

Re-framing continuity of care for this century

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Improvements are needed in teaching “hand-offs” to prevent communication failure between healthcare professionals

It is widely accepted that “continuity of care” is vital to its quality and safety. The traditional approach to achieving this in the inpatient setting has been to minimize transfers among providers to reduce interruptions in the care process. In recent years the effort to limit duty hours for resident physicians (junior doctors) in the US, UK, and EU has highlighted the fact that continuity of care in teaching hospitals cannot depend on trainees working beyond limits that are advisable from a performance and safety perspective. Changing practice in teaching settings and a general movement toward shift and team based approaches to patient care have thrust into prominence the patient “hand-off” (also referred to as “hand-over,” “sign-out,” or “sign-over”) as the process that enables multiple physicians collectively to ensure continuity and currency of information and care.

Hand-offs occur at many places in the care process. In teaching hospitals their frequency has increased since the imposition of limits on resident (junior doctor) hours, in large part due to the use of duty shifts and “short-call” and “cross-coverage” models in which responsibility for patients is transferred several times during the traditional 24 hour call period. Duty hour limits also appear to affect the hand-off in other ways, such as reducing the time available for this critical aspect of care.

IMPORTANCE AND VULNERABILITY OF THE HAND-OFF

How well a patient hand-off is made affects decision making and the subsequent quality of care. The article by Arora *et al* in this issue of *QSHC* highlights omitted information and communication failures as sources of uncertainty, inefficiency, and errors in patient care decisions.¹ Their work, and a growing body of research on this topic, eloquently make the case for the hand-off as an important and vulnerable point in the care process. Vulnerability results from the fact that errors or omissions in the information communicated through

the hand-off often become “fact” for the next person or team using the information.² An example is the wrong side surgery that amputated the healthy leg of a patient because the hand-off between two surgical nurses did not correct an error by a unit clerk who had recorded the wrong leg for amputation.³ Conceptually, the hand-off is an additive task in which the performance of the incoming and outgoing physicians contributes cumulatively to the accuracy and completeness of the information exchange. Its fluid and loosely structured character, and the dynamic nature of a patient’s condition, can result in information becoming lost or distorted or in its misinterpretation by the incoming physician. Consequences can include failure to identify patients whose condition is becoming critical, inefficient allocation of care resources to non-critical patients, duplication of services, and deviation from a previously established plan of care. The US accrediting body for hospitals has implicated communication failures in 60% of sentinel events reported to the organization and has added the hand-off to its patient safety goals for 2006, emphasizing the need for “a standardized approach to hand-off communications, including an opportunity to ask and respond to questions”.⁴

STUDY AND TEACHING OF THE HAND-OFF: THREE CONCEPTUAL SCHOOLS

Despite its growing importance and potential vulnerability, the process for handing off patients is not currently taught in medical school or residency, and learning largely occurs informally at the bedside. A study of residents’ suggestions for ways to reduce sources of healthcare error called the hand-off “remarkably haphazard”, commenting that there is “no system of organized interaction” among participants.⁵ One reason may be the lack of a clear understanding of the process involved in a hand-off, and the advantages and possible drawbacks of different approaches. Other industries have given

thought to the transfer of information and responsibility among professionals or teams. Patterson *et al* identified 21 strategies used in end of shift transfers in a number of industries that require accurate information transfer, including space shuttle mission control, power plants, and railroad and ambulance dispatch services.⁶ They proposed that many of these strategies are applicable to the patient hand-off, including providing the incoming physician with a summary of care plan changes, contingency plans and a list of tasks to be completed during the next duty period, and the transfer of responsibility for patients to the incoming physician in a clear and non-ambiguous fashion.

As the medical profession conducts research on the patient hand-off, three conceptual schools have emerged. All seek to remedy the perceived vulnerabilities of the hand-off, but different interpretations about causation lead to different approaches to enhance the integrity of the information transfer. The first school declares that its verbal format makes the hand-off vulnerable and suggests that information presented in a clear and consistent fashion using a paper based or computerized data form can counteract this. An example is the SBAR (Situation-Background-Assessment-Recommendation) approach which is used in a growing number of US hospitals through a cooperative arrangement that provides the SBAR tool at no charge.⁷ At present, a few institutions use an electronic sign-out form that is linked to the electronic medical record or patient order entry system which feeds it relevant data. Research related to this conceptual school of the hand-off frequency applies a standardized data set for the hand-off, finding that this reduces adverse outcomes and participant perceptions of “inadequate sign-out”.^{8,9}

The second school believes that the loosely structured interactive nature of the hand-off has inherent strengths by allowing “real time recoding and synthesis”.¹⁰ Brandwijk *et al* observed that verbal hand-offs in ICUs (1) include no more information than is needed; (2) are relevant to the context in which it is presented; (3) avoid ambiguity; and (4) provide accurate information.¹¹ Research related to this model is often ethnographically based, and focuses on the attributes and tacit rules of communication and interpersonal variables such as trust, and how they affect the information transfer.

A third emerging conceptual school for the end of shift transfer has only been used in other industries, but its approach is congruent with a more explicit focus on systems that enhance

patient safety by facilitating error detection and recovery. This school views the hand-off as an opportunity to reassess the information and practices from the prior period, with the incoming and outgoing team collaborating to detect errors and discrepancies. An example is in-flight management for NASA's space shuttle, which relies on verbal hand-offs to transfer control at the end of each ground team's shift. These transfers explicitly seek to identify and correct potential errors in the outgoing team's assessment of the status of the shuttle, with eight of 75 questions routinely asked serving solely to identify errors in the information used in flight management.¹²

Adding to the diversity of the approaches to studying the hand-off, there may also be conceptual differences about the role of the hand-off in the ongoing management of patients. Other terms for the hand-off include "sign-outs", "sign-overs", and "hand-overs". There is an emergent understanding that underlying the different terms are differences in the approaches used to manage care over the 24 hour day (I Philibert, unpublished data, 2005). "Sign-out" and "sign-over" are used in settings where a "day" provider or team transfers care to an evening or night shift. Common patterns include short-call or night float. The underlying concept is that patients are moved from an active period of therapeutic management to a "holding phase" until the return of their regular provider. The physician accepting the sign-out has a mandate to deal with emergencies, but planning and execution of care are largely suspended. In contrast, underlying the terms "hand-off" and "hand-over" is a concept of 24 hour, 7 day continuous management of the patient, with the physician accepting a "hand-off" fully empowered to manage all aspects of patient care. A common setting where this is used is the intensive care unit where management of patients cannot be put on hold. The distinction between "hand-off" and "sign-out" has carried over into studies of information transfers under short-call and cross-coverage schedules.⁸ It has also been incorporated into the emerging curricula used to improve teaching of the hand-off, with some including explicit instructions for how (and when not) to sign out diagnostic studies and the reporting of the results in a "short-call" situation.¹³

FACILITATING LEARNING AND IMPROVEMENT IN THE HAND-OFF

The patient hand-off has emerged as an important element in the patient care process, worthy of the focus of research-

ers and medical educators. At the same time, different perceptions of the role of the hand-off in the ongoing management of care, and differences in the theories about what constitute important vulnerabilities, have led to diversity in the approaches for how it is studied and taught. Transcending the particular school of research and teaching of the hand-off could assist in overcoming potential trade-offs between approaches. For example, in selecting between a traditional verbal hand-off and the use of an electronic supported data format, a disadvantage of electronically linked systems is the inability to tailor data to the critical data elements for the given patient. A more serious drawback is not part of the electronic system, but can result when it is used to replace the interactive verbal communication during the hand-off, with studies showing that electronic systems cannot substitute for successful face-to-face communication.¹⁴ This finding is important as teaching institutions are looking for time efficient approaches to transfer care under the limits imposed on the hours of residents and, in some nations, all practitioners. It is echoed in the comments by the interns in the study by Arora *et al* that the hand-off should occur face-to-face, and in its summary of problems.¹

The discussion about the benefits and vulnerabilities of a verbal, dynamic, interactive hand-off versus an approach supported by consistent data mirrors the larger debate in the medical profession about the circumstances in which medical professionals should use judgment and when, in the consensus of experts, discretionary judgment should be taken out of the equation. Given that the information underlying the patient hand-off is characterized by uncertainty and ambiguity, this debate does not have an easy resolution when applied to the hand-off. Practical wisdom in a highly regimented discipline such as aviation tells us that, when standard operating procedures do not work, conversations to explore effective strategies may be beneficial (W Rutherford, personal communication, 2005).

This wisdom could be applied to medicine, with curricula related to the hand-off explicitly including instruction on when and how to use discretionary judgment and transcend the information in regimented data sets designed to support the hand-off. Teaching the hand-off may also benefit from a more explicit teaching of the expectations and values underlying its purpose in the management of care. This repeats the question raised by Gardner and colleagues¹⁵ in their examination of professional development in two disciplines:

"Why is it that experts primarily teach techniques to young professionals while ignoring the values that have sustained the quests of so many creative geniuses?"

Researchers and experts in the health professions and in other industries are accumulating knowledge related to the transfer of information and responsibility among practitioners and teams. At present, learning across these efforts may be impeded by the lack of ongoing discourse and sharing between the various approaches to studying the hand-off and the different theories about the sources of its vulnerability. Findings from the three schools of study of the hand-off and the knowledge from other industries applied collectively will contribute to our understanding of this important process and to improvements in teaching and practice. At present, the diverse communities doing this work do not communicate to any significant extent. What may be helpful is a forum in which researchers and educators representing the different schools can share findings and engage in dialogue to advance research and education, combining the best of all approaches. This could contribute to more rapid accumulation and dissemination of new knowledge, and more timely development of approaches for teaching the hand-off. The ultimate benefits would greatly exceed the time and costs that would be devoted to such an endeavor. In addition to the important benefits for patient safety and reduction of anguish for patients and their families as their care is more closely and explicitly coordinated, there could be reductions in cost and length of stay.

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