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When the ICU Becomes a Crime Scene

Bruce Sackman, MA

The intensive care unit nurse needs to take immediate steps to salvage forensic evidence if an unexpected or sudden death occurs in the unit. Although there may be no criminal undertones associated with the death at the time it occurs, questions may arise later, bringing into question antecedent events or personnel actions that might be relevant to understanding the unexpected or suspicious death. Policies and procedures are essential to ensure that evidence is not overlooked or lost. The value of a careful analysis of the scenario may lead to important findings about treatment errors, medical equipment or device failures, and even criminal behavior of personnel caring for the patient. **Key words:** *crime scene*, *forensic evidence*, *serial killers*, *suspicious deaths*

WHEN envisioning a crime scene, we often picture a seedy neighborhood location, crime scene tape, and forensic technicians combing the scene for clues to solve the case. There will be the flashing lights of police vehicles, perhaps a body covered with a bag or sheet being removed by the coroner, and news media interviewing neighbors and police officials. To a large extent, this is exactly what a crime scene looks like. One exception to this scenario is when the crime occurs on the hospital ward, in particular, the intensive care unit (ICU).

Suspicious deaths or near-death events, resulting in a code in the ICU, do not necessarily mean that a crime was committed. A death is suspicious if it is unexpected and its circumstances or causes are medically or legally unexplained. When this situation arises, does the medical center have specific protocols in place that guide nurses through the process of evidence preservation and for the investigation of this event?

Nothing makes hospital administrators cringe more than the thought of a staff member intentionally harming a patient. Administrators will argue that errors do occur, and patients are unexpectedly harmed through malpractice or unexpected complications. However, one can argue that to treat an ICU like a crime scene simply because of a suspicious medical event will send the wrong message to visitors, patients, and staff. Staff may feel that they are now subject to criminal prosecution for an honest mistake. Furthermore, the establishment of something akin to a crime scene, and/or a criminal investigation, many believe, will only provide useful information for plaintiff's attorneys in the inevitable lawsuits that occur after such events.

Medical center management has a well-documented history of defending employees suspected of intentionally harming patients due to a fear that bad publicity and potential law suits may ensue if a formal investigation is initiated into these allegations. Management much prefers to have the involved employee move on to another medical institution and not provide any details or personal suspicions to a new employer. Ignoring such incidences is precisely why medical serial killers like those listed later were able to obtain employment in multiple medical centers before they

Author Affiliation: *Society of Professional Investigators, Bellmore, New York.*

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Correspondence: *Bruce Sackman, MA, Society of Professional Investigators, PO Box 1087, Bellmore, NY 11710 (BTS1811@aol.com).*

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were successfully prosecuted. If only an in-house investigation is conducted, it is likely that none of the investigative team members will have any forensic experience. Therefore, the likely conclusion of such an investigation will be that the patient died of 1 or more of his or her documented medical conditions and the death being attributed to a natural disease process.

MURDERS IN THE ICU: HISTORICAL EXAMPLES

Serial killing in hospitals is real. Since 1970, a total of 90 criminal prosecutions of health care providers have occurred and 54 of these cases have yielded convictions.[1] From the 54 cases with actual convictions, investigators found that there were 317 confirmed deaths and 2113 suspicious deaths.[2]

Dr Michael Swango, nurses Kristen Gilbert, Donald Harvey, Charles Cullen, and Orville Lynn Majors, to name a few, murdered patients in the ICU (Table 1). All of these health care "professionals" continued to murder patients for years without detection across multiple medical institutions. All of these individuals had been suspected at one time or another of intentionally harming patients. However, early suspicions were dismissed as being highly unlikely actions of individuals who have taken an oath to treat and protect patients.

Why the ICU? Choosing a location where death is a common occurrence, where dramatic events can occur without warning, and where family and friends have minimal visiting periods, is a factor to be considered. In addition, the ICU is an intimidating environment where usually a strong and assertive person can quickly turn into a meek and mild patient who accepts treatment without question. If a patient cries out that the nurse or doctor is trying to harm him or her, a common response would be to believe that the patient is suffering from delirium caused by severe physiological insults and/or a combination of medications rather than any direct harm provided by the health care staff. All of the potential murder weapons are provided by the medical center in the form of medications stored in automated patient dispensing systems or on the crash cart. The major difficulty in these types of cases is that some of the medications administrated to patients are difficult to detect even with today's modern toxicological analyses.

Another reason why the ICU is such an inviting location for this type of crime to take place is that calling a code blue is not that unexpected event. Many medical serial killers crave the adrenaline rush of a code. They enjoy running into the room, shouting orders to others who are new to the experience, taking charge, and showing off their skills as a dynamic caregiver. Many times medical serial killers actually save lives, which leave their coworkers with the impression that they are highly skilled professionals, when in fact, they may have caused the code to begin with. Munchausen syndrome by proxy is the term used to describe the actions of a caregiver who intentionally harms someone under his or her care and then acts as a dedicated and concerned caregiver to bring attention to the patient. This condition has been attributed to some health care workers who intentionally harm their own patients.[3]

The allegations of suspicious death usually surface from a "whistle-blower" working in the ICU. Frequently, it is noticed that the death rate increases during the shift of one particular caregiver and declines when that person is away on vacation or assigned to work somewhere else. That in of itself is not enough to convict someone of a crime, but it usually begins an investigation into why such incidences are occurring. Whistleblowers who report their observations have not fared well for coming forward. Many of them have been chastised by managers and even coworkers for "starting trouble." Even after a caregiver is convicted of murder, managers and staff sometime remain angry at the whistle-blower for bringing all the bad publicity upon the medical center.[4]

Table 1. Case Examples of Serial Murderers in the ICU

Case 1—Michael Swango: An ICU physician and ex-Marine whom ICU nurses described as handsome, athletic, charming, and likeable. Over several years, he worked in various hospitals killing patients by injecting medicines that were readily available such as epinephrine or succinylcholine. While at the bedside, working behind closed curtains, his actions were unnoticed by the busy ICU staff. When the targeted patient's condition suddenly deteriorated, Dr Swango was often immediately available to assist in the futile resuscitation efforts. Essentially, he was committing murder for self-gratification. He could be both villain and hero, roles that suited his personality disorder. A retrospective study of his life revealed that he was fascinated with gruesome events and death and enjoyed having the power to inflict fatal harm to others. He chose a profession that allowed him to commit murder in a place where he could also seem to be a savior for his victims. Although Dr Swango was a sociopath, he successfully obtained a residency in psychiatry and staff positions at large, well-respected medical centers. He was able to continue his heinous acts and move from one health care setting to another, primarily because coworkers and administrative personnel failed to report and investigate his associations with unexpected deaths (Bruce T Sackman, Unpublished Work, 2008).

Case 2—Kristin Gilbert: A 30-y-old ICU nurse injected patients with epinephrine to produce cardiac arrhythmias or arrest. She then impressed other coworkers by her quick actions to resuscitate the victim, and it was retrospectively noted that she was involved in half of all medical emergencies that occurred on her unit.[4] Although most victims were elderly patients, none were in immediate danger of dying. This nurse planned and executed her clinical catastrophes to put on a dramatic performance to impress a security guard who responded to the codes. She was known to have a romantic liaison with the guard. Her motive appears to have been associated with the need to be admired by others for her acts of heroism.

Case 3—Donald Harvey: A nursing assistant and orderly who pleaded guilty to killing 58 patients by using arsenic, cyanide, and suffocation. His crimes extended over 2 states and 16 y. Many involved long-term care patients and those with terminal illnesses. He was known by many as the "angel of death." His factitious disorder involved a certain enjoyment and attention received during discussions about the killings.

Case 4—Charles Cullen: A nurse who admitted to killing 30-40 patients over 16 y, essentially to alleviate their suffering. He used a combination of drugs, including digoxin, Pancuronium Bromide (Pavulon) and insulin, to induce death. He had a long history of misconduct in the workplace and a personal history of having a mental illness. He was often disciplined and terminated but was able to move from one hospital to another without impunity. Hospitals did not disclose the reasons for his termination when supplying references to subsequent facilities, and there were significant lags in reporting and investigation in more than 1 state.

Case 5—Orville Lynn Majors: An ICU practical nurse who admitted to 150 murders committed by using potassium chloride injections. These deaths occurred over a 2- to 3-y period. He was known by coworkers to view the elderly patients with disgust and even hatred, although patients and their families would report his kind acts and sense of tenderness displayed in his nursing care. They trusted him implicitly as a caregiver. Majors believed that it was kind to remove older patients from a futile existence. There was a fine line between his compassion and his contempt for elderly patients and their helplessness. He felt that it was righteous to end the suffering of these individuals.

Case 6—Daniela Poggiali: This 42-y-old nurse is accused of killing at least 38 patients while working in a hospital in Lugo, Italy. Injections of potassium chloride were used to induce death, and then she ensured that the crimes were documented. She posed beside the deceased and requested coworkers to record the event. Typically, she appeared whimsical and euphoric in the photos. Although the other nurses were horrified, they were intimidated and did not immediately report the incidents. The Italian press notes that in the first quarter of 2014, 38 out of 83 patients died while under her care. The police reports indicate that she killed patients because they annoyed her, or that their family members or loved ones were too demanding. Investigations also learned that Poggiali gave strong laxatives to the patients assigned to coworkers, just to create extra and unpleasant work for them. Evidence revealed that this nurse also administered heavy doses of sedation to selected patients so they would not disturb her. During recent investigations, police uncovered many "selfies" which documented her posing gleefully at the side of her deceased victims. In one of these, she was flashing a "thumbs up" sign. Poggiali is now in an Italian jail on charges of murder.

Abbreviation: ICU, intensive care unit.

ELEMENTS OF A SUSPICIOUS DEATH POLICY

Not every suspicious event that occurs in the health care setting is the result of a criminal act. Infections, mistakes, and other medical explanations can often be accurately attributed to the resultant death. It is important, however, to ensure that a proper investigation is conducted so that the cause of death can be accurately determined. A team of medical, legal, security, and compliance professionals is required to review every detail of the patients care and carefully document their findings. At a minimum, the hospital policy should require identification and interviews of all individuals who were proximal to the patient at or near the time of death. Individuals to be included on an interview list may include members of the medical, nursing, or ancillary therapy staff; secretarial, maintenance, security, or housekeeping personnel; and visitors to the patient's room. All medications in automated dispensing systems as well as the crash cart should be inventoried, and the sign-out logs and records from the automated dispensing units (eg, Pyxis) should be secured for study. Video surveillance tapes of the hallway, medication room, and nurses' work stations should also be secured for investigative personnel. It is also imperative that all records of any nature regarding the patient be obtained from departments that were involved with the deceased. For example, if the patient had been to the operating or radiological suites, or had bedside respiratory treatments, respective departmental records may reveal irregularities in medications or supplies. Every hospital policy should direct the investigative team to seize and store the following items in a secure place to be analyzed for potential evidence. Patient linens, feeding tubes, intravenous lines, and Foley catheters, monitoring leads, oxygen tubing, clothing, and personal effects should all be considered as evidentiary items and managed accordingly. The serial numbers of all medical equipment and devices used to provide patient care should be recorded and the items should be sequestered to ensure that it is not used for any other patient until all processing details have been analyzed. Such items include the patient's bed, patient's call system, medication pumps, cardiac monitors, and therapeutic adjuncts such as pneumatic compression devices, respirators, and oxygen humidifiers. Waste receptacles and sharps containers in the patient room, medication room, nurses' station, restrooms, and nurses work areas should be secured and searched to identify any evidence that might be associated with the patient's death. All electrocardiographic tracings and other recordings, especially those associated with resuscitation, should be secured. Any fractional laboratory samples must be placed "on hold" and preserved, along with the contents of urinary or gastrointestinal drainage receptacles as well as any intravenous fluids that were being administered prior to the patient's death. Any toxicological analyses must be performed by an independent laboratory that is not associated with the medical center and is credentialed to perform forensic examinations. Using an independent laboratory will avoid any bias and conflict of interest and ensure that results will withstand subsequent legal scrutiny.

If an employee is identified as being responsible for a patient's death, it is imperative that a thorough background investigation be conducted to determine if there is a history of other suspicions or criminal activity involving this employee. Many infamous medical serial killers had serious personality flaws resulting in the commission of crimes such as assault and arson or making threats against institutions and/or individuals in their pasts. Another extremely important aspect of the investigation should include a review of a suspect's e-mails and Internet access, as well as any visits to the medical library. Several medical serial killers have extensively researched a particular drug that they eventually used to harm a patient and then left a record of the books and periodicals they had reviewed.[5]

Finally, the medical facility should be prepared for a vigorous defense from any employee accused of wrongdoing. Most likely,

Table 2. Notable Characteristics of Hospital Serial Killers

Often predict the patient's demise and are uncommonly accurate.
Show no remorse regarding patient deaths and insist that it resulted from natural causes.
Typically work the "graveyard shift" and are alone with the patient when the terminal event occurs. "Pulls the curtains" around the patient while giving nonpersonal care, whereas other nurses would ordinarily be working in full view (eg, medical administration, pushing medications)
Boast about their expert management of emergencies and thrive on any scenario that involves an "adrenaline rush."
Tend to be "likeable and friendly" but avoid close relationships with coworkers.
Thrive on notoriety of being present at so many code scenarios and relish identity associated with their nicknames such as "angel of death" or "code master."
Mannerisms and behavior may be somewhat unusual but manage to regularly impress supervisors with stellar performance during emergencies.
Repeatedly escape the "net of investigation" and are protected by the employer that is reluctant to consider a caregiver as a suspect. Death certificates "get them off the hook" by confirming "natural death." Continues employment without impunity during lengthy investigations.

the employee's defense will include the notion that patients die as a result of natural disease processes, especially in the ICU. After all, these individuals were very ill with complex medical conditions and any number of natural causes could have resulted in their deaths. There are many challenges to be faced by those who are charged with the investigation of a suspicious death in the ICU. Table 2 contains notable characteristics of hospital serial killers.

CONCLUSION

It is a public relations nightmare for hospitals when the public becomes aware that a serial killer has been working inside the facility. The killings are typically silent and nonconfrontational and the patient is often unable to protect himself or herself, frequently on a ventilator or impaired by sedation. Although there have been suspicions or even whistle-blowing about a certain employee, investigations and follow-up actions are often slow to occur and supervisors and administrators lack the desire to face such awful truths about their employees. Unfortunately, a killer who remains within a health care facility for a period of time without prompt investigations can contribute to additional deaths over subsequent weeks or months before definitive steps are taken to remove the employee from patient contact.

In retrospective studies of hospital serial killer incidents, there have been identified "red flags." First, it has been noted that there is a significantly greater risk for codes and deaths when the suspect employee is on duty and directly involved in the care of the patient. A careful analysis of all unexpected deaths or "near deaths" will help reveal any correlation between an employee and the timing of catastrophic events on the unit. Since the weapon of choice is usually a "sudden-death" chemical readily available on the unit, inventory of crash carts and automated medicine dispensing units becomes extremely important. Hospital serial killers do their homework and know their "poisons" well. Drugs, poisons, and related books are often found in subject's home and there are indications of Internet searches regarding drugs or poisons used to induce death. Employment records and background searches may uncover evidence that indicates that an individual has killed, or attempted to kill, off duty as well as on duty in the past.

Every hospital should have policies and procedures for analyzing all death-related scenarios. It is neither in the best interests

of patients nor in the best interests of the health care facility to dismiss unexpected or suspicious deaths as "natural" or to ignore reported observations of coworkers.

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