

From Handover to High-Reliability Care: Why Hospitals Need to Measure the Transfer of Clinical Responsibility

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Care fragmentation is a recognized source of risk in hospitals. During an inpatient stay, responsibility for the patient passes repeatedly between teams and across shifts, and is eventually transferred to outpatient services. Each transfer is more than an administrative step. It is the point at which clinical information and responsibility for the patient must be conveyed without loss or distortion.

Despite decades of patient-safety work, clinical handover has not been established as a reliable process. The World Health Organization (WHO) Global Patient Safety Report 2024 identifies care transitions as a recurring source of risk in hospitals and includes them among the high-priority concerns of the *Medication Without Harm* initiative.¹ Awareness is no longer the limiting factor, because clinicians and administrators already recognize that poor handovers cause harm. The task that remains is to convert handover from a compliance requirement into reliable bedside practice and to treat it as a measurable indicator of clinical quality.

Handover Beyond Information Exchange

A common weakness in hospital policy is the treatment of handover as a passive transfer of data. An electronic health record (EHR) that contains current observations and results does not by itself constitute a safe transition. A raised or borderline lactate value in a deteriorating patient carries no clinical weight until its interpretation and the associated plan have been stated and confirmed by the receiving clinician.

Standardized frameworks, in particular the I-PASS mnemonic, have been associated with measurable reductions in preventable adverse events and medical errors across a range of inpatient settings.^{2,3} SBAR (Situation, Background, Assessment, Recommendation), by contrast, is useful for isolated escalations but gives more variable results during

full multi-patient ward handovers.³ Standardization provides a necessary structure, but it is not sufficient on its own. A protocol can specify what is to be said. It cannot ensure that the receiving clinician has understood the reasoning behind it and acted on it.

The Implementation Paradox

Attempts to standardize handover carry a particular risk. Excessive standardization can produce disengagement. When a handover is reduced to a fixed electronic checklist or a compliance audit, clinicians tend to complete it mechanically, which reduces rather than improves their awareness of the patient's condition.

Bedside handover that involves patients and families has clear benefits. It allows medication to be reconciled in the patient's presence, lets the working diagnosis be checked against what the patient reports, and gives patients a more active part in decisions about their care.⁴ Requiring it without regard to the clinical setting, however, creates problems. In busy acute-care units, and where privacy is limited by shared rooms, a rigid bedside requirement often leads to clinician fatigue or to the task being carried out superficially.⁴

Hospitals should therefore replace all-or-nothing mandates with handover systems that are matched to clinical risk. Measurement of quality needs to move beyond whether a handover took place and address both its content and its effect on the receiving clinician:

- **Level 1 (Structural):** whether the handover was completed and the checklist followed.
- **Level 2 (Content):** whether current clinical data and the active treatment plan were delivered in time.
- **Level 3 (Comprehension & Ownership):** whether the receiving clinician understood the information, confirmed it through closed-loop communication, planned for foreseeable problems, and accepted

responsibility for the patient.

- **Level 4 (Systemic Resilience):** whether care continues safely when the clinical system is under cognitive and institutional stress (Figure 1).

Most health systems measure Level 1 reliably and audit Level 2 only occasionally. Levels 3 and 4 are rarely assessed, although these are the levels at which preventable failure usually occurs.

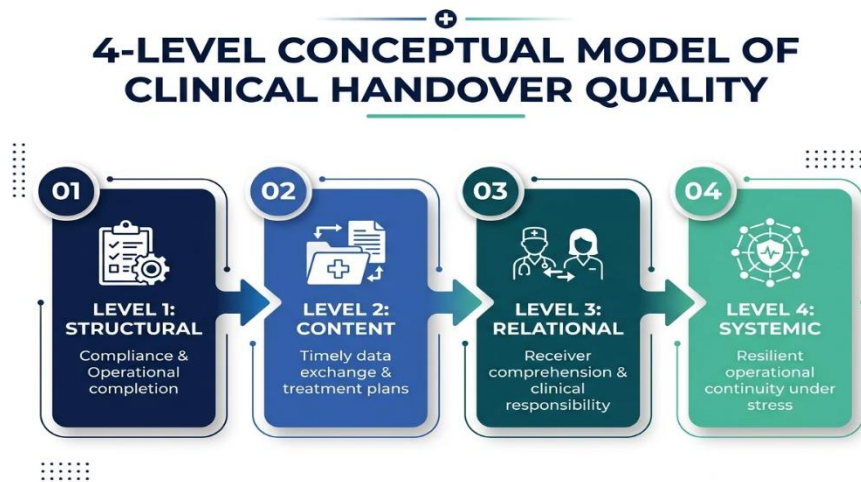


Figure 1. Four-Level Conceptual Model of Clinical Handover Quality.

Benefits and Risks of AI-Assisted Handover

Generative artificial intelligence and large language models (LLMs) could reduce the administrative burden of handover. A well-designed system can draw together the relevant parts of a patient's record, including results that arrive at different times and orders that are still outstanding, and produce a draft summary for the clinician to review. This reduces the time clinicians spend retrieving data by hand.

Automation that is not subject to clinical checking introduces three specific hazards:

1. **Automation Bias:** Clinicians may accept an AI-generated summary without checking it against the source record or reconsidering an uncertain working diagnosis.
2. **Clinical Decontextualization:** Algorithms are effective at aggregating patterns but may miss information that is not held in structured data, such as a clinician's concern about a change in a patient's manner or a family situation that has not been recorded.
3. **Diffusion of Accountability:** When a handover note is generated automatically, personal responsibility for monitoring the patient is weakened.

The WHO guidance on artificial intelligence for health states that such systems should support clinical reasoning rather than replace clinical judgment.⁵ AI may be used to direct attention to important findings, but it cannot hold the legal or ethical responsibility for a patient's care.

Recommendations for Health Systems

To establish handover as a reliable clinical process, hospital leaders and clinical departments should address five priorities:

1. **Risk-Stratified Triage:** Handover should be matched to clinical risk. A stable patient may need only a brief exchange, whereas a high-risk transfer requires a fuller handover with senior involvement. High-risk transfers include patients recovering from surgery, patients with borderline early-warning scores (NEWS2) or multi-organ dysfunction, and patients on unstable drug regimens.
2. **Cognitive Scaffolding Over Rigid Scripts:** A validated structure such as I-PASS should support clinical discussion rather than replace it with a fixed script that discourages questions.
3. **Environmental and Attentional Insulation:** Handover should be given the same protection from interruption as a surgical timeout or a sterile cockpit in aviation. Non-urgent interruptions, including routine paging and low-priority alarms, should be deferred for its duration.
4. **Measuring Receiver Comprehension:** Measurement should focus on what the receiving clinician has understood rather than on what the sender reports having said. For each pending test, the handover should use closed-loop communication, name the clinician responsible, and define the result that should prompt escalation.
5. **Non-Punitive Systemic Learning:** A failed handover should not be treated as an individual failing of front-line staff. It should be examined as a system failure, which commonly reflects organizational problems such as inadequate staffing and shift overlap, clinician fatigue, or poorly designed EHR interfaces.

Summarily, reliable care will not follow from another policy document or an additional mandatory field in the

record. A handover succeeds only when the clinical reasoning and the uncertainty that still surrounds the patient are transferred to the receiving clinician together with responsibility for that patient. Until this exchange is measured and protected as a routine part of hospital practice, handover will remain a significant and under-recognized source of risk in acute care.

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Conflict of Interest Disclosures

All authors declared that they have no conflict of interest.

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