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Attending Physician Variability: A Model of Four Supervisory Styles

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Abstract

Purpose

There is wide variability in how attending physician roles on teaching teams, including patient care and trainee learning, are enacted. This study sought to better understand variability by considering how different attendings configured and rationalized direct patient care, trainee oversight, and teaching activities.

Method

Constructivist grounded theory guided iterative data collection and analyses. Data were interviews with 24 attending physicians from two academic centers in Ontario, Canada, in 2012. During interviews, participants heard a hypothetical presentation and reflected

on it as though it were presented to their team during a typical admission case review.

Results

Four supervisory styles were identified: direct care, empowerment, mixed practice, and minimalist. Driven by concerns for patient safety, direct care involves delegating minimal patient care responsibility to trainees. Focused on supporting trainees' progressive independence, empowerment uses teaching and oversight strategies to ensure quality of care. In mixed practice, patient care is privileged over teaching and is adjusted on the basis of trainee competence and contextual

features such as patient volume. Minimalist style involves a high degree of trust in senior residents, delegating most patient care, and teaching to them. Attendings rarely discussed their styles with the team.

Conclusions

The model adds to the literature on variability in supervisory practice, showing that the four styles reflect different ways of responding to tensions in the role and context. This model could be refined through observational research exploring the impact of context on style development and enactment. Making supervisory styles explicit could support improvement of team competence.

In the North American academic hospital setting, the attending physician is a staff physician who has overall responsibility for inpatient care and supervises the physicians-in-training (residents and medical students) who help deliver that care in a teaching team setting. The attending role is a challenging one, in part because of the expectation to safeguard both patient care and trainee learning in an inpatient setting characterized by increasing patient complexity,¹⁻³ shortened rotation schedules, and teaching teams with ever-changing membership.⁴ Research has offered important insights into the attending role, with Kennedy and colleagues⁵ theorizing the strategies attendings use to trade off between

supervision and independence, and Irby^{6,7} articulating attendings' teaching strategies on rounds. Although these have been important advances in our understanding of attending practice, they do not map the full spectrum of attending activities. In their guide to effective clinical supervision, Kilminster and colleagues⁸ delineate a broader set of supervisory and teaching activities. However, these are largely derived from survey-based research, and their applicability to real-world attending practices remains unexplored. Moreover, although Kilminster and colleagues addressed underlying principles such as relationship building and autonomy, they do not address how attendings balance the inherent tensions between such activities. And, although supervisory practices appeared to be highly variable,⁹ it is unclear whether this variability is purposeful or idiosyncratic. In light of this, Kilminster and colleagues¹⁰ have called for "more structured and methodologically sound programmes of research into supervision in practice settings so that detailed models of effective supervision can be developed and thereby inform practice."

When medical students enter the clinical environment for the first time, ideally they take on legitimate but peripheral roles¹¹ that progress over time to involve increasing levels of responsibility.¹² This progression is considered to be essential for the development of clinical skills and professional identity.¹²⁻¹⁴ Environments in which there are opportunities for prolonged exposure to working with one or a small group of physicians have been shown to allow for the development of progressive independence.^{15,16} However, continuity of exposure is not the norm for most internal medicine teaching teams where the trend has been to move toward shorter rotations, shorter days, larger teams, and frequent changeover of attending physicians.⁴ These organizational constraints arguably increase tension between ensuring patient safety and supporting progressive independence.

According to Kennedy and colleagues,^{5,17} attending physicians vary their levels of oversight to ensure patient safety and encourage progressive independence. These range from the routine or planned to more responsive practices that may escalate to the point of taking over

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the provision of direct patient care,⁵ and involve the use of questioning of trainees to assess their competence.¹⁷ Questioning is used to assess learners' needs and adjust teaching practices, as well.^{6,7} Attendings also engage in a broad array of other supervisory and teaching activities, such as guiding clinical work, drawing connections between practice and theory, participating in joint problem solving, role modeling, and explicitly delineating roles.^{7,8} However, perhaps because of the many inherent tensions in the role, attending physicians' supervisory practices are highly variable.^{8,9}

This variability begs the question: Is there a gold standard for the attending role on the medical teaching team (MTT)? We suggested in a previous study an ideal of practice called progressive collaborative refinement (PCR).⁹ PCR argues that for successful patient care to occur, the MTT must work collectively to conceptualize the patient's medical problems and plans, and they must progressively refine their understanding of these in light of new information or changes in the patient's condition.⁹ That study reported recurrent lapses in PCR and wide variability in attendings' case review practices, which seemed associated with the presence or absence of PCR. However, that study did not explore attending physicians' rationales for their case review practices, nor did it consider them within the broader context of the attending role. Addressing these critical gaps in our knowledge, the purpose of the current study was to better understand the variability in supervisory practices.

Method

Study design

We used a constructivist grounded theory methodology, an approach suited to our goal of building a theoretical model of a social phenomenon.¹⁸ The focus on attending physician supervisory practices was determined on the basis of findings from our previous study of MTT communication.¹⁹ Using this methodological approach, we collected and analyzed data in iterative cycles to facilitate a theoretical sampling strategy in which the findings from each cycle informed the collection of data in the following cycle. The study was approved by the University of Western Ontario health sciences research ethics board.

Setting and sample

We collected data from two academic health sciences centers in Ontario, Canada, during the periods February–May and November–December 2012. Recruitment began with a letter sent to all 53 MTT attendings at two teaching hospitals in the first research site (London, Ontario) to participate in an interview “to better understand how different forms of communication impact patient care and team functioning.” Theorizing that a different hospital site might lend itself to different practices, as a preliminary exploration, we sampled a limited number of attendings at a second site (Hamilton, Ontario).¹⁸ In both cities, the typical MTT included an attending physician and approximately 6 to 8 trainee members: 1 to 2 senior (second- or third-year) residents, 2 to 4 junior (first-year) residents, and 2 to 4 senior medical students. We will refer to members of this team of residents and medical students as trainees. Twenty-four attendings participated (20 from London, 4 from Hamilton). Although more than 24 attendings volunteered to participate, we terminated data collection when theoretical sufficiency was achieved.²⁰ The distribution across specialties of those interviewed was as follows: 10 general internists, 4 nephrologists, 3 geriatricians, 2 respirologists, 2 endocrinologists, 1 hematologist, and 1 rheumatologist. For one participant, these data were not collected. We conducted 18 individual interviews and 3 paired interviews. The participating attendings had from 1 to 36 years of attending experience (1–5 years = 7; 6–20 years = 10; 21–36 years = 6); one participant did not report years of experience.

Data collection

We designed the interview protocol to elicit participating attendings' expert strategies for managing the challenges of MTT teaching and patient care. All interviews were performed by the same interviewer. Following informed consent, the interviewer, a trained research assistant, asked the participant(s) to speak in general about their case review setting and practices. She then proceeded to read a senior medical student's presentation of a complex case taken from a prior study.⁹ Participants were asked to listen and take notes as if they were hearing a case presentation with their teams during a typical admission case review.

The patient in this case presented with comorbidities (chronic heart failure, chronic obstructive pulmonary disorder, and diabetes) that complicated the task of treating the presenting illness, a case of an infected diabetic foot ulcer. Next, participants were asked to reflect on their experience of similar and dissimilar situations, supervisory strategies for balancing patient and learner needs, and the reasoning behind their approach. Consistent with grounded theory methodology, the probes evolved as the study progressed to allow for exploration of identified themes. The interview strategy of having experts reflect on their practices while working through an authentic problem is regarded as an effective method for eliciting tacit expert knowledge.²¹ Interviews took place in the participant's office or in a conference room located in the hospital in which they worked and lasted a median of 50 minutes. We audio recorded interviews and anonymized them during transcription.

Data analysis

Analysis of the data proceeded iteratively, using multiple strategies. We used NVivo 9 (QSR, Doncaster, Australia) qualitative data analysis software to create a database and to manage coding of the data. We addressed trustworthiness using a number of strategies, including investigator and theoretical triangulation, the use of analytical memos throughout to document the development of analytical concepts, the use of individual participant narratives to generate thick descriptions of each participant's practice, and the use of matrix displays to illustrate the variations in belief and practice across participants.^{22–24} The combination of research team members from medicine and medical education (M.G.), education (L.F.), rhetoric (L.L.), medicine and educational psychology (G.B.), medicine and medical education (T.D.), and psychology and instructional technology (J.v.M.) afforded the opportunity for investigator and theoretical triangulation.^{25,26} During early data collection and analysis, transcripts were read, re-read, and discussed between the interviewer and lead researcher (M.G.). This afforded the opportunity for modifying interview probes to explore identified themes. Data collection continued until sufficiency was achieved.²⁰ We (L.F., M.G.) used

constant comparison by reading the transcripts multiple times to identify and define coding categories for themes relevant to the central questions of the study. Through a series of data analysis meetings that included the other team members, we developed and revised the definition for each theme and identified new ones. Once the coding scheme was finalized, the complete data set was analyzed for relationships between themes and within and across participants. This study contains our analysis of the data related to the theme of supervisory style.

Results

Our analysis of the data revealed that attending physicians differed markedly in their case review and follow-up practices. To explore these differences, our research team identified four themes around which to code the full data set: case review and follow-up practices, perceptions about supervision, beliefs regarding the role and capabilities of trainees, and perceptions of the nature of learning and teaching in clinical settings. Following the coding of data into each of these four themes, we considered the relationships among the themes and conceptualized those relationships into a model of four supervisory styles: direct care, empowerment, mixed practice, and minimalist. The different styles were characterized by how attendings prioritized and organized three core, and at times, overlapping activities: direct patient care (e.g., seeing patients alone or with the team, writing orders, and documenting in the patient's chart); oversight (e.g., reviewing new cases, hearing follow-up on previously admitted cases, going to the bedside, reviewing the electronic record, reading patient charts); and teaching (e.g., didactic teaching sessions, bedside teaching, teaching around admitted cases). Both direct patient care and oversight took place in settings visible or less visible to the team (i.e., behind the scenes). We further characterized the four styles according to how attendings regarded trainee capabilities and the constraints of the MTT setting.

Although participating attendings acknowledged that they likely differed from their colleagues, they attributed this variability to "different personalities ... the way we all think about things is

different [as well as] what we view as our priorities" (Attending 15). Moreover, when probed, they indicated that they rarely explicitly discussed these differences with their teams or their colleagues. With the exception of three interviews which provided insufficient detail to allow us to identify a style, the remaining 21 interviews fit within one of the four styles. Although there was no apparent relationship between years in practice or specialty of attending and supervisory styles, this study was not designed to explore such relationships. In the following sections, we will describe each style focusing first on its defining characteristics.

Direct care style

In the direct care style (four interviews), attendings described owning the role of care provider. Trainees were seen to play a secondary role in patient care, learning from doing but not ultimately responsible for getting the work done. As one attending asserted,

The first purpose [of case review] is to make sure that the patient is looked after and I as attending know about the patient. (Attending 4)

This stance appeared to arise from concerns about trainees' abilities to handle the complexity of the patients:

The ultimate responsibility for patient care is the attending, whether they like that or not ... and the quality of that care is really dependent upon how responsible they are making sure that issues are dealt with in a continuous fashion. I think it's inappropriate, unfair to expect a medical student or a junior resident to be able to grasp the whole picture and run with it. (Attending 11)

In the direct care interviews, attendings described being sensitive to time constraints and therefore typically reviewed new cases in a conference room rather than at the bedside. They also portrayed teaching and patient care as competing for the team's time:

I don't rely on residents very much. I think they're there to learn. They do as much as they can. But my job is to teach and also my job is for these patients. And sometimes, if we're very understaffed, I just do everything on my own. (Attending 9)

In three of the four direct care interviews, this philosophy seemed to drive the practice of providing parallel patient

care alongside trainees' efforts. For the fourth, rather than having the team do independent parallel work, they would spend hours rounding together while the attending directed the care.

Empowerment style

In the empowerment style (six interviews), attendings described focusing their oversight activities on empowering the trainees to deliver the direct patient care, and they used strategies for ensuring that the trainees could safely take over care in each other's absence:

From a patient care standpoint, the purpose [of case review] is to get us all on the same page about what's going on and what our plan is for all the problems. So my emphasis [is] on somebody writing a note at the time of our review and me double checking it and comparing it to my list is to make sure that when we leave this we have the right labels that I think are the right labels, the right plans for each problem. And then I know the team should, should I hope be able to take that and provide follow-up care on this patient over time while they're hospitalized. (Attending 2)

This style was also characterized by a high degree of integration between teaching and patient care activities, with attendings describing case review as an opportunity to develop trainees' skills in clinical reasoning and communication:

They get direct feedback and also learn about approaches. So, if they're not sure and come with a problem and didn't know what to do, now we have talked about it and it is open discussion and everyone's present so you can learn from the other people as opposed to doing it not as a group... I think it's an opportunity for the whole team to learn and it's good for the staff too because you can get an update on all of your patients without having to necessarily go see all of them. (Attending 13)

In the empowerment style interviews, attendings also described periodically engaging in providing direct patient care. However, to avoid undermining the trainees, they had strategies for ensuring that this was explicitly communicated to the team:

Sometimes I go back during the day and see the patient and it's an opportunity for me to talk to them [the patients]. As well, I say [to the team]: I went to see the patient and this is what I found. Do you want to go back together? (Attending 13)

Mixed practice style

In the mixed practice style (nine interviews), attendings described engaging in various activities including reviewing patient records, editing notes in the patient chart, and providing direct patient care. Many reported that their balance of direct care with oversight was dictated by their assessment of the trainees' competence:

The autonomy I give the resident is directly proportional to how much I trust them.... It's all to do with the presentations.... They may not have the experience and knowledge base that I have, but that's ok.... The other thing is that by talking to the residents you kind of get a sense of character and personality. I try and really assess if the resident, especially the resident who does know a lot, if they know their own limitations.... You can kind of get that just from talking to them. (Attending 8)

In those interviews we identified as mixed practice style, attendings explained that they might determine the plan for patients with the team, but they also felt that "it's important for the consultant to go back and make sure that that's done as well" (Attending 12). They also reported tension around the context of case review. A common "preference would be to have the chart at the bedside and going over everything and the patient also getting involved in the discussion" (Attending 5), but participants consistently felt constrained in doing so, and many acknowledged that "running the list [in the conference room] has replaced the bedside round" (Attending 14). While these attendings' descriptions of their practices suggested that they privileged patient care, they also emphasized their efforts to make time for teaching. However, descriptions of these efforts were imbued with tension: "You have to pick your battles; there is only so much time" (Attending 8). Teaching topics in this style were described as being triggered by cases and the trainees' knowledge, but, unlike the empowerment style, effort was less overtly made to integrate and contextualize them to the case:

I try and base [the teaching] on need. So when I ask the clerks a question, I move on and ask the residents a question, and if it seems to be an area that nobody seems to know too much about, then I spend more time on teaching it. (Attending 16)

Minimalist style

The minimalist style (two interviews) was defined by two main characteristics. First, they reported minimal direct or indirect participation in either patient care or teaching:

There is very little direct communication, to be perfectly honest. Again, it depends on the senior. Sometimes, I will make a point of being at the morning meeting of the senior resident with the junior house staff. (Attending 22)

Second, they relied heavily on the senior medical resident's capability to run the team and provide teaching, even while recognizing the limits of this approach:

And it's probably bad, I often assume that it's been taken care of. I have been burned before because you shouldn't really assume that, I suppose. (Attending 19)

Second site interviews

As part of our theoretical sampling approach, we sampled four physicians at a second site in Hamilton with different admission practices. In this sample of interviews, we identified one each of minimalist, mixed practice, and empowerment. The fourth interview transcript did not contain sufficient information for us to determine supervisory style.

Discussion

Variability of attending physicians' supervisory practices has been documented in the literature, both in observational studies⁹ and in surveys.⁸ Our model of supervisory styles contributes to Kennedy and colleagues'⁵ recent effort to understand such variability as more than random or idiosyncratic behavior. Our model explains MTT attendings' supervisory practices as a product of the relative prioritization of three competing activities—patient care, trainee supervision, and teaching. Here, we discuss the model, compare it with other proposed explanations of supervisor variability, and consider its implications for the field.

To our knowledge, our model is unique in its integration of all three primary attending practices: patient care, trainee supervision, and teaching. Kennedy and colleagues'⁵ model focused exclusively on the relationship between supervision and patient care; Irby's^{6,7} considerations of supervisory teaching largely treated

this practice in isolation. Similar to Kennedy and colleagues'⁵ research team, we found that attendings engage in a spectrum of oversight behaviors, ranging from the routine to the responsive. However, our model of supervisory styles contributes two novel dimensions to our understanding of supervisory practices. First, it broadens our understanding of the factors that influence oversight practices. Second, it places patient care and oversight in relation to the supervisory practice of teaching.

Kennedy and colleagues'^{5(p1,083)} posit that supervisors' decisions to provide close supervision or allow trainee independence occur in response to contextual triggers, the most important of which are trainee competence and patient acuity: "When clinical supervisors encounter a situation that is perceived to exceed the boundaries of a trainee's competence, they move beyond clinical oversight to the third and most intensive level of clinical activity, which was termed 'direct patient care.'" However, our participating attendings' interview discussions of various supervisory situations suggest that supervisory style may be an *approach to* contextual triggers, not only a *response to* them. For example, when asked about how their supervisory practices might be affected by contextual triggers such as a weak senior resident or a high number of overnight admissions, the attendings we interviewed responded in a manner consistent with a single style—empowerment or direct care styles indicated that such contextual triggers would increase their efforts to empower or take over care, respectively. The mixed practice interviews appeared to resemble more closely Kennedy and colleagues' model, indicating that a weak resident might cause attendings to increase direct care, and a high patient census would cause them to decrease teaching. Importantly, however, such contextual triggers did not produce a wholesale shift to direct care in mixed practice style descriptions of their activities; rather, attendings continued to describe teaching as important but achievable in a more limited way:

I will try and hopefully pick something out of the case that may be at least a useful learning point like when you admit a type 1 diabetic to hospital you don't stop their insulin. Something like that, as opposed to focusing on every detail if we don't have time for it. (Attending 4)

Although participants' responses to interview probes suggested that they largely maintained their style affinity regardless of trainee ability and patient load, we do not intend to imply that the styles were impervious to contextual pressures or that an attending was necessarily limited to a single style. Attendings describing all four styles reported that their morning case review practices were consistently driven away from the bedside because of the large sizes of teaching teams and the inefficient distribution of patients around the hospital. Supervisory style was also variably vulnerable to rotation schedules. For instance, resident changeover at the end of the first week of an attending's two-week stint on the MTT could have more impact on those attendings describing an empowerment style, who reported a preferred strategy of increasing trainee independence in the second week, than on those describing a direct care style.

Another critical feature of supervisory styles is their tacit nature: Our participants consistently indicated that they did not discuss differences in styles or practices with their trainees or colleagues. It is unclear from our data why this was the case. Possibilities include a lack of awareness of a style preference, of the existence of a variety of styles, or of the impact of style and differing practices on team function. Given the striking differences in expectations around trainee and supervisor roles in the four styles, we feel that the failure to explicitly discuss these expectations may help to explain our previous finding that not all MTT teams functioned competently.⁹ Rather than progressively and collaboratively refining the MTT's diagnostic and management thinking, in that study we found that clinical documents and discharge summaries often failed to address all aspects of a patient's problems and to reflect accurately the team's understanding of them. Here, our findings suggest that future research could explore the relationship between team competency and the transition between attending styles within a rotation and as they rotate on and off the MTT. For instance, when a team transitions from an attending with a direct care style to one using a mixed practice or minimalist style, do trainees recognize the difference and its implications for teamwork? Do trainees perceive the differences as strategic or idiosyncratic?

How do trainees, particularly senior residents who have their own oversight role on the MTT, adapt their own practices to supervisory styles?

Understanding the four supervisory styles provides additional insight into the challenges of providing progressive independence for trainees amidst contemporary concerns about patient safety. It has been argued that the support of progressive independence may be the single most important feature of a high-quality clinical experience, necessary for the development of competence^{13,15,27} and professional identity.^{13,14} However, the supervisory styles may have very different impacts on progressive independence. Although the minimalist style granted trainees the greatest degree of independence, it appeared to do so in a somewhat indiscriminate fashion rather than being based in entrustment decisions. This approach raises questions of the adequacy of competency assessments, skill development, and patient care.^{15,27} By contrast, both the empowerment and mixed practice styles involve spending time trying to determine and progressively grant independence and subsequent entrustment, and the premise of the direct care style is that this is not achievable.

Limitations

Grounded theory seeks to map out the range of possible practices embedded in the studied phenomenon. Although we have presented the number of participants whom we categorized into each style, these should not be considered to reflect the proportions in practice because sampling in grounded theory is theoretical rather than representative.¹⁸ Further, although we interviewed to a point of sufficiency, it is quite possible that more than four styles exist. In particular, the style identified as mixed practice may in fact represent more than one style. Our interview probes explored participants' perceptions of how they adapted their practices to contextual factors, but we sampled a single point in time and relied on self-reported data. Observational data will be required to explore the ways in which supervisory practice reflects the perceptions we have described in this study, and to refine our understanding of the impact of context on supervisory styles and the variability of style in a given attending over time. Furthermore, a purposive sampling

of attendings from different clinical specialties, institutional cultures, and health care systems might provide insight into the (in)stability of style in the face of fundamental contextual changes such as fee structures,²⁸ patient volume,²⁹ and duty hours restrictions,³⁰ which may mandate attendings toward another supervisory style.

Conclusions

Our work responds to the call for research exploring supervision in clinical settings. In doing so, we were able to gain insights into the relationships among patient care, oversight, and clinical teaching. Focused on variability in supervisory practice, our model adds to the literature by showing that supervisory practice is not idiosyncratic. Rather, we describe four styles which reflect different ways of responding to the tensions in the roles of the attending physician and the context that they work in. Although our findings do not suggest a gold standard among these styles, they inform both future research into the impact of supervisory practice on team competence, and professional development for both trainees and faculty working in these settings. Given that attendings expressed limited awareness of the variations in supervisory practices, explicit dialogue about supervisory styles could support efforts aimed at improving team competence.

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References

- Barnett K, Mercer SW, Norbury M, Watt G, Wyke S, Guthrie B. Epidemiology of multimorbidity and implications for health care, research, and medical education: A cross-sectional study. *Lancet*. 2012;380:37–43.
- Vogeli C, Shields AE, Lee TA, et al. Multiple chronic conditions: Prevalence, health consequences, and implications for quality, care management, and costs. *J Gen Intern Med*. 2007;22(suppl 3):391–395.
- Safford MM, Allison JJ, Kiefe CI. Patient complexity: More than comorbidity. The vector model of complexity. *J Gen Intern Med*. 2007;22(suppl 3):382–390.
- Bernabeo EC, Holtman MC, Ginsburg S, Rosenbaum JR, Holmboe ES. Lost in transition: The experience and impact of frequent changes in the inpatient learning environment. *Acad Med*. 2011;86:591–598.
- Kennedy TJ, Lingard L, Baker GR, Kitchen L, Regehr G. Clinical oversight: Conceptualizing the relationship between supervision and safety. *J Gen Intern Med*. 2007;22:1080–1085.
- Irby DM. How attending physicians make instructional decisions when conducting teaching rounds. *Acad Med*. 1992;67:630–638.
- Irby DM. What clinical teachers in medicine need to know. *Acad Med*. 1994;69:333–342.
- Kilminster S, Cottrell D, Grant J, Jolly B. AMEE guide no. 27: Effective educational and clinical supervision. *Med Teach*. 2007;29:2–19.
- Goldszmidt M, Dornan T, Lingard L. Progressive collaborative refinement on teams: Implications for communication practices. *Med Educ*. 2014;48:301–314.
- Kilminster SM, Jolly BC. Effective supervision in clinical practice settings: A literature review. *Med Educ*. 2000;34:827–840.
- Lave J, Wenger E. *Situated Learning: Legitimate Peripheral Participation*. Cambridge, England: Cambridge University Press; 1991.
- Egan T, Jaye C. Communities of clinical practice: The social organization of clinical learning. *Health (London)*. 2009;13:107–125.
- Kennedy TJ, Regehr G, Baker GR, Lingard LA. Progressive independence in clinical training: A tradition worth defending? *Acad Med*. 2005;80(10 suppl):S106–S111.
- Monrouxe LV. Identity, identification and medical education: Why should we care? *Med Educ*. 2010;44:40–49.
- Hirsh DA, Holmboe ES, ten Cate O. Time to trust: Longitudinal integrated clerkships and entrustable professional activities. *Acad Med*. 2014;89:201–204.
- Teherani A, Irby DM, Loeser H. Outcomes of different clerkship models: Longitudinal integrated, hybrid, and block. *Acad Med*. 2013;88:35–43.
- Kennedy TJ, Lingard LA. Questioning competence: A discourse analysis of attending physicians' use of questions to assess trainee competence. *Acad Med*. 2007;82(10 suppl):S12–S15.
- Watling CJ, Lingard L. Grounded theory in medical education research: AMEE guide no. 70. *Med Teach*. 2012;34:850–861.
- Charmaz K. *Constructing Grounded Theory: Practical Guide Through Qualitative Analysis*. London, UK: SAGE; 2006.
- Dey I. *Grounding Grounded Theory: Guidelines for Qualitative Inquiry*. San Diego, Calif: Academic Press; 1999.
- Ericsson KA. Protocol analysis and expert thought: Concurrent verbalizations of thinking during experts' performance on representative tasks. In: Ericsson KA, Charness N, Feltovich PJ, Hoffman RR, eds. *The Cambridge Handbook of Expertise and Expert Performance*. Cambridge, UK: Cambridge University Press; 2006:223–241.
- Lincoln YS, Guba EG. *Naturalistic Inquiry*. Beverly Hills, Calif: Sage Publications; 1985.
- Miles MB, Huberman AM. *Qualitative Data Analysis: An Expanded Sourcebook*. 2nd ed. Thousand Oaks, Calif: Sage Publications; 1994.
- Maxwell JA. Understanding and validity in qualitative research. *Harv Educ Rev*. 1992;62:279–300.
- Mitchell ES. Multiple triangulation: A methodology for nursing science. *ANS Adv Nurs Sci*. 1986;8:18–26.
- Thurmond VA. The point of triangulation. *J Nurs Scholarsh*. 2001;33:253–258.
- Hauer KE, Ten Cate O, Boscardin C, Irby DM, Iobst W, O'Sullivan PS. Understanding trust as an essential element of trainee supervision and learning in the workplace. *Adv Health Sci Educ Theory Pract*. 2014;19:435–456.
- McConville JF, Rubin DT, Humphrey H, Carson SS. Effects of billing and documentation requirements on the quantity and quality of teaching by attending physicians. *Acad Med*. 2001;76:1144–1147.
- Aldeen AZ, Gisoni MA. Bedside teaching in the emergency department. *Acad Emerg Med*. 2006;13:860–866.
- Roshetsky LM, Coltri A, Flores A, et al. No time for teaching? Inpatient attending physicians' workload and teaching before and after the implementation of the 2003 duty hours regulations. *Acad Med*. 2013;88:1293–1298.