PERSPECTIVES

Use of Critical Incident Reports in Medical Education

A Perspective

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Critical incident reports are now being widely used in medical education. They are short narrative accounts focusing on the most important professional experiences of medical students, residents, and other learners. As such, critical incident reports are ideally suited for addressing values and attitudes, and teaching professional development. This manuscript describes critical incident reports and gives examples of their use, provides a theoretical underpinning that explains their effectiveness, and describes the educational impacts of critical incident reports and similar methods that use reflective learning. The author recommends critical incident reports as an especially effective means to address learners' most deeply held values and attitudes in the context of their professional experiences.

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Critical incident reports are short narrative accounts used in medical educational.[1,2] As stories, they convey the basic fabric of life. Furthermore, these stories, written by medical students, resident-physicians, and faculty members, often speak from the heart. Although unpolished, written by amateurs, these narratives have the virtue of honest expression. They bear witness to the travails and challenges of becoming and being a doctor.[1–11] As an educational tool, what distinguishes a critical incident is that it focuses on an event chosen by the writer as having especially influenced his or her professional development.

Standard instructions for writing a critical incident report for use in medical education are usually open ended. The writer is asked to describe an incident judged to be of great importance to his or her work as a physician. It could be a learning experience, an especially challenging or meaningful moment in medical practice, or an event witnessed by the writer that proved highly influential or even disturbing. At times, instructions are given more narrowly, for example, to write about a significant experience in residency training, an important interaction with a faculty member, or a relationship with a patient. These too harvest the meaningful experiences of trainees in the midst of intensely challenging but rich opportunities for professional development.

Critical incident reports are being widely used in medical and nursing education.[1–7,11–16] Their first published large-scale educational use in medical education was as a component of Harvard Medical School's required third-year Patient-Doctor Relationship Course.[1,3–5] Over a multiyear period, more then 600 medical students wrote 3 critical incident reports each year,[4] and they continue to write them.[13] Subsequently, critical incident reports have been used in residency training,[2] and many other forms of narratives are now and have been used in medical education.[17–22] This manuscript describes critical incident reports and gives examples of their use, provides a theoretical underpinning that explains their effectiveness, and describes the educational impacts of critical incident reports and similar methods that use reflective learning.

THE ORIGIN AND THEORY OF CRITICAL INCIDENT REPORTS

Critical incident reports have the unusual origin of being "invented" by the psychologist, J.C. Flanagan, as a means to gain detailed understanding of the causes of airplane crashes during World War II.[23] Debriefing critical incidents is currently used for stress management in emergency care workers and first-responders.[24–28] Qualitative researchers analyze collected written or oral critical incident reports to generate hypotheses about and identify underlying themes related to learners' and patients' perceptions.[1,2,29–37] Educationally, the power of this narrative method for providing insights into experiences that influence psychological and professional growth in graduate students was recognized by Mezirow[38] and Brookfield,[39] among others. Brookfield[39] wrote about using critical incidents to explore learners' assumptions. Mezirow[38] posited that critical incidents enhance learning by providing access to experiences that facilitate personal growth. He called this transformative learning.

USING CRITICAL INCIDENT REPORTS

Critical incident reports as used in medical education are vehicles that promote reflective learning. Methodologically, critical incident reports have several advantages. Teachers have used narratives, plays, poems, and works of fiction to magnify medical students' appreciation of the human dimensions involved in caring for patients.[17–22] Critical incidents certainly fulfill this function. But unlike most literary pieces, critical incidents sharply focus on the important events that influence the particular trainee's professional development. They limit distancing from events and characters by describing the sub-

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jective experiences of participants. In fact, many narratives written by doctors are the stories of critical incidents.[8,9,22] Critical incidents deliver the raw materials of key nodal points of experience. By focusing on experiences in doctoring, they are never unrelated to professional development. Their use in group-reflection provides emotionally charged and meaningful material as the point of departure for discussion. Being personal, they engage the learner on the level of deeply held professional values and attitudes. Hence, discussion and reflection focus on key elements brought out by the stories that most would agree are educationally important. Although they can be used for self-reflection,[10,40] for reasons outlined below, I believe their educational value is most pronounced when critical incidents are used as a focus for group reflection.[1–7] Written narratives accelerate the process of creating comfort in group discussions, as individuals are generally more willing to write about emotionally charged events than they are to tell such stories de novo.

IMPORTANCE OF GROUP DYNAMICS IN THE LEARNING PROCESS

Group dynamics played a powerful role in the successes that I observed using critical incidents as a learning method.[1–5] Reflective learning focuses on values and attitudes. In medical trainees, values and attitudes are heavily influenced by a process of socialization resulting from a group or cultural dynamic. This process is often termed the "hidden or informal curriculum."[41–46] We know that many of these influences are detrimental to personal growth and may negate professional values.[43–52] In a survey, a majority of medical students reported that their moral values had been eroded while functioning as clinical clerks.[49] Three fourths of residents in another survey reported seeing patients abused by a colleague.[50] Psychologic abuse, "hazing," of medical students, was common in the 1990s.[51,52] Exposure to these influences countervails the ideals we publicly espouse, such as altruism, respect and compassion for patients, caring attitudes, and being true to one's moral values.[11,53] This explains why group dynamics is important in the educational process that results from using critical incident reports. The reflective group process counterbalances the hidden or informal curriculum. A sense of trust in the group emerges when a member shares a personal story and then receives support from others. This encourages other participants to share their stories of critical incidents.[54] Sharing occurs even though the stories, reflecting the hidden curriculum, may be disturbing, embarrassing, or even shameful.[1–3,47,48] Experiencing the understanding of group members, who admit to having had similar experiences and similar feelings about them, supports the "rightness" of the learner's reactions and of his or her moral values, which are often at stake in the critical incidents.[53] Writing itself may help individuals to deal with emotional experiences.[55]

The following critical incident report written by a third-year medical student illustrates an experience within the "hidden" part of the curriculum that created uncertainty by placing this student at odds with a faculty member, One can envisage how group support and facilitated reflection might assist her in remaining steadfastly committed to caring for underserved patients:

> An indigent woman refused to see a medical student in the walk-in clinic. The attending physician explained that it was a "teaching unit" and the patient "had no choice." The patient stormed out. The student wondered, "How this woman, who fit the bill for the type of person I had always seen myself helping, actually saw me aligned with Dr N against her." [1]

Typically, other students in the group will begin by asking for clarifications, such as, "Do you know the preceptor well?" and "What is he like?" but once oriented to the situation, they will ally themselves with their fellow student by expressing understanding of his/her feelings. The faculty member who facilitates the group might then pose a reflective question. He/she could influence group-discussion towards compassion with a question like, "How do you think this patient was feeling?" Alternatively, or additionally, he/she could address the writer, "You see yourself helping this type of patient. Do you plan to care for indigent patients in your future career?" Then, group discussion can encourage this student to remain idealistic, while the group's learning can expand into the realm of social justice.

From this example, one may see how discussion of critical incident reports can solidify or reawaken moral values in an environment where they are being challenged. "Reawakening" of medical trainees' values is especially important at times when they are exposed to stress, fear, sleep deprivation, and even burn-out. For example, teachers should consider the impact of nightmarish experiences, like those described in this critical incident report, written by a second-year resident who lost 2 patients in 1 night on call:

> When I was in the MICU, I was called by cross-cover to evaluate a patient for transfer. She had a slightly altered mental status and was hypotensive . . . We were giving her fluids, blood, pressors; it was around midnight. I got another admission and went to the ER to start seeing him. The first patient coded, and I went to take care of her again. It was a terrible, endless, isolated night. I went back to the ER to see the new admission, and another code was called. I went to that. I was the only resident who responded. The patient died . . .
>
> The next morning on rounds, my attending asked me how many had survived. He said we didn't need to talk about any that had died . . . It was a hellish night of nearly unbearable stress and in the morning it was never acknowledged, as if it had never happened, as if my patients had never existed . . . What bothers me most about it was that I felt completely flat. They were dead and I didn't feel anything at all. [2]

This resident may be close to burning out. How emotionally prepared is she to explore her feelings about losing 2 patients? She could be asked an initial question that allows her to regain composure. One possibility would begin by expressing respect for her as a caring physician. Group members are then likely to express empathy and support for the resident. Other residents in the group may say that they too have had "hellish" nights and feelings of "emptiness." Discussions like this may assist all group members in reaffirming their commitments to patient care in the midst of stressful residency training.

Critical incidents shared with others may also reframe experiences from "negative" to "positive" or constructive. A failure to act when faced by breaches of one's personal values; feeling humiliated by a superior; feeling confused about one's assessment of a situation as "wrong;" feeling inadequate when wishing to take responsibility for a patient; even expressing compassion to a patient, who may have evoked the ire or disapproval of one's teammates; all this, as we learned from critical incident reports, is commonly encountered in medical training and may be experienced as shameful and isolating,[1–3,46,47] unless the feelings engendered by these experienc-

es are validated by fellow trainees and/or faculty members. Such group support is generally experienced as healing and reaffirming.[54]

TRANSFORMATIVE LEARNING IN MEDICAL EDUCATION

A key element in transformative learning is making an important discovery. When discoveries are repeated over and over, as occurs when learners reflect on their most critically important experiences, one is potentially transformed. Their discoveries could be of their forgotten values. They could discover that compassion can be a healing force. They could explore the loneliness of the dying patient, and the enormous rewards to the caregiver, as well as benefits to the patient of spending time with him or her.[8,9]

Kern et al.,[56] describing self-defined personal growth among a selected group of highly motivated faculty teachers, observed a sequence of transformative learning similar to that described by Mezirow.[38] This excerpt from a practicing physician's narrative read to a group of physicians who were participating in a workshop on meaningful experiences in medicine suggests how one learns from such a process:

> She had a sudden COPD exacerbation, was admitted. She was terribly disappointed. Over the next few days she improved. She looked at me and said, "You know, whenever I see you, I feel better. My breathing is better and I feel more relaxed." She touched me and said, "Thanks for all you're doing." [9]

Here, the doctor discovers that his mere presence is healing and comforting to his patient. Group discussion can reinforce through others' similar experiences the real benefits that patients derive from this therapeutic aspect of the patient-doctor relationship. Repeated engagement in exercises built around critical incident reports like the one quoted above provides group support and opportunities for reflection conforming to transformative learning theory.[9,38,39,56]

Additional theories suggest to me that using critical incident reports assists students in grappling with developmental issues. The themes that underlie many critical incident reports relate to moral and psychologic development in young adulthood as described by Erickson, Kohlberg, Gilligan, and Fowler.[57–61] Developmental tasks for young adults include achieving intimacy, which involves caring for others,[59,60,62–64] and reaching the stage in moral development wherein one defines and attempts to live by personal values (as opposed to the adolescent phase of conforming to peer-group pressures).[53,57,58,65,66] Themes underlying critical incident reports may also pertain to the integrated personal characteristics that truly determine how a physician interacts with his or her patients. Included are moral sensitivity, the recognition of a moral issue when it exists, and moral courage or willingness to stand-up for one's beliefs.[66] Wrestling with issues in one's professional life related to these themes should facilitate one's development. This culminates in the commitment to altruism.[10] This commitment should be integrated into the very fabric of every physician's professional identity.

STUDYING THE EDUCATIONAL IMPACTS OF CRITICAL INCIDENT REPORTS AND SIMILAR METHODS

The rich hypotheses derived from qualitative analyses of critical incident reports can help to guide teachers. Knowing that medical students empathize and identify with their patients and often resist socialization into ward teams can inform reflective discussions with students.[1,5] Knowing that medical trainees face discouragement and potential burnout during their middle years of training may assist teachers in dealing with issues raised in sessions with these learners.[2] It is also important to ask whether using critical incident reports is likely to benefit educational outcomes. Educators have marshaled ample evidence that reflection included in an educational program promotes moral and psychologic growth in its learners.[66–71] Randomized trials have generally measured medical educational outcomes in programs using a combination of educational interventions.[72–76] Whereas randomized trials have looked at programs using reflective learning using similar methods, none specifically measured outcomes related to critical incident reports per se. Smith et al.[72,73] documented improved patient satisfaction from intensive training of residents using experiential methods with feedback and reflection. Oncologists similarly coached in giving bad news to standardized patients later had significantly more satisfied cancer patients.[74] After 2 years in a program combining critical reflection with experiential learning in small groups, medical students in Harvard's New Pathway project were significantly more adept at patient-centered interviewing in blindly judged videotaped interviews.[75] Israeli family physicians taught in reflective Balint groups plus skills-training using role plays achieved higher patient-satisfaction compared with controls.[76]

Evidence thus supports the conclusion that reflective learning similar to that achieved by using critical incident reports combined with experiential learning methods improves educational outcomes. We need to determine the optimal mix of educational methods and the extent of resources that medical schools should devote to innovative programs. Some envisage a cultural change in the so-called "hidden" curriculum as ultimately achievable using large-scale interventions.[77] Others argue cogently that more curricular time and resources should be targeted toward influencing professional growth and development.[78–80] I argue that the evidence, solidly grounded in theory, supports adding sufficient resources in medical schools for reflective learning like that provided by using critical incident reports to enhance the professional growth of our students and trainees.

FINAL COMMENTS

Critical incident reports provide an effective learning method to address ethics and professional values in medical education. Their special efficacy reflects their focus on learners' most formative experiences, their counterbalancing of negative influences from the hidden curriculum, and the potentially transformative nature of their learning. Given these advantages and the need to enhance professionalism in medical education, I think critical incident reports are underutilized. The necessary learning climate for their effectiveness, a climate of trust, comfort, and support, is sometimes achieved in a single session by a skilled and respected teacher, granted that a longer period of group-continuity is preferred, and repeated group discussions are probably needed to achieve the learning goals. The more challenging and formative years of medical education need to have the highest priority for use of critical incident reports. These, I believe, are the third year of medical school and the first (internship) and second years of residency

training. But critical incidents occur throughout one's career as a physician. Because students, residents, and practicing physicians are forever learning from meaningful patient-encounters, I picture wise professionals continuing to benefit from the new discoveries they make as they work. [8–10,39,56,81,82]

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