

Poverty amid plenty

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Clinical handoffs are tools aimed at bridging gaps¹ that occur during transitions in care, whether across time (eg, shift changes) or across organisational boundaries (eg, the ward to the intensive care unit). They have long been viewed as potential threats to safety² and are attracting increasing attention for several reasons. First, from a control theory point of view, handoffs are inherently hazardous because having two controllers in a process always raises the possibility of conflict, poor coordination or miscommunication.³ Second, handoffs are often cast among 'the usual suspects' in after-the-fact reviews of critical incidents and adverse events,^{4 5} although a few have noted that they have also been sources of recovery from impending danger.⁶⁻⁹ And finally, concerns about fatigue leading to a reduction in work hours present a potential double bind, as decreasing risks from fatigue might be counterbalanced by increasing risks from more frequent handoffs.

Perhaps because of the pressing, practical reasons to 'solve the problem' represented by handoffs, most studies have focused on 'fixing' rather than understanding them. Most of the descriptive studies^{4 5 10-12} have framed the problem as failures of information transfer and involved surveying or interviewing personnel about their perceptions of the handoff process and thus risk the hindsight and outcome biases.¹³⁻¹⁶

Only a few have involved directly observing clinical handoffs 'in the wild', or tried to build a deeper understanding of what they are, what needs they serve and what actually happens in them.¹⁷⁻²¹ In this issue of *BMJ Quality & Safety*, Carroll *et al*'s study of nurses' shift change handoffs is a welcome attempt to fill a bit of this gap.²²

Carroll's group actually studied real handoffs, instead of assuming we know enough about them already to 'improve' them. As often happens when non-clinical, safety scientists study clinical work, they found things that no one suspected about—that which everyone sees—that was 'hidden in plain sight.' This paper adds to the growing understanding of handoffs^{3 23 24} as incredibly complex, exquisitely situated episodes that defy simplistic, 'one size fits all' solutions or clever mnemonics.²⁵

Although not explicitly stated, their work used several different framings to try to understand what happens during handoffs; this simultaneous support of a multiplicity of views²⁶⁻²⁸ is an important improvement over much previous handoff research, and leads to a richer, more complete and better-nuanced understanding of handoffs. It is difficult to imagine how the mutually contradictory goals of the incoming and outgoing roles and the resulting struggle for control of the conversation might otherwise have surfaced. It also shows the value of accepting research based on an interpretive paradigm, rather than relying solely on the positivist approach that currently dominates biomedicine.²⁹⁻³¹

However, because healthcare tends to unconsciously adopt a positivist, information-processing framing²⁷ as

the natural (in fact, the only) way in which to view handoffs, there is a potential hazard for readers of this work. An information transfer framing attempts to assess the quality and adequacy of handoffs in terms of the number of data points transferred accurately. This carries with it three problems. First, data does not equal information, much less understanding; the difficulty in 'connecting the dots' in a sea of data is common, so accurate data transfer alone cannot ensure adequate understanding. Second, the idea of 'completeness' in this regard is a will-of-the-wisp. It is impossible to articulate, much less transfer, all that has been learnt about even a single patient over the past shift. The value of a model is precisely that it is not complete, because completeness is overwhelming. Finally, the data transfer framing implicitly sneaks in the idea that more items are always better than fewer. (We see this in the oft-proposed 'solution' to the handoff problem of creating a list of standard data elements that should always be covered). It leads to a kind of 'scope creep' where things can be progressively added, but nothing is ever taken away.^{32 33} Over 40 years ago, Herbert Simon encapsulated this problem in his statement: 'An abundance of information creates a poverty of attention.'^{34 35} We tend to hear a lot about information in health professionals' discourses about handoffs, but precious little about salience; it is time to emphasise this neglected perspective.

Let us not do to the handoff what the electronic medical record (EMR) has done to the chart—sacrifice salience for 'completeness' and lose the important in a sea of the marginally relevant and questionably trustworthy.³⁶⁻⁴¹

Competing interests None.

Provenance and peer review Commissioned; internally peer reviewed.

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Published Online First 23 March 2012

BMJ Qual Saf 2012;21:533–534.
doi:10.1136/bmjqs-2012-000916

REFERENCES

- Cook RI, Render M, Woods DD. Gaps in the continuity of care and progress on patient safety. *BMJ* 2000;320:791–4.
- JCAHO. *Delays in treatment. JCAHO Sentinel Event Alert*. Issue 26, 2002. http://www.jointcommission.org/sentinel_event_alert_issue_26_delays_in_treatment/ (accessed 9 Jan 2011).
- Wears RL, Perry SJ, Patterson ES. Handoffs and transitions in care. In: Carayon P, ed. *Handbook of Human Factors and Ergonomics in Health Care and Patient Safety*. 2nd edn. Mahway, NJ: Lawrence Erlbaum Associates, 2011:163–71.
- Greenberg CC, Regenbogen SE, Studdert DM, et al. Patterns of communication breakdowns resulting in injury to surgical patients. *J Am Coll Surg* 2007;204:533–40.
- Arora V, Johnson J, Lovinger D, et al. Communication failures in patient sign-out and suggestions for improvement: a critical incident analysis. *Qual Saf Health Care* 2005;14:401–7.
- Cooper JB, Long CD, Newbower RS, et al. Critical incidents associated with intraoperative exchanges of anesthesia personnel. *Anesthesiology* 1982;56:456–61.
- Cooper JB. Do short breaks increase or decrease anesthetic risk? *J Clin Anesth* 1989;1:228–31.
- Wears RL, Perry SJ, Shapiro M, et al. Shift changes among emergency physicians: best of times, worst of times. *Paper Presented at Human Factors and Ergonomics Society 47th Annual Meeting*. Denver, CO: Human Factors and Ergonomics Society, 2003:1420–3.
- Feldman JA. Medical errors and emergency medicine: will the difficult questions be asked, and answered? (letter). *Acad Emerg Med* 2003;10:910–11.
- Nagpal K, Arora S, Abboudi M, et al. Postoperative handover: problems, pitfalls, and prevention of error. *Ann Surg* 2010;252:171–6.
- Kitch BT, Cooper JB, Zapol WM, et al. Handoffs causing patient harm: a survey of medical and surgical house staff. *Jt Comm J Qual Patient Saf* 2008;34:563–70.
- Apker J, Mallak LA, Gibson SC. Communicating in the "Gray Zone": perceptions about emergency physician hospitalist handoffs and patient safety. *Acad Emerg Med* 2007;14:884–94.
- Fischhoff B. Hindsight is not equal to foresight: the effect of outcome knowledge on judgment under uncertainty. *J Exp Psychol Hum Percept Perform* 1975;1:288–99.
- Caplan RA, Posner KL, Cheney FW. Effect of outcome on physician judgments of appropriateness of care. *JAMA* 1991;265:1957–60.
- Henriksen K, Kaplan H. Hindsight bias, outcome knowledge and adaptive learning. *Qual Saf Health Care* 2003;12(Suppl 2):ii46–ii50.
- Gupta M, Schriger DL, Tabas JA. The Presence of outcome bias in emergency physician retrospective judgments of the quality of care. *Ann Emerg Med* 2011;57:323–8. e329.
- Horwitz LI, Moin T, Krumholz HM, et al. Consequences of inadequate sign-out for patient care. *Arch Intern Med* 2008;168:1755–60.
- Behara R, Wears RL, Perry SJ, et al. Conceptual framework for the safety of handovers. In: Henriksen K, ed. *Advances in Patient Safety*. Rockville, MD: Agency for Healthcare Research and Quality/ Department of Defense, 2005:309–21.
- Brandwijk M, Nemeth C, O'Connor M, et al. *Distributing Cognition: ICU Handoffs Conform to Grice's Maxims*. <http://www.ctlab.org/properties/pdf%20files/SCCM%20Poster%201.27.03.pdf> (accessed 27 Jan 2003).
- Nemeth CP, O'Connor M, Nunnally M, et al. Distributed cognition: how hand-off communication actually works. <http://www.ctlab.org/documents/2005%20Distributed%20Cognition.pdf> (accessed 7 Nov 2005).
- Apker J, Mallak LA, Applegate EB, et al. Exploring emergency physician–hospitalist handoff interactions: development of the handoff communication assessment. *Ann Emerg Med* 2010;55:161–70.
- Carroll JS, Williams M, Gallivan T. The ins and outs of shift handoffs between nurses: a communication challenge. *BMJ Qual Saf* 2012;21:586–593.
- Cohen MD, Hilligoss PB. *Handoffs in Hospitals: a Review of the Literature on Information Exchange While Transferring Patient Responsibility or Control*. <http://deepblue.lib.umich.edu/handle/2027.42/61522> (accessed 12 Jun 2009).
- Philibert I, Leach DC. Re-framing continuity of care for this century. *Qual Saf Health Care* 2005;14:394–6.
- Haig KM, Sutton S, Whittington J. SBAR: a shared mental model for improving communication between clinicians. *Jt Comm J Qual Patient Saf* 2006;32:167–75.
- March JG, Sproull LS, Tamuz M. Learning from samples of one or fewer. *Organ Sci* 1991;2:1–13.
- Patterson ES, Wears RL. Measurement approaches for transitions of authority and responsibility during handoffs. In: Patterson ES, Miller J, eds. *Macro-cognition Metrics and Scenarios: Design and Evaluation for Real-World Teams*. Farnham, UK: Ashgate, 2010:137–59.
- Patterson ES, Wears RL. Patient handoffs: standardized and reliable measurement tools remain elusive. *Jt Comm J Qual Patient Saf* 2010;36:52–61.
- Greenhalgh T, Russell J. Evidence-based policymaking: a critique. *Perspect Biol Med* 2009;52:304–19.
- Greenhalgh T, Russell J, Ashcroft RE, et al. Why national ehealth programs need dead philosophers: Wittgensteinian reflections on policymakers' reluctance to learn from history. *Milbank Q* 2011;89:533–63.
- Kneebone R. Total internal reflection: an essay on paradigms. *Med Educ* 2002;36:514–18.
- Coiera E. Why system inertia makes health reform so difficult. *BMJ* 2011;342:d3693.
- de Saint-Exupéry A. *Le Petit Prince*. Paris, FR: Galimard, 1943:113.
- Simon HA. *Designing Organizations for an Information-Rich World*. <http://zeus.zeit.de/2007/39/simon.pdf> (accessed 20 Oct 2010).
- Simon HA. Designing organizations for an information-rich world. In: Greenberger M, ed. *Computers, Communications and the Public Interest*. Baltimore, MD: The Johns Hopkins University Press, 1971:37–72.
- Wrenn JO, Stein DM, Bakken S, et al. Quantifying clinical narrative redundancy in an electronic health record. *J Am Med Inform Assoc* 2010;17:49–53.
- Hartzband P, Groopman J. Off the record—avoiding the pitfalls of going electronic. *N Engl J Med* 2008;358:1656–8.
- Armstrong-Coben A. *The Computer Will See You Now*. New York, NY: New York Times, 6 March 2009.
- Wears RL. The chart is dead—long live the chart. *Ann Emerg Med* 2008;52:390–1.
- Charette RN. EHRs: electronic health records or exceptional hidden risks? *Commun ACM* 2006;49:120.
- Payne TH, tenBroek AE, Fletcher GS, et al. Transition from paper to electronic inpatient physician notes. *J Am Med Inform Assoc* 2010;17:108–11.