2010 ACGME Resident Duty Hours

- July 2003 – ACGME resident duty hours
  - Reduce sleep deprivation
  - Improve patient safety
  - BUT increase in number of hand-offs

- June 2010- Focus on Handoff Education
  - Programs must ensure
    - Residents are ‘competent’ in handoff communication
    - Monitoring of Handoffs so they are structured, effective and safe
      - 16 hours for interns
      - 24+4 hours (transitions)-residents
Lack of National Standards for Patient Handoffs

- Only 8% of medical schools teach how to hand off patients in a formal didactic session. (National survey of 125 medical schools)
- The vast majority (86%) of medical students are taught by interns or residents who were likely taught by their interns or residents and so on.
- Exemplifies the “hidden” or informal curriculum in medicine where a task is learned by observing those in charge...

(Solet et al, 2005, Horwitz, 200)
Learning Organization, Senge

- Mental models
- Building shared vision/Engagement
- Systems thinking/Process and human factors
- Personal mastery/Competencies and reflection
- Teams/relationships
Mental Models

- Our personal image of the world
  - None are perfectly accurate
  - Differences in mental models explain how two people can understand the same event differently
  - Are generally invisible to us – until we look for them
The Ladder of Inference

I take Actions based on my beliefs

I adopt Beliefs about the world

I draw Conclusions

I make Assumptions based on the meanings I added

I select "Data" from what I observe

Observable "data" and experiences (as a videotape recorder might capture it)

The Reflexive Loop (our beliefs affect what data we select next time)
How Can We Surface Our Mental Models?

- Working with mental models requires surfacing, testing, and improving our internal pictures of how the world works.

- 3 skills can be helpful:
  - Reflection – Use a disciplined, reflective learning approach – for example, a Plan-Do-Study-Act (PDSA) cycle – to understand your own mental models and the implications.
  - Inquiry – learning the questions you can ask to help you test others’ mental model.
  - Advocacy – making your thinking and reasoning more visible to others.
Understanding Handoffs as a Form of Communication

“who says what to whom in what channel with what effect”

Harold Dwight Lasswell
"When you move from right to left, you lose richness, such as physical proximity and the conscious and subconscious clues. You also lose the ability to communicate through techniques other than words such as gestures and facial expressions. The ability to change vocal inflection and timing to emphasize what you mean is also lost...Finally, the ability to answer questions in real time, are important because questions provide insight into how well the information is being understood by the listener."

–Alistair Cockburn
Unfortunately, animals sometimes lack the necessary skills to communicate with each other.
Psychology of Miscommunication

- Speakers systematically overestimate how well their messages are understood by listeners.

- *Egocentric heuristic*: Senders assume that receiver has all the same knowledge that they do.
  - Worsens better you know someone.

Applications of Standard Language

“Read-back”
- Reduces errors in lab reporting

<table>
<thead>
<tr>
<th>Description of Error</th>
<th>No. (%) of Occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incorrect name of patient</td>
<td>10 (34)</td>
</tr>
<tr>
<td>Incorrect test result</td>
<td>9 (31)</td>
</tr>
<tr>
<td>Incorrect specimen/test repeated</td>
<td>6 (21)</td>
</tr>
<tr>
<td>Recipient refused to repeat message</td>
<td>4 (14)</td>
</tr>
<tr>
<td>All</td>
<td>29 (100)</td>
</tr>
</tbody>
</table>

“Read-backs” at your neighborhood Drive-Thru

29 errors detected during requested read-back of 822 lab results at Northwestern Memorial Hospital. All errors detected and corrected.

A Word of Caution on Technology

- IT solutions alone cannot substitute for a “successful communication act”
  - Human vigilance still required

In an emergency room, replacing a phone call for critical lab values with electronic reporting with no verbal communication resulted in 45% (1443/3228) of urgent labs to go unchecked.

Another Technology Caution: CoPaGA Syndrome

- CoPaGA = Copy Paste Gone Amok

- Repeated highlighting, copying and pasting text from past EHR notes into current notes;

- The physician attains several goals:
  1. avoiding time-consuming work of talking to patient
  2. building a documentation trail that portrays faux work
  3. crowd-out of useful information by gluts of useless data
  4. zombie-like propagation of inaccuracies that persist

74% of IM residents saw cut/paste problems in signout—(unpublished)
Swiss Cheese Model

Goal Conflicts and Double Binds

Incomplete Procedures  Mixed Messages  Inadequate Training  Deferred Maintenance

Triggers

The World

Institution  Organization  Profession  Team  Individual  Technical

Defenses

Production Pressures  Responsibility Shifting  Attention Distractions  Clumsy Technology

The World

Accident

Modified from Reason, 1991 © 1991, James Reason
Model of “Big 5” Teamwork

Baker, Salas, King, Battles, Barach, 2006
Hand-offs in Other High-Risk Industries

- Direct observations of hand-offs at NASA, 2 Canadian nuclear power plants, a railroad dispatch center, and an ambulance dispatch center

- STRATEGIES
  - Standardize - use same order or template
  - Update information
  - Limit interruptions
  - Face to face verbal update
    - with interactive questioning
  - Structure
    - Read-back to ensure accuracy

Patterson, Roth, Woods, et al. Intl J Quality Health Care, 2004
Patient Handoff Video Vignettes

- Create a checklist for observations:
  - Please record cultural, communication, and environmental barriers that interfere with a successful patient hand-off in the video vignette
## What Do You Look For?

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Observations/ Thoughts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cultural</strong> (e.g., not prioritizing hand-offs, following proper procedures, unprofessional behavior, etc.)</td>
<td></td>
</tr>
<tr>
<td><strong>Communication</strong> (e.g., vague terms, incomplete information, lack of verification, etc.)</td>
<td></td>
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<tr>
<td><strong>Environmental</strong> (e.g., distractions and obstacles interfering with completing proper hand-off procedure)</td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
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</table>

### Facilitators

<table>
<thead>
<tr>
<th>Facilitators</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>What went well?</td>
<td></td>
</tr>
</tbody>
</table>
Review of Handoff Videos

Video #1 U of C
Video #2 Indiana
Debriefing from the video vignettes

- What did you observe?
- Barriers/Enablers?
  - Environment
  - Cultural
  - Communication
  - Any others?
Handoff Studies
Understanding Hand-offs as a Process

“The first step is to draw a flow diagram. Then everyone understands what his job is. If people do not see the process, they cannot improve it.”

- W.E. Deming, 1993
Building a Standard Handoff Protocol 2006

- Principles
  - Protocol will be discipline specific
  - Standardization is key for both process and content

- “Handoff Clinic” for various residency programs
  - PROCESS
    - Create a process map
  - CONTENT
    - Create a standard check-list
  - IMPLEMENTATION
    - Resident buy-in
  - MONITORING
    - Identify and resolve barriers

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National Patient Safety Goals

A Model for Building a Standardized Hand-off Protocol

Vinod Anand, M.D., M.A.
Jule Johnson, M.S.P.H., Ph.D.

Department Editor:
Marcia R. Potrawski, RN, MS, Petz Angad, M.D., Patti Gravenor, MS, Tony Pagan, RN, MS, Stanjoy, S.M. M.D., MPH, Susan E. Skelow, M.A., MBA, Kevin G. Shyamala, M.D. Resident may submit National Patient Safety Goals and their discussions to Steven Berman (berman@pfjcs.com) and Marcia Potrawski (marcia.potrawski@med.unc.edu).

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An interactive 90-minute workshop (handoff clinic) was developed in 2006 to (1) develop a standardized protocol for the handoff, (2) create a checklist of critical patient content, and (3) plan for dissemination and training.

**Background:** The Joint Commission has made a “standardized approach to hand-off communications” a National Patient Safety Goal.

**Method:** An interactive 90-minute workshop (handoff clinic) was developed in 2006 to (1) develop a standardized protocol for the handoff, (2) create a checklist of critical patient content, and (3) plan for dissemination and training.

**Conclusion:** The model’s primary goal was to improve provider knowledge of patient data. Although all disciplines required a verbal handoff, the model was designed to be discipline-specific. Although all disciplines required a verbal handoff, the model was designed to be discipline-specific. Although all disciplines required a verbal handoff, the model was designed to be discipline-specific.
Anesthesia Resident to PACU Nurse Hand-Off

Is patient ok to go to PACU?

Patient in OR

Patient goes to ICU

Are nurses waiting at slot?

Nursing hooks up monitors with priority on oxygen and pulse ox, then EKG and blood pressure, etc.

Is there a greater than 30 second delay in hook up?

Resident completes documentation of case (fills out PACU vitals, writes note, documents handoff given)

Is patient high risk? (difficult airway, labile vitals, anes problem)

Resident identifies nurses that are taking care of patient

Resident gives report (content checklist)

Nurses accept patient

Resident compltes and signs PACU orders

PACU resident called and given special report

Back-up Behavior

Clear delineation of roles/responsibility

Resorts to operator, pill bottles, or Google to get PCP contact info
PCP finds out via active surfing of roster, or
coaches patient to call PCP if they go to hospital, or home health fax

“Maybe smoke signals”
What We Learned from Process Mapping

- Understand and attempt to reduce the variation in the handoff process
- Keep the focus on patient care: Define clear roles and back-up behavior
- Hand-off = Transfer of information + professional responsibility
- Need to ensure “closed-loop” hand-off communication
- Maps were important tools because they enabled visualization and logical synchronization of the transfers
## Communication Failures During the Hand-off of Patients

**Adverse Events/Near Misses due to Poor Sign-out in Preceding Shift**

<table>
<thead>
<tr>
<th>Category (n)</th>
<th>Sub-category (n)</th>
<th>Representative Incident (n=25)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content Omissions (22)</td>
<td>Medications or Therapies (11)</td>
<td>There was a patient who had their heparin drip turned off and it was not mentioned to me that it was turned off.</td>
</tr>
<tr>
<td></td>
<td>Tests or Consults (10)</td>
<td>There was a consult that was pending that was not listed and then ID [infectious disease] and pulmonary called with recommendations and there was no note that these recommendations were coming or what I should do with them.</td>
</tr>
<tr>
<td>Active Medical Problems (9)</td>
<td></td>
<td>There was a patient that had hematuria and it was not indicated on the sign-out. They had ordered CBI [continuous bladder irrigation] and I had no idea.</td>
</tr>
</tbody>
</table>

Arora, et al. 2005
Testing Communication Theories: Pediatric Intern Study

- The most important piece of information was NOT communicated 60% of the time
  - despite the sender believing it had been

- Did not agree on the rationale provided for 60% of items
  - At times contradictory (i.e. pt going home vs. pt needed to stay)

- Some things more likely to be remembered...
  - To do items (65%) & If/then items (69%) more likely to be remembered than knowledge items (35%), p=0.003

- However, the peer assessment of handoff quality was high in spite of above

# Is it a Problem with Listening?

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displays of understanding</td>
<td>Things that make me THINK you’re listening</td>
<td>Nodding, eye contact, body language, positioning</td>
</tr>
<tr>
<td>Processing information</td>
<td>Things that let me KNOW you’re listening</td>
<td>Read-back, Note Taking, Asking Questions</td>
</tr>
<tr>
<td>Interruptions &amp; Distractions</td>
<td>Things that prevent you from listening to me</td>
<td>Interrupting sender, checking phone, side conversations eating, gathering belongings</td>
</tr>
</tbody>
</table>
Is the Problem The Sign outs?

- When comparing meds on sign-out to patient charts, nearly 1/3 discrepant
  - 80% contained at least 1 med omission; 40% one commission

- Omissions more common; BUT commissions more serious
  - *Anticoagulants, iv antibiotics, pain medications like narcotics, hypoglycemics (insulin etc.)*

- Over half had the potential to cause significant harm to patients
  - Majority persisted after first day - *mechanism failure to update*

Arora, et al, JGIM. 2007
One possible framework for written signout

1. Routine data in case of emergency
2. Focus on new or recent information
3. What to anticipate and what to do

Vidyarthi, et al 2005

<table>
<thead>
<tr>
<th>Administrative Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Patient name, age, gender</td>
</tr>
<tr>
<td>□ Medical record number</td>
</tr>
<tr>
<td>□ Room number</td>
</tr>
<tr>
<td>□ Admission date</td>
</tr>
<tr>
<td>□ Primary inpatient medical team, primary care physician</td>
</tr>
<tr>
<td>□ Family contact information</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>New Information (Clinical Update)</th>
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</thead>
<tbody>
<tr>
<td>□ Chief complaint, brief HPI, and diagnosis (or differential diagnosis)</td>
</tr>
<tr>
<td>□ Updated list of medications with doses, updated allergies</td>
</tr>
<tr>
<td>□ Updated, brief assessment by system/problem, with dates</td>
</tr>
<tr>
<td>□ Current “baseline” status (e.g., mental status, cardiopulmonary, vital signs, especially if abnormal but stable)</td>
</tr>
<tr>
<td>□ Recent procedures and significant events</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Tasks (What needs to be done)</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Specific, using “if-then” statements</td>
</tr>
<tr>
<td>□ Prepare cross-coverage (e.g., patient consent for blood transfusion)</td>
</tr>
<tr>
<td>□ Warn of incoming information (e.g., study results, consultant recommendations) and what action, if any, needs to be taken that night</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Illness</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Is the patient sick?</td>
</tr>
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<table>
<thead>
<tr>
<th>Contingency Planning / Code Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ What may go wrong and what to do about it</td>
</tr>
<tr>
<td>□ What has or hasn’t worked before (e.g., responds to 40mg IV furosemide)</td>
</tr>
<tr>
<td>□ Difficult family or psychosocial situations</td>
</tr>
<tr>
<td>□ Code status, especially recent changes or family discussions</td>
</tr>
</tbody>
</table>
Is the checklist the holy grail?
Caution for ‘checklists’

- Check the box mentality
  - Complete the form but don’t improve care
    - Checkbox for “I contacted the PCP”
- Forms don’t fill out themselves
  - Training and frontline buy-in
- One size fits all doesn’t always work
  - Customization often needed (i.e. SBAR)
- Sustaining behavior change difficult
  - Audits to ensure continued use
  - Engage frontline staff to customize
Case of SBAR

- Originated in Navy to communicate critical situations
- Adapted for nurse to physician communication
- Became most commonly described handoff mnemonic

SBAR is a technique designed to communicate critical information succinctly and briefly.

S - Situation
What's going on with the patient right now? (Identify yourself. Identify the patient. State the problem concisely.)

B - Background
What's the background on this patient? How did we get to this point? (Review the chart. Anticipate questions. State the relevant medical issues.)

A - Assessment
What do I think the issue is? Why am I concerned? (Provide your observations and evaluations of the patient's current state.)

R - Recommendation
What should we do to respond to the situation? (Suggest what should be done to meet the patient's immediate needs.)
Misuse of SBAR

- Using “SBAR” as a verb
  - “I’m SBARing”
- Failing to customize and specify the precise elements in each category
  - Likely that situation for a L&D unit differs from a geriatrics unit
- Assumption that using SBAR checklist will result in comprehensive information transfer
Improving Handoffs for Nursing

- Behaviors, Attitudes, and Perceived Risks: Communication of Patient Care Information Across Shifts in Critical Care Settings
- At three different sites:
  - The PICU, PACU, and an adult patient ward
- Two different perspectives:
  - Ethnographic observations on nurses’ and residents’ behaviors and methods of communication
  - Structured interviews with nurse managers, attending physicians, nurses, residents, fellows, and hospital administrators on detailed attitudes and perceptions of risk with regard to handoffs

Sharit J, Thevenin, D, Barach P, Human Factors 2005;
Improving Handoffs for Nursing

Examples of Poor Sign-outs (PICU Nurses)

- Omission in communication
  - OGN fails to communicate to ICN that patient is going to have a MRI that morning
  - ICN does not follow through to ensure MRI is obtained
  - Patient's treatment delayed due to poor scheduling with no back up system beyond the hand-off request

- Ambiguity in communication
  - OGN indicates “I had some trouble with this port”
  - ICN assumes, based on the nature of the communication, that the port was still flushing
    - “After hooking everything up it didn’t work and I needed to get meds in”
    - “I should have asked more questions”

Influence Diagram on Nurses during Patient Handovers

Preliminary Hypothesis—Care vs. Cure?

- Nurses and physicians’ mental models of care differ; as a result, they see patients and the handover of responsibilities differently.

- These differences may lead to communication breakdowns e.g., physicians may find nurses to be overly detailed in giving information that may not seem pertinent, and nurses may see physicians as focusing on diagnosis and treatment, missing the patient and the care processes.
Quotes From Opportunistic Interviews With Residents

- “Yeah, it’s like the only way I can make it manageable for my handovers is to tell the incoming resident which patient is going to need what during the next 8-12 hours.”

- “I just try to give him or her the most pertinent information about what has happened during the last shift and what to watch out for during the upcoming shift.”
Quotes From Opportunistic Interviews With Nurses

- “I try to go through each patient with the incoming nurse so that they can get a complete picture of what’s going on.”

- “It’s important for me during shift change to provide as much information as possible so that the person taking over the care can judge how she will be spending her time.”

- “I believe in taking the time to fully inform the person replacing me about the status of the patients on the service.”
Preliminary Findings From A VA Study of Physician and Nurse Handoffs

- Physician handoffs tend to be done by exclusion. As a rule residents report only pertinent positives about patients who the incoming resident will need to pay special attention to.

- Nursing handoffs tend to be much more detailed, information rich and include details on the care and needs of each patient regardless of their clinical status.

- It is possible that these styles represent different mental models held by nurses and physicians about patients and what is required to manage and maintain their care over time.
Improving Patient Hospital to Community Handover Processes in Europe

http://handover.eu/
Hospital to Community Transition

- emergency
- elective
- referral
- hospital
- discharge
- after care by primary care physician

Focus of HANDOVER
EU-7 Grant - HANDOVER

- 3 year, $5 million project to study handovers in 6 countries, awarded in October 2008
- The first time the EU has funded a project on transitions of care
- A key driver was growing recognition of adverse care caused by informal, non-standardized handovers and the movement of patients across countries
The Netherlands
- University Medical Centre Utrecht
- Centre for Learning Sciences and Technologies (OUNL)
- Radboud University Medical Centre

Avedis Donabedian Institute, Autonomous University of Barcelona, Spain

University of Birmingham, United Kingdom

Azienda Sanitaria Firenze, Italy

Karolinska Institute, Sweden

National Centre for Quality Assessment in Healthcare, Poland
Many Actors Involved

- Social insurance office
- Pharmacy
- Medical Service
- Means of assistance
- Economic & Adm.
- Welfare officer
- EMS
- Physicians
- Nurses
- Medical Assistants
- Dietitian
- Physiotherapist
- Speech therapist
- Home-help service
How are we learning about handovers in each setting?

- Process analysis
- Structured Interviews-MD’s, RN’s, Patients, Families
- Focus Groups
- Artifact Analysis
- Bayesian and Cost benefit analysis of interventions
<table>
<thead>
<tr>
<th><strong>1. From primary care to hospital</strong></th>
<th><strong>Artifacts</strong></th>
<th><strong>Patient Interviews</strong></th>
<th><strong>Hospital staff Interviews</strong></th>
<th><strong>Primary care physician</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hospital has access to primary care files in the same geographical area under the same provider network.</strong></td>
<td>Access to information could avoid duplication of tests: &quot;If they communicated [between primary care and hospital] they didn’t have to repeat the analysis&quot;</td>
<td>&quot;We receive the referral information from primary care, the system is good.&quot;</td>
<td>Doctor was not informed about discharge of the patient, he realized when the patient came for a follow up.</td>
<td></td>
</tr>
<tr>
<td><strong>Little information if patient comes on own initiative (without referral note)</strong></td>
<td>Patient is admitted to various hospitals, depending on the availability of beds. Consequently, hospitals may or may not have access to information from previous episodes.</td>
<td>Evolution of the patient is not sufficiently detailed (e.g. edema and medication) Information is missing, the system does not allow entering it. Details on current medications not sufficient. Access to records depends on geographical area.</td>
<td>Hospital doctors may overrule primary care doctors judgements. To speak to another health professional personally is very difficult.</td>
<td></td>
</tr>
<tr>
<td><strong>Hospital has information on previous episodes in the same hospital and from other hospitals and primary care centre in the same purchaser network.</strong></td>
<td>Patient always brings previous records to hospital visits (emergency and planned admissions).</td>
<td>Important to hand relevant documents in paper to patients, so that they are available when needed (irrespective of access to system)</td>
<td>Electronic record facilitates work substantially. Direct contact with ER to coordinate specialist visit; possible because of personal contacts.</td>
<td></td>
</tr>
<tr>
<td><strong>Hospital prepares medical and nursing discharge report, files are stored in common platform (PDF).</strong></td>
<td>&quot;...this is why they have the computers: it is very easy to pass information from one to another, but they don’t do it ... and then I shouldn’t have to carry these papers back and forth...&quot;</td>
<td>&quot;What is clear to us is that the patient has to take the discharge note when he leaves the hospital.&quot;</td>
<td>&quot;Access to the shared medical record is the best method to check the evolution of a patient&quot;.</td>
<td></td>
</tr>
<tr>
<td><strong>Medical report is only for physician (patient as postman)</strong></td>
<td>Hospital staff lost the full medical history that the patient brought from previous admissions to other hospitals. Hospital should inform primary care about ER admissions</td>
<td>Not possible to access records of other providers that are not using the SAP system. Primary care doctors overrule medication.</td>
<td>Does not receive information automatically about the hospital stay and discharge. Within working hours there is little time to make phone calls between visits. Not knowing whom to contact. Medical record does not detail specific nursing needs.</td>
<td></td>
</tr>
<tr>
<td><strong>Detailed medical and nursing discharge report. Patient is programmed to have a specialist follow up.</strong></td>
<td>Patient hands over discharge record from hospital to the primary care physician</td>
<td>Discharge note includes all details about evolution, exams, and treatment. The patient has to take it to primary care.</td>
<td>Hospital discharge notes are brought by patient, but also accessible in the IT system (in this primary care centre).</td>
<td></td>
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</table>
Bayesian Analysis
Evaluating Policy and Service Interventions: A Framework to Guide Selection and Interpretation of Study End Points
Challenges

- Different health care delivery models
- Different health care financing models
- Different administrative challenges related to governance
Training, Monitoring, and Evaluation

How can you train newcomers in handover communication?
Interviews: Sign-out training and evaluation

- No formal mechanisms are in place either for instruction on how to perform sign-outs, or for evaluating the sign-outs of nurses.

- Senior nurses, >15 years on job, 25-45 min structured interviews
  - Nurse Manager (NM)#1: “Nurses are so individualized and patients are so individualized—it would be difficult (but not impossible) to standardize the process”
  - NM#2: “You buddy up with a senior nurse for a finite period and learn from that nurse what should be communicated to the next shift”

Patient Simulators
Immersive Learning and Simulation

- Long history of successful use of standardized patients to teach medical students (Harden, et al, 1975)
  - Communication and clinical skills
    - Observed Structured Clinical Exam OSCE (USMLE clinical skills)

- Recent innovative adaptations of “OSCE” to teach non-traditional subjects
  - Objective Structured TEACHING Exercise (OSTE) (Stone, et al, 2003)
  - Teach patient safety competencies using simulation (Barach P, Mayer D., 2005)
OSHE (Objective Simulated Hand-off Experience)

- 10 minutes to review mock patient H&P
  - Based on actual patient
    - Mrs. H is a 68y/o Caucasian female with a history of COPD, HTN and DM2 presenting via the ED c/o SOB x 3 days

- H&P including routine data for sign-out
  - reason for admission, home medications, code status, PCP and contact information for family

Farnan, et al. JGIM 2009
- 5 minute “interval patient events” video
- Contains important clinical updates to trigger anticipatory guidance & to-do items
  - **Follow-up on labs**
    - “Remember to tell your cross-cover to take a peek at the potassium on the 10PM BMP”
  - **Oxygen requirement**
    - “Dr., the patient is looking more tachypneic and is hypotensive”
  - **Family meeting**
Hand-off CEX

Based on “Mini- CEX” instrument widely used in internal medicine (Norcini, et al, 2003)

Domains assessed:
- Organization/Efficiency
- Communication skills
- Clinical judgment
- Professionalism

9-point scale

Adapted to nursing and Hospitalists

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**Sign-out RECIPIENT evaluation**

<table>
<thead>
<tr>
<th>Setting (Not observed)</th>
<th>Evaluates</th>
<th>Ward</th>
<th>Date</th>
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<tbody>
<tr>
<td>- # interruptions:</td>
<td>Evaluates</td>
<td>Ward</td>
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<td>- No, short</td>
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<td>- Long</td>
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<td>- Extremely long</td>
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<td>Organization/efficiency (Not observed)</td>
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<td>- Disorganized:</td>
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<td>- Prepared</td>
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<td>- Unprepared</td>
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<tr>
<td>Communication skills (Not observed)</td>
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<td>- No interaction;</td>
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<td>Clinical judgment (Not observed)</td>
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<td>- Anticipatory</td>
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<td>Humanistic qualities/professionalism (Not observed)</td>
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<td>Overall sign-out competence (Not observed)</td>
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<tr>
<td>- Superior</td>
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Evaluation time: Observing: _____ min Providing feedback: _____ min
Evaluator satisfaction with evaluation:
- Low: 1 2 3 | 4 5 6 | 7 8 9 High
Evaluator satisfaction with evaluation:
- Low: 1 2 3 | 4 5 6 | 7 8 9 High
Comments: ________________________________________________
__________________________________________________________
Peer Evaluations

- Competency-based peer evaluation of handoffs
- Administered to interns through New Innovations at end of inpatient general medicine month
- Anonymously evaluate co-interns on

- Delivering signout (updated written sign-out)
  - Delivering signout (updated written sign-out)
  - Low Unsatisfactory (1) Frequently signs-out early in the day with multiple patient tasks/procedures which require follow-up
  - High Superior (9) Signs-out when foreseeable work is completed

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Professionalism

Collegiality

Low Unsatisfactory (1) Frequently signs-out early in the day with multiple patient tasks/procedures which require follow-up

High Superior (9) Signs-out when foreseeable work is completed
Handoffs are a Two Way Street

- Best understood as a dialogue
  - an interaction that fosters common ground, empathy, and equity to transfer necessary information

- Sender must paint a picture
  - receiver must see it, understand it, act on it, and, ultimately, communicate it to someone else

What Can Senders Do?

- Think about the “R”ceiver (4Rs)
- Relevant items that will be Remembered
  - Focus on sickest patients first
  - Daily progress (today’s baseline, updated events)
  - Direction → To Do Items and If/then items
- Directions with Rationale
  - avoid ambiguity → “check CBC” without giving a reason why and what to do with results
- Check for receiver understanding
  - Encourage questions and read-back
  - Overcome egocentric heuristic (think about receiver)
What Can Receivers Do?

- Actively listen
  - stay focused, limit interruptions, taking notes can enhance memory

- Ask questions
  - to ensure you understand directions
  - the handoff is your learning opportunity

- Use a system
  - to keep track of to do items that require your action

- Readback
  - directions to ensure you are on the same page
Conclusions
Elements of Effective Hand Offs

- Efficient/effective communication
- Anticipatory Management
- Continuity of care (technical and from the patient’s perspective)
- Interprofessional collaboration/teamwork
Risk Stratifying Care Transitions

1. Is the patient physically moving?
2. Is the patient critical or unstable?
3. Is the hand-off temporary or permanent?
4. Is this the first time the receiver is hearing about a patient?

*If yes to any question, inherent increase in safety risk*
The TeamSTEPPS Framework

- **Knowledge**
  - Shared Mental Model

- **Attitudes**
  - Mutual Trust
  - Team Orientation

- **Performance**
  - Adaptability
  - Accuracy
  - Productivity
  - Efficiency
  - Safety

Handover Skills as Part of Training
Teams and the Microsystem

- Handovers are essential link and skill of effective clinical microsystems
- Team based handoff training has higher chance of sustainability
- Holding clinical members of the microsystem accountable for their behaviors

What is Generalizable?

- The Model:
  - A process and content driven improvement strategy

- The Approach to Implementation and Monitoring
  - Collaborative format, team driven improvement, coupled with research
Challenges/Opportunities

- Addressing organizational, cultural, professional barriers
- Sustainability
- Creating local leadership
- Training, Monitoring, and Evaluation
- Can we prove that our interventions make a difference
Lessons Learned

- Handovers are an integral to the daily clinical work
  - Improvement must be driven by those doing the handovers

- There’s the research, but then there’s the improvement
  - Improving handovers were a vehicle for teaching improvement skills
  - The best way to learn about improvement is by trying to improve

- There are cultural differences, but at some level we have the same needs and the same problems
  - Local solutions may vary
Challenges/Opportunities

- Sustainability
  - What happens when you are “done” with the project?
  - How do you sustain the improvement?
    - Identify local champions
    - Build around microsystem
    - Build-in process monitoring and evaluation from the beginning
    - Connect to present clinical and organizational processes


Challenges/Opportunities

- Local leadership
  - All change is local
  - The research team can’t improve the process that is being studied -- this has to be accomplished by those at the front lines
  - Local champions are necessary to lead and manage the improvement piece
  - Champions need to be nurtured (they won’t necessarily know what to do)
Does the training make a difference on patient care?

Future work

- We are still in the early stages of work on handoffs
- Continue research
  - Identify “vulnerable gaps” across the continuum of care, e.g., admission, care during hospitalization, discharge planning, transition to ambulatory care, physician patient relationship/communication in ambulatory visits
  - Human factors and ergonomic issues that impede hand offs
- We might have very difficult time proving that interventions have sustained impact
Two Brains Steve Martin Video
Questions or Ideas?

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