Handoffs in Care: Can We Make Them Safer?

Kim Streitenberger, RNa, *,
Karen Breen-Reid, RN, MNb,
Cheryl Harris, RNC

Department of Quality & Risk Management, The Hospital for Sick Children,
555 University Avenue, Toronto, ON, Canada

Divisions of Paediatric & Respiratory Medicine, The Hospital for Sick Children,
555 University Avenue, Toronto, ON, Canada

Centre for Nursing, The Hospital For Sick Children, 555 University Avenue,
Toronto, ON, Canada

Medical errors occur because humans are fallible, particularly when faced
with the challenges of increasingly fast-paced and complex health care environments
[1]. Within today’s health care environments, the communication
of complete and accurate patient information can be a challenge particularly
across the continuum of care. A review of sentinel events reported to the
Joint Commission on Accreditation of Healthcare Organizations (JCAHO)
identified failures in communication to be a leading cause of adverse event in
health care [2]. Issues involving communication, continuity of care, or care
planning are cited as a root cause in more than 80% of reported sentinel
events [2]. The need to make improvements in the handoff of patient information
recently has been highlighted as a priority for health care organizations.
In the United States and Canada, JCAHO and the Canadian Council
on Health Services accreditation have included the development of mechanisms
to improve handoffs in care by enhancing the transfer of information
at points of transition in their current accreditation standards and patient
safety goals [3,4].
There are many levels of handoff involved during patient care. A handoff
in care occurs when accountability and responsibility for a patient are transferred from

* Corresponding author. Quality & Risk Management, The Hospital for Sick Children,
555 University Avenue, Toronto, ON, Canada.
E-mail address: kim.streitenberger@sickkids.ca (K. Streitenberger).
0031-3955/06/$ - see front matter 2006 Elsevier Inc. All rights reserved.
Pediatr Clin N Am
53 (2006) 1185–1195

One health care provider to another, for example, during shift-to-shift
report or when providing cross coverage for staff breaks,

One service or program to another, for example, during transfer from
one inpatient unit or medical service to another; transfers to a
diagnostic or procedural area; or from one site to another within a single
multisite health care organization, or

One organization to another, for example, from a tertiary center to
a community facility or when a pediatric patient is transitioned to an
adult care facility.
The primary function of the handoff is to communicate patient information
to facilitate continuity in the plan of care. Care providers also share
general information about unit activities, staffing, and other organizational
factors that may have an impact on care delivery. Other functions of the
handoff include education, briefing or debriefing, team building, social interaction,
and networking [5].

Why are handoffs in care risky?

Health care systems and processes traditionally have been designed to require
frequent handoffs in the care of patients, with minimal emphasis placed on developing systems and processes to do so in an accurate, efficient, and safe manner. Handoffs in care are a particularly high risk and a vulnerable time for hospitalized patients because clinicians must manage multiple competing priorities and frequent distractions while ensuring that accurate and complete information is communicated, often within significant time constraints.

Accurate and timely communication during handoff is important particularly in pediatrics given the physiologic differences in children and their reduced ability to advocate for themselves throughout the care delivery process. Physiologically, children have a higher metabolic rate, and lifethreatening conditions can progress more rapidly than in adults, necessitating early recognition of changes in condition and rapid intervention [5]. Children also often cannot provide pertinent details regarding their medical history or current illness and may not always have parents or guardians with them who can provide this information and advocate on their behalf [5].

Handoffs in care are a time of high risk within the care delivery process because they involve the communication of potentially critical patient information and are an interruption in continuity of care. Handoffs occur frequently within health care and often occur at particularly busy times when distractions are frequent and time is limited. With reductions in health care resources and an increased focus on improving system efficiency and the flow of patients through the system, handoffs often are conducted with a sense of urgency adding to their inherent risk. Current limitations that can exist in the continuity of a patient’s health record across the continuum of care within and between facilities can result in gaps in information that could result in error. Without access to a health record that is integrated fully across the continuum of care, providers must rely heavily on the accuracy of the handoff they receive as a primary source of patient information during periods of transition.

The impact of human factors
Improving the communication of patient information during handoffs in care requires attention to human factors, which have an impact on the completeness, accuracy, quality, and timeliness of this communication such as vulnerability to distractions and the effects of fatigue on performance and memory. Frequent interruptions and distractions commonly are experienced in today’s busy health care environments and have become an almost accepted part of care delivery. These interruptions are a particular source of concern during handoffs in care because they can result in distraction and can have a negative impact on clinician memory [6], leading to omission of potentially critical patient information. A study examining communication loads on clinical staff within an emergency department classified one third of all observed communication events as interruptions, with each provider experiencing an average of 15 interruptions per hour [7]. Senior staff experienced the highest rate of interruptions. This observation is notable because senior clinicians often are a primary resource for other staff or are caring for patients who have higher levels of acuity or complexity while juggling additional teaching and unit leadership responsibilities. This multitasking could make it difficult to remain focused on an accurate transfer of information during the handoff report.

The environment in which handoff reports frequently occur can have an impact on the quality and accuracy of information communicated from one clinician to another. For example, shift change reports that occur at busy
nursing stations can involve multiple groups of people all attempting to share information in a compact and noisy environment. The individuals involved who are communicating critical patient information may be tired and eager to complete their shifts. Those receiving the information often are anticipating and planning the care they will be providing for each of their assigned patients, considering the needs of families, staff, and the unit and dealing with multiple interruptions and distractions throughout this process. Handoffs in care that occur in less central locations, such as at a patient’s bedside, also are not immune to frequent interruptions from multiple sources, including monitor alarms, pagers, and telephone calls and patients, families, visitors, and staff needing assistance with patient or unit management issues [8]. The general acceptance of these types of interruptions and distractions as a normal part of health care could be a result of a lack of appreciation of their impact on the quality and accuracy of handoff communication.

It can be challenging for health care providers to remain focused and provide complete and accurate information during handoff, particularly when they are fatigued. Fatigue can result in impaired communication, inability to recall important information, diminished ability to recognize subtle changes in patient condition, and lapses of attention or an inability to stay focused [8]. A study of interns working more than 80 hours per week reports that attention failures occurred more frequently than in those interns working fewer than 80 hours per week (mean 65.4) [9]. At night, from 11:00 PM to 7:00 AM, the rate of attention failures increased to more than double for those interns working longer hours [9]. These findings support the need for guidelines that reduce the number of uninterrupted hours worked by health care providers and the need to limit handoffs in care to daylight hours as much as possible. Another finding of this study was that interns who worked a smaller number of consecutively scheduled hours demonstrated fewer attention failures than their counterparts who worked longer shifts. Restricting the length of shifts worked by health care providers may seem like a logical way to reduce errors associated with fatigue and distraction. Reducing shift length, however, actually can increase the number of handoffs required, adding additional complexity and increased opportunity for breakdowns in communication to occur. A great deal of work still is needed to redesign processes to eliminate unnecessary handoffs and reduce associated risks [10]. The focus of improvement strategies should be on designing systems and processes to reduce unnecessary interruptions during handoff and reducing the impact of human factors to ensure that handoff is conducted in a safe, efficient, and accurate manner.

Communication issues
Clinicians need access to appropriate information at the point of care to enhance problem solving and decision making, allow for appropriate care planning and enhance the timely detection of changes in patient condition. It is important for the next caregiver in line to have knowledge of all current patient information before accepting accountability and responsibility for a patient [5,10,11]. The need for a systems approach to improving communication during handoff was underscored in a recent study of 191 incidents related to the intrahospital transfer of critically ill patients in Australia. Forty six percent of problems identified were system based and 12% were communication issues between the staff of the sending and receiving sites including missing or inaccurate
information [12]. Thirty-one percent of the total number of incidents resulted in “significant adverse outcomes, including major physiological derangement, patient/relative dissatisfaction prolonged hospital stay, injury and death” [12]. Almost 15% of the factors contributing to the various errors included stress, haste, and distraction or inattention [12]. The investigators indicated that the most common patient and staff management issues were communication related, leading to inadequate patient and equipment preparation and increased risk for complications during and after the handoff of care. The investigators recommended the use of checklists to ensure all transport aspects are covered and to increase awareness of patient status during the transfer process.

Communication challenges between health care providers are frequent occurrences. Recognizing that nurses and doctors are the clinicians that generate communication episodes the most frequently, Coiera and Tombs observed many inefficiencies in daily communication between these groups [13]. They suggested that medical and nursing staff generally preferred the use of interruptive, or synchronous, methods of communication, such as face-to-face discussion and telephone calls. Asynchronous, or less interruptive, methods of communication, such as voice mail, electronic mail, or written message boards were less popular. Synchronous methods often are viewed as more time consuming and less efficient by clinicians and carry a greater risk of error. Synchronous methods, however, allow individuals receiving information an opportunity to ask questions to obtain an accurate understanding of patient information. When information is communicated accurately during initial handoff report, it can reduce the time spent making subsequent phone calls back to initial providers to obtain additional information and can increase efficiency later in the care process.

Nurses and physicians communicate in distinctly different styles, related largely to their training and the nature of their clinical practice [14]. Nurses traditionally have been taught to be more descriptive in their communication style through the use of narratives, whereas physician communication tends to be more issue based and to the point [14,15]. Verbal communication is one of the primary ways in which information is communicated through the process of providing care within health care organizations [15]. Verbal communication carries inherent risks because generally it is less structured and occurs with a greater degree of variability between providers than written communication. It also can be affected by external factors, such as the degree of tension inherent in emergency situations, or as a result of relationship issues that may exist between individuals involved in the handoff.

In a recent study of communication failures in operating rooms, Lingard and colleagues observed communication failures among teams of health care providers during 90 hours of team communication within 48 separate surgical procedures [16]. For the purpose of this study, a communication failure was defined as communication that was flawed in one or more predetermined dimensions: context, audience, purpose, and occasion of the exchange. Of 421 communication events noted, 129 were categorized as failures related to occasion (45.7%), content (35.7%), purpose (24.0%), and audience (20.9%). When providing handoff during the surgical process, occasion referred to the time or place chosen, content referred to the information communicated, purpose included the reason for the handoff, and audience indicated whether or not the correct people were in attendance. More than 36% of communication events resulted in visible negative effects,
such as patient inconvenience, delays, and inefficiencies and tension among team members.

Lingard and colleagues also described how relationships between health care providers can affect the quality of the handoff [16]. In one example, a nurse new to the area was required to communicate critical information on behalf of the responsible surgeon to another department over the phone. The nurse became increasingly anxious as the surgeon clearly demonstrated frustration in the background, impairing her ability to communicate effectively. To ensure effective communication, it is important to create an environment where the individuals involved feel safe to speak up and participate actively in the handoff process. Flattening inherent hierarchic relationships that exist within health care environments can create a sense of familiarity and comfort for staff and a culture where it is acceptable for them to voice their concerns or ask questions during the handoff process [14].

Although it is a long-standing tradition in most, if not all, hospital environments that each patient has a physician responsible for directing care, in a team environment it is not just the actions of one individual that lead to success or failure. The care a patient receives is a result of a planned, coordinated effort by an interdisciplinary group of health care providers. Each discipline brings its own set of standards and ways of providing care. The overriding goal should be open and honest communication between all members of the team, the client, and family members. In most environments, rarely does teamwork come naturally.

Another common patient communication event that has inherent risks involves the group handoff of patient information at change of shift between nurses. An examination of handoff practices among nurses reports a variety of inherent risks in these communication events [17]. For example, shift reports can take from as little as 10 minutes to more than an hour. If, as in some settings, group handoff is conducted where all nurses listen to reports on all patients on the unit, they may miss the details of “their” assigned patients if they do not listen attentively throughout. This can be a challenge when listening to a particularly long report of which only a few minutes are directed to individual needs as a care provider. The shift charge nurse, who may not have in-depth knowledge of each patient’s progress and is passing on information second hand to those listening, usually directs a group handoff at change of shift. Group handoffs may be too general in their scope to capture the specific needs of each patient, requiring nurses to ask questions, clarify information, or review charts further before feeling adequately prepared to provide care for the shift. Several issues need to be addressed when working to improve the quality and efficiency of group handoffs, including lack of patient-related detail; audibility of the report, particularly when it involves a large group of people; teaching during the handoff if procedures or aspects of care are unknown; and the frequency in which handoff reports occur [17]. On some inpatient units, group handoffs occur up to four or more times a day, with variations in the quantity and quality of the shared information depending on who is involved. The variations in methods and content of communication can be distracting. If the sender and receiver have a different sense of what is important information, the receiver may be trying to anticipate what questions to ask and, consequently, listening only partially during the handoff. Interruptions for clarification may affect the flow of thought and verbalization from providers of information so that they may miss a key piece of information.

Miller reviews the various methods of handoff communication and concludes
that it is important to question the usefulness of existing methods of communication frequently for the purpose of improving quality and reducing risk of errors [5]. Developing notes or a handoff guide may be useful in directing the format of the communication and ensuring nothing of importance is overlooked.

Strategies for improving communication during handoffs

The following strategies can improve the quality and accuracy of information communicated during handoffs.

Standardization and simplification

One of the most effective ways to reduce error is to standardize and simplify processes to minimize risks associated with human functions known to be fallible, including short-term memory and vigilance [18,19]. Standardization can enhance efficiency and patient safety by reducing variability in practice from one individual to another or from one area of an organization to another [20]. A standardized handoff checklist is one simple tool that could be used to organize the flow and content of information, reduce variability between practitioners, and ensure that critical information is communicated during the handoff process [12]. Checklists are used successfully in the aviation industry to reduce variability and enhance coordination, particularly during periods of increased activity or stress [21]. Involving frontline health care providers in the design of a handoff checklist is important to ensure that it is consistent with the natural flow of their report and contains all of the critical information they need to care for patients on an ongoing basis. When using a handoff checklist, health care providers could feel confident that all of the necessary information is communicated, because the individuals providing the information have a consistent guide with which to communicate the information. Receivers of the handoff report also could use a copy of the checklist as a guide when receiving patient information. This could reduce distraction related to their own need to either guess what is coming next during the report or anticipate which questions they may have to ask to ensure that they have the necessary information to care for patients once handoffs are completed. In addition, if they were interrupted at any time during a handoff report, the checklist could serve as a guide to help them return to where they left off in the discussion, confident that the risk of missing information is low.

Avoid interruptions during handoffs

Where possible, the handoff process should not be interrupted, except during an emergency. Interruptions can be minimized by providing handoff in a quiet, distraction-free location. Although it may be necessary to attend to urgent patient issues during handoff, whenever possible, admission assessments and vital signs should be completed after the handoff so that providers and receivers can remain focused on communicating accurate and complete information. Personal discussions and socialization that often are a normal part of the handoff process should occur either before or after so that each member can remain focused on the task at hand.

Limit the use of intermediaries

With an increased focus on improving health care systems efficiency, the use of intermediaries to facilitate patient movement through the system can be common. The use of an admission nurse or bed management specialist to obtain and relay handoff report and expedite the process of patient transfer or admission can create additional complexity within an already complex process. Although the underlying purpose is to improve flow, increasing the number of times that handoff is required can increase the risk that critical
pieces of information are missed. As with the old children’s game of broken telephone, whereby a simple message is communicated along a line of individuals, what is said at the beginning of the game may be vastly different from what is heard by the last person in line, as the message is relayed by many individuals. Whenever possible, communication and receipt of patient information during handoff should occur directly between the individuals who are the primary health care providers responsible for the care of the patient.

Use a common communication style
Mechanisms that standardize, simplify, and provide structure during communication could improve the flow of critical patient information that occurs during handoff. According to Leonard and coworkers, the “tools and concepts that have proven the most valuable are collectively known as SBAR (situation, background, assessment, recommendation)” [14]. SBAR is a situation briefing model developed originally in the United States military and adapted for use in health care communication. Individuals sending a message clearly and succinctly describe the situation, give background of a patient’s illness and progress, provide an assessment of a patient’s current state (for example, vital signs), and suggest recommendations for intervention. This method of communication provides a common style and ensures clear and efficient sharing of information for the benefit of patients. SBAR can be beneficial when clinicians are required to communicate information quickly during urgent situations or when there are conflicting priorities, as it assists with delineating patient conditions and needs clearly.

Implement a readback/hearback communication process
Distracting and busy work environments can affect communication. People often only half listen to conversations and this inattention during handoff can result in inaccurate or incomplete communication. The method of “readback/hearback” is “the fundamental mechanism of closed loop communication. intended to improve the reliability of information exchange among two or more people” [22]. Using readback/hearback involves having individuals receiving information repeat, or readback, what they heard. If correct, individuals providing the information indicate that readback or hearback is correct. If there is a discrepancy between what was communicated and what a receiver hears, the information is recomunicated and hearback repeated until the message is conveyed correctly. Although this method initially may seem time consuming, it becomes easier with practice and ensures critical information is not missed or heard incorrectly. It prevents critical information from being conveyed too quickly and requires attentiveness on the part of both parties to ensure accuracy.

In some cases, not all patient information may need to be read back, but critical information, such as allergies, diagnostic information, or other information of high importance for safe patient care, should be repeated to ensure it is understood. It also is useful when verbal directions are provided in an emergency situation. If a drug and dosage are ordered verbally by a physician during a critical event, the nurse should repeat what was heard and receive direct clarification as to the order’s accuracy. The physician then should confirm that what was repeated by the nurse is accurate. This repetition serves as a double-checking mechanism and prevents potential life-threatening errors in an already urgent and complex situation.

Keep communication patient focused
During handoff, it is important to ensure that the information being communicated is specific to the care of that particular patient. Clinicians often
are distracted by long reports of superfluous information. Focusing handoff specifically on patient-related information reduces the inclination to gossip or use broad statements that have no bearing on patient needs. Webster and Lally identify that the report time often was used as a teaching opportunity or an opportunity to evaluate care provided during the previous shift [23,24]. Although Lally supports the importance of maintaining these functions in the report, it could be argued that they may be distracting and should be managed at the end of the handoff or through other complementary processes, such as staff education or information meetings [24]. Webster suggests other avenues for these functions, such as team rounds and staff meetings. When handoff report was focused solely on communicating patient information, there was increased satisfaction with the report received, and the handoff was more useful in providing care providers with relevant information to meet patient care needs [23].

Summary
The use of strategies that ensure the timely communication of complete and accurate patient information is essential to reducing errors and patient harm associated with handoffs of care. It is recognized universally that many factors, such as stress, distraction, and communication breakdowns, can increase the risk of error during handoff. Health care providers are required to communicate and work effectively within increasingly complex and rapidly changing health care environments. Complete, accurate, and timely handoffs can be achieved by assessing where communication breakdowns occur and implementing effective strategies to ensure safe passage for patients. Interventions, such as developing strong team relationships, reducing stress in the communication interaction, minimizing interruptions, and creating efficient work environments, are important. Common language and the use of standardized tools, such as SBAR and handoff checklists or guides, improve the consistency of information exchange. Finally, using repetitive methods, such as readback and hearback or other double-checking mechanisms, ensure accurate exchange of information.

References