



# Exploring Physician Perspectives of Residency Holdover Handoffs: A Qualitative Study to Understand an Increasingly Important Type of Handoff

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**BACKGROUND:** The term “holdover admissions” refers to patients admitted by an overnight physician and whose care is then transferred to a new primary team the next morning. Descriptions of the holdover process in internal medicine are sparse.

**OBJECTIVE:** To identify important factors affecting the quality of holdover handoffs at an internal medicine (IM) residency program and to compare them to previously identified factors for other handoffs.

**DESIGN:** We undertook a qualitative study using structured focus groups and interviews. We analyzed data using qualitative content analysis.

**PARTICIPANTS:** IM residents, IM program directors, and hospitalists at a large academic medical center.

**MAIN MEASURES:** A nine-question open-ended interview guide.

**KEY RESULTS:** We identified 13 factors describing holdover handoffs. Five factors—physical space, standardization, task accountability, closed-loop verification, and resilience—were similar to those described in prior handoff literature in other specialties. Eight factors were new concepts that may uniquely affect the quality of the holdover handoff in IM. These included electronic health record access, redundancy, unwritten thoughts, different clinician needs, diagnostic uncertainty, anchoring, teaching, and feedback. These factors were organized into five overarching themes: physical environment, information transfer, responsibility, clinical reasoning, and education.

**CONCLUSIONS:** The holdover handoff in IM is complex and has unique considerations for achieving high quality. Further exploration of safe, efficient, and educational holdover handoff practices is necessary.

**KEY WORDS:** holdover; handoff; hospital medicine; care transitions; medical education-graduate.

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## INTRODUCTION

Transfer of care from one clinician to another, also known as a handoff, occurs frequently during a hospitalization course. Although necessary, handoffs introduce discontinuity and are a risk factor for adverse events.<sup>1</sup>

At teaching institutions, handoffs have increased since the 2011 implementation of the revised resident duty hour regulations mandated by the Accreditation Council for Graduate Medical Education (ACGME).<sup>2–4</sup> In particular, patients at many institutions are admitted by night physician teams, and are then handed off to new physician teams each morning. This process—which we refer to as the “holdover” handoff—differs from handoffs of established patients to covering providers, because it occurs early in the patient’s clinical course and requires transfer of care to a new primary team.

The sparse evidence available suggests that the holdover handoff is both important and currently executed imperfectly. Holdover handoffs are common. At our institution, for example, 40% of admissions to the medicine service are holdovers, similar to the 45% documented at another academic center.<sup>5</sup> Holdovers may also be prone to loss of information. A two-center prospective study found that overnight trainees failed to report 40% of clinically important issues during morning handoffs, and 86% of those issues were not documented in the medical record.<sup>6</sup> Additionally, recent safety culture surveys at our institution have indicated concerns about holdover safety, efficiency, and education.

Previous studies have identified common general components of high-quality handoffs across various specialties, including nursing, internal medicine (IM), emergency medicine, surgery, and pediatrics.<sup>7–13</sup> This body of literature demonstrates that having a quiet space free of interruptions, using structured information transfer protocols, and establishing expectations for closed-loop verification by the receiver are essential for safe handoffs. However, there are no publications that differentiate specific characteristics of holdover handoffs. To this end, therefore, we performed a qualitative study to identify important factors affecting the quality of holdover handoffs in IM and compared them to what is already known about high-quality handoffs.

## METHODS

### Study Design and Oversight

We conducted a qualitative study using focus groups and structured interviews to examine physician perspectives on high-quality holdover handoffs. This approach was chosen because the topic is poorly understood, relies heavily on interpersonal experience, and lacks generally accepted best practices. The study was reviewed and approved by the UCSF Committee on Human Research.

### Setting and Participants

The study took place in the teaching medical service at the University of California San Francisco (UCSF) Medical Center, a 600-bed urban academic tertiary-care hospital. The teaching medical service has an average census of 100 patients distributed over eight teams. Each medical team comprises an attending physician (usually a hospitalist), a senior resident, two interns, and one or two medical students. Patients admitted after 8 p.m. each evening are admitted by a team of senior residents and hospitalists, and the overnight providers hand off these patients the next morning as “holdovers” to primary medical teams that provide care for the patient throughout the remainder of the hospitalization. A mean of 9.3 patients (standard deviation  $\pm 3.3$  patients) are transferred at this center via holdover handoffs each day, with 0–3 holdovers distributed to each team, depending on the number of patients admitted overnight, team census, and the call cycle. Holdover handoffs at our institution consist in face-to-face presentations of overnight admissions from a night physician to all members of the primary day medical team, and are conducted in conference rooms. While there is no mandated structure, these handoffs largely follow a traditional “history and physical” (H&P) presentation format.

IM interns, senior residents, hospitalists, and residency program leadership were invited to participate in this study. These groups were chosen to capture a representative sample of stakeholders involved in the holdover handoff process. Using convenience sampling, we obtained a comprehensive list of all members of these stakeholder groups through residency and hospitalist listservs, and we recruited participants via email, asking for volunteers to participate in a qualitative study about the holdover handoff. Due to varying clinical schedules, provider participation in either an interview or focus group was determined by convenience and the number of volunteers available. While the size of each focus group varied, all focus groups were segregated by provider role (attending, resident, intern). Sandwiches and refreshments were offered as incentives for participation.

### Data Collection

At least two authors (JD, TJ, SM, and JH) led focus groups and structured interviews using an interview guide developed by the study investigators. Given the paucity of previous

holdover data, we developed a study-specific interview guide. Our questions were informed by responses from previous safety culture surveys of residency leadership and hospitalists regarding our holdover process.<sup>14</sup> Providers were asked in nine open-ended questions to describe and assess several aspects of the quality of holdover verbal handoffs, including general perceptions, patient safety, process efficiency, and provider education (Online Appendix). For each topic, providers were asked to reflect upon their experiences and to provide practice recommendations for improving holdover handoffs. Further probes were used to draw out greater detail based on the responses. All focus groups and interviews were audiotaped and professionally transcribed.

### Data Analysis

Prior to analysis, the transcripts of focus groups and interviews were de-identified to ensure confidentiality and limit analytical bias among researchers.<sup>15</sup> We used content analysis to systematically examine material in order to obtain a condensed description of content.<sup>16,17</sup> We hypothesized that while many aspects of high-quality handoffs would translate to the holdover handoff, we would also discover new aspects not known or discussed before. Two reviewers, JD and TJ, trained and supervised by JH, independently performed open coding using both a theory-driven (deductive) and data-driven (inductive) approach to identify initial coding categories. We conducted theory-driven coding using categories identified from previous studies investigating medical handoff practices (e.g., physical space, standardization, task accountability, closed-loop verification).<sup>7–13</sup> Reviewers determined whether these categories could be identified within our study’s data set. In parallel, we undertook a data-driven coding approach to identify codes from our data set that had not been previously described in the literature but that might be of unique or elevated importance for holdover handoffs. Coding disparities were discussed and resolved between reviewers by negotiated consensus,<sup>18</sup> after which coding categories—or factors, as described in our study—were grouped into higher-order themes.<sup>16,17</sup>

## RESULTS

We collected data from 27 participants and conducted four focus groups—two with two interns each, one with 11 senior residents, and another with six daytime hospitalists. We also conducted individual interviews with four nighttime hospitalists and two IM residency program directors. Most senior residents had worked both days and nights during the previous year.

One resident defined the holdover handoff as a process “to transition a patient’s care to a new team, safely and effectively” while “maximizing educational value.” Most participants agreed with this sentiment, and thought that high-quality holdover handoffs should optimize patient safety, process

efficiency, and participant education. Most also noted that achieving high quality was difficult due to the complexity of the process. According to one hospitalist, “*What makes it more challenging is the rather compressed time frame on both ends and the fact that, more often than with sign-outs and handoffs in other settings, there are dynamic issues, loose ends with patients.*”

We identified 13 factors through content analysis. Of these, five were derived from prior studies (deductive) on other handoff practices, and comprised physical space, standardization, task accountability, closed-loop verification, and resilience.<sup>7-13</sup> Eight new factors (inductive) emerged from our data: electronic medical record access, redundancy, unwritten thoughts, different provider needs, diagnostic uncertainty, anchoring, teaching, and feedback. We then organized the factors into five high-order themes that represented important concepts for the quality of the holdover handoff: (1) physical environment, (2) transfer of information, (3) transfer of responsibility, (4) clinical reasoning, and (5) educational opportunities (Table 1).

### Theme 1: Physical Environment

Physical environment refers to the location where the holdover handoff occurs. Factors within this theme include “physical space,” which has been described in previous handoff literature,<sup>7,10,12</sup> and a newly described factor, “electronic health record (EHR) access.” With respect to physical space in the context of holdover handoffs, participants universally agreed that high-quality holdover handoffs should occur in an appropriate designated space—“*minimizing distractions and having everyone face each other,*” as one hospitalist described. Another hospitalist stated, “*It should always be a safe, quiet, and secure place.*”

“EHR access” is a new factor that may have special relevance for holdover handoffs, as it describes the availability of an EHR during the verbal handoff, enabling providers to confirm laboratory data, review relevant radiology, and perform order reconciliation in real time. As a hospitalist noted, “*I think ideal sign-out would [occur] with the receiving person [or team] in front of a computer and the person presenting is sitting next to them.*” Another resident added that having EHR access allowed them to “*look up the latest data and look at the chest x-ray if it’s relevant.*”

### Theme 2: Transfer of Information

Transfer of information refers to data that is passed from one provider to another during the holdover handoff process. This was seen as one of the more complicated aspects of high-quality holdover handoffs. Multiple factors are associated with this theme, including the previously described factor “standardization” and the newly derived factors “redundancy,” “unwritten thoughts,” and “different provider needs.”

“Standardization” which has been described in earlier studies,<sup>7-13</sup> is the process of performing handoffs in a structured

**Table 1 Unifying Themes and Supporting Factors for the Holdover Handoff**

Theme	Factor	Definition
Physical environment	Physical space*	Physical location where handoffs occur
	Electronic health record (EHR) access	Availability of an EHR during the verbal handoff
Transfer of information	Standardization*	Using a structured format for handoffs
	Unwritten thoughts	Information transferred verbally that is not well conveyed in the medical record
	Redundancy	Limiting oral repetition of information that is available in the patient’s written health record
	Different provider needs	Different clinician needs based on levels of training
Clinical reasoning	Diagnostic uncertainty	Level of confidence that the presenter has and is able to convey about a patient’s diagnosis and treatment plan
	Anchoring	Recipients relying too heavily on the first impression of a patient, and not looking at information through a fresh lens
	Resilience*	Allowing team members to act on any skepticism and to question information or clinical reasoning given by the presenter
Transfer of responsibility	Task accountability*	Statement of all outstanding tasks by the presenting physician
	Closed-loop Verification*	Acknowledgement and prioritization of outstanding tasks by the accepting physician
Education	Teaching	Education on medical topics by supervising physicians
	Feedback	Constructive critiques by the supervising physician of overnight clinical reasoning and treatment decisions

\* Factors derived from prior handoff literature

format to ensure that all necessary information is relayed in a predictable manner. Despite the use of an H&P format, nearly all participants observed wide variation in the information highlighted during holdover presentations, and they agreed that the process would benefit from standardization. One hospitalist noted, “*An institutionally adopted, codified practice of performing the holdover transfer would be very beneficial.*” Another night hospitalist mentioned, “*This is how we want everyone to sign out a patient. These are the things you need to highlight. This is how long it should approximately take.*”

A new factor that emerged from our study was “unwritten thoughts,” which refers to the idea of transferring information that is not easily conveyed in the EHR. As a hospitalist stated, “*The purpose of sign-out is to essentially provide information that’s not in the written record—information that [the provider] has that isn’t necessarily embedded in the words...some unusual issue or something that’s concerning them....*” This

notion was confirmed by a resident, who said, “*You’re not going to write, ‘there’s something off about this guy’...and there’s a lot of value to having a face-to-face conversation just for that.*”

Another new factor with special importance in high-quality holdover handoffs was “redundancy,” and needlessly repeating information that is readily available in the patient’s EHR, particularly when it does not significantly influence clinical reasoning. As one hospitalist noted, “*I feel like often times the [provider] is actually reading [the H&P] verbatim...And I feel it’s totally redundant.*” However, many others agreed that finding a balance between redundant information and pertinent information was challenging, and was dependent on the clinical scenario. An one intern mentioned, “*It’s also sometimes patient-dependent. There are ones where the social history is super important, and there are others where it’s not at all.*”

The final new factor within the information transfer theme was “different clinician needs.” As the holdover handoff at our institution involves presenting to the entire receiving team, participants believed that it was necessary and at the same time challenging to meet the different needs of clinicians with different levels of experience (e.g., interns vs. attending physicians). A resident stated, “*The challenge with these type of presentations is that even if we have our standardized way of communicating, what people perceive as pertinent and not pertinent can be very different.*” One intern noted, “*I think I would rather have more information and be slower.*” Another resident added, “*When you’re earlier on, the idea of having a nicely packaged patient is really appealing...As our training progresses, we’re more comfortable [with less information].*”

### Theme 3: Clinical Reasoning

Clinical reasoning refers to the ways in which the presenting and accepting teams process the information in holdover handoffs. Participants felt that clinical reasoning was central to the quality of the holdover handoff and that it was a uniquely difficult component, given that holdover patients will have been admitted only recently, and their clinical courses are often still evolving. New factors within this theme were “diagnostic uncertainty” and “anchoring,” while “resilience” was a factor consistent with previous literature.

“Diagnostic uncertainty,” a new factor, refers to the level of confidence the presenter has and is able to convey about a patient’s diagnosis and treatment plan. One hospitalist noted the need to highlight “*the degree of uncertainty...around the clinical decision making.*” Another hospitalist appreciated hearing comments such as “*I feel great about this cellulitis diagnosis...*” versus “*...I have no idea what’s going on.*” One resident also found it helpful to express whether “*this patient was admitted at midnight or this patient was admitted at 5 a.m. and [the admitting clinician] only had an hour [to work],*” because it helped the accepting team determine how

well the admitting provider understood the patient’s disease process.

Another new factor in holdover handoffs was “anchoring,” a cognitive bias that occurs when the accepting team’s clinical reasoning is influenced by the presenting physician’s own clinical reasoning. As one attending noted, “*Every [holdover] patient comes prepackaged...The night person is going to give their impressions to the team and kind of shortcut their own thinking.*” An intern described a situation where, as a result of anchoring, “*We got fixated on things [from the presentation] that didn’t end up being the actual right situation.*”

“Resilience,” a factor found in previous handoff literature, is a cross-checking strategy in which team members are able to act on any skepticism by questioning information or clinical reasoning given by the presenter.<sup>7,9</sup> One hospitalist observed that when “*something about this story doesn’t quite make sense...[it is important to be] able to talk to the [presenter] and say, ‘Are you sure this isn’t a pulmonary embolism as opposed to COPD exacerbation?’.*” Another hospitalist voiced their appreciation for “*residents who actually challenge the admitting night person and [say], ‘Well, did you think about this?’.*”

### Theme 4: Transfer of Responsibility

Transfer of responsibility refers to the processes involved in the transition of accountability for patient care during the holdover handoff. Factors within this theme are similar to those in previous studies, and included “task accountability” and “closed-loop verification.”<sup>7,9,10,13</sup> Despite having the same goal here as in other handoffs, many participants noted that this transfer of responsibility was especially challenging in holdover handoffs because of the increased volume and complexity of the tasks for relatively new patients.

Participants generally thought that overnight clinicians should explicitly state all outstanding tasks during their oral presentation in order to ensure “task accountability.” One attending physician noted that presenters should “*highlight things that have yet to be determined—yet to be done—like the to-dos and the to-figure-outs...and communicate all of that information to whatever team is going to be responsible for taking over the patient in the morning.*”

Likewise, participants thought that oncoming daytime clinicians should perform “closed-loop verification” with nighttime clinicians to acknowledge outstanding items and to prioritize the overall plan going forward. A program director explained, “*I think that afterwards... [the accepting team] should clarify and say ‘So it looks like these are the things we have to do.’.*”

### Theme 5: Educational Opportunities

Finally, participants found it necessary to highlight the educational opportunities within the holdover handoff. A major justification for this was that patients transferred via holdover handoffs now represent a significant proportion of the new

patients that trainees encounter. Both factors in this theme, “teaching” and “feedback,” were new.

Most clinicians thought supervising clinicians should routinely provide clinical “teaching” during holdover handoffs. An attending explained, “*While the number-one goal is obviously the safe transition of care of a patient, the secondary goals would be providing education...regarding generalized teaching points that could be made about this patient....*” Another attending emphasized that teaching during the hold-over handoff should be “*both with the night person and for the team,*” because night residents would miss teaching that occurred later in the day.

“Feedback” on clinical care was also seen as a vital educational tool during holdover handoffs. Because overnight clinicians leave after their shifts end, opportunities to learn from patients admitted are limited. One resident noted, “*You’re there for one night, and [after that] you lose all connection.*” Participants thought that accepting clinicians should provide constructive critiques of overnight clinical reasoning and treatment decisions. An attending stated, “*It’s such an opportunity to assess someone’s ability [for clinical decision making]... and there’s certainly a chance for feedback, both positive and constructive, for the residents.*”

## DISCUSSION

To our knowledge, our study is one of the first to examine IM physicians’ perceptions of factors that influence the quality of the holdover handoff. Our analytic approach enabled us to identify factors from prior handoff literature that also apply to holdover handoffs, as well as new factors that may have unique importance for this specific type of handoff.

The factors that are consistent with prior handoff literature have mostly straightforward relationships with high-quality holdovers and seem relatively unaffected by the type of hand-off. A quiet space, standardization, task accountability, and closed-loop verification are pillars of a high-quality transition. Our data also re-emphasize that teams assuming the care of new patients should use metacognition strategies to avoid falling victim to anchoring bias.<sup>19</sup>

The newly emerging factors in our study arise in part due to the complexity of this particular type of handoff, and individual factors can be used to complement one another. To mitigate the effect of clinical uncertainty on patient care, admitting physicians should explicitly acknowledge uncertainty in diagnosis or treatment plans, and receiving physicians should welcome this acknowledgement by using it as a springboard for discussion and education.<sup>20</sup> Supervising physicians could use uncertainty as a teaching moment with the use of probing questions such as, “What specific clinical question or decision troubled you overnight?” Standardizing EHR access during the holdover handoff could also help address uncertainty by allowing real-time review of key data elements and providing opportunities for both parties to clarify information.<sup>21</sup>

Other novel factors in holdover handoffs may be more difficult to standardize, as tensions exist between patient safety, education, and efficiency. For example, participants highlighted the importance of teaching and feedback in the holdover handoff process, but these must take place in the limited overlap time between outgoing residents and incoming day teams. Physicians also noted the importance of including information that is not routinely placed in written documentation (i.e., conflict between important decision makers), while avoiding repetition of data that could easily be found in the EHR (i.e., normal laboratory values), but there was little consensus on what information should be discussed during the verbal handoff, especially when the needs of different levels of clinicians must be taken into account.

Efforts to develop high-quality holdover handoffs could also draw from interdepartmental transitions of care. Emergency department handoffs to IM are also largely unstudied and without established best practices, but there are opportunities to highlight the degree of clinical uncertainty with new diagnoses, balance redundancy and efficiency by following an EHR in real time, and state definitive tasks for follow-up.<sup>22</sup> Postoperative handoffs to the intensive care units require interaction among surgeons, anesthesiologists, and intensivists, and consideration of different provider needs between providers with different levels of experience and training backgrounds is paramount to shared understanding.<sup>23</sup>

Our study has several limitations. First, because it was conducted at a single urban hospital within a single IM residency program, the results may not be generalizable to other specialties that perform holdovers or to other clinical settings. For instance, the need to communicate information to clinicians with different levels of experience may not be relevant at non-academic institutions. Second, because of the relatively small sample size for some of our provider groups, we may not have reached saturation of ideas. For our interns and residents, we were limited by clinical schedule conflicts that restricted participation. In addition, asking for volunteers may introduce a selection bias towards those who are interested in specific topics and may not provide a representative sample of all desired stakeholders. However, as attending-level providers were generally more flexible, we were able to include all who volunteered, which allowed us to reach saturation within that group. Third, our results also may not represent all stakeholders involved in holdovers, such as patients or nurses, who may have differing opinions on the quality of holdover handoffs. Fourth, our study was not designed to rank the importance of the different components of the holdover handoff. We suspect that variations in practice culture and environment may change the relevance of factors identified. Thus the development of any set of best practices will need to determine how to balance the differential—and sometimes competing—effects of these holdover components on the various aspects of quality.

Finally, while our study focuses on maximizing face-to-face time during verbal handoffs, we chose not to focus on the logistics of the holdover process as a whole. We did not consider whether the holdover handoff should occur at the bedside to include patients and nurses, the steps that day teams should perform after handoff to ensure patient safety (i.e., perform their own chart review, verify whether orders were placed correctly, change first-call provider designation), or how quickly patient assessment by the new team should occur. These process aspects are just a few of many that should be further studied before holdover best practices can be designed and implemented in clinical care.

## CONCLUSIONS

This study provides a set of five themes and 13 supporting factors that characterize the holdover handoff as a complex process with several unique considerations for achieving high quality. Further exploration, including a wider array of perspectives, is needed for a more comprehensive description of holdover handoffs. A full perspective could then be used as a foundation for developing a holdover framework that could be applied at academic medical centers. The effectiveness of such a framework should be evaluated by measuring patient safety and efficiency as well as educational outcomes.

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### Compliance with Ethical Standards:

**Conflict of Interest:** The authors have no conflicts of interest to report.

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