Strategies for a Safe and Effective Hand-offs: The New Intern Competency

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Objectives

- Discuss the importance of handoffs
  - Impact on patient safety
- Understand handoffs as a form of communication
- Learn techniques for safe and effective handoffs

Hand-offs and GME

- July 2003– ACGME resident duty hours
  - Reduce sleep deprivation and improve patient safety
  - Unintended consequence is increase in number of hand-offs
- Safety of hand-off
  - Error-prone, variable
  - Vulnerable “gap” in patient care
- Few trainees receive formal education *(Horwitz, JGIM 2006)*

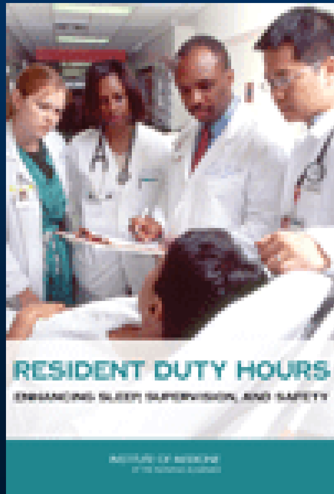
Call to Improve Handoffs

The Joint Commission , 2006

- National Patient Safety Goal: a <u>standardized approach</u> 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

•Prevention of handover errors part of “high fives” patient safety solutions



Institute of Medicine 2008

- teaching programs "should train residents in how to hand over their patients using effective communications"

Communication during
Patient Care Handovers

The Solution
For intra-hospital transfer of the patient from one unit to another:

- Identify the points in the patient care process at which handover of responsibility and accountability occur
- Standardize the handover process
- Provide an opportunity for the receiving care team to get clarification
- Provide easy access to additional information, if needed

Understanding and Improving Handoffs

University of Chicago Experience

Critical Incident Interviews

Question designed to elicit information about adverse events and near misses
Was there anything bad that happened or almost happened last night because the (VERBAL/WRITTEN) sign-out wasn't as good as it could have been?
Question designed to elicit information about worst event experienced in past year
Can you tell me the single most severe adverse event that you were involved in over that last year that resulted from a deficient sign-out?
Question designed to elicit information about ideas for improvement
Regardless of whether anything went wrong or almost went wrong, and thinking about what should be included in a sign-out, is there anything about the (VERBAL/WRITTEN) sign-out that you received that you think should have been better?

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

Category (n)	Sub-category (n)	Representative Incident (n=25)*
Content Omissions (22)	Medications or Therapies (11)	*There was a patient who had their heparin drip turned off and it was not mentioned to me that it was turned off.*
	Tests or Consults (10)	*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.*
	Active Medical Problems (9)	*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.*

Arora, et al. QSHC 2005

Uncertainty

- In nearly all cases, these communication failures resulted in uncertainty during patient care decisions:
  - *"I did not know what to do"*
  - *"unaware…"*
  - *"Not sure…"*
  - *"unclear…"*
- In certain cases, interns responded to this uncertainty

Response to Uncertainty

Attempt to resolve uncertainty (9)

Solicit Information from others (8)

Chart, Other Resident, or Patient:

The cross-cover ordered a pain medication…. I did not know why it was ordered and then I asked the patient but I felt like I should know that the patient was having back pain.

Unnecessary or Repeat Work (2)

A patient who had a trach got disconnected. I was not even sure why this patient had a trach... We 4 belled anesthesia b/c the trach was pulled out but later I found out that the trach was just for supplemental oxygen and not necessary.

Taxonomy of Sign-out Quality

POOR SIGN-OUT

Content Omissions

- Medications or Therapies
- Tests or Consults
- Medical Problems
  - Active
  - Anticipated
- Baseline status
- Code status
- Rationale of primary team

Failure-Prone Communication Processes

- Lack of Face-to-Face Communication
- Double Sign-out ("Night Float")
- Illegible or Unclear Handwriting

EFFECTIVE SIGN-OUT

Written Sign-out

- Patient Content
  - Code status
  - Anticipated problems
  - Active Problems
  - Baseline Exam
  - Pending Test or Consults
- Overall Features
  - Legible
  - Relevant
  - Accurate
  - Up-to-date

Verbal Sign-out

- Face to Face
- Anticipate
- Pertinent
- Thorough

Arora, QSHC et al. 2005

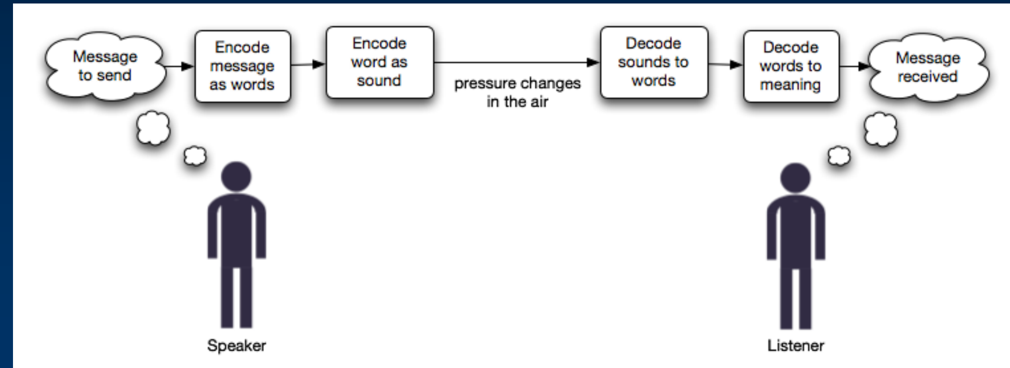
Understanding Handoffs as a Form of Communication

"*who says what to whom in what channel with what effect*"

Harold Dwight Lasswell

Psychology of Miscommunication

- Speakers systematically overestimate how well their messages are understood by listeners
- *<u>Egocentric heuristic</u>*– Senders assume that receiver has all the same knowledge that they do
  - Worsens for those familiar with each other



Model of Speech Communication

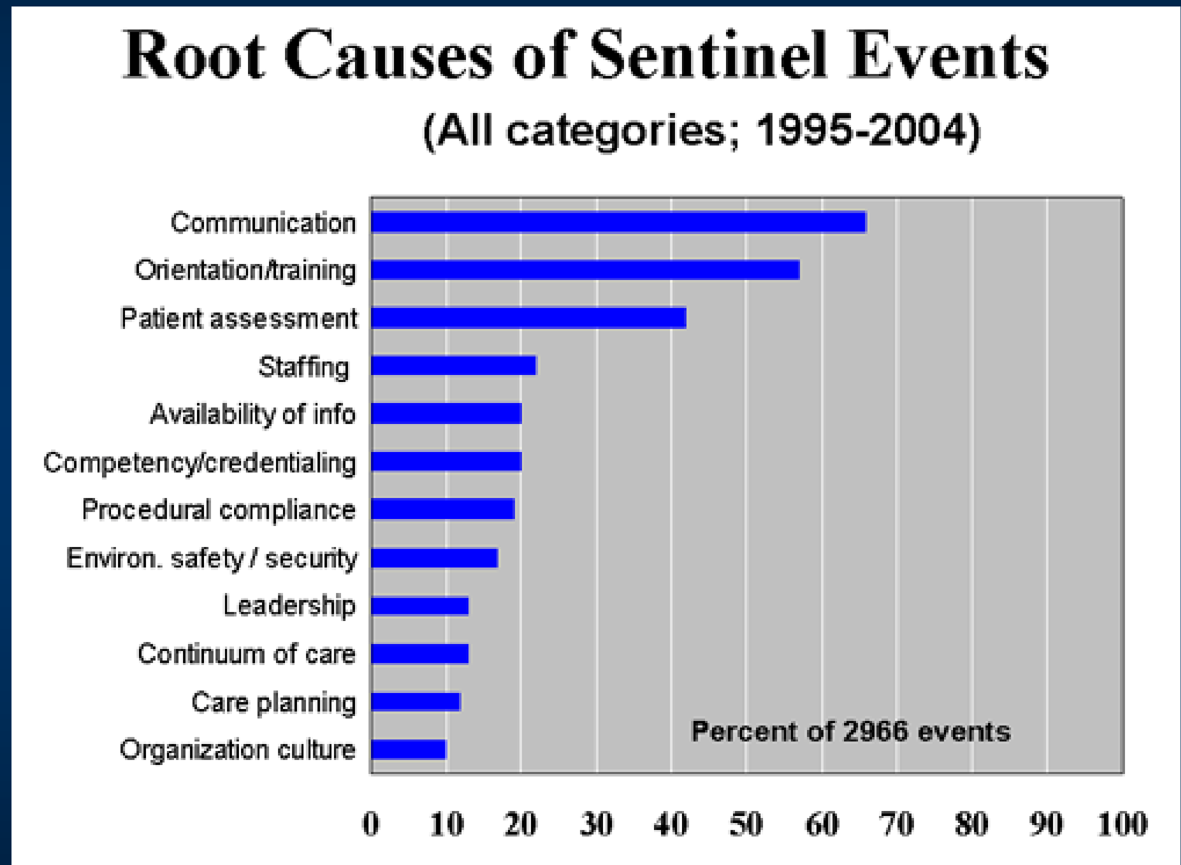
- *Study of pediatric handoffs*
  - *The most important piece of information was not successfully communicated 40% of the time despite the sender believing it had been*

Keysar,et al. Cognitive Science, 2007

Chang, et al. Pediatrics, in press

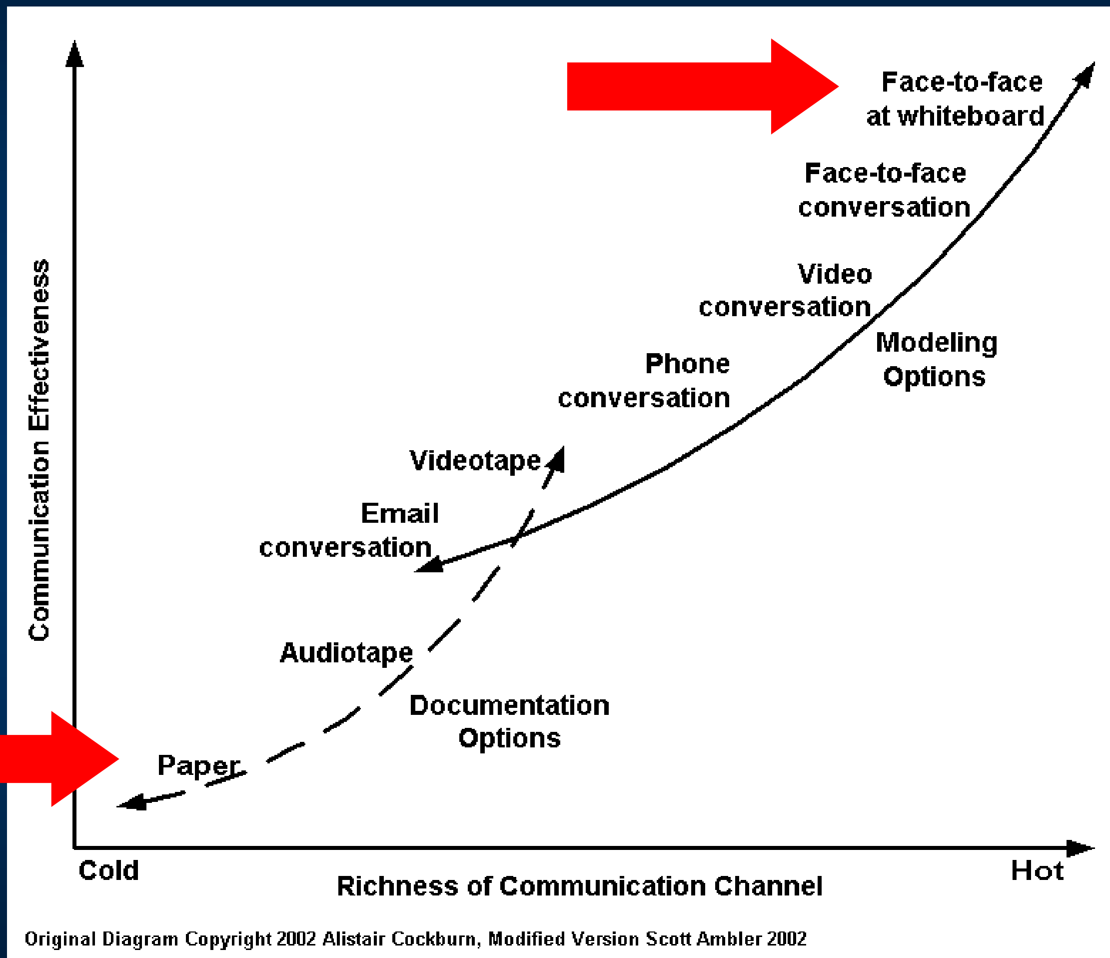
Communication in Healthcare

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



Sentinel Event Statistics. Available at: http://www.jcaho.org

Hand-off as a Form of Communication



"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 listener is understanding the information."

–Alistair Cockburn

Safe and Effective Hand-offs: Other 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

Applications of Standard Language

- "Read-back"
  - Reduces errors in lab reporting

"Read-backs" at your neighborhood Drive-Thru

Table 2
Description of Errors

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

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

Barenfanger, Sautter, Lang, et al. Am J Clin Pathol, 2004.

A Word of Caution on Technology

- Computerized sign-out
  - Brigham and Women's Hospital *(Petersen, et al. Jt Comm J Qual Improv, 1998)*
  - U Washington *(Van Eaton, et al. J Am Coll Surg, 2005)*
- IT solutions alone cannot substitute for a **"successful communication act"**
  - Human vigilance still required

> *In an emergency room, the replacement of a phone call for critical lab values with an electronic results-reporting system with no verbal communication resulted in 45% (1443/3228) of urgent lab results to go unchecked.*

Ash, Berg, Coiera. JAMIA, 2004 and Kilpatrick, Holding. BMJ, 2001

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 9 residency programs
  - PROCESS
    - Create a process map
  - CONTENT
    - Create a standard check-list
  - IMPLEMENTATION
    - Resident buy-in
  - MONITORING
    - Identify and resolve barriers

Joint Commission Journal on Quality and Patient Safety

National Patient Safety Goals

A Model for Building a Standardized Hand-off Protocol

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In July 2003, the Accreditation Council for Graduate Medical Education (ACGME) set limits for resident duty hours.[1] Although the main driving force was to reduce sleep deprivation and improve patient safety, one unintended consequence was the increase in the number of handoffs during patient care. The discontinuity of care that thereby results has the potential to undermine the beneficial effects of work hour limitations.[2] The safety of the hand-off process has been called into question by a number of different sources and studies which suggest that handoffs are often characterized by communication failures and environmental barriers.[3-4]

The handoff is also the subject of a Joint Commission on Accreditation of Healthcare Organizations National Patient Safety Goal, which went into effect January 1, 2006. Written as a new requirement of Goal 2, Improve the Effectiveness of Communication Among Caregivers, this addition requires hospitals to implement a standardized approach to hand-off communications and provide an opportunity for staff to ask and respond to questions about a patient's care[6,7] (Sidebar 1, page 647). Although the standard applies to all handoffs that occur between all personnel within all health care settings, the focus of this article is on the handoffs between residency trainees at academic teaching hospitals. Because medical trainees receive little to no formal training or education in communication during handoffs, there is an inherent opportunity to influence the practice of

Article-at-a-Glance

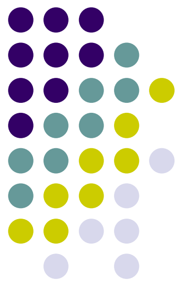
Background: The Joint Commission has made a "standardized approach to hand-off communications" a National Patient Safety Goal.

Method: An interactive 90-minute workshop (hand-off clinic) was developed in 2005 to (1) develop a standardized process for the handoff, (2) create a checklist of critical patient content, and (3) plan for dissemination and training.

Conclusion: To date, 7 of 10 residency programs have participated. Analysis of these protocols demonstrated that the hand-off process is highly variable and discipline-specific. Although all disciplines required a verbal handoff, because of competing demands, verbal communication did not always occur. In some cases, the transfer of professional responsibility was separated in time and space from the transfer of information. For example, in two cases, patient tasks were assigned to other team members to facilitate timely departure of a postcall resident (to meet resident duty-hour restrictions), but results were not formally communicated to anyone. The hand-off clinic facilitated the incorporation of "closed-loop" communication by requiring that follow-up on these tasks be conveyed to the on-call resident.

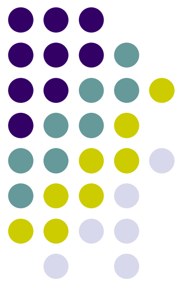
Discussion: This model for design and implementation can be applied to other health care settings.

1. Understand and attempt to reduce the variation in the process



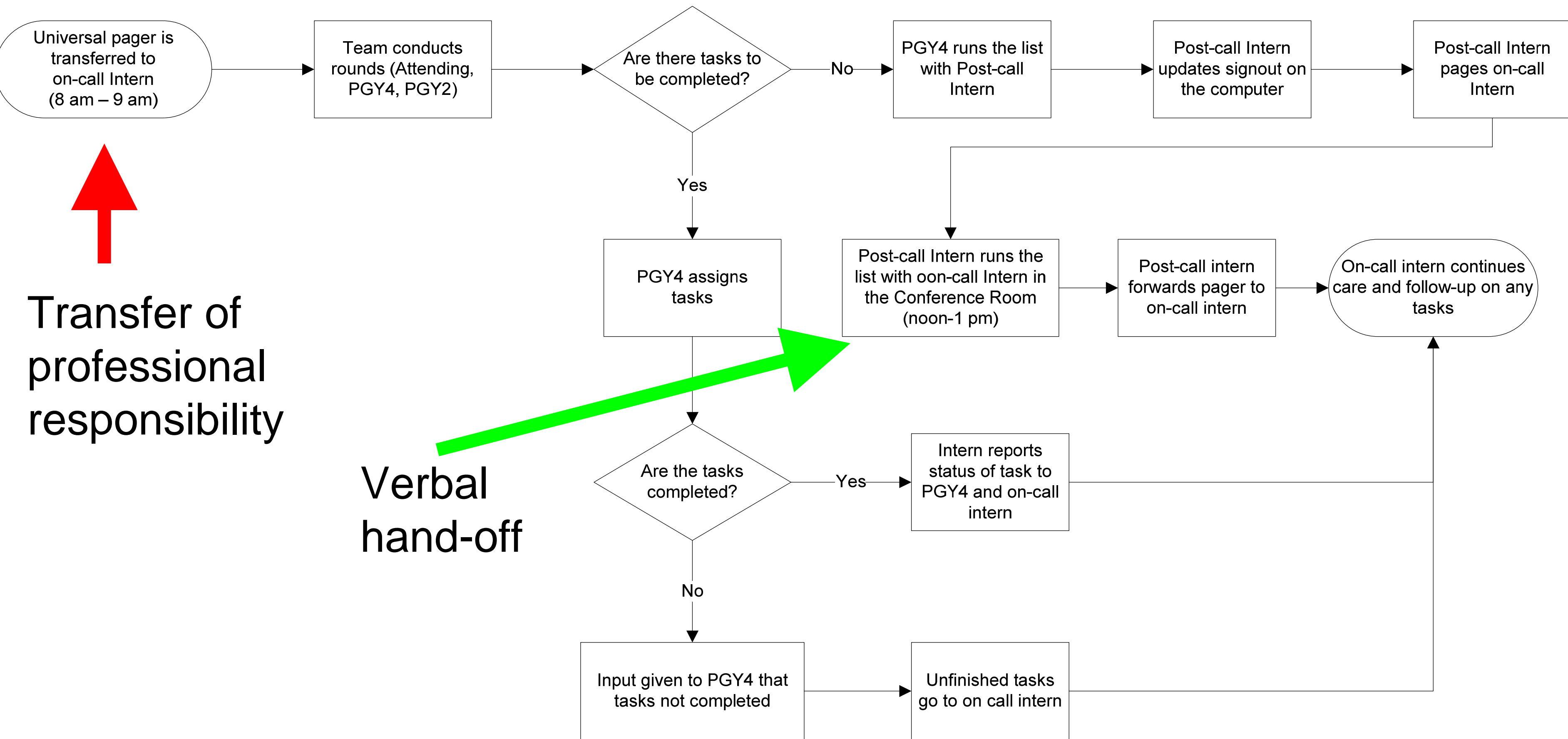
- All disciplines “required” a verbal hand-off BUT sometimes did not occur due to competing demands (OR, clinic, etc.)
  - Educate residents on this important priority
  - Establish contigency plans in light of competing demands
- Individual-level variation also present
  - *“Some residents are better at making themselves available and touching base with you [during the hand-off] than others…”*

2. Hand-off = Transfer of information + professional responsibility

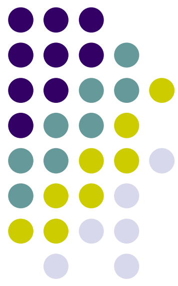


- At times, these transfers were separated in time and space
  - In one program, the on-call resident transfers a virtual pager to their own pager (*responsibility*) at a designated time which occurred several hours BEFORE they receive a verbal hand-off (*content*).
  - Process map enabled visualization and logical synchronization of these transfers

Neurology Hand-Off

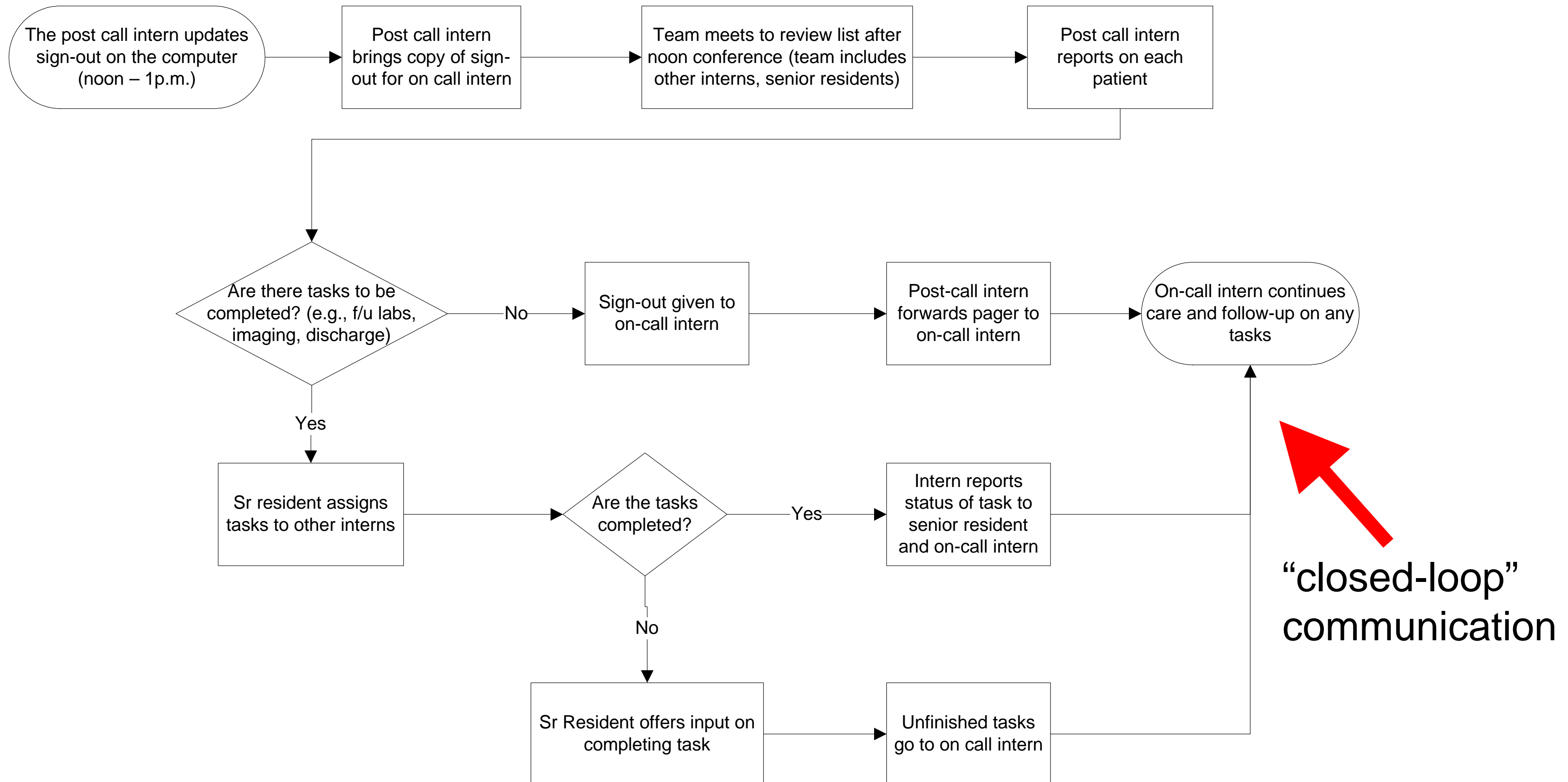


3. Need to ensure “closed-loop” hand-off communication

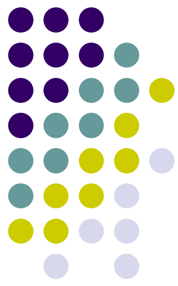


- In 2 cases, patient tasks were divided and assigned to other team members
  - To facilitate early departure of a post-call resident (due to duty hour restrictions)
  - BUT results of tasks not formally communicated to anyone
- Built “closed-loop” communication by integrating follow-up of tasks into the process

Pediatric Resident Post-Call Hand-Off

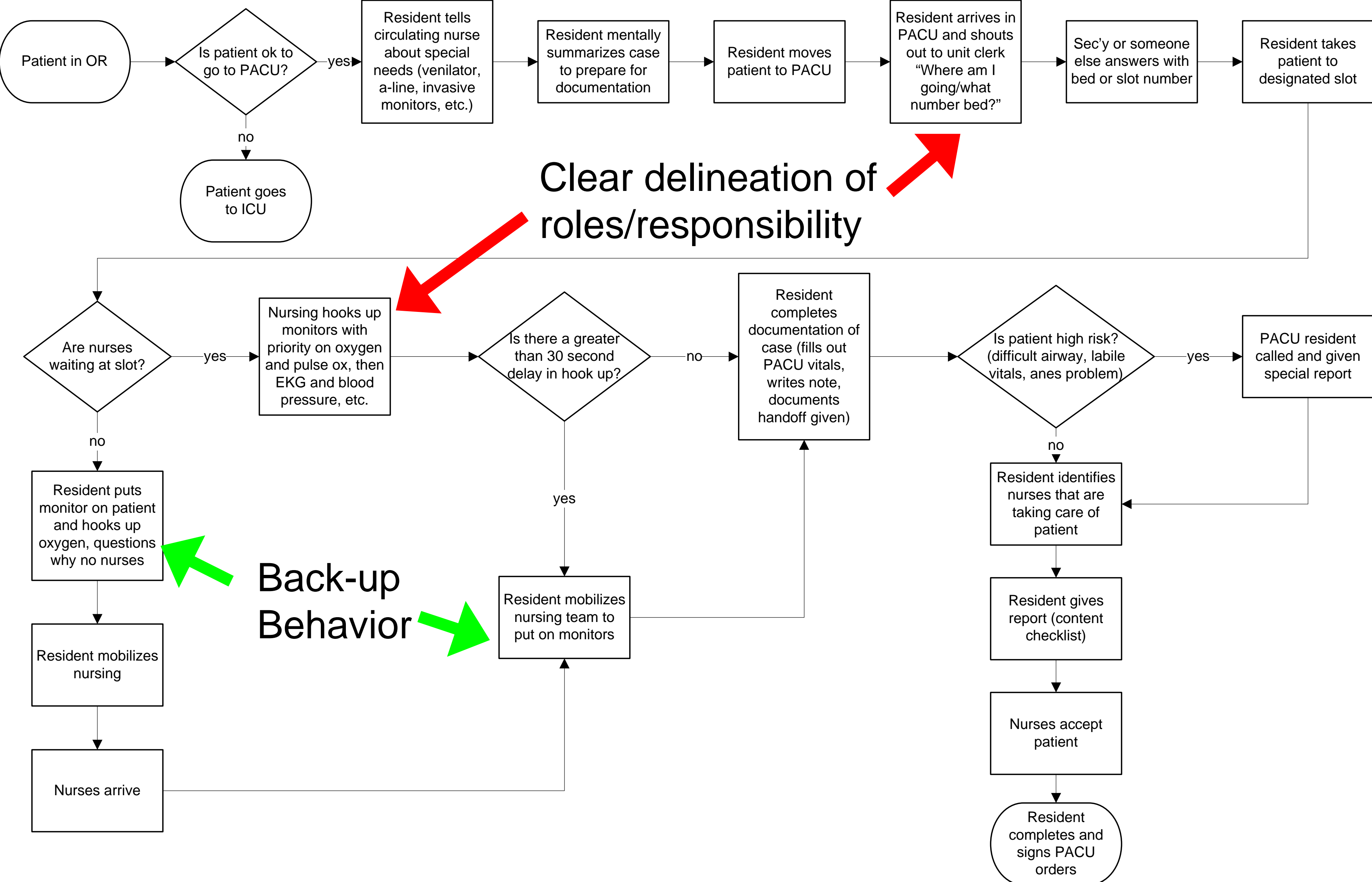


4. Keep the focus on patient care: Clear roles and back-up behavior



- Anesthesia resident to PACU RN
  - Interdisciplinary hand-off with challenging complex fast-paced environment
- Clear delineation of roles and responsibility to ensure focus on patient
  - Anesthesia resident, unit clerk and PACU
- Built in back-up behaviors in case roles are not fulfilled
  - “If nursing delay >30 sec, then resident to hook up monitors and call for RN”

Anesthesia Resident to PACU Nurse Hand-Off



Safe and Effective Handoffs: A Competency Based Approach

Communication

Professionalism

Evidence from night float case study	ACGME core competencies	Educational opportunities: applications to handoffs
Communication failures; uncertainty during medical decision-making, "I did not know..."	Communication	Formal education in handoff communication with providers and patients, eg, SBAR
Shift-work mentality, lack of responsibility to cross-cover patients, "Not my patient"	Professionalism	Establish handoffs as a transfer of professional responsibility "Every patient is your patient"

Arora, et al. QSHC 2008.

Strategies for Verbal Communication

- Face to face communication is BEST
- Prioritize time on those most sick
- Interactive and ask questions for clarification
  - Aim for a shared mental model
  - Overcome egocentric heuristic (think about the other person)

Focus on upcoming issues

- "If/Then"
  - Anticipatory guidance
  - *What may happen overnight and what to do about it*
- "To-do"
  - Tasks that need to be done

"SIGNOUT?" Sample verbal sign-out

	"SIGNOUT?"	Sample verbal sign-out
S	Sick or DNR?	*OK, this is our sickest patient, and he's full code.*
I	Identifying data (one liner)	*Mr. Jones is a 77-year-old gentleman with a right middle lobe pneumonia.*
G	General hospital course	*He came in a week ago hypoxic and hypotensive but improved rapidly with IV levofloxacin.*
N	New events of day	*Today he spiked to 39.5°C and white count bumped from 8 to 14. Portable chest x-ray was improved from admission, we sent blood and urine cultures. U/A was negative but his IV site looked red so we started vanco.*
O	Overall health status	*Right now he is satting 98% on 2 L NC and is afebrile.*
U	Upcoming possibilities with plan and rationale	*If he becomes persistently febrile or starts to drops his pressures start normal saline at 125 cc/h and have a low threshold for calling the ICU to take a look at him because possible sepsis.*
T	Tasks to complete overnight with plan, rationale	*I'd like you to look in on him around midnight and make sure his vitals and exam are unchanged. I don't expect any blood culture results back tonight so there is no need to follow those up.*
?	Any questions?	*Any questions?*

Horwitz et al, 2007

Written Sign-out

- *All patients*
  - Even those that are discharged that day
- *Update daily – need time to do this*
  - Focus on medication changes and "to do"
    - 80% of daily sign-outs for a patient contained at least 1 medication omission, of which majority potentially harmful
    - nearly 40% contained at least 1 commission
- *Information that may become important in a critical situation*
  - Code status/iv access/PCP/family contact info etc.

Arora, et al, JGIM. 2008

ANTICipate

✓ **A**dministrative Data

- ☐ Patient name, age, gender
- ☐ Medical record number
- ☐ Room number
- ☐ Admission date
- ☐ Primary inpatient medical team, primary care physician
- ☐ Family contact information

✓ **N**ew Information (Clinical Update)

- ☐ Chief complaint, brief HPI, and diagnosis (or differential diagnosis)
- ☐ Updated list of medications with doses, updated allergies
- ☐ Updated, brief assessment by system/problem, with dates
- ☐ Current "baseline" status (e.g., mental status, cardiopulmonary, vital signs, especially if abnormal but stable)
- ☐ Recent procedures and significant events

✓ **T**asks (What needs to be done)

- ☐ Specific, using "if-then" statements
- ☐ Prepare cross-coverage (e.g., patient consent for blood transfusion)
- ☐ Warn of incoming information (e.g., study results, consultant recommendations and what action, if any, needs to be taken that night

✓ **I**llness

- ☐ Is the patient sick?

✓ **C**ontingency Planning / **C**ode Status

- ☐ What may go wrong and what to do about it
- ☐ What has or hasn't worked before (e.g., responds to 40mg IV furosemide)
- ☐ Difficult family or psychosocial situations
- ☐ Code status, especially recent changes or family discussions

One possible framework for written signout

Routine data in case of emergency

Focus on new or recent information

What to anticipate and what to do

Vidyarthi, et al 2005

Some Case Examples…

Based on real sign-outs…

A nurse calls because the patient wants to know if they can eat.

Signout says "Patient is NPO for surgery tomorrow"

Always give dates

Avoid use of today/tomorrow/yesterday

What procedure? How important?

Your signout says "Check BMP at 8pm"

The patient has a sodium of 124.

What are you supposed to do with abnormalities?

What is the baseline?

What are you looking for?

A patient had their IV fall out. A nurse calls you to ask about the need to replace access in this patient who is a difficult stick. Signout says “has 20 gauge IV in wrist”

Why does this patient have an IV?

Is the patient going home or getting needed therapy?

A patient you are covering is being evaluated for small bowel obstruction. The attending surgeon comes by after being in the OR and asks you what the patient's coags are. You say, I'm sorry but that is not my patient.

Handoffs are more than just a transfer of content, but also a transfer of professional responsibility

Every patient is your patient

A nurse calls you to see a patient who is in extreme respiratory distress. You call you senior resident who asks you what the patient's code status is…
Your sign-out does not say "DNR/DNI" so you tell them he is full code

Is it fair to assume that no documentation of code status= full code?

Important to examine the chart for critical omissions

Take Home Points

- Transfer of content AND professional responsibility
- Communication strategies
  - Face to face communication with opportunity to ask questions (Check for understanding)
  - Use of read-back to increase memory
  - Use precise language
- Critical Verbal content
  - Anticipatory guidance
    - What may happen and what to do about it
  - Tasks that need to be done
- A comprehensive *updated* written sign-out

Questions or Ideas?

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For copies of our Hand-Off Papers and/or Hand-Off Tools in this talk

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