Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

CHAPTER

COVID-19 and the role of medical professional societies

9

Drew Farmer[a], Jose Pascual[a], and Lewis J. Kaplan[a,b]

[a]Perelman School of Medicine, University of Pennsylvania, Division of Trauma, Surgical Critical Care and Emergency Surgery, Philadelphia, PA, United States, [b]Society of Critical Care Medicine, Mount Prospect, IL, United States

Introduction

Membership in a medical professional organization, or society, is both voluntary and common. Many clinicians belong to more than one such society, especially if they practice critical care medicine. They belong to one or more organizations related to their parent discipline, as well as related to the subspecialty of critical care medicine. Each of the memberships comes at a financial cost. Moreover, membership in a specific society often leads to service for the organization as part of a committee, taskforce, or workgroup. For some, this service paves a path to medical professional organization leadership as well. The latter path is true of two of this chapter's authors. Recognizing that leadership is much less common than organizational service, it is appropriate to explore what benefits members derive from membership in a medical professional society as part of their regular professional life. Given the pandemic that currently grips the globe, it is equally important to explore the role of medical professional organizations within that context as well.

Medical professional organization types

In general, medical professional organizations exist as six broad types: (1) those related to parent discipline or subspecialty certification (e.g., American Board of Medical Specialties[1]); (2) those joining or aligning individuals who trained in a specific parent discipline (e.g., American Society of Anesthesiologists[2]); (3) those joining or aligning individuals who trained in, or practice within, a specific subspecialty or care for a specific patient type [e.g., Society of Critical Care Medicine (SCCM)[3]]; (4) cross-specialty organizations focused on a specific condition or set of events (e.g., American Red Cross[4]); (5) nongovernmental organizations that deploy members to locations for disaster relief or to address crisis conditions (e.g., Médecins Sans Frontières[5]); and (6) governmental organizations that utilize volunteer experts in

COVID-19 Pandemic. https://doi.org/10.1016/B978-0-323-82860-4.00010-0

FIG. 1

Types of medical professional organizations.

addition to full- or part-time medical professionals (e.g., Centers for Disease Control and Prevention[6] and World Health Organization[7]). Each of these organization types serves a function for members and in turn are served by them (Fig. 1).

Member benefits

Since no one is mandated to join a medical professional organization—even if one must utilize the services provided by one such as those comprising the American Board of Medical Specialties—membership must confer benefits perceived to be of value by members. This is particularly true since there is a financial cost to membership that recurs each year. Many members are bereft of a funding stream from their employer to secure membership and therefore pay out of pocket. Multiprofessional organizations embrace members who have widely divergent salary streams. While some have a single membership cost, others, such as SCCM, have developed a tiered membership strategy that supports joining at different price points, albeit with different accompanying benefits. Regardless of membership type or price, members of medical professional organizations enjoy benefits that are common to most such organizations (Fig. 2).

First, members enjoy linkage with other members with similar interests. This commonly occurs at yearly meetings but also occurs within committees for which members may volunteer. Second, committee membership allows members to work with others toward a common goal, augment their experience, expand their curriculum vitae, and learn leadership skills. Third, committee work may also guide one into a leadership role within the committee, further developing a skill set that translates into the member's workspace as well. Fourth, some multiprofessional organizations have groups comprised of individuals with a similar parent training discipline (i.e., internal medicine as opposed to nursing). Those groups, often termed sections, offer the same parallel opportunities for member's work, education, skill acquisition, and leadership as does volunteering for the larger organization.

Fifth, members typically receive a medical professional journal (known as the official organ of the society) as well as newsletters and related educational communications. Each of these provide venues for new knowledge transfer, controversy identification and debate, as well as notification of upcoming events. Sixth, in

FIG. 2

Member benefits.

addition to networking opportunities as noted earlier, most organizations host an annual conference, meeting, or congress, that is educationally focused, often reveals cutting edge-research, may teach new skills, or offer review courses to support member professional development in a socially satisfying context. Seventh, many organizations also host a pathway to being recognized as having reached a career milestone. While some utilize a parallel structure termed a "college" within which to house that pathway, the clinician who reaches that milestone earns the designation of "fellow." In general, there are specific criteria that need to be met, an application is required, and a committee who reviews applicants and submits recommendations to a governing body with whom the ultimate authority rests to confer fellowship. Achieving such status also supports reappointment and more often promotion with the academic community. In this way, highly regarded honors may be achieved during the course of one's membership. Other awards are often conferred for unique achievement or exceptional service as well.

Eighth, some organizations also partner with others within the same country, providing yet another way for members to participate in, and learn about related organizations besides within the annual meeting. An apt example is the Critical Care Societies Collaborative comprised of the American Association of Critical Care Nurses, the American College of Chest Physicians, the American Thoracic Society, and SCCM.[8] Such groupings also launch joint projects, enable workgroups, and may host their own meetings. In general, participants in such ventures are drawn from the membership of the partnering organizations. Ninth, some medical professional organizations partner with international groups around specific initiatives, events, or

clinical conditions. For example, SCCM and the European Society of Intensive Care Medicine has partnered to create the Surviving Sepsis Campaign, whose work is well known in a global fashion.[9] Participation in such related but more free-standing entities is not limited to membership in a parent organization but involved members who share work with experts from other organizations such as the Infectious Diseases Society of America,[10] or the American College of Emergency Physicians,[11] as well as the Japanese Association for Acute Medicine.[12] In summary, a wide array of networking, collaboration, and professional development benefits render the financial cost of membership well valued. These benefits are common across many organizations and are part of one's professional life and workflow. The recent severe acute respiratory syndrome coronavirus (SARS-CoV-2) pandemic has challenged medical professional organizations to respond in unique ways to support members in their pursuit of quality and timely clinical care. The ability of a given society to do so may hinge on the infrastructure that supports each of the above member benefits.

SARS-CoV-2 and medical professional organizations

As SARS-CoV-2 infection marched across continents, clinicians hungered for information encompassing all aspects of clinical care and public health. Diagnostic elements, infectivity risk, transmission pattern, clinical course, and evaluation of interventions—successful and not—were all highly desired. A country-by-country tally of those infected, recovered, and expired cases has emerged side by side with prediction models.[13] Contact tracing, social distancing, mask wearing, and hand hygiene permeated daily life.[14] Lockdowns, business closures, and household item shortages paralleled personal protective equipment shortages, as well as therapeutic agent shortages, in health-care facilities.[15] As life was put on hold, inquiries from professionals as well as the public blossomed. Social media (SoMe) exploded with myth, fears, tales of success, recounting of failure, and were interspersed with data, ever-changing recommendations, and despairingly little science. It is within this void that medical professional organizations rose to the fore to share information, credible new knowledge, and importantly, education for those who were not members of the organizations at all.

The process by which medical societies adapted to meet member and patients' needs may be conveniently grouped into nine interwoven domains (Fig. 3). Each of the domains leverage existing infrastructure including staff, technology, subject matter and content experts, as well as leadership within the organization, all of which is distinct from the volunteers to adapt to the imperatives launched by coronavirus disease 2019 (COVID-19) patient care. Importantly, such changes require a public-facing aspect so that members and nonmembers alike may be engaged in a seamless fashion. That public face is the website and webpage on which one lands when seeking to access content or learn about the organization.

Therefore website redesign is one key element undertaken by medical professional societies to readily direct website users to COVID-19 focused content. Tabs

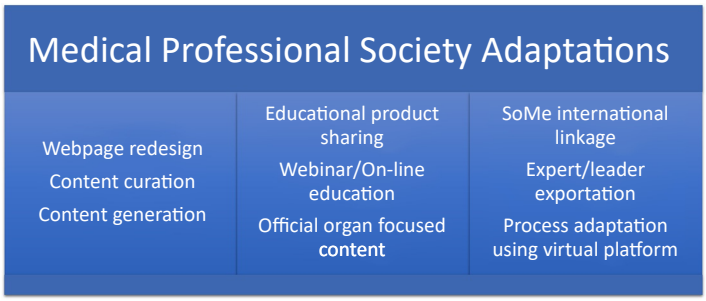

FIG. 3

Medical society roles.

or links rapidly appeared on the home page of multiple societies in response to member and nonmember searches. Of course, such direction must land the user on content. Content curation—from within and without the specific organization—became an essential task for staff, often requiring redeployment from prior projects or roles to dedicate sufficient time to identify, evaluate, and load appropriate content. This undertaking dovetailed with the third key society role—content development. As clinicians strove to decipher best practices, organizations rapidly generated both guidelines and guidance.

For example, the Surviving Sepsis Campaign, rapidly followed by the National Institutes of Health, each produced guidelines for immediate use in critical care areas from the Emergency Department to the intensive care unit (ICU).[16,17] More focused guidance around aerosol-generating procedures such as tracheostomy also followed from organizations such as the American College of Surgeons and the Surgical Infection Society.[18,19] Each of these documents helped clinicians decide on optimal care for those with SARS-CoV-2 infection.

As the volume of infected individuals skyrocketed, the need to understand resources, ICU capacity, and ideal methods of augmenting critical care spaces crested. Organizations such as SCCM crafted a key article as a blog post, not a journal article, that assessed resources and forecast where there may be shortages of devices and clinicians.[20] This pivot—from peer-reviewed manuscript to website blog post—signaled a shift to global knowledge dissemination in a move akin to that of Free Open Access Medical education and ensured that the content was not sheltered behind a paywall. As a follow-up, a second post assessed best practices for preparing ICU spaces and converting non-ICU spaces such as postanesthesia care unit rooms, general care floors, or conference halls into novel ICUs.[21] As space to provide critical care expanded, so too did the need for staff to competently work in those spaces. In this domain—clinician education—medical professional organizations excelled.

In parallel with posting resources on their websites, societies also released educational content that would help meet the need to enable non-ICU clinicians to render

safe and effective care in the ICU. For example, SCCM's long-standing global product, the Fundamental Critical Care Support, teaches essential critical care skills to help rescue and provide the initial care for those with critical illness.[22] These resources were combined with others to create a program targeted at clinicians who would be redeployed to the ICU to help staff novel ICU spaces.[23] Importantly, these resources were made freely available as well, leading to widespread dissemination and use. Skills acquisition, new knowledge, or new perspectives on existing cognition are all supported in a team-based environment. Once such a new workforce is raised, it also benefits from leadership. Medical professional organizations also offer approaches to address leadership models for vastly expanded spaces. Tiered staffing strategies are particularly suited to utilize existing leaders as guides for new clinicians deployed to ICUs.[20] Those leaders include intensivists, nurse managers, bedside APPs, bedside critical care nurses, as well as ICU-focused PharmDs.

Web-based education occupies a foundational space in the overarching preparation of clinicians for COVID-19 patient care. Some elements develop so rapidly, raise controversy, or simply benefit from perspective sharing that another venue is required to keep clinicians up to date. Webinars meet this need. Multiple critical care focused societies, as well as those for whom critical care is part of their purview, hosted single society as well as joint society webinars joining experts with interested clinicians in a global fashion. Featured participants from different continents were readily linked on the participant's screen often without an access fee. Multiple formats spanning straightforward didactics to interactive debates punctuated daily workflow and liberally spilled over to weekend days as well. Commonly, webinars adopted a multiprofessional format appropriately mimicking the nature of ICU teams. Such ventures also joined organizations that had never previously worked together, or had not done so to elaborate educational materials. The success of these webinars drove some organizations to repeatedly partner event after event.

The professional medical journals working with, but not necessarily owned by medical professional organizations, also adapted to the hunger for information directly aligned with COVID-19 patient care. To wit, the *Journal of the American Medical Association* devoted specific content to a host of aspects of SARS-CoV-2-infected patient care including clinical data, perspectives, and research letters.[24] SCCM's *Critical Care Medicine*, *Pediatric Critical Care Medicine*, and *Critical Care Explorations* all offer focused direction to COVID-19-relevant articles for reader's ease of use.[25] Additionally, journals such as the *New England Journal of Medicine*, pushed COVID-19 content to interested readers.[26] Therefore the society's websites content and peer-reviewed journal content are all aligned to enhance clinical care and clinician knowledge.

Sharing new knowledge has been tremendously enabled by SoMe postings. Facebook and Twitter seem to dominate medically relevant information sharing compared to other platforms. Manuscripts published ahead of print, just-released press briefings from governmental agencies, and others are fired around the world, and shared repeatedly creating multiple digital echoes. Frequently, some posts are directed to a medical professional organization or to their official organ, toward a

key leader, or a newly scheduled event. SoMe have helped craft a global critical care community during the pandemic with a previously unwitnessed intensity in the context of crisis care.[27]

Members and leaders of medical professional organizations were showcased on websites, webinars, and their messages were posted and published across multiple media platforms. This in turn supported such individuals to be recruited for multi-society ventures such as guidelines, virtual conferences, and in an unprecedented volume, media interview requests. Critical care medicine was catapulted into the headlines, the evening news, and opinion sections of newspapers. Relatedly, Merriam-Webster included "intensivist" as a new word this year during Critical Care Awareness month.[28] While key individuals were "exported" as experts, medical professional organizations also helped to "import" expert volunteer clinicians to sites needing staffing rescue. Organizations activated their member networks to secure volunteers to aid New York City, for example, leading to hundreds of clinicians from across the United States traveling to staff existing and novel ICUs. Many organizations around the globe have mechanisms to solicit volunteer aid during disasters including earthquakes, devastating hurricanes, floods, and pandemics. In this way, medical professional organizations support governmental relief and care efforts during disaster care—a key role that is easy to overlook—but which for the critically ill or injured may be lifesaving.

Throughout the pandemic, the business of medical societies and their volunteer activities needed to continue. Societies rapidly adopted virtual formats for committee work, leadership meetings, and collaboration with other organizations. For many clinicians, the platform used by the societies to which they belong was different from one another. Accordingly, members developed skill sets for using those platforms ahead of when virtual clinical care became feasible on a routine basis as part of a telemedicine approach to outpatient care. Platform competency also enabled many to use those skills to link patients, patient families, and the bedside care team in support of patient- and family-centered care while inhospital visitation was nearly entirely suspended.[29] Unwittingly, performing volunteer work for a medical professional society translated into prized inpatient and outpatient care skills.

Conclusion

Medical professional organizations can rapidly respond to member needs during a pandemic in support of education, information sharing, recommendations for clinical care, and upstaffing in response to a crisis. Their ability to do so leverages existing infrastructure and leadership, as well as a motivated and engaged volunteer member workforce to do so. In this process, members derive both personal and professional benefit while enhancing their ability to provide direct care. The impact of social media on each of these elements cannot be understated. It is likely that many of the adaptations medical professional organizations rapidly deployed in response to the SARS-CoV-2 pandemic will outlast the need for pandemic care.

References

1. American Board of Medical Specialties. https://www.abms.org/. Accessed 30 June 2020.
2. American Society of Anesthesiologists. https://www.asahq.org/. Accessed 30 June 2020.
3. Society of Critical Care Medicine. *SCCM | Society of Critical Care Medicine*. https://sccm.org/.
4. American Red Cross. https://www.redcross.org/. Accessed 30 June 2020.
5. Médecins Sans Frontières. https://www.msf.org/. Accessed 30 June 2020.
6. Centers for Disease Control and Prevention. https://www.cdc.gov/. Accessed 30 June 2020.
7. World Health Organization. *World Health Organization*. https://www.who.int/. Accessed 30 June 2020.
8. Critical Care Societies Collaborative. https://ccsconline.org/. Accessed 30 June 2020.
9. Rhodes A, Evans LE, Alhazzani W, et al. Surviving sepsis campaign: international guidelines for management of sepsis and septic shock: 2016. *Intensive Care Med*. 2017;43:304–377. https://doi.org/10.1007/s00134-017-4683-6.
10. Infectious Disease Society of America. https://www.idsociety.org/. Accessed 30 June 2020.
11. American College of Emergency Physicians. https://www.acep.org/. Accessed 30 June 2020.
12. Japanese Association for Acute Medicine. https://www.jaam.jp/english/english-top.html.
13. COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU). https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6. Accessed 3 July 2020.
14. Desai AN, Aronoff DM. Masks and coronavirus disease 2019 (COVID 19). *JAMA*. 2020;323(20):2103. https://doi.org/10.1001/jama.2020.6437.
15. Livingston E, Desai A, Berkwits M. Sourcing personal protective equipment during the COVID-19 pandemic. *JAMA*. 2020;323(19):1912–1914. https://doi.org/10.1001/jama.2020.5317.
16. Alhazzani W, Møller M, Arabi Y, et al. Surviving sepsis campaign: guidelines on the management of critically ill adults with coronavirus disease 2019 (COVID-19). *Intensive Care Med*. 2020;46(5):854–887. https://doi.org/10.1007/s00134-020-06022-5.
17. *NIH COVID-19 Treatment Guidelines*. https://www.covid19treatmentguidelines.nih.gov/. Accessed 30 June 2020.
18. *COVID-19: Considerations for Optimum Surgeon Protection Before, During, and After Operation*. American College of Surgeons; 2020. https://www.facs.org/covid-19/clinical-guidance/surgeon-protection. Accessed 30 June 2020.
19. Heffernan D, Evans H, Huston J, et al. Surgical infection society guidance for operative and peri-operative care of adult patients infected by the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). *Surg Infect (Larchmt)*. 2020;21(4):301–308. https://doi.org/10.1089/sur.2020.101.
20. Halpern N, Tan K. *United States Resource Availability for COVID-19*; 2020. March 13 https://sccm.org/Blog/March-2020/United-States-Resource-Availability-for-COVID-19. Accessed 30 June 2020.
21. Go KJ, Wong J, Tien JCC, et al. Preparing your intensive care unit for the COVID-19 pandemic: practical considerations and strategies. *Crit Care*. 2020;24:215.

22. Fundamental Critical Care Support. *Society of Critical Care Medicine*. https://www.sccm.org/Fundamentals/Fundamental-Critical-Care-Support. Accessed 30 June 2020.
23. Critical Care for Non-ICU Clinicians. https://www.sccm.org/Disaster/COVID19-ResourceResponseCenter. Accessed 3 July 2020.
24. Coronavirus (COVID19). *JAMA Network*. https://jamanetwork.com/collections/46099/coronavirus-covid19. Accessed 30 June 2020.
25. *SCCM COVID-19 Journal Articles*. Society of Critical Care Medicine; 2020. https://www.sccm.org/Member-Center/Journals/SCCM-COVID-19-Journal-Articles.
26. The New England Journal of Medicine Group. *COVID-19 Briefing*. https://www.nejm.org/coronavirus?query=main_nav_lg. Accessed 3 July 2020.
27. Chan AKM, Nickson CP, Rudolph JW, Lee A, Joynt GM. Social media for rapid knowledge dissemination: early experience from the COVID-19 pandemic. *Anaesthesia*. 2020. https://doi.org/10.1111/anae.15057.
28. Merriam-Webster. *We Added New Words to the Dictionary for April 2020*; 2020. https://www.merriam-webster.com/words-at-play/new-words-in-the-dictionary. Accessed 30 June 2020.
29. Hart JL, Turnbull AE, Oppenheim IM, Courtright KR. Family-centered care during the COVID-19 era. *J Pain Symptom Manage*. 2020;60(2):e93–e97. https://doi.org/10.1016/j.jpainsymman.2020.04.017.