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General

The Impact of the COVID-19 Surge Response on Motivation Among Anesthesiology Residents and Fellows: A discussion of findings from semi-structured interviews at Montefiore Medical Center and educational takeaways.

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Background

The American Board of Medical Specialties definition of medical professionalism cites the need to acquire, maintain, and advance a value system serving the patients' and public's interests above self-interests.[4] Medical professionalism is a one of the core physician competencies assessed by both the ACGME training program evaluation and the ABA certification process. However, a growing concern for the decline of professionalism and altruism in medicine resulted in increased publications on the matter, citing various potential sources for the issue.

Methods

All residents and fellows (Focus Group 1) of the Anesthesiology Department of Montefiore Medical Center in Bronx, NY were invited to participate in a semi-structured interview via Zoom, held on two separate dates. A separate invitation was sent to the faculty of the department (Focus Group 2), held on one date. During the interview, guiding questions were provided by the 4 interviews to facilitate discussion. The interviewers, all members of the anesthesia faculty, took notes as the interviews progressed. The notes were reviewed for common themes as well as supporting and contradicting quotations.

Results

A total of 23 residents and fellows and a total of 25 faculty members within the Anesthesiology department at Montefiore Medical Center were interviewed. Amongst the findings, common discussions concerned motivating and demotivating factors contributing to the professionalism and altruism exhibited by the residents and fellows when caring for critical COVID-19 patients during the height of the pandemic. It was widely regarded that patient improvement, community and team support, as well as intrinsic desire to help greatly motivated the team while continuous patient deterioration, uncertainty in staffing and treatment, and concerns for personal and family safety were sources of discouragement. Overall, faculty perceived an increased demonstration of altruism amongst residents and fellows. The statements made by the residents and fellows during their interviews supported this observation.

Conclusions

The actions of the Montefiore Anesthesiology residents and fellows demonstrated that altruism and professionalism were readily available amongst physicians. Increased levels of empathy and responsibility contributed to a demonstration of professionalism that challenges previous views of a perceived decline of these attributes in the medical field. The findings of this study stress the importance of creating a curriculum and exercise that stress empathy-based care and altruism in order to improve resident satisfaction and

decrease feelings of burnout. Additionally, curriculum additions to facilitate professionalism are proposed.

INTRODUCTION

Medical professionalism is one of the core physician competencies and is a key element assessed in Accreditation Council for Graduate Medical Education (ACGME) training program evaluation and the American Board of Anesthesiology (ABA) certification process. However, many are concerned that there has been a decline in the essential attributes of professionalism in current medical practice due to several factors. For example, a commentary attributed the decline in altruism in medicine to the evolution in healthcare delivery and medical education.[1] This finding is of particular concern since, in addition to being one of the inherent values and essential components of medical professionalism, altruism is a dimension of a physician's work that may reduce physician depersonalization and burnout.[1]

It is evident that residents and fellows face multiple competing responsibilities during their training. Many must care for young families and most have significant stressors.[2] They are also expected to meet specific expectations set by various accrediting bodies, their institution, and residency program for successful completion of their trainings, which significantly impact opportunities for additional training and future employment. Perhaps attributable to excessive clinical and educational workload - overall burnout, depersonalization, and fatigue are most prevalent during residency and fellowship.[3]

The American Board of Medical Specialties definition of medical professionalism cites the need to acquire, maintain, and advance a value system serving the patients' and public's interests above self-interests. In addition, it states that physicians need the knowledge and skills required for good medical practice as well as interpersonal skills necessary to work with patients in pursuing appropriate use of physician's specialized knowledge and abilities with specific reference to the "art" of medicine.[4] Among important attributes of professionalism in anesthesiology, Chestnut cites humility, self-awareness, and attention to personal well-being, kindness, altruism, concern for patient safety, and a commitment to lifelong learning.[5] Given the baseline of performance expectations and competing interests, some might expect that residents and fellows who are placed in work environments with even greater stress, such as managing critically ill COVID-19 patients, would face greater moral distress and perhaps waver in their commitment to these core elements of medical professionalism.

Montefiore Medical Center is the largest hospital system in Bronx, NY which admitted over 1000 patients during the first COVID-19 surge beginning in March of 2020, most diagnosed with the, at the time, novel virus. Several additional ICUs were created to care for the growing number of COVID-19 patients, requiring staffing from other departments. One of these was the Department of Anesthesiology, whose residents, fellows, and attendings were tasked with several of these units. Residents and fellows were placed in clinical settings that necessitated very close contact with critically ill COVID-19 patients. Most of these patients required highly aerosolizing procedures such as tracheal intubations, frequent ventilator adjustments, and position changes (from supine to prone) to improve ventilation and oxygenation. These interventions demanded anesthesia personnel to regularly enter patient rooms, thereby increasing their risk of viral exposure at a time when there were concerns surrounding the availability of personal protective equipment (PPE). Differing from their prior rotations, residents were scheduled in ICUs for an extended period of time and were expected to care for patients in environments that were not conducive to prolonged care (such as operating rooms that have been converted to ICUs). Residents and fellows needed to adapt to different settings and learn new and evolving treatment protocols, while experiencing the anxiety of potentially becoming infected themselves.

Much of the literature prior to the pandemic pointed out the perceived decline in medical professionalism and altruism. While many discussions were published regarding the negative impact of COVID-19 on healthcare workers at the frontline of the pandemic, a limited amount of literature is available reflecting the experiences of residents and fellows as they are displaced from their normal operations into the high stress environments of COVID-19 ICUs. No such discussions were available prior to the pandemic, leading to the development of this study. Currently, discussion of non-financial incentives for resident and fellow motivation and altruism is still lacking. In this paper, we focus on the experiences of the anesthesiology residents and fellows to note what factors contributed to their everyday motivation and altruism and how they were able to demonstrate professionalism in the high stress environment of the pandemic. We also discuss potential curriculum additions that could help facilitate teaching professionalism from an empathy-based direction.

MATERIALS AND METHODS

A qualitative description study design following the Consolidated Criteria for Reporting Qualitative Research (COREQ) was employed.[6] After obtaining IRB approval from Montefiore Medical Center, four faculty members held two semi-structured open-ended interviews with residents and fellow, all of whom provided oral informed consent to participate in the study. The interviewers all held the academic ranks of Assistant Professor of Anesthesiology or above. All had, at some point, provided training and mentorship to the participants of the study. The participants comprised of residents and fellows of all levels in the Anesthesiology department. They were made aware that their participation was voluntary and they would not be evaluated on their contributions to the sessions or their decision to participate. All of the program's residents and fellows were invited to participate (n=51, n=12, respectively). Participants were invited via email and provided with hyperlinks to join the

Table 1. Question prompts used in the Resident and Fellow interview, Focus Group 1.

CATEGORY	QUESTION SCRIPT
REFLECTION	"What was most meaningful to you during the COVID redeployment experience?"
INTRINSIC MOTIVATION	"What motivated you?"
INSPIRATION	"What kind of behavior(s) did you notice in others?"
OBSTACLE	"What was the most challenging aspect of this experience?"
CAREER ORIENTATION	"Did this experience make you a better anesthesiologist?"

Table 2. Question prompts used in faculty focus group interview session.

CATEGORY	QUESTION SCRIPT
REFLECTION	"What do you think is most meaningful to the residents and fellows during this redeployment experience?"
INTRINSIC MOTIVATION	"What do you think motivated the residents and fellow?"
INSPIRATION	"What kind of behavior(s) did you notice in the residents and fellows?"
OBSTACLE	"What was the most challenging aspect of this experience for the residents and fellows?"
CAREER ORIENTATION	"Did this experience make the residents and fellows better anesthesiologist?"

interview session remotely via Zoom™ (San Jose, California, US) and they were given the option of speaking with or without the use of their video screen. Participants were made aware that the session would not be recorded by audio or video. However, they were not anonymous to the interviewers. All participants were given the option to send comments via email to the authors after the sessions if they did not wish to speak in a group-setting.

To facilitate higher participation rates for the busy participants, two separate focus groups were held on consecutive days during the month of May of 2020. Broad, open-ended questions served as prompts to spark and moderate discussion amongst participants (Table 1). At the end of the same week, in lieu of grand rounds, a separate focus group, comprised of faculty members who had observed the residents, was held in order to help triangulate the themes and observations generated from the resident and fellow focus group sessions. The program faculty (n=82) were invited via email and provided with hyperlinks to a Zoom™ meeting to participate in an optional, semi-structured interview session. Similarly to the previous focus group, the interviewers utilized open-ended questions as prompts to open and moderate discussions (Table 2).

The same four faculty members served as interviewers during all sessions and wrote notes during or immediately after the sessions. They noted observations and quotations from different participants, without any identifying information. Notes from the four interviewers were reviewed for consistency and coded into prevalent themes. These themes were corroborated at a regularly scheduled weekly meeting with the Critical Care Medicine leadership. This leadership team served as the ICU attending physicians who supervised anesthesiology residents and fellows, and actively collaborated with the departmental leadership to assess the mental health, duties, schedules, and feedback from the residents and fellows during the COVID-19 deployment in March and April of 2020.

RESULTS

In total, 25 of the 63 invited Focus Group 1 (residents and fellows) attended and 22 of the 82 invited Focus Group 2 (faculty) attended the interviews. The common themes deduced from the interviews are noted below, split into 5 categories: "Intrinsic Motivators", "Extrinsic Motivators", "Demotivating Factors", "Professional Growth", and "Altruistic Demonstrations". These themes, as well as the experiences that contributed to each of them, are further discussed in the below subheadings. Quotations that support the themes are included in Table 3.

INTRINSIC MOTIVATORS

Most of the residents cited a sense of purpose in the midst of the pandemic and felt that it was interesting and exciting to be a part of treating a new disease. The sense of value in their work and the excitement of being part of a team to treat this new disease motivated residents and fellows to "step up to the challenge". The faculty felt that anesthesiology residents were motivated by a common cause of being at the frontline of fighting COVID-19 in their community. Residents were seen to be fulfilling the oath they had taken. Faculty also noted that the residents demonstrated an increased commitment to their patients due to this factor.

EXTRINSIC MOTIVATORS

External motivations were manyfold for the anesthesia teams tackling COVID patient care. On the care team end, the main two motivators noted during the interview sessions were the appreciation demonstrated by the ICU team as well as the positive role modeling and cooperation within the anesthesia cohort and faculty. On the patient facing front, appreciation by the patient families and com-

Table 3. Supporting quotations from the resident group interview sessions, Focus Group 1.

CATEGORY	THEME	QUESTION SCRIPT
REFLECTION	Playing a role in a novel, global pandemic	Resident: "[Felt they should] step up to the challenge [of battling a new disease]"
MOTIVATING FACTORS	Appreciation by the rest of the ICU team	• "Everything we did was very much appreciated" • "everyone was in this together" • "Physicians from other specialties respected our skills, relied on us to make ventilator setting changes, place lines, and valued our help with even what are [considered] small tasks for us, like proning"
	Positive role modeling	"People stepped up and pitched in"
	Appreciation by patient families	"Talking with patient's families, who were very appreciative of what we were doing, thanking us, and understanding of the uncertainty about the course of the disease and prognosis [was very meaningful]."
	Community appreciation	Speaking regarding the food donations: "This was one less thing to worry about"
DEMOTIVATING FACTORS	Patient-related worries	• "It was mentally draining to come to work and feel as though patients were not getting better or were getting worse" • "It felt as though sometimes we were not doing anything" • "families who were angry, in denial, or expressing frustrations – being yelled at and blamed by them was difficult"
	Concerns for personal safety	• "Is there virus on the doorknob, can I ever take my mask off, will I take this home to people I am living with?" • "
	Constant Uncertainty	• "The daily frustration and uncertainty of where you were going to be assigned [were very challenging]. Who you were scheduled to work with and what you were going to be doing. Everything was just day to day."

munity, as well as the "Continuity of Care" were widely accepted as big impacts to motivation during the interview.

APPRECIATION BY OTHER MEMBERS OF THE ICU TEAM

They felt that their work was being valued. The faculty felt that the enthusiasm and teamwork evident in taking care of COVID-19 patients was the meaningful portion of the experience for residents. Residents appreciated being part of a team where everyone's unique skills were valued. They felt that the full range of their skills were utilized due to the variety of tasks they were involved in. The faculty felt comfortable with the skills and ability to stay calm in stressful situations that were demonstrated. The faculty noted that the residents routinely assisted the non-anesthesiology faculty and residents with learning these tasks when needed. They also felt that the residents understood that their technical skills, critical care knowledge, and ability to efficiently complete electronic documentation were particularly valuable to the multidisciplinary team.

POSITIVE ROLE MODELING BY PHYSICIANS AND TEAM MEMBERS

When asked to provide an example of a behavior that influenced them, some residents and fellows provided examples of how their peers volunteered to help them when they were overworked, as well as how they relied on each other's help. Most also felt that the camaraderie with their peers helped them get through the challenges that lack of PPE and other stressors brought about. Many felt that they got to know their colleagues better and their group became a tighter knit unit. Faculty noted that the leadership residents and fellows exhibited, as well as the way they rallied together and supported each other, really stood out.

CONTINUITY OF CARE

According to residents, they were motivated by the "increased ownership" of their patients due to being responsible for all aspects of their care. Rather than being involved in just one part of a patient's treatment, anesthesia, they were responsible for all of the day-to-day tasks for a period of at least two weeks (the length of one shift). This continuity of care also motivated them by giving them increased exposure to patient recovery: residents and fellows agreed that it was immensely rewarding to see patients begin to feel better and know that their work mattered.

APPRECIATION BY COMMUNITY

Many residents and fellows regarded talking to patient families as the most meaningful experience throughout the pandemic. Due to visitors being strictly prohibited, family members relied entirely on updates provided by the care team to communicate with their loved ones. This positioned the anesthesia care team in a unique position: serving as a valuable bridge between patients and their families. The daily appreciation expressed by family members served as an excellent motivator and helped the care team uphold the values of altruism and professionalism daily despite the ongoing stressors. This motivation was furthered by the

support from various organizations and community initiatives that helped support the care team through contributions, such as food donations for front-line workers. This contribution was twofold; For one, it allowed the anesthesia care team to focus less on their personal needs allowing for more of their energy to be spent on patients. Secondly, all interviewees, including faculty, agreed that the ability to sit together at mealtimes and having an opportunity to share their experiences of the day helped the care team destress before returning to their duties.

DEMOTIVATING FACTORS

While certain factors helped the residents and fellows feel encouraged as they were displaced from their regular assignments to take care of COVID-19 patients, a compilation of difficulties negatively impacted their motivation and altruistic tendencies. Amongst the contributors to resident and fellow troubles were professional uncertainties, personal safety concerns, and patient-related worries.

PROFESSIONAL UNCERTAINTIES

Direct professional concerns such ill-defined job duties and daily uncertainty were some of the biggest barriers, as described during the interview sessions. Due to the relocation and constantly changing staffing and leadership, residents and fellows stated it was mentally draining to come to work not knowing what to expect. This compounded with the uncertainties of staffing, PPE availability, and treatment plan. Learning about a disease as they were expected to treat it created sentiments of doubt and lowered motivation. Additionally, some were discouraged when witnessing poor behavior from others. While the majority of interactions uplifted their spirits and encouraged them to work harder, a theme of physicians placing their own interests above the patients was brought up during discussion by residents. In the uncertainty of staffing, poor communication and high-strung emotions sometimes resulted in discouraging interactions between care team members.

PERSONAL SAFETY CONCERNS

One of the biggest concerns that was brought up was the safety concerns residents and fellows, as well as faculty, had for themselves and their families. The difficulty of having to wear PPE for prolonged periods of time and the fear of infection forced the team to make difficult decisions. In particular, faculty noted how anxious residents were regarding PPE availability long term and the high level of infectivity that was evident during the initial stages of the pandemic. While this worried the residents and fellows, they continued to push through these fears and treated patients with the utmost care.

PATIENT-RELATED WORRIES

Patient deterioration and poor interactions with patient families significantly impacted the motivation of the residents and fellows. While it was rewarding to see patients improve throughout their assignment, they noted that the unfortunate truth of the matter was the overwhelming lack of improvement and how long it took to see results of treatment. Many interviewees expressed feelings of anger, frustration, and powerlessness at the inability to effectively help patients which made their efforts seem pointless. These feelings were exacerbated when they were not able to provide any soothing words for patient families. While some were thankful, other families took out their fears and frustrations on the residents and fellows.

PROFESSIONAL GROWTH

Almost all of the residents felt that while they might not have become better anesthesiologists, they had become better physicians after the COVID-19 deployment experience. The faculty agreed that this experience had honed leadership qualities and was invaluable. The residents' and fellows' declared growth in their leadership and communications skills was addressed in context of the increased communication needed for successful patient management by a multidisciplinary team in a high-stress environment. They also noticed an increase in their flexibility due to the everchanging environment around them. Lastly, the residents became more confident in the skills they often in the ICU, such as placing awake lines. Faculty felt that this experience will likely have a long-standing effect on the residents in many aspects of their professional responsibilities.

ALTRUISTIC DEMONSTRATIONS

Throughout the discussion, the interviewers noted multiple instances of altruism amongst the residents and fellows. While the residents and fellows discussed the many things that contributed to their motivation of caring for difficult patients outside of their normal assignments, the positive contributions seemed to have a greater effect. Amongst such instances were specific examples of residents staying beyond their assigned shifts and sacrificing personal time to extubate a patient or to talk to patient families. Additionally, they were offering their skillset in an increased capacity (to the relief of less experienced staff). This behavior differed from normal operations when residents were sometimes willing to be relieved even during crucial times of a surgical procedure. Lastly, one resident noted that despite the safety concerns surrounding intubation and extubation, the team had to put the patient's well-being above their own and proceed with the recommended treatment, setting aside the danger to themselves of increased vital exposure. The faculty confirmed these observations during their interview and felt that this was likely driven, at least in part, because of the appreciation they received for their unique skills by the multidisciplinary teams as well as the contributions they made to patient care at a level of autonomy that was significantly higher than that of their regular assignment in the OR.

DISCUSSION

Our study is unique for its use of the group interview format to qualitatively study the impacts of COVID-19 surge on anesthesiology residents and fellows. By choosing to not audiotape the interview, residents and fellows were able to speak more freely. Limiting the total audience size to a small group was intended to give more opportunities for everyone to speak and reflect on each other's answers. Compared to the direct observation of residents and fellow in COVID-19 units, the virtual group interview format had two main intentions: to reduce changes in the experience due to the presence of a silent observer and to allow participants to share their perspective removed from the setting at hand. Interviewing residents and fellows as a group, rather than individually, provided a less intimidating setting where the singular focus was not on one person and allowed shared perspectives to be expressed and validated.

Our results compel us to assess whether we have been successful in teaching professionalism and consider the possibility that concerns about a decline in altruism have been overstated. There was a noticeable difference in resident and fellow behavior during the COVID-19 redeployment relative to normal operations from both resident self-reflection and faculty observations. Was this perhaps because our current system of training residents and the culture of medicine does not typically lend itself to fostering altruism? Or, did the milieu created by the pandemic highlight professional identity formation and promote emergence of existing personal characteristics?

Currently, residency programs have set numerous performance expectations. The pressure of meeting these milestones while constantly balancing clinical work and academic achievement with personal and family needs can serve as a source of burnout. It is logical that a feeling of being burned out and overworked lessens capacity for empathy and compassion in favor of self-preservation. Amidst the pandemic response, however, the paradigm was altered and allowed the resident or fellow to focus on one task: caring for COVID-19 patients. For programs heavily impacted by COVID-19, the ACGME provided an option to withhold reporting milestones for the six-month period. They also provided programs with the option to graduate residents even without them meeting the required case minimums and rotations. This afforded a tremendous sense of relief for programs, such as ours, that are located in severely impacted areas. During this time, the residents and fellows were not concerned about their rotations or case logs; rather, they focused their efforts on caring for a specific patient population and the tasks at hand.

As expressed by the residents and fellows, there was a great deal of increased motivation from various sources which reinforced their desire to work as a physician. Perhaps the sense that the work residents and fellows do was being valued, as well as being an important part of a large effort impacting the community, lent meaning to their choice of profession. Perhaps the faculty, nurses, and other health care personnel served as important role models for professionalism. It is also conceivable that the lack of other distractors like achieving milestones, maintaining case logs, preparing weekly presentations, and other non-clinical tasks allowed a higher level of engagement in the clinical environment. Perhaps the increased interaction the residents and fellows were having with patients and their families changed their perspective and thus increased their level of empathy and altruistic motivation. It is difficult to say if any one of the impacts the residents and fellows discussed during their interviews made a more significant impact than another, but it is clear to see that the events of the pandemic changed their approach to medicine.

Can we provide residents and fellows with exercises that stimulate empathetic concern? One study explored the use of smart phones to teach empathy and altruism by using an ecological momentary assessment and intervention (EMA/I) technique.[7] EMA is an assessment technique which involves repeatedly asking questions in moments and contexts that integrates empathy related exercises into everyday life.[8] Others have shown that a brief intervention that is grounded in neurobiology using three sixty-minute empathy training modules improved physician empathy as rated by patients.[9] The goals of the training modules were to improve physician awareness of patients' verbal and non-verbal communications, respond with empathetic understanding, improve physician emotional and physiological self-awareness and self-regulation, and to use these skills in their patient interaction. Seeing the impact that the pandemic had on the anesthesiology resident and fellow empathy and professionalism, it is good to consider whether teaching techniques stressing empathy should be utilized routinely.

The COVID-19 pandemic has provided a unique opportunity to explore our adaptation and response to an overwhelming healthcare crisis and a context to reflect on where our training programs can improve. Perhaps it is time to introduce a consistent curriculum to reinforce empathy and altruism in everyday patient and peer interactions in order to facilitate greater personal satisfaction and decrease burnout outside of a pandemic setting. The importance of the lessons learned during this time cannot be stressed enough. The Anesthesiology residents and fellows at Montefiore, proverbially, "rose to the occasion" and uniformly demonstrated the courage and strength to work in an extremely demanding clinical situation. They appreciated the value this added to their careers and the experience reinforced their decision of being physicians. Our resident and faculty observations of the COVID-19 pandemic response reassured us that the behaviors and attributes of medical professionalism were readily accessible. Going forward, we must endeavor to build upon the empathy, altruism, and overall professionalism that was demonstrated by our residents and fellows during the crisis.

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