Clinical Oversight: Conceptualizing the Relationship Between Supervision and Safety

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BACKGROUND: Concern about the link between clinical supervision and safe, quality health care has led to widespread increases in the supervision of medical trainees. The effects of increased supervision on patient care and trainee education are not known, primarily because the current multifacted and poorly operationalized concept of clinical supervision limits the potential for evaluation.

OBJECTIVE: To develop a conceptual model of clinical supervision to inform and guide policy and research.

DESIGN, SETTING, AND PARTICIPANTS: Observational fieldwork and interviews were conducted in the Emergency Department and General Internal Medicine in-patient teaching wards of two academic health sciences centers associated with an urban Canadian medical school. Members of 12 Internal Medicine and Emergency Medicine teaching teams (n=88) were observed during regular clinical activities (216 hours). Sixty-five participants (12 physicians, 28 residents, 17 medical students, 8 nurses) also completed interviews about supervision. Field notes and interview transcripts were analyzed for emergent themes using grounded theory methodology.

RESULTS: The term "clinical oversight" was developed to describe patient care activities performed by supervisors to ensure quality of care. "Routine oversight" (preplanned monitoring of trainees' clinical work) can expose supervisors to concerns that trigger "responsive oversight" (a double-check or elaboration of trainees' clinical work). Supervisors sometimes engage in "backstage oversight" (oversight of which the trainee is not directly aware). When supervisors encounter a situation that exceeds a trainee's competence, they move beyond clinical oversight to "direct patient care".

CONCLUSIONS: This study elaborates a typology of clinical oversight activities including routine, responsive, and backstage oversight. This new typology provides a framework for clinical supervision policy and for research to evaluate the relationship between supervision and safety.

KEY WORDS: qualitative research; grounded theory methodology; medical education; professionalism; patient safety.
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INTRODUCTION

The clinical supervision of medical trainees has been influenced in recent years by forces that are political, economic, and social.[1] In the United States, Medicare rules and Health Management Organization guidelines often dictate the nature of the supervision that must be provided to trainees in order for reimbursement to be provided for clinical services.[2,3] In both the United States and Canada, resident work-hours restrictions have significantly decreased the amount of time that trainees spend in relatively autonomous on-call work.[4–6] Internationally, the increasing awareness of medical error,[7–9] along with a small body of literature associating increased clinical supervision with better patient outcomes,[10–12] has led to calls for increased intensity of clinical supervision in the name of quality of care and patient safety from such varied sources as government committees,[13,14] medicolegal review boards,[15,16] and the popular press.[17] These influences on clinical supervision practices have led to widespread increases in the supervision of clinical trainees.[1]

At present, it is unclear what effect this increased clinical supervision has had on quality of care or patient safety and to what extent it might threaten the principle of progressive independence in clinical training (in which trainees are afforded clinical autonomy in accordance with their relevant skills and experience).[18,19] In part, this failure to develop a clear understanding of how increased supervision affects patient care and trainee learning has arisen because the concept of clinical supervision itself is multifaceted and poorly operationalized. Consider the following definition of clinical supervision as proposed in a recent comprehensive literature review: "clinical supervision is the provision of monitoring, guidance and feedback on matters of personal, professional, and educational development in the context of the (trainee's)

care of patients"[20]. Based on the wide-ranging nature of this definition, it is difficult to understand, much less to evaluate, what an increase in clinical supervision would look like in practical terms.

The increasing concern about the link between clinical supervision practices and patient safety and quality of care has created an urgent need for a more sophisticated understanding of the nature of clinical supervisory activities at an operational level. As phase one of a larger project investigating relationships between supervision, safety, and education, this study aimed to develop a conceptual model of the patterns of supervision currently provided in clinical training programs. Such a theoretical framework would provide a basis for future decisions about appropriate clinical supervision practices.

METHODS

The study was designed using grounded theory methodology.[21,22] Grounded theory is a qualitative research methodology that aims to develop theoretical explanations of social phenomena.[23] These theoretical explanations are not applications of preexisting theories, but instead, are novel theories that are "grounded in" (i.e., derived from) the collected data. Key elements of grounded theory include an iterative study design (involving simultaneous data collection and analysis so that preliminary analysis informs the ongoing data collection), purposeful sampling (deliberate selection of data sources that could confirm, challenge, or expand an emerging theory), and a constant comparison approach to data analysis (through which incidents or issues of interest in the data are compared against other examples for similarities and differences).[21,23,24]

The project took place with institutional review board approval in two academic health sciences centers (AHSC's) associated with a Canadian medical school in a large urban setting. Study settings included the Emergency Department (ED) and the General Internal Medicine (GIM) in-patient teaching wards. These areas of intense clinical teaching were chosen to represent different clinical supervisory structures (in the ED, all trainees report directly to the attending physician, while in GIM, the attending physician and senior trainees provide supervision for junior trainees in a "hierarchical" supervisory structure). Sampling from two AHSC's and from different supervisory structures was performed to provide a broad range of relevant perspectives and practices and to increase transferability of resultant analytic concepts.

Participants in the study were 88 members of 12 clinical teaching teams on the GIM wards and in the ED, including attending physicians (n=12), junior and senior residents (n=44), medical students (n=24), and nurses (n=8). Purposeful sampling[21] was employed to ensure inclusion of participants of both genders and of different levels of experience and ethnic backgrounds. Sampling continued until saturation of the data was reached (the point at which further sampling ceases to yield any new analytic concepts).[25] To account for seasonal fluctuation in variables like volume of patients and experience level of trainees, the study was conducted over the span of one calendar year.

Nonparticipant observation[26] of each teaching team was conducted for 6 3-hour periods over the course of 1 month (total, 216 hours of observation). Observations were scheduled to sample the maximum possible variety of clinical activities for each team. In GIM, teams were observed during morning rounds, teaching sessions, informal work sessions on the wards, overnight on-call shifts, etc. In the ED, supervising physicians and trainees were observed during daytime, evening, and overnight shifts, and in varied clinical situations ranging from trauma resuscitations to treatment of minor illnesses. Detailed, structured field notes were kept, and following each observation session were elaborated in the light of emerging analytical considerations to produce a set of reflective field notes.[27] In accordance with grounded theory principles, the structure of the field notes evolved as the study progressed to reflect emergent analytical concepts. Observers were initially tasked with recording in as much detail as possible the observed interactions between supervising physicians and trainees (including the content of conversations, the context of discussions, the participants and intended audience for relevant comments, and the nonverbal nuances that accompany these interchanges). In an iterative process, the results of the early analysis shaped the content of later observations, which were used to test and refine the emerging analytic concepts. To maximize the authenticity of the data and to minimize observer effect,[28] the principle of incomplete disclosure was employed[27] (participants consented to having a researcher observe all clinical and teaching interactions, but they were not made aware of the specific focus on clinical supervision practices).

As a source of triangulating data to enhance the explanatory power of the developing conceptual model, teaching team members completed a brief (15 minutes) interview regarding their supervisory activities and/or their experience of being supervised. The interviews took place after at least 4 of the 6 observation periods for that team were completed (after analysis, observational data collected after the interviews were not found to be different than the earlier data). A total of 65 interviews were completed (because of the fluid nature of scheduling in the ED, 23 ED trainees who were observed early in the month had moved on to other rotations before the interviews were conducted). The interviews were audiotaped and transcribed without any identifying information.

The field notes, reflective notes, and interview transcripts were analyzed for emergent themes using grounded theory methodology.[23] The data set was read recursively by two researchers to develop a preliminary coding structure.[21] This coding structure was discussed, refined, and confirmed by the research team. Confirmability was ensured by maintaining an audit trail of all analytical memos, minutes of the meetings, and revisions to the coding structure. One coder applied the final coding structure to the complete data set, using NVivo software, to facilitate cross-referencing.[29]

RESULTS

Although contextual differences were observed, broad thematic issues were common between the two AHSC's and the two settings (GIM and ED), and thus, the results presented are drawn from all study settings. Analysis revealed that supervisory activities relating specifically to patient care can be distinguished from other types of supervisory activities (such as formal teaching). We developed the term "clinical oversight" to refer to participation in patient care activities by clinical

supervisors for the purpose of ensuring quality of care. Clinical oversight activities clearly serve an important educational function as well, but their direct focus on patient care renders them distinct from the other activities of clinical supervisors.

The clinical activities of supervisors are enacted at three levels, which occur along a continuum of increasingly intense involvement in patient care (see Table 1). The first level of clinical oversight activity, which involves the least intensive form of involvement in patient care on the part of the supervisor, was termed "routine oversight". Routine oversight activities are planned in advance, as for example, in the case of daily rounds on GIM or prearranged case discussions between an attending physician and a trainee in the ED. As one GIM resident said: "You always know at the end of the day you are going to have to round with the staff within a few hours, so it is always safe". Routine oversight involves discussion of trainees' clinical findings and formulations, with probing from the clinical supervisor to ensure that nothing is amiss, and often results in confirmation or refinement of the trainee's management plans. In some situations, for example, where institutional policy dictates that supervising physicians must replicate all histories and physicals performed by medical students, routine supervision can be very extensive in scope. However, these activities are demarcated by their sense of "monitoring" the trainees' activities rather than of taking an active, primary role in patient care.

Table 1. Clinical Activities of Supervisors

Themes and definitions	Representative transcript excerpts
Routine oversight	
Clinical oversight activities that are planned in advance	"...each patient is always reviewed with the attending." *Team 11 Junior resident (ED)*
	"At the end of the day we go over all the patients with either the senior resident or staff at some point, so we kind of go through what we have been doing so far...this happens on a daily basis." *Team 1 Junior resident (GIM)*
Responsive oversight	
Clinical oversight activities that occur in response to trainee- or patient-specific issues (requested or not)	"I can recall working with a junior resident and um she had taken a history and there were a couple of things that were very important to confirm because it would affect your management, so I went back in and asked the patient the same questions. (I was) double-checking; I knew that she had asked them, she said she had asked them, but I needed to hear it myself to be sure." *Team 9 Attending physician (ED)*
Direct patient care	
Refers to instances when a supervisor moves beyond oversight to actively provide care for a trainee's patient	"If their patient is crashing I usually go there myself and do the acute management and I bring the clerk with me and I try to teach them how to observe..." *Team 3 Senior resident (GIM)*
Backstage oversight	
Clinical oversight activities of which the trainee is not directly aware.	"I go back to check the patients post-call when the students are not there." *Team 4 Attending physician (GIM)*
	"I read the nursing notes and I hear the nurses talking and so I know kind of what is going on. So in my mind I already have a picture of the patient..." *Team 9 Attending physician (ED)*

When supervisors encounter a puzzling or concerning clinical situation, they can upgrade the intensity of their clinical oversight activities to the second, intermediate level of intensity, termed "responsive oversight". Responsive oversight is an increase in the supervisor's direct participation in patient care that occurs in response to trainee- or patient-specific issues. Responsive oversight can be either requested by a trainee or initiated by the supervisor. One attending physician explained: "The patient was really unwell, so both, because I wanted to see the patient myself, and at the request of the resident, I reassessed a gentleman we had, and I did a few things. I saw the patient with the resident and I examined them to verify the findings that they had described, and I checked the blood work on the computer...". Responsive oversight activities consist of a double-check, or an elaboration, of the clinical work performed by a trainee such as, for example, repeating a physical examination or observing and coaching during a trainee's performance of a technical procedure.

Responsive oversight, by definition, occurs in reaction to some trigger identified by the supervisor. These triggers for responsive oversight can be either general or situation-specific (see Table 2). Situation-specific triggers for responsive oversight involve 3 main categories: clinical cues, information from a secondary source, and language discrepancies. Clinical triggers for responsive oversight include situations where patients are severely unwell, where there is an acute or unexpected change in the patient's condition, or where a critical management decision is required. Information from secondary sources, like other health care professionals or family members, is often described as a valuable indicator for attending physicians about when responsive oversight is required. One ED attending physician said: "There have been circumstances where a patient is seizing, and the resident isn't managing, and the nurses will come get me...". Inaccuracies in the language used by trainees to report on a clinical situation or discrepancies in the clinical information provided are also important triggers for responsive oversight activities. One attending physician describes responsive oversight triggered by discrepant clinical information in the following representative example:

> "It was a patient with severe COPD and exacerbation and a psychiatric history, who on paper looked terrible, blood gases were terrible. The team wanted to send him home, they said 'Well he is up and around and he goes out and he is smoking outside', and this doesn't make sense. So I went over his exam very carefully, and watched him, and spoke to him. What I was seeing on paper didn't correspond to what they were telling me".

General triggers for responsive oversight involve situations where a supervisor's level of vigilance is increased, resulting in the provision of clinical oversight activities that are not linked to a specific clinical situation. For example, ongoing concern

Table 2. Triggers for Responsive Oversight

Themes and definitions	Representative transcript excerpts
Situation-specific	
Clinical cues	
Refers to *specific* clinical issues that trigger the supervisor to provide increased oversight	"Her patient presented with chest pain, and I wanted to go check for myself and get a sense could this be cardiac... I wanted to be very sure because there were very subtle clues in the history." *Team 11 Attending physician (ED)*
Secondary source	
Refers to instances when input from someone outside the teaching team influences decisions about whether or not to provide oversight	"I called the staff person and told him 'I asked the resident to look at (the patient) but she refused'...The staff doctor came up and this guy ended up going to the neuro ICU." *Nurse 7 (GIM)*
	"I know the nursing staff really well, so I will ask if they have any concerns about the patients with the housestaff and they will tell me." *Team 7 Attending physician (GIM)*
Language discrepancies	
Refers to instances where inaccuracies in terminology or in clinical information provided by trainees triggers increased oversight	"It was a patient we recently admitted and there was an abdominal ultrasound ordered because there was a lump, but the way the resident described it he didn't convince me that there was actually something, so I had to go and repeat the examination." *Team 3 Attending physician (GIM)*
	"We had a patient with chest pain and the housestaff said 'it's not cardiac', but I noticed some changes in the ECG...so I went in and took the history of her chest pain from the beginning again." *Team 7 Attending physician (GIM)*
General	
Clinical cues	
Refers to *general* clinical issues that trigger increased oversight activity relating to a given patient's care over a period of time	"I guess well we had one sick person who was on our team who was probably going to die. The patient was initially being taken care of by a medical student and I just wanted to make sure that we were doing everything appropriate, so I was seeing the patient with them a lot". *Team 1 Senior resident (GIM)*
Ability of trainee	
Refers to instances where a supervisor's level of comfort with a trainee's abilities affects decisions about oversight	"Somebody that I am just starting to work with will get a lot more supervision than someone I am familiar with..." *Team 10 Attending physician (ED)*
	"I have a lot of confidence in these medical students, so I didn't actually go to the bedside and we just reviewed things together in terms of the work and the plan and things like that. Only if I really trust the work and I have been working with them for awhile, so I am more comfortable not checking." *Team 5 Senior resident (GIM)*

about a particularly ill patient (as opposed to an emergent situation-specific event) or a generalized concern about a given trainee's overall level of competence (as opposed to a situation-specific stumble) can trigger a broad-spectrum increase in supervisory vigilance that results in more frequent or more thorough responsive oversight. As one supervising physician said: "I don't have a lot of confidence in her physical exam, so I constantly double-check her stuff or I go in and watch her do it".

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". In these situations, the supervisor is no longer performing in a supervisory role, but instead, becomes the active, primary physician for a particular patient. Direct patient care activity can be limited to one specific aspect of a patient's care (for example, a discussion of code status with a patient's family), but in other situations, the supervisor assumes all patient care activities. Depending on the level of competence and seniority of a particular trainee, a supervisor's transition to the direct patient care role might occur relatively quickly and would be entirely expected, as in the case of a junior medical student, but might occur only in unusual circumstances when a very senior trainee is involved. An excerpt representative of an attending physician's shift to direct patient care from our reflective field notes follows:

> "As the team examines the junior resident's patient (woman with lung cancer and atrial fibrillation, presenting with shortness of breath), the monitor beeps, and they watch the heart rate (HR) increase dramatically. A quick discussion ensues between the attending physician and the senior resident about the risk/benefit ratio of decreasing the HR with meds (risk of decreasing the blood pressure further). The attending physician calmly leaves the room and comes back with stat diltiazem dose. The senior resident continues to talk with the patient as the attending physician pushes the stat dose in the IV. (There was) no direct discussion of the plan with the junior resident (or the patient) at this time." (*Field notes, GIM*)

Finally, it is worth noting that, while much of this clinical oversight occurs with the trainee's explicit knowledge, clinical supervisors also engage in clinical oversight activities of which trainees are not directly aware. These unseen oversight activities were termed "backstage oversight" (see Table 1) and are conducted both routinely and in response to specific clinical triggers. Backstage oversight includes a variety of activities, like reviewing patients' laboratory test results on the computer, and examining patients when trainees are home post-call on GIM or are attending to another patient in the ED. As one attending physician put it: "I double check all the blood work always, not because I don't trust them but just to make sure that nothing was missed. I am a little more careful than they think."

DISCUSSION

The recent trend toward increased intensity of clinical supervision has been motivated by social, political, and economic pressures. To date, the medical education literature has not provided a well-operationalized conceptualization of clinical

supervision activities that is suited to policy development or empirical study.[1] Based on the current multifaceted definition of clinical supervision,[20] "increased" clinical supervision might involve such diverse changes as the provision of increased feedback to a trainee, the direct observation of an increased number of a trainee's clinical activities, or the performance of an increased amount of patient care activities by the supervisor. We do not propose to replace the multifaceted conception of clinical supervision, which genuinely reflects the multiple and complex roles that are filled by supervisors in clinical training programs. Rather, we aim to begin to unpack the multifaceted conception and to provide a theoretical model of one important aspect of supervision that could be operationalized and empirically studied.

This study identifies clinical oversight as one distinct aspect of a clinical supervisor's activities and elaborates a typology of clinical oversight activities including routine, responsive, and backstage oversight. This new typology provides a framework of relevant activities from which to consider recommendations to "increase" clinical supervision. Clinical training programs concerned about patient safety and quality of care can now use this typology to develop clinical supervision policy or faculty development programs based on concrete, and potentially measurable, recommendations. Increasing the frequency of routine oversight, increasing vigilance for triggers for responsive oversight, increasing the amount of direct patient care provided by supervisors, or increasing the scope of backstage oversight might have different effects or different practicalities in different clinical contexts. The evaluation of the effects of changes to these individual types of oversight would provide an empirical understanding of the effects of clinical oversight practices on patient care. In-depth exploration of the processes underlying supervisors' decisions about how much oversight to provide, and of trainees' decisions about when to request oversight, could further inform faculty development and policy development in this area and is being pursued in phase two of the current study.

This study has important implications for research in the domain of clinical education. Rather than being a fixed activity, clinical supervision was observed to involve a fluid process of shifting between levels of intensity of involvement in patient care activities. According to our supervisor participants, the motivation for adjusting the level of intensity of clinical involvement to fit the situation, rather than engaging in the direct performance of all clinical activities themselves, was an underlying belief that trainees require some degree of clinical independence to learn. The role of independence in clinical learning has some support in a variety of domains, but has yet to be adequately explored in the medical education literature.[1] The clinical oversight typology provided in this paper provides a starting point from which to develop a medical education research program that would address the relationship between various oversight activities, trainee autonomy, and clinical learning. For instance, consider how providing access to electronic test and imaging results could allow supervisors to keep abreast of developments in patients' conditions, through backstage oversight activities, without impinging on trainees' independence. An evaluation of the effects of differing levels of backstage oversight is just one practical example of how the clinical oversight typology in this paper could form the basis of further study of the educational impact of clinical supervision practices.

The results of this study should be interpreted with consideration of observer effect[28] and transferability. Although care was taken to perform observations over a long enough period of time for team members to acclimatize to the observer's presence, observer effect cannot be eliminated. Two important measures were taken to minimize the impact of observer effect on the results. Firstly, team members were not made aware of the specific focus of the observations on clinical supervision (participants consented to having all of their teaching and clinical activities observed), to prevent them from altering this specific aspect of their work. Secondly, triangulating interview data were collected, which permitted exploration of issues of authenticity in the observational data. With respect to transferability, it is important to consider that these data were collected in an urban setting and on medical services. Although the fact that these data were collected in two distinct clinical settings (GIM and the ED) and from a broad range of participants within each setting enhances the transferability of the resultant conceptual model, it remains to be tested whether or not this clinical oversight typology will be relevant in very different settings (e.g., surgical services or rural teaching practices).

In conclusion, this paper provides a new understanding of clinical oversight, the patient-care aspect of clinical supervision practices. Based on a grounded theory analysis of observation and interview data from clinical teaching teams in GIM and the ED, this new clinical oversight typology provides a framework for clinical supervision policy and for the necessary ongoing discussion and research to evaluate the effects of clinical supervision practices on quality of care, patient safety, and trainee education.

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REFERENCES

1. **Kennedy TJ, Regehr G, Baker GR, Lingard LA.** Progressive independence in clinical training: a tradition worth defending? Acad Med 2005;80(10 Suppl):S106–11.
2. **Stern RS.** Medicare reimbursement policy and teaching physicians' behavior in hospital clinics: the changes of 1996. Acad Med 2002;77 (1):65–71.
3. **Kuttner R.** Managed care and medical education. N Engl J Med 1999;341(14):1092–6.
4. **Barden CB, Specht MC, McCarter MD, Daly JM, Fahey TJ, III.** Effects of limited work hours on surgical training. J Am Coll Surg 2002;195 (4):531–8.
5. **Charap M.** Reducing resident work hours: unproven assumptions and unforeseen outcomes. Ann Intern Med 2004;140(10):814–5.
6. **Romanchuk K.** The effect of limiting residents' work hours on their surgical training: a Canadian perspective. Acad Med 2004;79(5):384–5.

7. **Matz R.** Errors in medicine. Lancet 1999;353(9161):1365.
8. **Baker GR, Norton PG, Flintoft V, et al.** The Canadian Adverse Events Study: the incidence of adverse events among hospital patients in Canada. Can Med Assoc J 2004;170(11):1678–86.
9. **Wilson RM, Runciman WB, Gibberd RW, Harrison BT, Newby L, Hamilton JD.** The Quality in Australian Health Care Study. Med J Aust 1995;163(9):458–471.
10. **Sox CM, Burstin HR, Orav EJ, et al.** The effect of supervision of residents on quality of care in five university-affiliated emergency departments. Acad Med 1998;73(7):776–82.
11. **Velmahos GC, Fili C, Vassiliu P, Nicolaou N, Radin R, Wilcox A.** Around-the-clock attending radiology coverage is essential to avoid mistakes in the care of trauma patients. Am Surg 2001;67(12):1175–7.
12. **Fallon WF, Jr., Wears RL, Tepas JJ, III.** Resident supervision in the operating room: does this impact on outcome? J Trauma 1993;35(4):556–60.
13. **Bell BM.** Supervision, not regulation of hours, is the key to improving the quality of patient care. JAMA 1993;269(3):403–4.
14. **Grant J, Kilminster S, Jolly B, Cottrell D.** Clinical supervision of SpRs: where does it happen, when does it happen and is it effective? Specialist registrars. Med Educ 2003;37(2):140–8.
15. **Coates J.** The supervision of junior doctors. N Z Med J 2002;115 (1151):170.
16. **Kachalia A, Studdert DM.** Professional liability issues in graduate medical education. JAMA 2004;292(9):1051–6.
17. **Pope J.** Even top hospitals make mistakes. http://www.cbsnews.com. 2003. The Associated Press.
18. AAMC policy guidance on graduate medical education: assuring quality patient care and quality education. Acad Med 2003;78 (1):112–6.
19. The Royal College of Physicians and Surgeons of Canada. General Standards of Accreditation. http://www.rcpsc.medical.org. 2002.
20. **Kilminster SM, Jolly BC.** Effective supervision in clinical practice settings: a literature review. Med Educ 2000;34(10):827–40.
21. **Glaser B, Strauss A.** The Discovery of Grounded Theory: Strategies for Qualitative Research. Chicago: Aldine Pub Co., 1967.
22. **Kennedy TJT, Lingard LA.** Making sense of grounded theory in medical education. Med Educ 2006;40(2):101–8.
23. **Strauss A, Corbin J.** Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory. 2 ed. Thousand Oaks: Sage Publications, 1998.
24. **Corbin J, Strauss A.** Grounded theory research: Procedures, canons, and evaluative criteria. Qual Sociol 1990;13(1):3–21.
25. **Morse JM.** The significance of saturation. Qual Health Res 1995;5: 147–149.
26. **Hammersley M, Atkinson P.** What is Ethnography? Ethnography: Principles in Practice. London: Routledge, 1995.
27. **Hammersley M, Atkinson P.** Ethnography: Principles in Practice. 2 ed. London: Routledge, 1995.
28. **Holden JD.** Hawthorne effects and research into professional practice. J Eval Clin Pract 2001;7(1):65–70.
29. **Kelle U.** Computer-Aided Qualitative Data Analysis: Theory, Methods, and Practice. Thousand Oaks, CA: Sage, 2002.