# PBLD: Anesthesia Transfer of Care Hand-offs: Is There a Better Way?

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**Stem Scenario:** You are interested in improving quality of care at your institution and trying to identify a potential project. There is no formal process of intra-operative hand-off, and varies from provider to provider, and hour of duty. You may have some dissatisfaction with this approach, and want to improve the quality of hand-offs.

1. What is the incidence of adverse outcomes related to hand-off communication errors?
2. Are there any regulatory mandates for intra-operative transfer of care at your institution or by an accrediting agency such as JCAHO?
3. How will you identify your current institutional need?
4. What are the critical items that should be reviewed during every handoff?
5. How will you incorporate a hand-off check-list that is readily available, and is easy to use?
6. What is your opinion about attending presence in the operating room during attending handoffs?
7. How will you implement a change in your institution, and how will you get the buy-in from all providers?
8. How will you monitor compliance with this change?
9. How will you make safe hand-offs using check-lists part of culture in your institution?

**Model Discussion**

Intraoperative hand-offs are an inevitable part of anesthesia practice. These occur at the time of breaks, lunch reliefs and shift changes, and involve attending anesthesiologists, nurse anesthetists and residents. It may involve only one member of the anesthesia care team during the course of the anesthetic, but sometimes the entire team may change in case of a longer procedure, or at the end of a shift. During transitions, critical deficiencies in communication may lead to suboptimal care or even patient harm. [1] A study of 138,932 adult handoffs in Cleveland Clinic identified that intraoperative care transitions are strongly associated with worse outcomes. [2] They further identified that each hand-off increased the risk of major in-hospital morbidity or mortality by 8%, and this effect was similar between attending anesthesiologists, nurse anesthetists and residents. This study did not include breaks less than 40 minutes in the analysis. Interestingly, another study of intra-operative hand-offs at Vanderbilt University did not find an association between intraoperative care transitions and post-operative morbidity and mortality after adjustment of confounding variables, and showed a small decrease in the events with short breaks. [3] However, other studies have reported morbidity and mortality from poor handoffs, and Joint Commission reported in 2012 that miscommunication was responsible for 80% hospital sentinel events.[4]

In 2006, the Joint Commission recognized handoff standardization as a national patient safety goal, and launched a tool in 2009 to assess quality of hand-offs. They identified root causes of communication failures and published solutions that can be implemented. [5,6] The Accreditation Council for Graduate Medical Education (ACGME) also requires that all ACGME-accredited programs ensure that the residents are competent in hand-off communications. [7] However, currently, no specific universally accepted guidelines for intra-operative handoffs exist. Without a standardized process, the details that are communicated may vary from provider to provider. Location of hand-off varies greatly among attending anesthesiologists, who may relieve others outside the operating room.

To identify institutional need, one may start by checking if there is a standardized process of intra-operative care transition, whether there is a check list that is routinely used, and whether it is used across the board with subspecialty case handovers, PACU and OR to ICU. One may survey the current practice of care transition between various anesthesia providers, and assess the level of satisfaction and retention of information. If electronic medical record is used, one can check if there is a default checklist that is already present, or if it can be modified to meet the institutional specific needs.

At UNC, we initiated a quality improvement project and surveyed anesthesia providers with respect to handoff quality when relieving another provider. After the need for standardization was established, the department members were surveyed electronically to identify items for a uniform handoff checklist. (Table 1) This checklist was then incorporated into the electronic anesthesia record by placing a “hand-off button” that pulled all the pertinent information from the patient’s electronic record. An educational campaign was initiated in the department with dissemination of information via emails and presentation at the departmental Grand Rounds and faculty meeting.

The use of electronic checklist has been shown to improve relay and retention of critical patient information and clinician communication at intraoperative handoff of care. [8,9] In the absence of an electronic record, this checklist can be laminated and placed on the anesthesia cart to be reviewed each time there is a care transition.

The practice of attending handoff is highly variable, and ranges from detailed intraoperative report to brief sign-out outside the operating room. A long procedure can go through multiple anesthesiologist changes at the end of the day. Each attending transition outside the operating room will potentially cause lesser recall and retention of information. In our institution, we tried to standardize this process of attending handoffs. After a buy-in from the quality improvement committee, we presented our survey data to the faculty committee. The need for standardization was highlighted and the faculty voted for intra-operative sign-outs.

Table 1: Handoff Checklist at UNC Anesthesiology

| Category | Item |
|---|---|
| General Demographics | Age, Weight, BMI |
| | Allergies |
| | DNR Status |
| | Procedure |
| Past Medical History | |
| Access | Peripheral IVs |
| | Invasive Lines |
| Anesthetic | Type (Volatile, TIVA, Sedation) |
| | Airway |
| | Positioning |
| Pertinent Medications | Antibiotics |
| | Narcotics |
| | Pressors/Inotropes |
| Ins & Outs | Crystalloid/Colloid |
| | EBL |
| | UOP |
| | Blood Product |
| Labs | Type and Screen |
| | Baseline Labs (CBC, BMP, etc) |
| | Arterial Blood Gases |
| Disposition | Post-op Orders |
| | Pain Plan (Regional, PCA, etc) |
| | Level of Care |

A post-implementation survey showed improved satisfaction by receiving providers. However, despite all the above measures, only 34% of providers used the novel “hand-off button”. Despite the verbal commitment by faculty for 100% intraoperative handovers, the post survey showed an increase from 12.5% to only 55%.

Change in practice involves constant reassessment and periodic surveys. Intermittent positive reinforcement campaigns and marketing will drive human behavior. The new providers must be trained and oriented, and existing providers must be reminded until this becomes part of institutional culture. The Joint Commission recommends “SHARE” as part of institutional strategy: **S**tandardize critical content; **H**ardwire within your system; **A**llow opportunity to ask questions; **R**einforce quality and measurement; and **E**ducate and coach. [10] The focus should be on the system, and not just the people. Leadership needs to demonstrate commitment to implement successful hand-offs and make it an organizational priority. Staff should be held accountable and compliance must be monitored.

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