



Standardization of Inpatient Handoff Communication

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Handoff communication is identified as an integral part of hospital care. Throughout medical communities, inadequate handoff communication is being highlighted as a significant risk to patients. The complexity of hospitals and the number of providers involved in the care of hospitalized patients place inpatients at high risk of communication lapses. This miscommunication and the potential resulting harm make effective handoffs more critical than ever. Although hospitalized patients are being exposed to many handoffs each day, this report is limited to describing the best handoff practices between providers at the time of shift change.

abstract

FREE

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INTRODUCTION

As inpatient care becomes increasingly complex, with complicated medical problems and large volumes of information to transmit, appropriate and efficient communication among physicians is more critical than ever. According to The Joint Commission, communication breakdowns are estimated to contribute to 80% of medical errors.¹ Handoffs involve sending and receiving complete information that assists in communication of patient care responsibilities. Handoffs occur in multiple settings and among various providers, including either in-house or on-call coverage for hospitalized patients. Shift changes among physicians protect against sleep deprivation and allow for the informal review of clinical dilemmas, but they also present risks for communication failures and potential medical errors.

The medical literature indicates that handoffs can be improved²⁻⁴ and that structured/standardized communication facilitates handoffs among group members and between shifts.^{5,6} Although much of the literature focuses on trainees at academic centers, the research has widespread implications on the importance of handoffs for physicians in all fields and at all levels of training. In 1 study, the implementation of a standard handoff process among trainees decreased preventable medical errors by 30%.⁷

Many mnemonics have been developed to remind physicians about the key components of handoff communication^{8,9} and these include pediatric-specific content, such as custody arrangements and social factors. In addition, maintaining a sign-out environment free of distractions and using available information technology tools can improve the efficiency and quality of information transfer.^{5,10,11}

As The Joint Commission, regulators, public and private payers, physician professional organizations, and hospitals attempt to curb medical errors, there is an intense focus on handoff communication. Studies have challenged the typical belief that handoffs between physicians are efficient and effective¹² and that handoffs between experienced providers are better than between trainees.¹³ Although all transitions of care benefit from appropriate handoffs, this clinical report aims to guide shift-change communication for inpatient handoffs between providers of the same service. The report also aims to improve patient care by identifying best practices for physicians who provide direct clinical care to pediatric patients in the inpatient or critical care unit. Similar principles apply to all transitions of care between units and services within a hospital (eg, PICU to pediatric ward or emergency department to pediatric ward) and at the time of discharge. However, each of these transitions has its own set of additional concerns that are not addressed in this clinical report. Throughout this report, the terms “handoff” and “sign-out” will be used interchangeably.

A new policy statement from the Committee on Pediatric Emergency Medicine of the American Academy of Pediatrics, the Pediatric Emergency Medicine Committee of the American College of Emergency Physicians, and the Pediatric Committee of the Emergency Nurses Association

entitled “Handoffs: Transitions of Care for Children in the Emergency Department” has been published simultaneously in this issue of the Journal (<http://www.pediatrics.org/cgi/doi/10.1542/peds.2016-2680>).

ROLE OF STANDARDIZATION

Depending on physicians’ needs and responsibilities, handoff content will vary, requiring customization by individual physician groups; there is no “one size fits all” content. Once a group agrees on its customized content and processes, communication improves when the handoffs are standardized within a group. The data that are deemed important to transmit between providers during shift changes differ¹⁴ depending on the medical discipline, role in patient care (primary service versus consulting service), setting, and medical/social complexity.^{15,16} For example, the primary service needs a complete picture of the patient’s overall condition, whereas the consulting service typically exchanges more focused information. Although variability between physician groups is understandable, the need for standardization within a group is undeniable.^{14–16} Standardization can help the sender and receiver communicate essential data. Much attention is placed on the content of handoffs; however, equally important are standardized processes for handoffs.

Content

The content of handoffs includes information from the sender to the receiver that is needed to provide complete and seamless care. Although the complexity of patients, provider experience, and institutional factors dictate much of the oral handoff content, certain data should be conveyed in written form or be readily available (ie, in the electronic

medical record) for patients and often include the following^{5,6,14,16,17}:

1. Demographic characteristics: name, medical record number, age, weight, sex, room number
2. Problem list with diagnoses and active medical issues
3. Code status
4. Medications (including oxygen, respiratory treatments, intravenous fluids, and “as needed” medications)
5. Allergies
6. Brief hospital course
7. Severity of illness
8. Pertinent history (medical, surgical, social)
9. Consulting providers
10. Tubes, lines, airways, and drains
11. Recent vital signs, including pain control
12. Diet
13. Activity, including weight-bearing status and fall risk
14. Social issues: custody arrangements, family discord
15. Action list
 - Pending studies (especially those requiring immediate intervention)
 - Tasks to be completed
16. Potential and anticipated clinical problems and contingency planning
17. Summary statement with attention to patient care/discharge goals for the hospitalization and shift, if applicable

To assist the sender with completeness and organization of the relevant information, many groups use a checklist, a structured template, and/or an acronym or mnemonic. This report does not endorse any particular acronym, but it will review technology options that may enhance handoff content. Ideally, effective and

efficient handoffs combine printed materials (automatically populated by the electronic medical record, if possible) with written and verbal content. By using an automatically populated form, including much of the content details (eg, items 1–14 above), physicians may focus on the intricacies of patients' treatment and contingency plans. Individual services, hospital units, and institutions may collaborate with their quality and safety officers, residency programs, and information technology staff to determine particular approaches and optimal communication tools for specific patient populations. These tools should promote the inclusion of key factors, avoid unnecessary details, and promote a standardized handoff process.

In addition to sign-outs of individual patients, many physicians are responsible for the well-being of the units and the hospital during their shifts. Discussions between physicians about the capacity of the units and the hospital, the acuity of all patients, and any potential surge in capacity or acuity should be transmitted during handoffs.

Processes

In addition to standardized content, the processes used to transmit information may strongly influence the success of handoff communication. These processes should focus on certain human factors shown to improve performance during handoffs, regardless of discipline, and include the following^{4,15–18}:

1. A consistent location and dedicated time, free of nonemergency interruptions. By ensuring that the location of sign-outs is consistent, the sender, receiver, and other members of the care team consciously and subconsciously identify that handoff communication is in process and eventually

will recognize its importance. Requesting that others not interrupt the process and that nonurgent matters wait until handoffs are complete encourages the participants to remain fully engaged and focused on the task of transitioning care. Sign-outs are best conducted in a quiet environment, free from distractions. Barring extreme circumstances, operating rooms are an inappropriate location to conduct change-of-shift sign-outs; however, other types of handoffs between physicians (ie, between anesthesiologists) in the operating room are the standard of care.

2. Include other medical staff (eg, nurses and house staff) and patients/families for high-acuity or complex patients.¹⁹ High-acuity and complex patients (eg, in the ICUs) benefit from including other team members in the handoff process. In doing so, all individuals appreciate that a new physician has assumed care of the patient, and it is an ideal time to address changes and ongoing concerns and to directly observe the patient's clinical status. Having multidisciplinary teams at the patient's bedside makes the patient and family aware that a new provider has assumed care, allows the patient and family to voice changes in care or status, and updates the patient and family with new information from the previous shift. When able and willing, patients and families may be present and encouraged to actively participate at the end of bedside handoffs.²⁰ Bedside sign-out is not to be equated with simply introducing patients and families to oncoming physicians.
3. Make handoffs an active, real-time process. Sign-outs ideally are conducted in person (face-to-face), when possible, and include oral and written (or electronic) transmission of

data. If face-to-face handoffs are not feasible, real-time communication (via phone or video-conferencing) is suggested. Written handoffs or audio messages, without the opportunity for oral communication and real-time dialog between providers, increase the potential for incomplete or unclear assessments and plans to be passed on to the next physician.²¹ The optimal sign-out process offers the receiver an opportunity to ask questions. The use of read-back and verifying communication from the receiver to the sender increases the likelihood that all relevant information is transmitted and understood by the receiver. Any patient information that is transmitted by text or e-mail, including sign-outs, requires encryption to avoid violating the privacy rule of the Health Insurance Portability and Accountability Act (Pub L No. 104-191, 110 Stat. 1936 [1996]).

4. Identify the clear delineation of care responsibility from the sending to the receiving physician. The sender and receiver of handoff communication need to clearly identify when the transition of patient care is complete so that multiple physicians are not actively making clinical decisions and placing orders simultaneously. An explicit understanding of tasks assigned to the sending and receiving physicians (eg, phoning a consultant) after sign-out decreases confusion and frustration.

ROLE OF TECHNOLOGY

Technology provides a means to standardize the content for handoffs¹⁵ and to decrease illegible writing.¹⁰ Web-based applications have been used to decrease variability.¹¹ Even more complete

handoffs are possible when the electronic medical record is linked automatically to handoff tools and includes demographic data, problem lists, code status, medications, allergies, consultants, historical and social information, and recent study results.^{22,23} A mechanism to electronically attach contingency plans for clinical deterioration, pending studies needing review, and tasks requiring completion (without incorporating these into the permanent medical record) further enhances the handoff communication.^{14,22} Some of the content standardization may be possible with existing technology, but others may require novel features developed in conjunction with electronic medical record companies, information technology leaders, and hospital administrators; for instance, an organization may construct a sign-out template in a given format for use throughout the institution. Depending on the hospital, handoff tools may be completely separate from the electronic medical record or they may be embedded within the electronic medical record.

Electronic tools risk the transmission of excessive information, including outdated and inaccurate information. Cutting or copying and pasting from previous notes into a handout tool increases the likelihood of passing on irrelevant, outdated, or inaccurate information.

REVIEW PATIENT INFORMATION

Handoffs provide a mechanism to review laboratory and radiographic studies and to discuss difficult diagnoses and challenging patients. Because handoffs are conducted among colleagues, they are a routine, expected, nonthreatening, and natural way to review diagnostic and treatment plans between each shift. Collegial relationships between the sender and the receiver improve handoff communication.¹⁸ By using

this time to “consult” with other providers, patient care is reviewed by multiple team members, errors are more likely to be recognized,¹⁶ and unnecessary delays in diagnosis or treatment may be avoided.

FINANCIAL SUPPORT

Because most handoffs do not involve direct face-to-face patient contact and are not documented in the medical record, direct billing for these services is problematic. Other factors, including physician payment structure, will encourage or discourage appropriate handoffs.¹⁶ For salaried physicians, schedules should include overlap time between outgoing and oncoming physician shifts to decrease the likelihood that quality handoffs are disincentivized. In addition, effective handoff communication may be identified as a performance-based quality metric for groups with quality withholds and/or incentives.

TRAINING AND MONITORING HANDOFF COMMUNICATION

Residency training programs have understood the importance of handoff communication for decades. However, the Accreditation Council on Graduate Medical Education heightened its attention to handoffs as duty hours were implemented and later revised. Currently, the Accreditation Council on Graduate Medical Education states: “Sponsoring institutions and programs must ensure and monitor effective, structured handover processes to facilitate both continuity of care and patient safety. Programs must ensure that residents are competent in communicating with team members in the handover process.” Some training programs have met this requirement by mandating lectures and learning modules for house staff. Other programs monitor the sign-out process and deem residents

“competent” when they master the requisite skills. In addition, training programs provide a captive study cohort for the investigation of novel handoff strategies. Most of the literature on effective handoff communication derives from resident training and education.^{4–6,17}

These activities may qualify for part 4 maintenance of certification requirements of the American Board of Pediatrics if the projects are conducted under the guidance of an American Board of Pediatrics–accredited organization. Because recent pediatric research shows that a standard approach to handoffs decreases medical errors in patients,⁷ internal medicine and other adult training programs are likely to reinvigorate their sign-out education efforts.

After residency training, the importance of handoff communication continues, but educational and monitoring opportunities diminish. Handoff training may occur during the onboarding process for newly hired staff.¹⁵ Assessing providers’ satisfaction with the handoff process as a quality measure and directly observing handoffs as part of ongoing quality improvement are advised.¹⁴ Real-time feedback between senders and receivers also encourages and enhances handoff communication. To guide handoff deficiencies and to track communication failures, continuous quality-improvement methods may be used. Because research confirms that a standard approach to sign-out among trainees increases patient safety, attending physician education and training in handoff best practices may similarly enhance patient safety.

SUMMARY

1. Handoffs improve when communication is standardized by and within individual physician groups. Individual groups may

customize their sign-out process and content to meet their needs, patient needs, organizational culture, and available technology support.

2. The process of receiving and sending handoffs is optimized when sign-out is an active procedure, without interruptions, in a dedicated place, and at a dedicated time. Receiving physicians benefit from having the ability to ask questions and understand a patient's clinical course and social factors, including past and ongoing concerns. Anticipating problems and discussing interventions are recognized as a central part of effective handoff communication.
3. Computer technology can be used to improve the accuracy of handoff information. For providers who use electronic medical records, the bulk of content information is often available on computers. Providers may maximize their efficiency by conducting handoffs with the use of established technological resources and developing new, locally specific, customizable solutions. Oral and/or written sign-out is meant to complement the comprehensive patient information available in the electronic medical record, with a focus on anticipated problems and contingency planning. Exchanging too much, too little, or inaccurate data during handoffs increases patient risk.
4. Handoffs allow a time to review clinical events and studies. In addition, handoffs are an ideal time to seek advice, insight, and consultation about patients with challenging medical conditions from colleagues.
5. Time and administrative support for handoffs should be included in physicians' working hours.
6. Handoff communication is a skill requiring training and practice.

Attending physicians are likely to benefit from ongoing training and monitoring of a standard approach to handoffs.

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