Are Attendings Different?

Intensivists Explain Their Handoff Ideals, Perceptions, and Practices

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Abstract

Purpose: What is known about physician handoffs is almost entirely limited to resident practice, but attending physicians ultimately determine care plans and goals of care. This study sought to understand what is unique about attending intensivist handoffs, to identify perceptions of the ideal content and format of intensive care unit (ICU) attending handoffs, and to understand how ideal and reported practices are aligned in the delivery of care.

Methods: Intensivists in active practice in U.S. adult academic ICUs were purposively sampled and interviewed over 9 months in 2011 to 2012.

Measurements and Main Results: Thirty attendings from 15 institutions in nine U.S. states were interviewed. Subjects' specialties included anesthesiology, emergency medicine, internal medicine, and surgery. The "perfect handoff" was described as succinct, included verbal plus written communication, and took place in

person. Respondents believed that the attending handoff should be less detailed than resident handoffs. Most attendings participated in handoffs at the end of each ICU rotation (n = 26). Standardized handoff practice was rare (n = 1). Media used for handoffs included combinations of telephone conversations (n = 25), in-person communications (n = 11), e-mail (n = 9), or text message (n = 2). Handoff duration varied from 10 to 120 minutes for 5 to 42 patients. Five of 30 respondents had undergone formal training in how to conduct handoffs.

Conclusions: A national sample of academic intensivists identified common ideal attributes of attending handoffs, yet their reported handoff practices varied widely. Ideal handoff practices may form the basis of future interventions to improve communication between intensivists.

Keywords: patient handoff; communication; medical staff; hospital; qualitative research

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The quality and efficiency of intensive care unit (ICU) care depends in large part on communication between the many

people composing the modern multidisciplinary ICU team. The Joint Commission has attributed as many as

80% of adverse events in hospitalized patients to failures in communication and has called for standardization of the

communication activity known as a handoff or handover (1).

Handoffs are the means through which information regarding the patient's care and the ongoing plan for care are transferred from one physician to another (2). Handoffs also represent a transfer of professional accountability (2). Handoffs between physicians-in-training (3–6), between nurses (7–9), and between ancillary staff such as respiratory therapists (7) are well-described in the literature. In contrast, transitions of care at the attending physician level have been less well studied (10–13). With the exception of one single-center study (14), the handoff practices of intensivists have not been reported, and we know of no descriptions of how attending handoffs ought to be conducted.

Attending-level handoffs are of particular interest because the attending physician leads the care team. In the ICU, the attending guides the creation of patient care goals, offers prognoses, and helps patients and family members make decisions about the intensity of interventions undertaken to restore health and sustain life (15). Given this role, it is conceivable that a change in the attending may have a significant impact on patient care.

The objectives of this study were to characterize attending intensivist handoff practices and to determine the ideal aspects of handoffs from the perspective of attending physicians. Given the dearth of information about this topic, we chose a qualitative, inductive approach that would enable hypothesis generation and thereby guide future investigations, including interventions to improve handoffs. We elected to conduct interviews to allow sampling from a broad geographic range and to allow in-depth exploration of norms and expectations. Some of the findings of this study have been previously reported in abstract form (16, 17).

Methods

Study Design

We conducted a semistructured interview study of attending intensive care physicians. The institutional review board of the Perelman School of Medicine at the University of Pennsylvania reviewed this study and determined it fit exempt categorization.

We conducted the study in three phases of 10 interviews each, for a total of 30 interviews. We selected 30 interviews as a target number because thematic saturation, the point at which each additional interview offers little additional information (18), is usually achieved with 20 to 30 interviews (19). The research team was convened at the end of each phase to review progress and adapt the interview instrument to obtain sufficient descriptive depth.

Eligibility

Physicians were eligible for participation if they were board certified or board eligible for subspecialty board certification in critical care medicine ("intensivists") and cared for adult critically ill patients in U.S. academic ICUs. Academic intensivists were chosen because the handoffs experienced in a clinical training context were expected to differ from handoffs in ICUs without training programs.

Recruitment

The purpose of the study was to elicit a broad range of themes and experiences relating to attending handoffs. Consequently, we used purposive sampling, in which subjects are deliberately chosen based on characteristics germane to the topic of interest (18), which included geography, critical care experience, and primary specialty.

Subjects were invited to participate via personal e-mail, or e-mail invitation to participate sent to an ICU director, then forwarded to ICU staff. A response rate is unobtainable, because the number of people receiving an invitation from their ICU director is unknown. We supplemented recruitment with snowball sampling, in which subjects who have participated are asked to recommend subjects who might be willing to participate. Eighteen respondents were recruited via personal e-mail, four via ICU director referral, and eight via snowball sampling.

Instrument

We conducted interviews using an interview instrument that we designed on the basis of the experience of two study investigators (M.B.L.F. and M.M.). This initial instrument was pilot tested with five intensivists in two institutions. Physicians who participated in pilot testing of the interview instrument were excluded from the data analysis. On the

basis of pilot testing, we edited the instrument for clarity and added questions to elicit richer description of handoffs. We also modified the instrument after phases 1 and 2 to clarify questions and promote more in-depth description. The final instrument is available in Appendix E1 in the online supplement.

Data Collection

A single study investigator (M.B.L.F.) conducted all the study interviews. Telephone interviews were initially planned for all interviews to allow for uniformity, given the geographic distribution of study subjects. After Phase 1, we conducted several in-person interviews to determine whether this medium offered richer information about the subjects' experience of handoffs. We perceived no substantive difference in telephone interviews as compared with in-person interviews and conducted the remainder of the study interviews in the subjects' preferred medium. Regardless of medium used, all interviews were digitally recorded and professionally transcribed. The median $\pm$ interquartile range for interview length was 22.5 $\pm$ 8.4 minutes.

Data Analysis

We analyzed the transcripts using grounded theory (18). We used a modification of grounded theory in which transcripts first underwent structural coding guided by the interview instrument (19). Two study investigators (M.B.L.F. and R.M.S.) independently coded each interview transcript. After initial structural coding, investigators met to compare results; any conflicts were resolved through consensus, obviating calculations of intercoder reliability. Next, we selected structural codes of interest and used an open coding approach to develop axial codes that more closely described themes emerging from the data. As themes emerged, we recoded transcripts to ensure that all data were analyzed according to the same final codebook (constant comparative approach). We used NVivo software (version 9; QSR International, Doncaster, Victoria, Australia) to manage transcripts and facilitate coding. We used Stata software (version 12; StataCorp LP, College Station, TX) to calculate descriptive statistics for demographic attributes.

Results

Characteristics of the Study Sample

Thirty intensivists participated, and thematic saturation was reached within the prespecified sample size of 30. Subjects had varying ICU experience and multiple primary specialties (Table 1) and represented 15 institutions in nine states: 19 practiced in 5 northeastern institutions, with the remainder located in southern (n = 5, 4 institutions), midwestern (n = 4, 4 institutions) and the western (n = 3, 2 institutions) United States. (Demographic characteristics for each participant are provided in Appendix E2.) One-half of the respondents worked in ICUs with nighttime intensivist coverage.

Results from Interviews

To contextualize norms and expectations about attending handoffs, we asked the participants to describe the role of the attending in the ICU team. “Besides running everything?” (Intensivist 11). The subjects considered themselves to be ultimately responsible for clinical care: “The attending, in theory, is supposed to be making or blessing all the decisions that occur in the intensive care unit” (Intensivist 16). Communication with family members was another important duty, and a small subset (n = 3) said that this was their “real

role”: “I think of hard family conversations as one of my primary purposes” (Intensivist 20). Additional roles included trainee education, facilitating communication between different members of the care team, managing ICU admissions and discharges, and participating in quality improvement activities.

After they explained their roles, we asked subjects to describe their experiences with and opinions about handoff communications. Transcript analysis yielded three domains into which their responses could be categorized: norms and expectations about handoffs (Domain 1), mechanics and logistics of handoffs (Domain 2), and thoughts about handoff training (Domain 3). The results of each domain are reported in turn, with representative statements offered to illustrate each domain’s themes. As only one-half of the participants engaged in nighttime handoffs, the reported results reflect only those handoffs occurring at the time of going on or off service (i.e., at weekly, every-other-week, or monthly intervals, depending on the intensivist).

Domain 1: “The Ideal Handoff”: Norms and Expectations about Handoffs

To identify the shared norms about handoffs, subjects were asked to give their opinions about what an attending handoff

should include. The attendings discussed their preferences regarding the style and substance of handoffs, their conception of the perfect handoff, and the ways in which attending handoffs should differ from resident handoffs (Box 1: “Narrative comments about handoff norms and expectations”).

Many of the participants drew a connection between their perceived role in the ICU team and the appropriate level of detail for attending handoffs. When attendings saw their role as team leader or coordinator of care, they expressed the opinion that a top-level or “big picture” view was more appropriate than a report with information that could easily be obtained from the medical record or the residents and fellows on service. Several attendings (n = 4) expressed their distaste for what they considered to be unnecessary detail (Box 1a).

Rather than transmitting minutiae, a recurring theme was that the attending’s goal is to transmit an impression of the patient encapsulating the past medical history relevant to the patient’s current state, the trajectory of the patient’s ICU course, and the anticipated trajectory. With this as an overarching goal, the participants offered a list of elements that should be included in the “perfect” attending handoff (Table 2). They were also asked to model a handoff that they would give to a colleague, and examples of ideal handoff features emerged in these vignettes (Appendix E3).

Although all attendings were able to articulate the ideal handoff, most also were able to identify barriers to achieving this standard. Time was the most commonly mentioned limiting factor (n = 12). Just 1 of the 30 attendings reported that he was allotted nonclinical time to conduct handoffs. Additional barriers to ideal handoffs were colleagues’ incomplete acceptance of handoff as a worthwhile activity, lack of evidence linking handoffs to outcomes, and disorganized thinking on the part of the outgoing attending.

Despite the articulation of common goals and most intensivists’ participating in regular handoff activity, there was not universal acceptance that handoff was necessary at all (Box 1b). One person, the medical director of his ICU, described a team approach to care that obviated the need for handoff. Patients and families in this unit are told that they are being cared for by the team, and care is protocolized to

Table 1. Demographic characteristics of study subjects (N = 30)

Specialty of primary board certification, n (%)	
Anesthesiology	10 (33.3)
Anesthesiology/internal medicine	1 (3.3)
Emergency medicine	2 (6.7)
Internal medicine	11 (36.7)
Surgery/trauma	6 (20)
Critical care medicine certification status, n (%)	
Board certified	27 (90)
Board eligible	3 (10)
Sex, n (%)	
Female	9 (30)
Male	21 (70)
Age, median (IQR), yr	42.5 (37–50)
Yr as intensivist, median (IQR)	8.5 (4–20)
Wk/yr in the ICU, median (IQR)	12.0 (10–16)
ICU type,* n	
Medical or medical/surgical ICU	13
Surgical/trauma ICU	16
Cardiothoracic ICU	9
Burn, neurologic, or transplant ICU	3

Definition of abbreviations: ICU = intensive care unit; IQR = interquartile range.

*Numbers do not sum to the total number of subjects because some subjects practice in more than one ICU type.

Box 1. Narrative comments about handoff norms and expectations

a. On the level of detail necessary:

"Sometimes the level of detail is not appropriate to physician level. I don't need to know how many potassium boluses were received in a particular day. If somebody had a potassium-wasting tubular acidosis, that would be something different." (Intensivist 9)

b. On the usefulness of handoffs:

"I often find that the process of discussing with another attending, either when I pick up the service I may come up with some ideas just hearing the case. You know, it's almost like an outside—it's almost like a second opinion. Sometimes I come up with ideas that the team had previously not considered, because the story had not been encapsulated in quite the same way. Similarly, when I give sign-out sometimes a question will be asked by the other physician that triggers off a discussion that highlights something that we have not recognized." (Intensivist 5)

"A lot of patients don't really need a handoff, because the resident presentation in the morning will be adequate. I don't have to know that some 70-year-old guy came in with pneumonia, got intubated, got extubated and was ready to go to the floor in a day or two and they're just waiting for him to stabilize and to watch his cough. They can tell me that in the morning." (Intensivist 12)

"I think sign-out is helpful and useful because it sort of puts what you're going to learn the next day in perspective. But if I had no sign-out on a patient, I would still learn the information that I needed to before I went and took care of them." (Intensivist 13)

the point that the individual actors become relatively unimportant. Other respondents said that although the information received during handoff was often helpful, they would still be able to care for patients if the handoff did not occur.

The four intensivists who did not participate in handoffs on a regular basis were asked what would prompt them to contact an incoming colleague about a patient. Unusually sick patients or complicated family dynamics were offered as reasons to initiate contact: "Let's say, there's a patient who's critically ill and

you're trying to make some headway in terms of advanced directives, DNR [do not resuscitate], putting limits to care, and here you have one family member who wants everything done, the other family wants nothing to be done, and there are some ethical issues related to that case. So, that would be the one case where there is a discussion from faculty to faculty" (Intensivist 18). Another participant in this group described a situation in which failure to transfer information about the type of surgical abdominal closure led to an adverse event for a patient, suggesting that

this type of information (i.e., infrequently performed procedures) should prompt attending-to-attending discussion.

Domain 2: Mechanics and Logistics of Handoffs

Responses in this domain described the specific details of actual handoff practices, including timing and methods of communication used (Table 3, Box 2). Most respondents reported participating in handoffs at the end of each 1-, 2-, or 4-week rotation in the ICU (n = 26). Aside from the one person with nonclinical time for handoffs, attendings scheduled handoff sessions at their convenience, often during personal time on the last day of their rotation or the first day of the incoming attending's service. For those participating in telephone handoffs (n = 25), this sometimes means that handoffs interrupt the activities of everyday life (Box 2).

The people who reported conducting in-person handoffs usually conducted them at the patient's bedside. One consequence of this scheme is that family members and other ICU staff were sometimes present during the handoff. The presence of other people during handoff allowed for care team involvement during the attending handoff but was also sometimes distracting and lengthened the handoff session.

For electronic mail (e-mail) handoffs, the outgoing attending prepared narrative statements about the ICU patients or sent a prepopulated patient list from an electronic medical record. Although questions were welcomed by the outgoing attending, the respondents using this medium described it largely as a one-way communication activity. One subject was particularly unhappy with this handoff method: "It is farcical...usually sometime in the afternoon of the evening beforehand—before service, you write up about 10 lines of detail on each of your patients and e-mail it to the other person" (Intensivist 20).

Preparation for handoffs ranged from printing out a reference patient list to spending hours reviewing diagnostic studies, discussing changes with house staff, and printing each patient's most recent progress note. The time spent during the handoff itself was also variable. We asked participants to estimate how long their last handoff took and to estimate how many patients they discussed during this session. Handoff duration ranged from 10 to 120 minutes for 5 to 42 patients. There was no

Table 2. Attributes of the "perfect" intensive care unit attending handoff

Handoff Feature	No. (%) of Participants Describing Feature
Includes written and verbal communication	13 (43.3)
Takes place in person	12 (40)
Is succinct	10 (33.3)
Is "complete"	6 (20)
Is systematic, structured	6 (20)
Conveys clinical uncertainty, patient's expected trajectory	6 (20)
Involves active discussion	5 (16.7)
Includes discussion of family members	5 (16.7)
Describes patient's clinical trajectory	4 (13.3)

*As defined by the respondent.

Table 3. Features of attending intensivist handoffs

Handoff Feature	n (%)
Frequency of service rotation*	
Every 1 wk	19 (63.3)
Every 2 wk	13 (43.4)
Every 4 wk	1 (3.3)
First day of service rotation	
Monday	24 (80)
Tuesday	1 (3.3)
Saturday	1 (3.3)
Midmonth	2 (6.7)
Unspecified	2 (6.7)
Usual handoff medium*	
Telephone	18 (60)
Electronic mail	5 (16.7)
In-person communication	5 (16.7)
Alternate handoff medium*	
Telephone	7 (23.3)
In-person communication	6 (20)
Electronic mail	4 (13.3)
Text message	2 (6.7)
Standardized handoff (e.g., checklist)	
Yes	1 (3.3)
No	29 (96.7)
Every patient discussed in handoff	
Yes	26 (86.7)
No	4 (13.3)

*Numbers do not sum to 100% because respondents may participate in more than one rotation schedule or use more than one handoff medium.

statistical association between ICU type and time spent during handoff, or between number of patients discussed and time spent during handoff ($R^2 = 0.018$).

Domain 3: Thoughts about Handoff Training

The participants were asked to discuss their handoff training and to comment on whether such training would be useful. None of the 30 respondents had undergone training about how to conduct handoffs as an attending intensivist: "I don't know if there was a formal process to train in handoff, other than your anecdotal experience from training, I would assume. But I don't think we have a formal practice. Like, if a new partner joins our group, you don't put them through a 3-day course on how to handoff" (Intensivist 8). Only five respondents had undergone any training about handoffs or communication, two as house officers, two as part of a quality improvement curriculum, and one in her capacity as an emergency medicine physician. There were no clear differences in attitudes toward handoff training in the subjects who had received training when compared with those who had not. Despite the lack of training in the sample, many of the respondents said that they had taught trainees how to conduct handoffs: "I have trained residents to give handoffs...I tell them that the purpose of handing off in my mind, [is] so the next person taking charge of the patient knows what's happened until that point as an idea for how to go forward and that the key pertinent points of their care are conveyed" (Intensivist 13).

Responses as to whether handoff training for attending physicians would be useful were mixed. Fifteen respondents said that training could potentially be helpful, although there was some recognition that in the absence of a standard, training would be of limited usefulness. Eight respondents believed that handoff training would not be useful for attending physicians: "My experience...is that attendings are highly resistant to formal training...Because we don't pay enough attention to it and we tend to be really angry when we're at the formal training and so we don't wanna do it" (Intensivist 20).

Discussion

This study of attending intensivists reveals shared ideals about handoffs that are in conflict with reported practices. When attending handoffs do occur, they ideally reflect the role of the attending in the ICU team: they are succinct, not overly detail oriented, and include discussion of anticipated patient trajectory and family dynamics. Most respondents did participate in some type of handoff at the end of each rotation. They used a variety of communication media, with telephone communication being most common. Standardization of handoff practice was rare. Most study subjects had not undergone formal handoff training and were divided about whether such training would be useful.

Our findings suggest that attending handoffs overlay experience and judgment onto patient information to create a nuanced picture about the patient's clinical course and trajectory. Handoffs focused purely on objective data may mirror those given by trainees. As such, they may not be as useful to attendings as those handoffs involving interpretation and judgment on the part of the participants. Developing a shared mental model (20, 21) and conveying uncertainty about the patient's trajectory are likely instrumental to the attending physician's ability to effectively lead the multidisciplinary ICU team in patient care. Attitudes about handoffs may be influenced by intensivist characteristics such as years of experience and patient safety training; future studies of attending handoffs should consider examining these variables' effect on the handoff process.

Our interviews also raise the important question of whether attending handoffs are necessary for optimal patient care. Do these handoffs or the manner in which they

Box 2. Narrative comments about handoff practices

On handoffs as an interruption:

"We usually do it at a time on the phone of mutual convenience and carving out 15 to 30 minutes. I will say that I have caught myself cooking dinner during sign-out occasionally. I like to cook a lot. So of course if I'm cooking and sign-out I usually just go to something mindless with cooking like shove some ingredients around." (Intensivist 4)

"So trying to find that time to have an hour or two hours for a verbal handoff, to connect with the person who's trying to finish their last day on service and maybe have a modicum of personal time in the afternoon or evening themselves, I've found at times difficult. My kids are younger and so trying to coordinate a telephone call for after bedtime, but not too late for the other person has been difficult." (Intensivist 9)

"There are some people who are a little hard to track down on the phone, some are hard to find. Some people take their kids out and they don't answer their cell phones. If they're not on-call it can be annoying to find them. I've found a lot of people at Chuck-E-Cheese or they're going to lunch, it's a common time for children's birthday parties." (Intensivist 12)

are conducted affect outcomes such as hospital-acquired infections, mortality, or length of stay? How does the presence of other team members, such as residents, fellows, and advanced practitioners, influence the impact of attending handoffs? Handoff literature suggests that there is a potential for error whenever personnel change, but there has been no definitive evidence linking attending intensive care physician handoffs to adverse outcomes in critically ill patients. The incident described above, in which a patient suffered harm from poor communication, suggests that attending handoffs may play a role in ensuring patient safety. However, further research demonstrating the association between handoffs and patient outcomes is necessary to inform guidelines about how (and whether) these handoffs ought to be conducted.

The existing literature about intensivists' handoffs is scant. One recently published study by Ilan and colleagues observed bedside handoffs by attending intensivists in a single academic ICU in Canada (14). The authors of this study videotaped 40 attending handovers, noting poor conformation of these handoffs to any of three common communication schemes: SBAR (Situation, Background, Assessment, Recommendation), SOAP (Subjective, Objective, Assessment, Plan), or the format of a standard medical admission note. As our respondents reported, elements of these three standardized schemes were inconsistently present in handoffs. The handoffs took place in person or over the telephone, as in our group. The observed handover duration was roughly 3 minutes per patient, which falls within the range reported by our respondents. These findings are in concert with the variability suggested in the interviews we conducted. Our work extends the findings of Ilan and colleagues by exploring intensivists' norms and expectations about the handoff process.

The apparent differences between attending and resident handoffs calls into question whether the extant literature about resident handoffs applies at all to attending physicians. Certainly, it appears that attending physicians and residents have different roles in the ICU team. It stands to

reason that their handoff communications should reflect these different roles and that attending and resident handoffs may differ in form, structure, and content.

Given the apparent nuance in attending handoffs, content standardization advocated by agencies such as the U.S. Joint Commission (22) may prove difficult. There may be a role for standardizing the format of attending handoff. Communication research shows that effective communication needs to incorporate "warm" channels of communication, such as face-to-face discussion (23). Nonverbal cues are crucial to social interaction (24), and evidence suggests that effective healthcare communication involves both verbal and written elements (25). Our sample of attendings confirmed this notion, saying that the ideal handoff took place in person and had some written element. In contrast to this idealized practice, only 5 of the 30 attendings reported that in-person dialogue was their usual form of handoff communication. One of the barriers to accomplishing this goal is provision of nonclinical time enabling face-to-face handoff communication; 29 of 30 respondents in our sample indicated that they did not have nonclinical time allotted for handoffs.

Limitations

There are important limitations to consider in interpreting our findings. First, we interviewed only U.S. academic intensivists caring for adult patients. Therefore, the themes we elicited may not be relevant to attendings in practice outside the United States or in pediatric or nonacademic practice settings. These differences may require different approaches to handoff communication for supervising physicians that should be further investigated. Similarly, these norms may not apply to attending physicians who are not intensivists practicing in multidisciplinary ICUs. Indeed, two-thirds of ICU care in the United States is delivered by nonintensivists (26), and it will be important to examine their handoff practices going forward. Second, although we did ask about ICU team structure, we did not gather detailed information about team dynamics, making it

difficult to describe how attending handoffs might be impacted by the presence and experience of others, such as residents, fellows, or advanced practitioners. Third, the majority of the interviews (27 of 30) were conducted via telephone. Although we did not discern any differences between the telephone and in-person interviews, it is possible that important nonverbal cues may have been missed with the telephone interviews. Fourth, the data are based on recall and self-report and are therefore subject to recall bias as well as the possibility that subjects' actual practices differ from the practices they describe. Direct observation would have addressed some of the themes explored in this paper but would not have allowed us to explore norms and expectations, and the geographic breadth of experiences we elicited would have been difficult to achieve with a direct observational study design. Finally, our purposive recruitment strategy may have skewed our sample toward those attendings already interested in handoff communication.

Conclusions

Experienced intensivists in adult academic practice believe that their handoffs should include verbal and written communication and discussion of patient trajectory and should be communicated in a succinct and organized fashion. The reported practices of these intensivists do not reflect the stated ideal, in part because of time limitations. Further study is needed to determine the scope of differences in attending handoff practice and the impact that these differences may have on patient care. The handoff ideals articulated here may help form the basis of interventions to improve the quality of handoffs between attending physicians. ■

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