ORIGINAL ARTICLE

Health care workers as second victims of medical errors

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ABSTRACT

INTRODUCTION   "Second victims" are health care providers who are involved with patient adverse events and who subsequently have difficulty coping with their emotions. Growing attention is being paid to making system improvements to create safer health care and to the appropriate handling of patients and families harmed during the provision of medical care. In contrast, there has been little attention to helping health care workers cope with adverse events.

OBJECTIVES   The aim of the study was to emphasize the importance of support structures for second victims in the handling of patient adverse events and in building a culture of safety within hospitals.

METHODS   A survey was administered to health care workers who participated in a patient safety meeting. The total number of registered participants was 350 individuals from various professions and different institutions within Johns Hopkins Medicine. The first part of the survey was paper-based and the second was administered online.

RESULTS   The survey results reflected a need in "second victim" support strategies within health care organizations. Overall, informal emotional support and peer support were among the most requested and most useful strategies.

CONCLUSIONS   When there is a serious patient adverse event, there are always second victims who are health care workers. The Johns Hopkins Hospital has established a "Second Victims" Work Group that will develop support strategies, particularly a peer-support program, for health care professionals within the system.

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INTRODUCTION   A hospitalized patient developed hyperkalemia. The physician ordered a stat dose of insulin aspart 10 units intravenously along with a dextrose infusion per the "hyperkalemia protocol".

Several years previously, the hospital had begun using multi-dose insulin pens as part of a safety initiative. A numbered dial on the top of the device allows a dose to be selected, thus eliminating the error-prone step of measuring insulin with a syringe. However, as a result of switching from insulin vials to pens, specially designed insulin syringes were used less frequently. In the case described above, they were not readily available.

The nurse had been working for less than a year. Since graduation, she had only administered insulin subcutaneously and had only used insulin pens. She was not familiar with measuring insulin from a vial using an insulin syringe, and

had forgotten that measuring insulin from a vial should only be done with a syringe specifically designed for insulin.

The nurse felt stressed. She understood that if she did not act quickly, her patient might suffer a cardiac arrhythmia. Moreover, she did not understand how to administer intravenous insulin from an insulin pen and was not familiar with a hyperkalemia protocol. In fact, the hospital did not have a hyperkalemia protocol, and in retrospect, there was less urgency to treat the patient than that expressed by the physician. The nurse called the pharmacy for assistance. The pharmacist explained that she needed to use the vial of insulin aspart from the medication refrigerator. When she found the vial, the concentration of insulin was not apparent on the label, which is indicated inconspicuously halfway down the label in a very small six-point font. Not being familiar with

measuring insulin from a vial, the nurse showed the vial to the charge nurse and asked, "is this it" (thinking, is this the right dose). The charge nurse answered "yes" (thinking, yes this is the correct vial from which the insulin should be measured). The patient's nurse then proceeded to draw up all 10 ml of 100 unit/ml insulin aspart into a 10 ml syringe, and administered it intravenously. The resulting dose was 1000 units of insulin.

Fortunately, the error was detected soon enough to implement rescue therapy to prevent permanent harm to the patient. The incident was promptly reported using a web-based incident reporting system which distributes the report via email using a pre-established distribution list. One of the recipients was the Medication Safety Officer who contacted the nurse manager and offered to provide support to the nurses involved with the incident. During the conversation, it was apparent that in addition to the patient, there were 2 other victims; the nurse who administered the medication and the charge nurse who was at the bedside when the insulin was administered. The nurse manager had already spoken with both nurses involved and had offered consoling words. She recognized, however, the value of additional consultation from someone familiar with the medication-use system and who was external to the nursing unit. The conversation immediately began by asking each of the nurses how they were doing, then making it clear that the purpose of the meeting was not to assign blame but rather to focus on system changes that would decrease the likelihood of other good nurses from falling victim to a similar incident in the future. With the purpose of the meeting established, the nurses were then asked, "what happened" and allowed to speak uninterrupted until the entire incident was described. Many system-related issues surfaced and these were used by the Medication Safety Officer to explain how the nurses had each acted reasonably and that the system had played a significant role in "setting them up" for this incident. The conversation ended by providing an opportunity for both nurses to offer suggestions for change that they believed may decrease the likelihood of a similar event in the future. After this meeting, the nurse manager frequently met with both nurses involved to provide ongoing support. The resulting detailed investigation uncovered a number of system flaws that could cause harm to future patients. This led to several system changes, including education involving insulin administration, change in the insulin ordering pathway, development of a hyperkalemia protocol, and implementation of a number of other system fixes.

Human error is inevitable in medicine as it is in all work.[1] Unfortunately, little attention is often paid to the health care worker who in this case was a "second victim" of the incident. Although the nurse was not blamed directly for her human error, she experienced many of the feelings common to similar incidents: anger, fear, depression, isolation, self-doubt, and diminished self-confidence.[1] These effects can also significantly impact the ability of a health care worker to provide care.

THE SECOND VICTIM In the case of a serious adverse event, the patient is the obvious victim. Family members may also be considered as "first victims" of the incident. However, it is less well recognized that health care providers often become "second victims" of such incidents.

"Second victims" are defined as health care providers who are involved with a patient-related adverse event or medical error, and as a result, experience emotional and sometimes physical distress.[2,3] In addition to feelings of guilt, anger, fear, these "second victims" may doubt their clinical competence and even their ability to continue working as a health care provider.[4] In some cases, second victims have symptoms similar to those who experience posttraumatic stress disorder.[5] Although many organizations provide some type of employee support, such as employee/staff assistance programs and pastoral care services, these programs tend to be grossly underutilized by staff. In a medical culture in which errors pose risks to performance evaluations and liability claims, it can be difficult for second victims to seek emotional support.[4]

After an incident, many health care professionals will have trouble coping with their emotions and reactions. In the short term, second victims often experience symptoms including shock and helplessness, worry and depression, feelings of guilt and inadequacy, anger, poor concentration and memory, intrusive thoughts and nightmares, sleep disturbance, physical symptoms, and social avoidance.[6,7]

A few individuals suffer longer-term consequences that can diminish their overall health and functioning.[6] These are indistinguishable from posttraumatic stress disorder, and include recurrent re-experiencing of the event, avoidance, emotional numbing, and chronic signs of hyperarousal including sleep disturbance, irritability, poor concentration, diminished memory, withdrawal, and depression. Social functioning can be impaired, and personal and professional relationships can suffer.

The postincident trajectory for second victims can be to recover and even thrive, to survive with residual symptoms, or even to leave the health care industry.[3] All of these have implications for providers, patients, and the organization. Thus, it is essential that effort and time be placed on developing a systematic support structure for staff who are involved in a traumatic incident.

In this paper, the authors seek to raise awareness in the health care community regarding the significant emotional impact that adverse events can have on caregivers. By providing evidence and suggestions for improvement, we invite caregivers and health care organizations to reflect on their experiences and consider opportunities

to better support those involved in error. Historically, the emotional health of caregivers has not been a consideration in error investigation and resulting action plans. This paper highlights the importance of second victim support in comprehensive event review and in building and sustaining a strong safety culture.

To explore the attitudes and experience of health care workers on the impact of preventable adverse events and to evaluate the need for intervention, we administered a survey to health care workers who attended a session on second victims at an intramural patient safety conference.

"SECOND VICTIMS" IN HEALTH CARE ORGANIZATIONS

Much attention has been paid to the system improvements required to create safer health care, and to the appropriate handling of patients and families harmed during the provision of medical care. In contrast, very little attention has been devoted to health care workers involved in adverse events to help them cope with their emotions.

Although the experience of caring for patients who suffer from preventable adverse events is universal among health care workers, there is a general lack of recognition by both individuals and health care organizations on the magnitude of the "second victim" problem.[8] Many individuals are unaware of how widespread and common the problem is. In addition, many organizations do not recognize the importance of caring for individuals after they encounter a serious adverse event.[9] These organizations lack the necessary training, policies, procedures, and support systems to handle health care workers after adverse events occur.

Beyond the lack of formal support structures, a pervasive problem is the reluctance of individuals to use the support services if they are available. Additional barriers to accessing existing services include stigma attached to seeking mental health assistance and counseling. To be effective, organizational policies and procedures must take these barriers into account.

IMPLICATIONS FOR EMOTIONAL SUPPORT STRUCTURES

In an effort to address the concept of "second victims," a few organizations have developed support structures for health care workers who are emotionally impacted after being involved with a medical error. Some have attempted to develop strategies that focus on creating coping mechanisms for second victims, including the University of Missouri, the University of Illinois at Chicago, Brigham and Women's Hospital, and a free-standing organization: Medically Induced Trauma Support Services (MITSS).

There is a variety of beneficial solutions that can be applied both at the individual and organizational levels. The education of individual practitioners is crucial, since virtually all doctors and nurses will have the opportunity to talk to colleagues after adverse events. These are occasions

of maximum vulnerability, and it is important to say things that provide support and help rather than adding insult to injury. It is also important because second victims have both emotional and informational needs. While many types of health care providers can provide emotional support, only those with specific and detailed knowledge regarding the clinical environment facing the second victim are likely to be effective in helping the second victim understand and put into perspective the interplay between imperfect systems and inevitable human error.

At the University of Missouri, under the leadership of patient safety director, Susan Scott, the hospital has established a program to help second victims.[10] Entitled "forYou," this program is publicized to staff via brochures, posters, and other media as a resource to care for the health care providers who care for the patients.[10] A volunteer group of approximately 50 health care professionals from multiple specialties has undergone a 20-hour training program to serve as expert peers to provide support to second victims in their respective specialties and areas.

At the University of Illinois at Chicago, leaders in quality improvement, risk management, and patient safety have recognized that caring for second victims is an important part of an integrated system for handling adverse events.[11,12] When risk management is notified about a significant adverse event, in addition to the root cause investigation that is initiated, there is a parallel investigation to determine if there are second victims who need attention.

MITSS is a unique organization founded by Linda Kenney, a patient who was harmed by an anesthesia-related adverse event.[13] When she recovered, she partnered with a physician who had been involved to establish an organization to help both patients and health care providers cope with harmful incidents. MITSS has recently developed a "toolkit" of resources to help organizations establish programs to help second victims.[14] The MITTS team and clinician partners have worked to develop a second victim program at Brigham and Women's Hospital in Boston.

At the Johns Hopkins Hospital, a multi-disciplinary "Second Victims" Work Group was developed to assist the organization in providing care and support to the hospital staff. In an initial attempt to understand the target population, the group compiled an inventory of existing resources for second victims. Since the various resources exploit different strategies and models in addressing the issue of second victims, the team carefully considered the various types of existing support structures.

To better understand which type of support structure might best fit the needs of Hopkins staff, some primary data were collected. A plenary session entitled "Healthcare Workers: the 'Second Victims' of Medical Errors" was held at the 2010 Johns Hopkins Medicine 1st Annual Patient Safety Summit. Attendees were invited to complete

a survey on the "second victims" problem. Information was also collected on the type of support structures that staff members thought would be beneficial within the organization.

METHODS   A cross-sectional survey was administered to health care workers at the Johns Hopkins Hospital, a tertiary care academic medical center in Baltimore, United States.

Population   The population was health care workers who registered to participate in the "Johns Hopkins Medicine 1st Annual Patient Safety Summit" and who attended a plenary session entitled "Healthcare Workers: the 'Second Victims' of Medical Errors" held on June 24, 2010. The total number of registered participants was 350 individuals from various professions and different institutions within the Johns Hopkins Medicine system of hospitals.

Measures   To assess the demand and need for second victim interventions, we developed and administered a two-part Second Victim Questionnaire. Part I of the survey aimed to assess awareness of the second victim issue, and health care workers' personal experience. Participants were asked to recall an adverse event in which they were a second victim, to whom they spoke after experiencing the adverse event, and if institutional systems helped support them.

Part II of the survey aimed to identify supportive strategies that employees would like to see offered within the health system. The content was based on a review of surveys administered to staff prior to implementing a support structure.[10] Measures included items adapted from existing provider surveys regarding second victims and medical errors,[10,14] and newly designed items. The response format included multiple choice items and free-text. In addition, respondents were allowed the opportunity to add free-text comments about their past experiences and suggestions about effective support strategies. Part II also included an existing tool, the MITSS survey, which allows respondents to rate the current support structure for employees who experience an adverse event.[15] Respondents were asked to consider a serious adverse event they were involved in during their career. Respondents were then asked if organizational support structures had improved, got worse, or stayed about the same since the event occurred. Questions regarding the existing support structure and recommendations for developing a support structure use a Likert response scale.

Procedures   Part I was a paper-based survey, whereas Part II was administered online using Survey Monkey. Part I was administered and collected before the Annual Patient Safety Summit lecture on Second Victims. Members of the audience were encouraged during the conference to go online to complete Part II and the MITSS

survey. These surveys were filled out anonymously. The study was approved by the hospital Institutional Review Board.

Analysis   We hypothesized that a large proportion of the audience would not be familiar with the problem of second victims, but that the majority would have personal experience with an incident in which a patient was harmed.[16] We also hypothesized that although many respondents would seek emotional support from personal contacts, most individuals would not receive or request support from existing hospital services designated officially for employee support.[8] Both quantitative and qualitative analyses were conducted.

RESULTS   A total of 140 Part I surveys were returned. The estimated response rate was 40%, based on the population of 350 registered meeting participants. Since not all of the 350 registrants attended the specific session, the true response rate may have been somewhat higher. A total of 95 Part II surveys were completed online for an estimated response rate of 27%. Only 35 respondents completed the MITSS portion of the survey for a response rate of 10%.

Participant characteristics   Approximately 46% of the respondents for Part I of the survey were registered nurses, and nearly 4% of the respondents were physicians (TABLE 1). In Part II, ⅔ of the respondents (67%) were employed at the Johns Hopkins Hospital, but there were participants from nearly all of the other organizations that comprise Johns Hopkins Medicine.

Part I results   Approximately half of the respondents had not heard of the term "second victim" prior to attending the lecture (TABLE 2). Among the individuals who had heard of the term, many had heard of it through the medical literature, from colleagues, in conferences, and through personal experiences. Most of the respondents could recall an event associated with patient harm, and most of them mentioned that this incident took

TABLE 1   Part I participant characteristics (n = 140)

Category	Percentage
registered nurse	46.3
other manager	14.7
nurse manager/charge nurse	11.0
technologist/technician	4.4
pharmacist	2.9
therapist	2.9
attending/staff physician	2.2
resident physician	1.5
clinical support	0.7
physician's assistant/nurse practitioner	0.7
other	12.5

TABLE 2 Familiarity and experience with second victims (n = 140)

Survey questions (number of responses)	Percent agree
heard the term "second victim" used to describe health care workers who have been emotionally affected by an unanticipated clinical event (n = 139)	46
can recall an adverse event in which you were a second victim (n = 139)	60
incident occurred at Johns Hopkins (n = 87)	62
experienced any problems, such as anxiety, depression, or concern about ability to perform the job (n = 83)	66
reached out for support or talk to someone about the incident (n = 85)	69
received support from anyone in health system in which event occurred (n = 82)	52

TABLE 3 Supportive strategies desired within health care organizations (n = 95)

Desired support strategy	Percent agree
formal emotional support	35.1
informal emotional support	28.7
prompt debriefing, crisis intervention stress management (for individual or for group/team)	74.5
access to counseling, psychological or psychiatric services	35.1
an opportunity to discuss any ethical concerns you had relating to the event or the processes that were followed subsequently	45.7
an opportunity to take time out from your clinical duties	34.0
supportive guidance/mentoring as you continued with your clinical duties	30.9
help to communicate with the patient and/or family	33.0
clear and timely information about the processes that are followed after serious adverse events (e.g., peer review preparation of incident reports)	43.6
guidance about the roles you were expected to play in the processes that are followed after serious adverse events	24.5
help to prepare to participate in the processes that were followed after the serious adverse event	20.2
a safe opportunity to contribute any insights you had into how similar events could be prevented in the future	44.7
personal legal advice and support	20.2
other	3.2

place within Johns Hopkins Medicine. More than half of the respondents indicated that as a result of an adverse event, they experienced problems, such as anxiety, depression, or concern about their ability to perform their job. Over ⅔ (69%) indicated that they reached out for support or had talked to someone about the incident. Most of the respondents specified that they would speak with a colleague on the unit, a manager/supervisor, a spouse/significant other, and/or a friend.

If the respondent spoke with someone about the incident, they mostly wanted an individual to listen to them and support them. Most of the respondents indicated that a colleague/peer had supported them following the incident. Almost half of the respondents identified receiving support from the health system in which the event occurred. However, a small minority had obtained help from the organization's Faculty and Staff Assistance Program (FASAP), a psychologist or psychiatrist, or pastoral care services.

Part II results The respondents were asked to select the five most frequent support strategies that would be beneficial to implement within the Hopkins Health System. These were indicated by attendees and included: prompt debriefing, an opportunity to discuss ethical concerns

with the event, the ability to discuss how similar events can be prevented, timely information about the processes that take place after an event has occurred, access to counseling, psychological or psychiatric services, and formal emotional support (**TABLE 3**).

In describing a serious adverse event on the MITSS portion of the survey,[16] nearly half of the 35 respondents (46%) described being the second victims of an incident. Three-quarters (75%) indicated that this event occurred more than 3 years ago. More than half of the respondents reported that organizational support structures had not changed since the event occurred.

In describing the availability of support services, indications of using these services, and usefulness of the services, responses among the 13 categories in the MITSS survey were varied. Respondents indicated that many of the support services were not available to employees, with the exception of informal emotional support. Many of the respondents noted that of the 13 support strategies, informal emotional support was the most utilized type of support strategy.

DISCUSSION The results from this study reinforce the importance of the problem of physicians, nurses, and other health care workers as

TABLE 4 Things to say and not to say to colleagues after an adverse event

Things to say
emotional support
Are you ok?
You've had a tough break.
Thank you for sharing with me.
What are you doing to cope?
Are you going to be ok?
informational support
These things happen to all of us.
You did everything you could.
Let me tell you about something that happened to me.
You are still a good doctor/nurse.
Things not to say
Didn't you realize what would happen?
What were you thinking?
I wouldn't have done that!
You need to get over it.
Nothing.

the second victims of serious adverse events. It was evident that health care workers identified with the problem of the second victim. Ironically, although the large majority of respondents were able to identify a case in which they felt emotionally traumatized by their involvement in an adverse event, many had not heard of the term "second victim". This highlights the problem of the lack of general awareness of the concept of "second victims" within the field of health care and within our institution.

There was wide agreement that second victims needed a sense of compassion, support, and understanding following an adverse event. However, employees rarely utilize existing infrastructure, such as the faculty and staff assistance program. One of the reasons is that there is a perceived cultural stigma relating to mental health that is associated with seeking institutional services. Consistent with this, there was a preference for developing an institutional peer-support program. The results also suggested the preference for an intervention that was immediate and transparent, as suggested previously in the literature.[11]

Even though health care institutions may not be in the position to demand that employees utilize these types of support services, they do have the ability to educate their staff and individual providers on what types of symptoms a colleague might have and how to support a colleague who has been involved in a serious adverse event.

Supporting a colleague after a serious medical event can be challenging. However, there are specific messages that might be helpful. Initially, it can be important simply to ask how the person is doing. This can be comforting to a provider who feels that he or she is being shunned. Examples of the kinds of things that may be helpful to say are shown in **TABLE 4**. It can be especially comforting to share a personal experience with a harmful error. It can also be reassuring for staff members to be reassured that they are still well intentioned and competent professionals, despite their own individual failures.

On the other hand, some providers may make unhelpful and insensitive comments, either to the involved staff member or to others about the incident. This kind of reaction can inflict yet another injury on top of the trauma the second victim is already dealing with. Avoiding conversation with the "second victim" can also have negative impacts on the individual. **TABLE 4** notes examples of comments and behaviors that should be anticipated and avoided. In addition, it is crucially important to recognize the instances in which a provider should be referred to a higher level of psychiatric care.

In addition to suggesting things to say, and not to say to a colleague who experiences an adverse event, health care organizations can provide support to their employees by establishing policies and procedures regarding the second victim issue, offering education and training, and identifying second victims in real time. The procedures for incident investigations should be sensitive to the potential needs of second victims. At times, it may be useful to conduct an investigation of how the institutional response to an adverse event resulted in harm to second victims.

Initiatives developed by organizations to take better care for their employees should be supported by policy makers and professional organizations. For instance, as the US Joint Commission reshapes its sentinel event policy, this accreditation organization recommends that health care institutions identify the need of second victims by offering a support structure for staff who encounter a serious medical event.[17] These structures should take into account the potential for traumatic symptoms to linger for months and even years.

NEXT STEPS FOR THE "SECOND VICTIMS" WORK GROUP AT HOPKINS At our own institution, the "Second Victims" Work Group is currently making efforts to increase awareness of the problem, increase resilience, and handle incidents in a more integrated and comprehensive manner.

In response to the results of the survey, the group is establishing a peer-support program for health care providers to access when facing emotional upheaval after a traumatic medical event. Developing organizational structures that promote safe behavioral alternatives for providers can also help to enhance and maintain a strong culture of patient safety within an organization.[18] The team has identified a team of voluntary "peers", from different disciplines that possess an interest in crisis intervention. Most of these individuals are people who are already naturally sought out for advice and counseling by their colleagues. Next steps include developing standard operating procedures and training materials

for the peer support team. It is hoped that prompt and effective interventions will increase the likelihood of second victims to cope effectively with the trauma of serious adverse events.

Our second victim peer intervention model will be piloted in the Department of Pediatrics at the Hospital. To help identify the scope, roles, time frame for the pilot, and measures of effectiveness, a survey is being administered to the staff in the Department of Pediatrics – similar to the Second Victims Questionnaire survey that was administered at the summit. The objective is to gauge awareness of the "second victim" concept on a larger and more generalizable sample within the department and to involve the staff in developing an intervention.

Medical errors that harm patients are inevitable, and experience of these events can leave an indelible impression on health care providers. There is currently inadequate attention given to the health care provider who experiences traumatic events while taking care of patients within our health system. Institutions need to provide more attention to recognizing and supporting health care workers who are the second victims of medical errors.

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