Editorial

Operating Room to Intensive Care Unit Handoffs: Time to Recognize an Underrated Predictor of Patient Outcome

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In patient care, the term "handoffs" or "handovers" refers to transferring the responsibility of patient's well-being between the individual providers and/or teams. It has been identified by the World Health Organization (WHO) as a part of "Action of patient safety: High 5s initiatives."[1] Such transition of care may occur at various stages from admission to discharge of patient from the hospital. Handoffs in surgical branches mainly focus on the perioperative interventions, whereas in medical specialties it would focus on the current condition of the patient. One of the very crucial handoffs take place in the postoperative period when the patient is transported with monitoring from the operating room (OR) to the postanesthesia care unit (PACU) or the intensive care unit (ICU). Practically, the transfer of patient care between the providers require passing of all the critical clinical information. Poor handoffs may lead to serious clinical consequences or mishaps.[2] If the information is omitted or misunderstood there can be errors in clinical decision making, thereby causing potential harm to the patient.[3,4] Patients are at the risk of adverse events during transfer of care and require a well-defined protocol for handoffs for improving safety. Many hospitals implement a checklist to provide a structured format for handoffs while transferring the responsibility of patient care between the providers. This helps to standardize the process and ensures that all relevant critical information is passed when patient care is transferred to a new team.

The **goal** of the handoff is to develop a shared understanding of the patient. An effective handoff should have four phases.[5,6]

- Prehandoff: The person who gives the handoffs must organize and update information in advance.
- On arrival: Time is fully devoted for the handoff to occur and other works should be stopped during that time.
- Dialogue: An exchange of information takes place between the giver and receiver. Ideally, this should be a verbal as well as written on patient chart or documented electronically.

- Posthandoff: The receiver of information integrates the new information and assumes care of the patient.

Elements of an effective handoff include both verbal and written communications. **Verbal communication** allows sharing of information including anticipated issues and tasks to be completed. It also allows active questioning and formation of "shared mental model." According to this concept, the team works more efficiently when there is shared understanding of the patient condition and the tasks to be performed.[7] **The written communication** supplements the verbal communication and serves as a "transition record" for all relevant information including critical events; it may be paper based or electronic records.

Handoff is not just transfer of patient care information but also the transfer of patient responsibility. The **strategies to improve handoff** should include the following things:

- *Standardization of the content and structure of both verbal and written communication* helps in formation of standard protocols for handoff.[5] This improves the consistency of information during handoff. Use of standardized protocols during handoff has shown to decrease the preventable adverse events.[8,9] Also, simultaneous use of verbal and written handoffs resulted in more retention of the information compared with verbal handoff alone.[10]
- *Verbal communication and interactive questioning*: Face-to-face verbal communication and ability to actively question/interact is important for transfer of information and are recommended during handoff. Also, the use of standardized language during verbal communication ensures transfer of consistent information and proper understanding.
- *Written templates for handoffs*: Use of structured templates (checklists) for transfer of written information ensures consistency in the information relayed between the outgoing and incoming team and maintains same continuity of patient care between them.

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- *Minimizing interruptions at the time of handoff* allows for the giver and receiver to focus on the exchange of information. This is a crucial step and adequate time should be given for the handoff to take place.
- *Avoid "double handoffs,"* that is, when a care provider temporarily takes care of the patient for a short period and then transfers the care to another care provider. In such a situation, both the care providers during second handoff do not have primary knowledge of the patient.
- *Communicate in a structured manner* and focus on the important information to be passed on to the receiver at the time of handoff. It is important to emphasize on the tasks to be done and to give specific suggestions or recommendations for anticipated events that may occur. It is more likely to be remembered than general information passed.
- *Use of read-back and interactive questioning* ensures that the information has been adequately and effectively relayed between the giver and receiver. This would reduce error as well as prevent patient harm.
- *Active listening behavior improves receipt of information* during handoff and should be encouraged. This includes notetaking and questioning, listening, understanding, and processing of information by the recipients. Writing notes during handoff has been shown to reduce data loss, increase retention of information, and improve patient care delivery.[10,11] Passive listening behavior, such as silent-listening or head nodding, does not confirm comprehension.
- The receiver must confirm successful comprehension of information and must ensure transfer of professional responsibility.[12]

There are certain important tasks and clinical information, communication of which should be prioritized by either team during the process of handoffs.[13] They are as follows:

- Transfer of monitoring gadgets from OR to ICU and return back to OR as desired.
- Secure all the vascular accesses, devices, drainage tubes, catheters, and endotracheal tube.
- Identify ongoing medications and their dosages.
- Maintain adequate level of sedation and analgesia, cardio-respiratory, and hemodynamic stability.

In an effort to reduce handoff errors and increase patient safety many health organizations and committees have given recommendations for standardized approach to handoffs.[4] The Association of American Medical Colleges (AAMC) has included handoffs on the list of competencies needed for residency.[14] Similarly, Accreditation Council for Graduate Medical Education (ACGME) has made a program that includes transition of patient care or handoffs as one of the six focus areas while institutional teaching and clinical alignment, that is, Clinical Learning Environment Review (CLER) program.[15,16] There are numerous interventions that aim to improve patient care by efficient handoffs, but standardized, reliable measurement tools are not widely used. A postoperative handover assessment tool (PoHAT) developed for assessing the handoff after surgery showed good feasibility and reliablility.[17] Another tool to evaluate verbal handoff (Verbal Handoff Assessment Tool [VHAT]) demonstrated improved scores after the implementation of standardized handoffs protocols. In addition, there are tools developed to evaluate the quality of written handover documents, which have been tested in critical care settings.[18] Different mnemonics are also utilized for the same purpose.

Neurosurgical procedure and the care provided during the perioperative period are more complex. Most of the patients require intensive care during immediate postoperative period; hence, several centers prefer to shift the post-neurosurgical patients directly to the ICU from OR. However, the handoffs activities are vulnerable owing to a smaller ratio of resident doctors to the number of patients requiring handoffs. Moreover, there is lack of clear-cut policy in this context. In the Patient assessment, Assertive communication, Continuum of care, Teamwork with trust (PACT) Project, it was found that the handoffs among residents remain unstructured and important information on the patients are not communicated adequately.[19] Occurrence of handoffs by residents was observed to be an independent predictor of length of hospital and ICU stay, in neurosurgical patients.[20] In a standardized system, which included brief operative/anesthetic notes (written) and in-person encounters among residents and registered nurses, timely transfer of postoperative data was found to maximize safety and continuity of care in neurosurgical patients.[21] However, we need to have more structured handoffs programs and their impact on patient outcome with randomized controlled trials, to reduce the burden of preventable medical errors in neurosurgical patient population.

Conflict of Interest
None declared.

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