



Surgeon and medical student response to patient death

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Background: Virtually all surgeons will experience patient death in their practice. Despite this, little is known about how surgeons cope with patient death or its potential adverse impact on surgeons' well-being. Education on how to respond to loss is not often incorporated into current wellness curricula in surgical training. In light of the ongoing COVID-19 pandemic and the significant hospital-related mortality, understanding surgical provider response to patient loss takes on unique import.

Methods: A retrospective analysis was performed following administration of a 10-item survey that assessed healthcare provider (HCP) experience with patient death, activities used to cope with patient loss, and symptoms HCPs experienced. Participants included surgical faculty, residents, surgical advance practice providers and medical students on their surgical clerkship. Demographic characteristics were recorded: age, gender, academic level. Chi-squared test or Fisher exact test compared proportionality between those that did and did not experience patient loss. Logistic regression generated odds ratios examining impact of patient loss on symptoms experienced and activities engaged in after patient loss.

Results: Fifty-six (75%) respondents experienced patient death. Common responses were to talk with colleagues (71%) and seek comfort from family/friends/partner (55%). Most respondents did not report symptoms related to patient death (53%); burnout was the most common symptom reported (36%). Respondents were less likely to seek interpersonal support for COVID-19-related death ($P < 0.008$). Only 49% of participants received education on coping with patient death.

Conclusions: Few surgeons receive training related to patient death. Optimal coping strategies are unknown but may mitigate potential negative impacts, including burnout. The data presented here also suggests the need to establish medical education designed to mitigate the distress associated with patient loss.

Keywords: Burnout; surgeon wellness; patient death; research education

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Introduction

Virtually all medical providers will experience patient death at some point during their career. This is particularly true for surgeons both due to the diseases they treat as well as the invasive nature of the procedures they perform. Because of their surgical experiences, surgeons form unique coping mechanisms in response to patient death.

Surgeons may feel increased pressure to “do” something for their patients which can be internalized as “performing a surgical procedure” and may lead to a necessary emotional detachment from the patient as the surgeon completes his or her task (1). Despite how commonly surgeons experience patient death, there have been very few studies devoted to understanding the coping strategies used by surgeons or the

impact that patient death has on surgeons. A recent meta-analysis by Joliat *et al.* identified only seven papers that have directly addressed surgeon response to dying patients (2). Most recently, Bamdad *et al.* published a qualitative study reviewing long form interviews with 28 surgical trainees on the topic of postoperative complications and patient deaths (3). Some of the themes that have emerged from these limited investigations include the importance of balancing objectivity with emotions, the impact of the “surgeon personality” on coping with patient death, and the potential contribution of patient death to surgeon burnout and other adverse emotional impacts. Burnout, defined as a syndrome of emotional exhaustion, depersonalization, and a low sense of personal accomplishment, is common among surgeons and surgical residents, reported by 40% of surgeons and 93% of surgical residents (4). While the contributors to burnout among surgeons and surgical training are multifactorial, physicians caring for seriously ill patients are known to report higher rates of burnout compared to their counterparts outside of critical care (5).

The current study sought to examine the coping strategies utilized and symptoms experienced by surgeons when dealing with patient death. Potential differences by sex, age, and academic position were analyzed in order to understand the potential impact of these factors for future education or training interventions. The COVID-19 pandemic introduced unique challenges for surgeons due to associated critical illness and surgically-related disease. Therefore, we queried surgical healthcare providers (HCPs) regarding their response to COVID-19-related patient death compared to patient death not related to COVID-19.

Highlight box

Key findings

- Most survey respondents experienced patient loss but less than half received education on coping with patient death.

What is known and what is new?

- Most surgical providers will experience patient death. Burnout is incredibly prevalent and is, in part, related to patient loss. The most common symptom reported in response to patient death in this study was burnout, while the most common response was to seek interpersonal support.

What is the implication, and what should change now?

- Surgeons benefit from a community in which they can discuss their experiences with patient loss. Healthy responses to patient death should be incorporated into medical training.

We present the following article in accordance with the SURGE reporting checklist (available at <https://apm.amegroups.com/article/view/10.21037/apm-22-885/rc>).

Methods

Research subjects

An annual patient memorial service was initiated in the department of surgery in 2014. Attendees of the memorial service include surgical faculty, residents, medical students on their surgical clerkship, and surgical advance care providers. Following the June 2020 memorial service, attendees were contacted via a secure email list serve and asked to complete an anonymous electronic survey regarding their experience with patient death, response to these deaths, and associated symptoms experienced. No incentives were offered in exchange for completing the survey. While respondents were asked whether they experienced patient death in the last year, all questions relating to coping mechanisms and symptoms experienced following patient death reflected their overall experience to date and were not limited to experience of the past year. Additionally, the symptoms experienced related to patients with COVID-19 pertains to all providers who cared for patients with COVID-19, not just those HCPs who experienced patient death related to COVID-19.

Survey instrument

Respondents were asked to complete a 10-item survey on their experience with patient death, responses used to cope with patient death, symptoms experienced from dealing with patient death, specific experience related to patient death from COVID-19 (if applicable), medical training related to education on handling patient death, and assessment of prior experience with the departmental patient memorial service. The specific symptom options listed for respondents to choose from are based on work by Shanafelt *et al.* and Balch *et al.* (4,6). The latter notes that 32% of surgeons report high levels of emotional exhaustion with distress manifested by anxiety, depression, and burnout (6). An additional free text item was also included to allow respondents to comment on their experience of patient loss and/or suggestions about how the department could help students, advance practice providers, residents, and faculty cope with patient loss (Figure 1). Demographic characteristics were recorded for each participant, including age, sex, and academic position

Regardless of specialty, most, if not all, medical providers will face the loss of a patient at some point in their career. The following BRIEF survey asks about your experience dealing with patient loss. Your responses are anonymous. The information gathered will be used to help better understand how medical providers respond to patient loss. By completing and submitting this survey, you are consenting for your information to be utilized in this study.

- 1) Sex: (must provide value)
Answer options: Male, Female, Prefer not to answer
- 2) What is your age? (must provide value)
Answer options: 18–24, 25–34, 35–44, 45–54, 55–64, 65–74, 75 or older
- 3) What is your current position? (must provide value)
Answer options: medical student, surgical advance practice provider, surgical resident, surgical faculty, other
- 4) Within the past year, have you cared for a patient who died? (must provide value)
Answer options: yes, no
- 5) Which of the following characterizes your response to a patient's death? Check all that apply (must provide value)
Answer options: tried not to think about it, attended patient funeral/memorial, send the family a condolence card or express sympathy, seek comfort from family/friends/spouse/partner, talk about the loss with colleagues, seek advice from faculty/mentor, engaged in social media (personal/professional) for support, engage in personal extracurricular activity (e.g., sports, art, music, writing), engage in spiritual/religious or reflection, seek assistance from mental healthcare provider, other
- 6) Which, if any, of the following symptoms have you experienced because of dealing with patient loss? CHECK ALL THAT APPLY (must provide value)
Answer options: depression, anxiety, post-traumatic stress, burnout, none of the above
- 7) Have you cared for a patient who has died of COVID-19? (must provide value)
Answer options: yes, no
- 8) Which of the following describes your experience of caring for a patient who died of COVID-19? Check all that apply (must provide value)
Answer options: No different than caring for a patient who died from other causes? Raised concerns about my own safety, Raised concerns about the safety of my family/loved ones, Utilized different strategies for coping with patient death than for COVID-19-related death, Experienced different symptoms following patient death than for non-COVID-19-related death, Felt different impact compared to death following cause other than COVID-19
- 9) In the course of your medical training, have you received training on how to deal with patient loss? (must provide value)
Answer options: yes, no, not sure
- 10) If you attended the UNM Department of Surgery patient memorial activity previously, which of the following describes your impression of this activity? (must provide value)
Answer options: Did not attend OR do not recall the activity, Neither important nor useful, Important but not useful, Both important and useful
- 11) Please provide any comments about your experience of patient loss and/or suggestions about how your department should help students, advance practice providers, residents, and faculty deal with patient loss.
Answer options: Free text.

Figure 1 Survey instrument. UNM, University of New Mexico.

(i.e., student, resident, advance practice provider, faculty). Participants were given one week to complete the survey. No follow-up reminders to complete the survey were sent after the initial request to complete the survey.

Data analysis

Eighty-one participants completed the survey. Six were removed from the analysis: one individual did not list their sex and 5 individuals selected positions of “surgical advanced practice provider” or “other,” making a group too small for adequate analysis. Given that data analysis focused on the subgroups and there was no significant analysis performed on the total cohort, these patients were excluded from further analyses. Therefore, 75 subjects were retained for final analysis.

Statistical analysis

Data was analyzed via SAS 9.4 statistics package. Chi-squared test or Fisher exact test was used for proportionality comparisons between those who did and did not experience

patient death. The same analyses were then repeated for the subset of population of HCPs that experienced patient death related to COVID-19. All P values recorded were for two-tailed tests, P value ≤ 0.05 was considered statistically significant.

Ethical statement

The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013). The study was approved by the University of New Mexico Institutional Review Board (No. 20-508) and individual consent for this retrospective analysis was waived.

Results

A total of 126 surveys were emailed to general surgery faculty (N=45), surgical residents (N=33), medical students on their surgical clerkship (N=40), and surgical advance practice providers (N=8). The overall response rate was 64%. The response rate by academic position was: 44% for faculty (20/45), 63.6% for residents (21/33), 85% for students (34/40).

Table 1 Baseline demographics of entire cohort of respondents

Demographics	N	%
Sex		
Male	36	44.4
Female	44	54.3
Prefer not to answer	1	1.2
Age (years)		
18–34	46	56.8
35–54	25	30.8
55 or older	10	12.3
Position		
Medical student on surgical rotation	34	42.0
Surgical resident	21	25.9
Surgical faculty	21	25.9
Surgical advanced practice provider	4	5.0
Other	1	1.2
Experienced patient loss		
Loss unrelated to COVID-19	43	69.4
Loss related to COVID-19	19	30.6

Table 2 Baseline demographics of subset retained for analysis

Demographics	N	%
Sex		
Male	35	46.7
Female	40	53.3
Age (years)		
18–34	44	58.7
35–54	21	28
55 or older	10	13.3
Position		
Medical student on surgical rotation	34	45.3
Surgical resident	21	28
Surgical faculty	20	26.7
Experienced patient loss		
Loss unrelated to COVID-19	41	73.2
Loss related to COVID-19	15	26.8

Table 3 Provider characteristics

Demographics	No patient loss (n=19), N (%)	Patient loss (n=56), N (%)	P value
Sex			
Female	10 (52.6)	30 (53.7)	0.943
Male	9 (47.4)	26 (46.3)	
Age (years)			
18–34	13 (68.4)	31 (70.7)	0.016*
35–54	1 (5.3)	20 (26.8)	
≥55	5 (26.3)	5 (2.4)	
Position			
Medical student	14 (73.7)	20 (48.8)	0.009*
Surgical resident	0 (0.0)	21 (100.0)	
Surgical faculty	5 (25.0)	15 (75.0)	

The symbol “*” denotes statistical significance.

Baseline demographics

The characteristics of all 81 participants who completed the survey are reflected in *Table 1*. The characteristics of the 75 subjects retained for analysis are summarized in *Table 2*. Of this subset, 53% of respondents were female. Most respondents were aged 18–34 years old and 45% were medical students. Fifty-six (75%) of subjects reported experiencing patient death in the last year. Of these 56 subjects, 15 reported additional patient death related to COVID-19, while 41 participants only reported patient death not related to COVID-19. There was no difference in the frequency of experienced patient death by sex. Age and position significantly varied between those who did and did not experience patient death, with the younger respondents and residents more likely to have experienced patient death. All 21 residents surveyed reported experiencing patient death during the past year (*Table 3*).

Response to patient death

Responses to patient death were divided into three major categories: personal (e.g., engaging in hobbies, seeking comfort from loved ones), interpersonal (e.g., seeking advice from mentors or colleagues), and professional (e.g., seeking assistance from mental healthcare provider). The

Table 4 Response to patient death by age

Response	18–34, N (%)	35–54, N (%)	55 or older, N (%)	Chi ² value	P value
Personal					
Seek comfort from family/friends/spouse/partner	24 (54.55)	12 (57.14)	5 (50.00)	13.514	0.001*
Engaged in personal extracurricular activities	18 (40.91)	11 (52.38)	3 (30.00)	10.564	0.005*
Engage in spiritual/religious support or reflection	8 (18.19)	11 (52.38)	1 (10.00)	7.901	0.019*
Tried not to think about it	10 (22.73)	5 (23.81)	0 (0.00)	10.001	0.007*
Interpersonal					
Talk about the loss with colleagues	30 (68.18)	16 (76.19)	7 (70.00)	15.209	0.001*
Seek advice from faculty/mentor	10 (22.73)	4 (19.05)	0 (0.00)	10.858	0.004*
Send family a condolence card or call to express sympathy	2 (4.55)	2 (9.52)	6 (60.00)	3.2	0.202
Attended patient funeral/memorial	1 (2.27)	1 (4.76)	0 (0.00)	1	0.607
Engaged in social media for support	1 (2.27)	1 (4.76)	0 (0.00)	1	0.607
Professional					
Seek assistance from mental healthcare provider	0 (0)	1 (4.76)	0 (0.00)	2	0.368

The symbol “*” denotes statistical significance.

most common personal response was to seek comfort from others (41/75, 55%) followed by engaging in personal extracurricular activities (32/75, 43%). The most common interpersonal response was to talk about the loss with a colleague (53/75, 71%). Only one subject sought assistance from a mental health provider. Response to patient death did not vary significantly based on sex. All responses within the personal category were reported significantly more often among younger HCPs, including the likelihood of avoiding thinking about the patient death. Respondents in the 35–54 years group were more likely to talk about patient loss with a colleague. Younger respondents were more likely to seek advice from a faculty or mentor (Table 4). Personal and interpersonal responses to patient death also differed by position: residents were less likely to seek comfort from a loved one compared to medical students and faculty, medical students were most likely to seek advice from faculty or a mentor, and faculty were most likely to contact the patient’s family to express sympathy (Table 5).

Symptoms following patient death

Most HCPs did not report any psychological symptoms related to patient death (40/75, 53%). Of those who reported symptoms related to experiencing the death of a patient, burnout was the most commonly reported symptom

(27/75, 36%), followed by anxiety (16/75, 21%). Female HCPs were more likely to report burnout compared to male HCPs (20/40, 50% *vs.* 7/35, 20%, $P=0.01$). HCPs age 35–54 were significantly more likely to report anxiety and burnout related to patient death than younger HCPs or older HCPs (Table 6). No differences in symptoms following patient death were seen based upon academic position.

Response to COVID-19-related patient death

Fifteen respondents reported experiencing a patient death due to COVID-19. Only 3 (20%) respondents indicated that COVID-19-related patient death was not different than loss due to causes other than COVID-19. No differences in personal responses to patient death were noted when the patient death was COVID-19-related compared to deaths unrelated to COVID-19. Fewer HCPs sought out interpersonal support for patient death due to COVID-19 compared to patient death due to other causes and this was primarily related to being less likely to talk about the loss with colleagues. While one third of respondents who experienced a COVID-19-related patient death reported no symptoms, of those who did report symptoms, 40% reported both anxiety and burnout (Table 7). The frequency and type of symptoms experienced due to COVID-19-related versus non-COVID-19-related were not different

Table 5 Response to patient death by position

Response	Medical student, N (%)	Resident, N (%)	Faculty, N (%)	Chi ² value	P value
Personal					
Seek comfort from family/friends/spouse/partner	21 (61.76)	8 (38.10)	12 (60.00)	6.488	0.039*
Engaged in personal extracurricular activities	14 (41.18)	9 (42.86)	9 (45.00)	1.563	0.458
Engage in spiritual/religious support or reflection	9 (26.47)	5 (23.81)	6 (30.00)	1.3	0.522
Tried not to think about it	9 (26.47)	3 (14.29)	3 (15.00)	4.8	0.091
Interpersonal					
Talk about the loss with colleagues	19 (55.88)	19 (90.48)	15 (75.00)	0.604	0.739
Seek advice from faculty/mentor	9 (26.47)	3 (14.29)	2 (10.00)	6.143	0.046*
Send family a condolence card or call to express sympathy	2 (5.88)	0 (0)	8 (40.00)	10.401	0.006*
Attended patient funeral/memorial	1 (2.94)	0 (0)	1 (5.00)	1	0.607
Engaged in social media for support	1 (2.94)	0 (0)	1 (5.00)	1	0.607
Professional					
Seek assistance from mental healthcare provider	0 (0)	0 (0)	1 (5.00)	2	0.368

The symbol “*” denotes statistical significance.

Table 6 Symptoms experienced as a result of dealing with patient loss by age

Response	18–34, N (%)	35–54, N (%)	55 or older, N (%)	Chi ² value	P value
Depression	3 (6.82)	7 (33.33)	3 (30.00)	2.462	0.292
Anxiety	3 (6.82)	10 (47.62)	3 (30.00)	6.126	0.047*
Post-traumatic stress	2 (4.55)	6 (28.57)	2 (20.00)	3.2	0.202
Burnout	14 (31.82)	13 (61.90)	0 (0.00)	13.557	0.001*
None of the above	28 (63.64)	6 (28.57)	6 (60.00)	24.202	<0.001*

The symbol “*” denotes statistical significance.

(Table 7). However, 47% (7/15) reported that COVID-19-related deaths raised concerns about the HCP’s safety while 83% (11/15) reported that these deaths raised concerns about the safety of their family/loved ones.

Medical training on dealing with patient death

Almost half (37/75, 49.3%) of respondents indicated they had not received any training during their medical education on how to deal with patient death. An additional 14 respondents (19%) were not sure if they had received any education on this topic. Those who reported no prior training on dealing with patient death were roughly equal among medical students and surgical residents [15/34 (44%), 9/21 (43%), respectively] and only slightly lower than the

number of surgical faculty who had not received training on coping with patient death during their medical education (13/20, 65%).

Evaluation of prior patient memorial services

Respondents were asked for their assessment regarding the potential benefit of the departmental patient memorial service. Of those who had attended prior patient memorial services (N=36, 48%), 75% felt the activity was both important and useful (27/36). A small minority (5/36, 14%) reported that this activity was neither important nor useful. There were an insufficient number of open text responses regarding suggestions about how the department should help students, advance practice providers, residents, and

Table 7 Response to patient loss and associated symptoms by etiology (COVID-19 vs. non-COVID-19)

Response	Patient death unrelated to COVID-19 (n=41), N (%)	Patient death related to COVID-19 (n=15), N (%)	P value
Personal	34 (82.9)	12 (80.0)	1
Seek comfort from family/friends/spouse/partner	23 (56.1)	8 (53.3)	0.854
Engaged in personal extracurricular activities	22 (53.7)	7 (46.7)	0.642
Engage in spiritual/religious support or reflection	12 (29.3)	6 (40.0)	0.446
Tried not to think about it	11 (26.8)	2 (13.3)	0.477
Interpersonal	38 (92.7)	9 (60.0)	0.008*
Talk about the loss with colleagues	38 (92.7)	9 (60.0)	0.008*
Seek advice from faculty/mentor	10 (24.4)	3 (20.0)	1
Send family a condolence card/call to express sympathy	2 (4.9)	2 (13.3)	0.289
Attended patient funeral/memorial	1 (2.4)	1 (6.7)	0.468
Engaged in social media for support	1 (2.4)	1 (6.7)	0.468
Professional			
Seek assistance from mental healthcare provider	1 (2.4)	0 (0.0)	1
Symptoms associated with patient loss			
Depression	7 (17.1)	4 (26.7)	0.43
Anxiety	9 (22.0)	6 (40.0)	0.18
Post-traumatic stress	6 (14.6)	4 (26.7)	0.3
Burnout	20 (48.8)	6 (40.0)	0.56
None of the above	20 (48.8)	5 (33.3)	0.3

The symbol “*” denotes statistical significance.

faculty deal with patient loss to allow for any analysis of these responses.

Discussion

We found that the majority of surgeons experience patient death. This finding reflects the nature of surgical patients as well as the risk of mortality associated with surgical procedures. Despite how frequently surgical HCPs are faced with patient death, little attention or research has been conducted on surgeons' response to patient death and the potential adverse impact that loss may have. A recent meta-analysis identified only 7 papers that have directly addressed surgeon response to dying patients (2). The goal of the current study was to examine the experience of patient death among medical students, surgical residents and faculty, assess the responses used to cope with these

losses, and determine what symptoms are associated with patient loss events.

The main forms of personal coping used by the respondents were seeking comfort from family and engaging in extracurricular activities. Our findings are consistent with those of Granek *et al.* who found that oncologists seek social support from family and spouses and engage in hobbies or physical activities as a means of coping with patient death (7). Similarly, Zambrano *et al.* found that surgeons caring for patients with advanced life-limiting illnesses noted the importance of work-life balance by having good support outside work in the form of family and friends, and having non-professional activities to engage in outside of work (1). A recent study by Oakman *et al.* of internal medicine residents found that 54% sought support from family or friends to process patient death (8). Notably, in the current study, almost 25% of young respondents reported trying

not to think about the patient death as means of coping. This response may reflect a need to “compartmentalize” to separate their feelings about grief about patient death from other aspects of their lives and the need to continue their clinical work (9). Not addressing negative emotions, including grief, can lead to stress, burnout, alcohol and substance addiction, loss of professional sense of meaning and mission, cynicism, frustration and symptoms including anxiety, insomnia, moodiness, and difficulty concentrating (10,11).

The most common response to patient death was talking with colleagues about the death. Our findings are consistent with those of Baider and Wein in their review of how physicians cope with patient death (12). They identified four basic tenets to guide recommendations and interventions useful for resolving the dilemmas and fears of caring for terminally ill patients: functional empathy, legitimate fears and concerns, reskilling, and sharing with colleagues. The latter concept was found to be particularly important in the current study as the vast majority of respondents across all groups reported talking with colleagues about the patient death. Furthermore, sharing experiences with colleagues is an obvious but often forgotten technique to relieve anxiety (12). Our results are also consistent with those of Zambrano *et al.* who noted that surgeons stated a preference for talking about a patient death with colleagues as a means of coping (1). However, this option was not used often or systematically amongst their surgeons. Interestingly, other a study has shown that HCPs avoid confiding in colleagues as the act is interpreted as “a vulnerability, even a potential liability” (7). This concern may explain the finding of Oakman *et al.* who found that 67% of internal medicine residents prefer to process death independently (8). For younger HCPs, seeking mentor advice was also an important interpersonal response to dealing with a patient death. The importance of role models to teach complex interpersonal behavior was highlighted by Gorlin and Zucker in their article on physicians’ reactions to patients and the role of teaching humanistic medicine (13).

Maladaptation to a stressor, such as patient death, is not defined as much by the form of coping used as the potentially adverse impact on the HCP. Most respondents did not report any symptoms following patient loss. Among those HCPs who did report symptoms related to patient death, the most common symptom was burnout. Our findings are consistent with those of prior reports that found a 40% burnout rate among surgeons (4). Female HCPs and younger HCPs were more likely to report burnout

compared to male and older HCPs in the current study. These results are consistent with the results of Kuerer *et al.* who found higher levels of burnout among female surgical oncologists and Low *et al.* who recently reported a burnout rate among surgical residents of 58% (14,15).

The current study also sought to examine the potential unique impact of COVID-19-related deaths on surgical HCPs. Surgical HCPs who experienced patient death related to COVID-19 were less likely to talk with colleagues as a means of coping. This may be related to the strain placed on all HCPs during the pandemic, creating a system that is both physically and emotionally overwhelmed. The decreased interpersonal communication may also be due to increased social isolation related to the pandemic with fewer opportunities to connect with colleagues for support. Additionally, HCPs reported more symptoms when dealing with COVID-19-related deaths compared to non-COVID-19-related deaths, including more depression, anxiety, and post-traumatic stress disorder (PTSD). While these differences were not significant compared to the symptoms reported to non-COVID-19-related death, this may represent the small number of HCPs who experienced patient death from COVID-19 relatively early in the pandemic. Additionally, approximately half of HCPs who experienced patient death due to COVID-19 reported concern about their safety while almost 75% expressed concerns about the safety of their family/loved ones. The infectious nature of the novel coronavirus certainly contributed to these specific safety concerns, particularly early in the pandemic before vaccinations were available.

Less than half of respondents reported receiving any training on how to deal with patient death. This reflects a major deficiency in surgical training given how commonly surgeons, specifically surgical residents, experience patient death (100% of surgical residents in the current study). The lack of specific training or education on how to cope with patient death is not unique to surgeons. As Granek *et al.* have reported, oncologists rarely receive any training on dealing with patient loss despite patient death being a common experience in oncology practice and a desire for such training (7,16). As Gorlin and Zucker pointed out almost 40 years ago, “*The key to successful mastery of a professionally hazardous emotional response is first to acknowledge that it exists*” (13). Our annual departmental patient memorial service represents our attempt to acknowledge the impact that patient death has on our HCPs and provide a forum for peer support. The utility of this activity is evident by the 75% of respondents who previously attended the

memorial service and reported that it was both important and useful. Our results are consistent with those reported by Schoenborn *et al.* and Oakman *et al.* who reported on the benefit of patient memorial services in their residency training programs (8,17). In both studies, most residents who attended their departmental patient memorial services found the experience both important and useful. Another potential resource to support residents dealing with patient death include debriefing sessions. A study by Eng *et al.* described their experience with brief, real-time Patient Death Debriefing sessions for internal medicine residents on an oncology rotation (18). The majority of residents experienced patient death (87%). Residents were surveyed before and after their rotation and reported that the debriefing sessions were helpful and educational.

There are several important limitations to the current study. The data are from a small cohort of HCPs at a single surgery department. The department in which this study was conducted is unique among surgical departments in light of the annual patient memorial service that was established six years prior to the current study. This annual event gives HCPs the space to remember and process patient losses from the prior year and reflects a departmental culture that emphasizes the importance of reflecting on the potential significant impact that patient death can have on our HCPs. Several survey respondents wrote that this experience allows the department to “collectively honor our patients and support one another” as well as normalize grief. It is possible that the results of this survey would not be reflective of other surgical departments that do not explicitly provide a similar activity to remember patients who have died. Additionally, almost half of the participants were medical students on their surgical clerkship and their responses in terms of coping with patient death and associated symptoms may not reflect those of surgical trainees or faculty. The symptoms related to patient death were self-reported and did not include use of standardized instruments to assess depression, anxiety, PTSD, or burnout and therefore may not accurately reflect the true presence of these symptoms. Importantly, respondents were not asked to identify the cause of either COVID-19-related or non-COVID-19-related deaths nor asked specifically if these were perioperative deaths. As Zambrano *et al.* note, the underlying mechanism leading to the patient’s death has a significant impact on how a surgeon experiences that patient’s death; those related to an adverse surgical outcome are experienced

differently than those due to disease progression (1).

There is a wealth of data on HCP burnout but less so regarding patient death, and the surgeon specific experience, especially during the COVID-19 pandemic. The current data indicate that a surgical HCP’s response to patient death is affected by his/her age and professional experience (e.g., faculty, surgical resident, medical student). Finally, the results from this survey posit that although symptoms experienced by HCPs due to COVID-19-related deaths did not differ compared to non-COVID-19-related deaths, the infectious nature of the disease did raise concerns about their safety as well as the safety of their loved ones.

Conclusions

Most surgeons experience patient death, especially surgical residents. Patient death during this formative period of training may impact the long-term career coping mechanisms that surgeons develop in response to poor patient outcomes. Maladaptive coping mechanisms developed during this time can be just as detrimental long term as the emotional weight of patient death. Despite how commonly surgeons are confronted with patient death, they rarely receive training on how to cope with patient death. Common responses to dealing with patient death are seeking comfort from others, particularly family and friends, and talking about the loss with a colleague. These findings highlight the need for surgeons to be able to access several sources of support both inside and outside of the healthcare community when coping with patient death. For younger HCPs, faculty and mentor support is often needed to process these losses. While most surgeons did not report any psychological symptoms related to patient death, of those who reported symptoms, burnout was the most commonly reported symptom. Female HCPs and those age 35–54 were most likely to report burnout. The COVID-19 pandemic has produced unique challenges for surgeons who experience patient death; it has reduced the usual tendency to seek peer support and has raised concerns about the HCP’s safety or the safety of their family/loved ones. There is emerging data supporting the efficacy of departmental patient memorials as one activity to help HCPs process patient death. However, more research is needed to better understand how surgeons cope with patient death and the training and education needed to best prepare them for this common professional experience.

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Footnote

Reporting Checklist: The authors have completed the SURGE reporting checklist. Available at <https://apm.amegroups.com/article/view/10.21037/apm-22-885/rc>

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Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013). The study was approved by the University of New Mexico Institutional Review Board (No. 20-508) and individual consent for this retrospective analysis was waived.

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