

## **Shaping GME: The Future of General Surgery Major Revisions to the Program Requirements for Surgery Scenario-Based Planning Summary of Themes and Insights 2022**

### **Overview**

Every 10 years, the ACGME Review Committees are required to evaluate the applicable specialty-specific Program Requirements for revision. In 2017, the ACGME re-envisioned the process by which this is done and piloted a new approach within the specialty of internal medicine. The new process, which includes scenario-based strategic planning, requires a writing group (composed of Review Committee members and ACGME Board members, including public members) and the specialty community to think rigorously and creatively about what the specialty will look like in the future prior to proposing any revisions, recognizing the future is marked with significant uncertainty.

### **Key Insights about the Practice of the General Surgeon of the Future**

Several themes emerged from the scenario planning efforts that provide insight into the general surgeons of the future and their practice. The general surgeon of the future will not achieve mastery of all these competencies during residency alone. Residency must serve as the foundation for career-long professional development and adaptation to a changing health care system and community needs. A significant number of surgeons go on to attain further education and training in subspecialties. However, the need to educate and train surgeons who are generalists and can serve the spectrum of surgical problems remains a priority in graduate medical education (GME).

### **Definition of the General Surgeon**

General surgeons are physicians who provide comprehensive specialized knowledge, skills, and patient-centered care related to the evaluation, diagnosis, and operative and non-operative treatment across the five phases of care (prehabilitation, pre-operative, operative, immediate recovery, and long-term recovery/follow-up), including the management of complications across the spectrum of ages for elective, urgent, and emergent conditions. They have expertise in evaluating and managing the whole patient, including medical and psychosocial concerns. The practice of general surgery encompasses the provision of comprehensive care to the patient with surgical disorders of the abdomen and its contents, the alimentary tract, skin, soft tissues, breast, and endocrine organs, and trauma. The practice of general surgery also encompasses the surgical evaluation and management of patients with oncologic, vascular, pediatric, and critical illness. Some general surgeons pursue additional GME and specialize in the fields of pediatric surgery, surgical critical care, surgical oncology, vascular surgery, trauma surgery, hospice and palliative medicine, transplant surgery, and other areas of focus. Furthermore, the practice of general surgery entails adequate knowledge and experience for the assessment and requisite emergency surgical stabilization and management of severe conditions of the cardiothoracic, gynecologic, neurologic, otolaryngologic, and urologic, systems and indications for specialty consultations. To provide optimal comprehensive care, the general surgeon must effectively function in interprofessional and multidisciplinary teams, frequently serving in a leadership role.

General surgeons are collaborative leaders who lead by example and practice interprofessional team-based care. General surgeons use broad communication skills with patients, patients' support teams, treatment teams, communities, and health care managers and systems.

General surgeons must possess the ability to analyze the literature, as well as surgical outcomes and communicate their conclusions to patients, patients' families and/or support systems, and

colleagues. They must be able to utilize data management science to inform patient care, resulting in high-value patient-centered care, continuous quality improvement, and ethical service delivery. General surgeons must be able to adapt to new technology, and recognize and adapt to changing surgical practice. General surgeons have broad-based knowledge, strong critical thinking skills, and the flexibility to practice in a wide variety of settings and circumstances. General surgeons have the skills to manage the care of hospitalized and ambulatory surgery center patients and recognize and refer patients to higher levels of care when appropriate. General surgeons recognize co-morbidities that place patients at higher peri-operative risk and appropriately consult surgical and medical subspecialists across their practice settings.

General surgeons are lifelong learners. They stay current with advanced and emerging technologies and understand and manage the business of medicine. General surgeons partner and connect in their relationships with colleagues, team members, and patients, maximizing both their own and their teams' well-being. They find meaning, joy, and purpose in efficiently caring for patients. General surgeons coordinate palliative care, extending through the end of life. The discipline is characterized by a collaborative, compassionate, cognitive, scholarly, and relationship-oriented approach to comprehensive patient care.

### **Future Surgical Residency Education and Training**

In each scenario of the scenario-based strategic planning exercise, strategies were developed to successfully educate and train the general surgeon of the future. The strength of each strategy was then assessed in each of the other three scenarios. Strategies that were most successful across scenarios were considered most likely to be useful in any potential future. Seven themes emerged from the consolidation of the diverse strategies: Comprehensive Clinical Care; Technology Integration; Outcomes-Based Practice; Effective Communication, Leadership, and Collaboration; Professionalism, Diversity, Equity, and Inclusion; Educational Process; and Community and Physician Advocacy. Each of these themes is described below.

#### **1. Comprehensive Clinical Care**

*The essential role of the general surgeon is to provide comprehensive operative and non-operative surgical care across the spectrum of age from birth to death. This includes routine visits for the diagnosis and evaluation of surgical problems, acute urgent and emergent problems including injury and illness, and management of chronic conditions. General surgeons are competent in the performance of procedures using a variety of approaches, including open and less invasive, as well as emerging technologies. They are experts in recognizing normal variations in post-operative recovery and in detecting and treating complications that may threaten the well-being of their patients.*

Surgical residency programs will:

- Ensure all graduates are experts at routine diagnosis and treatment of surgical problems while ensuring they remain able to recognize, critically evaluate, and manage complexities and complications.
- Prepare residents for the full variety and breadth of practice venues and settings, from under-resourced surgical environments to those utilizing high-technology procedures which may incorporate robotics or artificial intelligence (AI).
- Prepare residents to promote stewardship of resources and increased operational efficiency.
- Teach the skills necessary for a general surgeon to be simultaneously: a surgeon and surgical team leader, a teacher/mentor, and a life-long learner.
- Develop and implement standard protocols and tools for common surgical conditions

and procedures for use in a competency-based, common core training paradigm, followed by additional focused education and training for some, ensuring that these are translatable to practicing providers for creation and maintenance of skills, and re-careering.

- Develop education and simulation-based training modules for specific conditions and procedures that promote autonomy.
- Promote, encourage, and grow the spirit of innovation (for example, incorporating simulation and other technological advances).
- Educate and train residents in palliative and end-of-life care.
- Educate and train residents to be self-reliant, use critical thinking, use independent problem-solving, and devise solutions in rapidly changing conditions and ambiguous situations.

Successful programs will:

- Provide experiences in the full spectrum of inpatient and outpatient surgical care of elective, urgent, and emergent surgical procedures, both diagnostic and therapeutic.
- Structure clinical experiences in which residents have appropriate supervision while increasing their responsibilities as they advance their clinical skills to independent practice.
- Structure clinical, educational, and simulation experiences that engage residents in critical thinking and action about clinical scenarios.
- Train supervisors to elicit critical thinking processes with residents as they care for patients.
- Teach residents the essential components of palliative and end-of-life care and provide safe spaces to debrief the difficult outcomes or death of patients.
- Offer clinical experiences with varying levels of resource support, such as community, resource-poor environments, and academic environments.

## **2. Technology Integration**

*General surgeons will interface with technology in a multitude of areas, including the electronic health record (EHR), clinical decision-making tools, and new technologies, to improve clinical care of patients.*

Surgical residency programs will:

- Ensure competence in advanced and emerging technologies in a variety of care settings.
- Promote the acquisition of endoscopic, ultrasound, and image-guided procedural skills.
- Educate and train residents to have the tools and skills to interpret large data sets and incorporate them into surgical practice.

Successful programs will:

- Ensure their graduates can appropriately utilize new and current technologies to perform procedures based on the environment.
- Produce graduates who can use the EHR to analyze patient data to drive quality improvement and equitable service delivery.
- Ensure their graduates can effectively use technology-assisted clinical decision-making tools, such as search engines and AI.

### 3. Outcomes-Based Practice

*General surgeons must be mindful of the many dimensions of the outcomes of their care. They must monitor patient safety, patient cost, patient access, and effectiveness of treatment in single patients and in populations. Surgeons are cognizant of their role the treatment of the injured patient and should participate in injury prevention and improving community health.*

Surgical residency programs will:

- Teach residents to routinely integrate both directly observed personal performance and publicly reported outcome-driven data to identify self-improvement learning plans for continuous practice improvement.
- Promote stewardship of resources and increased operational efficiency (e.g., focusing on time to completion, lean use of supplies, quick turn-around of cases).
- Model preventive health care skills to improve population health outcomes through ongoing community involvement such as injury prevention, cancer screening, and follow up.
- Train general surgeons to demonstrate awareness of, and responsiveness to, the larger context of health care systems using evidence-based methods.

Successful programs will:

- Make available to residents the cost of lab tests, pharmaceuticals, and imaging so they may balance clinical benefits with cost and harm and eliminate unnecessary care.
- Involve residents in the development of evidence-based guidelines that inform care.
- Involve residents in quality improvement initiatives in the hospital and outpatient clinic.

### 4. Effective Communication, Collaboration, and Leadership

*General surgeons must be able to work as leaders and participants in team-based care in and outside of the operating room. They must interact and build relationships with patients, patients' support teams, care teams, health care managers, and other members of the patient's community. Surgeons are collaborative leaders of care teams and partners in decision-making around issues related to surgical problems and injured patients. Communication needs to be culturally sensitive and use a variety of modalities.*

Surgical residency programs will:

- Prepare residents to assume leadership of a surgical team, create a diverse and multi-disciplinary team, and perform as an effective member of that team.
- Promote mastery of teamwork skills, including interdisciplinary and interprofessional collaboration, understanding of the roles of various team members, and demonstration of effective communication.
- Ensure surgeon compassion and competence in interpersonal connections with patients, patients' support systems, and members of the health care team through training in effective in-person and virtual communication.
- Ensure professionalism and competence in patient advocacy to strengthen the patient-surgeon relationship.
- Foster deep and broad skills in communication with patients, patients' support systems, complex treatment teams, communities, and health care managers and systems, as well as in emerging communication modalities.

Successful programs will:

- Assess residents' communication and leadership skills through comprehensive, multi-perspective evaluations, including feedback from patients and their support systems, faculty members, peers, and other members of the inter-disciplinary and inter-professional care teams.
- Provide education centered on establishing rapport, sharing information, eliciting patients' perspectives, and setting goals with patients and their support systems, in both the in-person and virtual formats.
- Coach residents on handling difficult conversations, such as disclosing serious diagnoses, responding to emotions, and navigating end-of-life discussions with patients and their support systems.

## 5. Professionalism, Diversity, Equity, and Inclusion

*General surgeons often care for patients with urgent and emergent problems, sometimes involving vulnerable populations. They foster public trust through their ethical and professional principles. As part of a systematic approach to reducing health care disparities, surgeons should seek to develop a diverse workforce.*

Surgical residency programs will:

- Instill exemplary ethical and professional standards.
- Ensure professionalism and competence in patient advocacy to strengthen the patient-surgeon relationship.
- Proactively recruit from a diverse candidate pool and prioritize training in culturally sensitive care to marginalized populations.
- Contribute to identifying and developing a diverse, talented health care workforce.

Successful programs will:

- Emphasize ethics, professionalism, and culturally sensitive care in interactions with patients and colleagues through formal curricula and role modeling.
- Recruit and retain residents and faculty members of diverse backgrounds.

## 6. Educational Process

*The education and training of a general surgeon includes the development of attributes and values, as well as knowledge and skills. The time it takes for residents to acquire competence may vary in length and experience. Some abilities, once acquired, may not be permanent, and require ongoing attention and effort by graduates throughout their careers. The profession will be sustained and enhanced by inspiring students and residents to consider a career in general surgery.*

Surgical residency programs will:

- Develop standardized competence measures to track resident progression and advancement in attitudes, behaviors, and cognitive and technical skills to ensure and promote graduated supervision to independent practice throughout the educational program and across the spectrum of general surgical procedures.
- Ensure surgical faculty members are able to serve as mentors, assessors, and evaluators of competence and entrustability to determine learners' readiness for independent practice.
- Educate and train effective and inspiring teachers.
- Ensure that surgeon educators are professionally qualified as educators, evaluators, and mentors.
- Foster an environment that allows surgical faculty members and residents to

prioritize personal well-being.

Successful programs will:

- Individualize the length of education, training, and clinical experience based on each resident's achievement of competence.
- Graduate residents who are competent teachers and mentors.
- Graduate residents who achieve and maintain board certification.
- Graduate residents who participate in ongoing professional development.

## **7. Community and Physician Advocacy**

*General surgeons play a role in advocating for the patients they serve. They promote health and health equity while exhibiting cultural humility and empathy. They need to be grounded in principles of social justice, advocate for underserved populations, and seek to eliminate disparities in care. General surgery is filled with joy and a sense of accomplishment. General surgeons should recognize the need for a healthy work environment, as long work hours, administrative and documentation requirements, poor patient outcomes, and interpersonal conflict with patients, patients' support systems, and/or colleagues can lead to exhaustion, burnout, and loss of valuable physicians.*

General surgery residency programs will:

- Educate and train residents to have cultural and structural competence and humility to support bias mitigation.
- Prepare residents to advocate for the care of underserved populations by promoting equity and seeking to eliminate disparities in care.
- Be structured to support the well-being of the entire care team while supporting clinical, scholarly, personal, and professional development.
- Model the general surgeon's essential role as a physician in the delivery of interprofessional health care to patients and patients' support systems.
- Model a community of support among physicians, patients, and patients' support systems to enhance therapeutic relationships and build public trust in the profession.

Successful programs will:

- Provide education, training, and assessment in antiracism, recognizing explicit and implicit biases and health care inequities that place populations at risk and result in poor health outcomes.
- Provide a mechanism for reporting racism, discrimination, prejudice, and health care inequities to revise and improve systems.
- Structure rotations and work schedules to minimize physical, mental, and emotional exhaustion and burnout.
- Provide support for administrative tasks and documentation to maximize time in direct patient care activities.
- Provide access and time for residents, faculty members, and administrative staff members to utilize physical, mental, social, and psychological support.
- Normalize the use of mental health resources.
- Create safe spaces for debriefing challenging and/or devastating patient outcomes and encounters.
- Develop a culture of inclusion without fear of intimidation, and with free dialogue among all team members.

## **Next Steps**

The Surgery Writing Group respectfully requests feedback regarding the major themes from the report, including the vision of the future general surgeon and program strategies. The group seeks diverse perspectives—from the public, patients, patients' support systems, community agencies, clinicians within and outside surgery, and all stakeholders in health care and population health.

A Stakeholder Summit will be held in fall 2022 to consider and expand on feedback from the public comment period and adjust themes and strategies to prepare for revisions to the Program Requirements for Graduate Medical Education in General Surgery.

## **Questions for Stakeholders to Consider**

- What, if any, additional educational experiences should be considered in support of meeting the aspirational definition of the general surgeon as proposed above?
- What potential challenges might your program face in providing the experiences described above?
- What additional resources might be required to support implementation of these experiences?
- In addition to the themes and strategies described above, what, if any, additional issues should be addressed in the revised Program Requirements?

Submit comments using the comment form to [surgery-reviews@acgme.org](mailto:surgery-reviews@acgme.org) by September 20, 2022.

## **Addendum**

### **What Is Scenario-Based Planning?**

Scenario-based planning is a technique by which organizations develop and test their readiness for the future using a range of alternative futures or scenarios. In this case, these scenarios are detailed, systematically developed descriptions of operating environments that the US medical profession might face over the next 25 years or more. This is a technique for managing uncertainty, risk, and opportunity. It yields a strong strategic framework for understanding future needs and a practical basis for immediate action. The intent is not to predict what the future will be and then build a master plan, but rather to ask what the future might hold and identify actions that can be taken today that are most likely to be valuable regardless of how the future turns out. As a result, the technique relies far more on expert judgment and less on quantitative trend forecasts.

### **What has taken place so far?**

In 2013, the ACGME Board of Directors engaged in a scenario-based planning exercise using four widely varied, plausible, internally consistent scenarios describing the range of the future context for health care delivery. These same scenarios were used again during two workshops for the Review Committee for Internal Medicine's Program Requirement revision process in 2017 ("Internal Medicine 2035").

The process resulted in a summary of general insights about the practice of medicine in the future, followed by key insights about the internist in 2035 that worked well and were viable regardless of scenario, and final recommendations for what residency programs should do to prepare the internal medicine resident to practice in 2035. The Review Committee for Internal Medicine then used this information to design the recent major revisions to the Program Requirements for Graduate Medical Education in Internal Medicine.

The process was refined as a result of the experiences with internal medicine, and subsequently with family medicine. Surgery is the fourth specialty to embark on this new major revision process through scenario-based planning. New scenarios were developed and updated for envisioning the future in 2050 or beyond. These are:

- Now You're on Your Own – A dynamic, high-technology world characterized by a novel mix of libertarian economics and progressive social policies, with a rich economy.
- New New Deal – Following decades of political division and economic stagnation, this world is based on social democracy, civic unity, bold government actions, economic rebound, and public optimism.
- Ex Uno, Plures – A world with a weak federal government, strong independent states, divisive culture wars, no safety nets, isolationism, and near-depression economics.
- One Giant Leap – A world of rapid temperature rise and extreme weather causing havoc and widespread anxiety, and a large shift in government priorities, with sluggish economics.

Thirty participants representing the surgical community, other specialties (anesthesiology, colon and rectal surgery, obstetrics and gynecology), and related fields attended virtual workshops in February 2022. The focus was to provide the Review Committee with insights regarding what the practice of surgery could look like in each scenario.

Above is a summary of the results of the scenario-based planning workshop – key insights about the surgeon of the future that worked well and were viable regardless of the scenario, and recommendations for what programs should do to prepare surgical residents to practice in 2050. The Writing Group will use these findings and public comments to begin its major revision process in early 2023.