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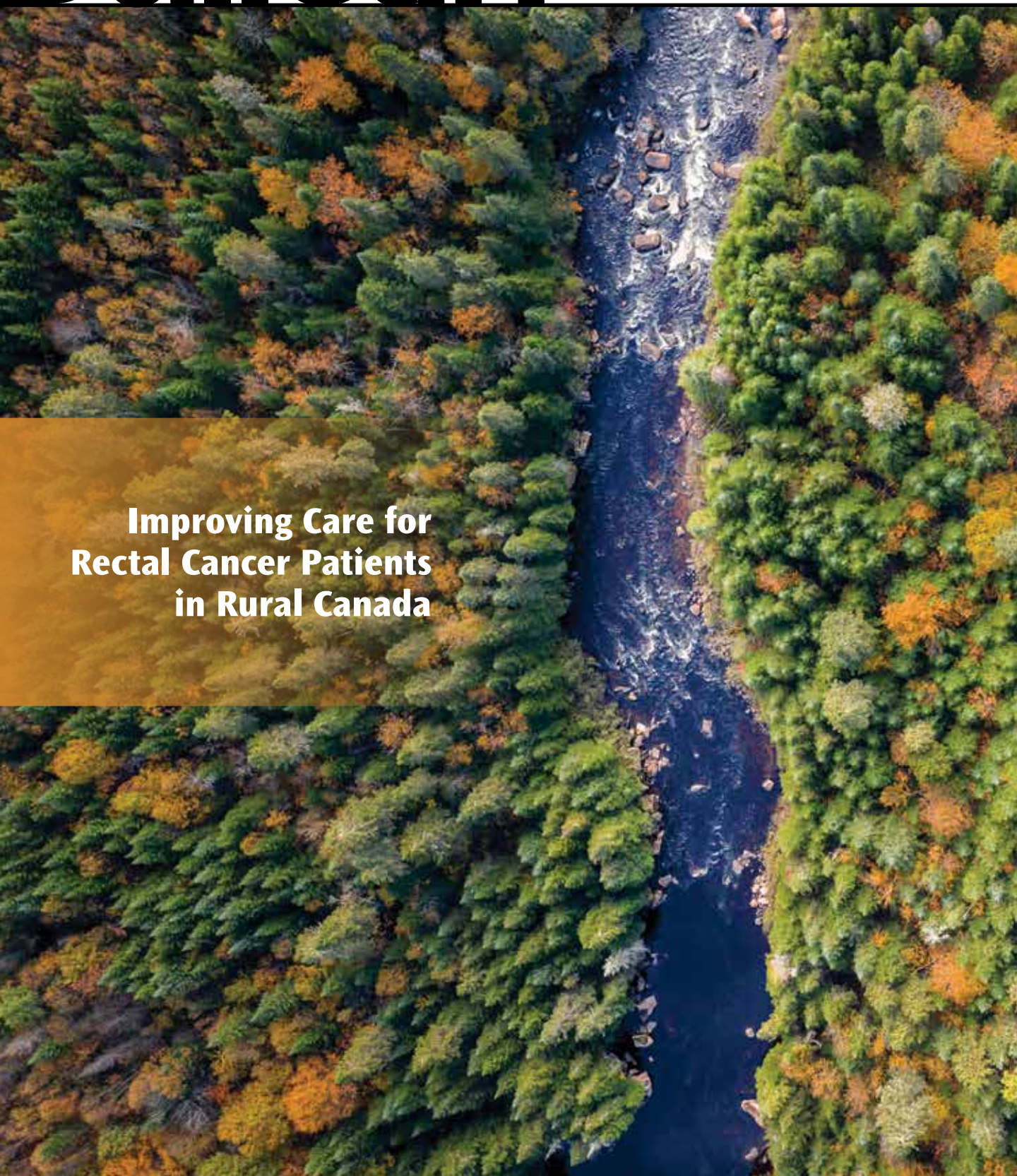
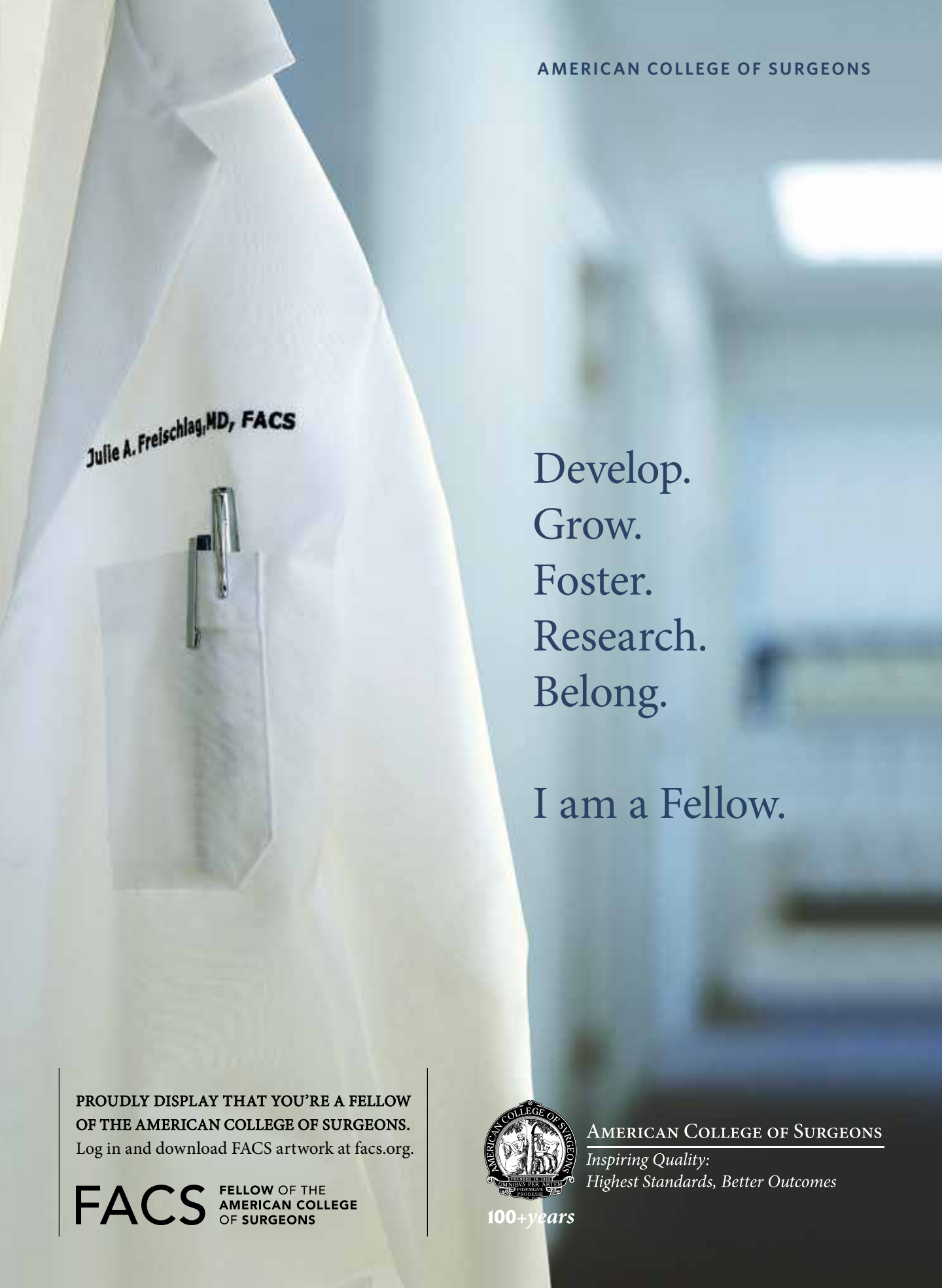
# Bulletin

ACS AMERICAN COLLEGE OF SURGEONS



## Improving Care for Rectal Cancer Patients in Rural Canada

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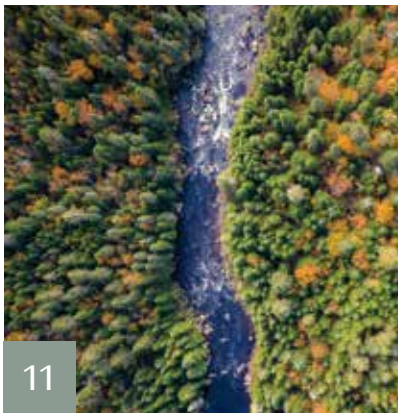






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## NEWS

The American College of Surgeons is dedicated to improving the care of the surgical patient and to safeguarding standards of care in an optimal and ethical practice environment.



Letters to the Editor should be sent with the writer's name, address, email address, and daytime telephone number via email to dschneidman@facs.org, or via mail to Diane S. Schneidman, Editor-in-Chief, *Bulletin,* American College of Surgeons, 633 N. Saint Clair St., Chicago, IL 60611. Letters may be edited for length or clarity. Permission to publish letters is assumed unless the author indicates otherwise.

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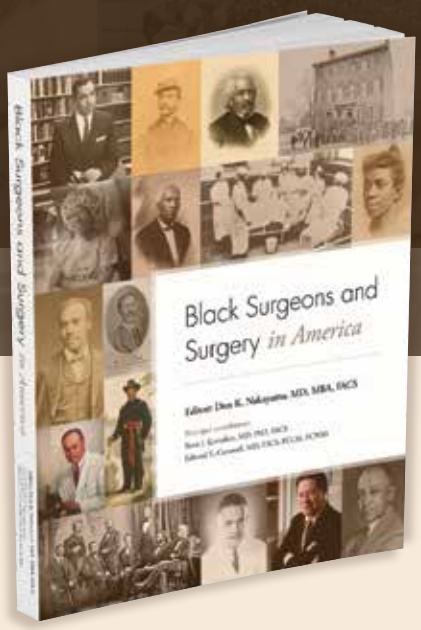


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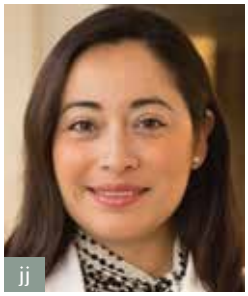
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# Building Trust in Our Profession

by Patricia L. Turner, MD, MBA, FACS

Surgeons are used to being in charge. We lead our teams in the operating room as we perform complex procedures. We train surgical residents, and we continually innovate and solve problems. We are curious by nature and always rise to the challenge.

We face challenges as a profession, and I ask you now to work with me on issues important to us all. Let's unite, as members of our professional organization, and further demonstrate to policymakers and the public the essential role surgeons play in our healthcare system.

The ACS motto is "To Heal All with Skill and Trust," and though we are unequivocally recognized for our skill, we are less widely known for our efforts to heal all—sometimes eroding trust in us.

In our inaugural Surgeons in America Survey last year, four key audiences were asked how effectively we fulfilled the ACS promise To Heal All with Skill and Trust. Those audiences were opinion leaders, policy influencers, healthcare stakeholders, and nonmember surgeons, trainees, and medical students.

The survey, which helps us better understand our reputation in the healthcare system, indicated gaps in knowledge about how we influence health policy, work to make healthcare more efficient, offer equitable access to care, and provide healthcare to all communities, including those who have historically had less access.

## Flipping the Script

Although we have a solid reputation among these audiences, we still have room for improvement. Let's reshape this narrative and tell our story proudly.

How do we do that? By taking advantage of many ACS resources that extend beyond those we are assumed to provide.

Caring for our patients is and always will be our top priority. We do all we can to ensure that optimal care is delivered—supporting individual surgeons no matter their practice environ. Through our exceptional quality programs, we help set the standards for patient care. We also advocate for equitable access to high quality care and advocate for the best policy solutions to support our work and our patients, whether it be expanding coverage for screening exams, stabilizing the Medicare payment system, or calling for reasonable measures to diminish premature death from trauma.

With all of us actively engaged and working together, our voices will be stronger, will be heard more prominently, and will engender more action.

This notion of trust is the bedrock of what we do. Our patients and the public place their trust in us differently than in any other physician, and they trust physicians more than any other professionals.

To build and sustain that bond, we must clearly demonstrate our impeccable integrity and showcase our values, which are exemplified in our quality programs. We must reassure patients that when they see us and seek our opinions, they will receive the best evidence-based recommendations, and get the best care, at the right time, in a way that is efficient and centers their needs.

If anyone has a question about something under the umbrella of surgery care in this country—whether it's who has certain data, or what is the best operation for this condition, or what is a solution to this thorny problem—I want them to come to the ACS, as we represent you and can be the gold standard for all things surgical. We, rather than legislators, administrators, or other healthcare providers, should be making decisions about what impacts our ability to practice.

Don't we want lawmakers on Capitol Hill to ask us for our expert opinion on key surgical issues?

Don't we want the media to have accurate data and information about surgery and about surgeons? We need to encourage them to come to us before publishing and broadcasting stories that may be inaccurate. When nuanced conversations require medical professionals to interpret it, the ACS should be where

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they come to ask those questions and receive cogent, thorough, and accurate answers.

How can you engage in these efforts? You can help us by developing relationships with your local media to become trusted experts. Reporters reach out to us regularly, looking for experts in their communities. We have the ability to provide you with media training and talking points on key issues. We can help you craft op-eds in your local newspapers that advance the mission of the ACS and support our efforts on behalf of surgeons.

Let us know your interest in being part of our public information network of experts by contacting me at the email below; Brian Edwards, chief of external communications, will then contact you. The more we maximize our positive connections with the public and policymakers, the better they will understand our role in healthcare and the positive impact we have in the lives of our patients every day.

Social media also can be beneficial in sharing information and raising trust. At a time when misinformation is rampant, you can share your knowledge about disease, treatments, new research findings, your accomplishments, and those of your hospital and colleagues. If you are just beginning to engage on social media, you can start by amplifying the well-vetted, well-researched, and always appropriate posts of the ACS on Twitter, Facebook, LinkedIn, or Instagram. If you want assistance in effectively using social media to better tell your story and ours, we have social media experts on staff who are planning educational modules for just this purpose.

## #SurgeonsSowingHope

ACS President Dr. Julie Freischlag issued a call to action in her 2021 Presidential Address. She urged us to spread messages of hope to enhance recovery, elevate healing, and inspire our patients, our communities, and ourselves.

We've started including short videos with the hashtag #SurgeonsSowingHope in social media and linked in our various newsletters. I encourage you to post your own videos and stories as we approach Clinical Congress, scheduled for October 16–20 in San Diego.

Anticipation is rising for this year's conference—the first in-person Clinical Congress since 2019. We look forward to being together again, celebrating our successes, reflecting on lessons learned, and taking advantage of opportunities to learn, network, and strategize.

## New ACS Website Launches

The wait is over for the debut of our new website. The new *facs.org* was developed after extensive research and interviews with hundreds of surgeons, quality program administrators, and others.

The website has a modern design and clear call to action buttons. More importantly, it includes a user-focused navigation structure to help you more easily move to the section of the site you need, as well as built-in "smart" personalization that will learn user preferences over time and provide a more customized experience. The search functionality also is substantially improved over our previous website.

Read more about the new website on pages 25–28.

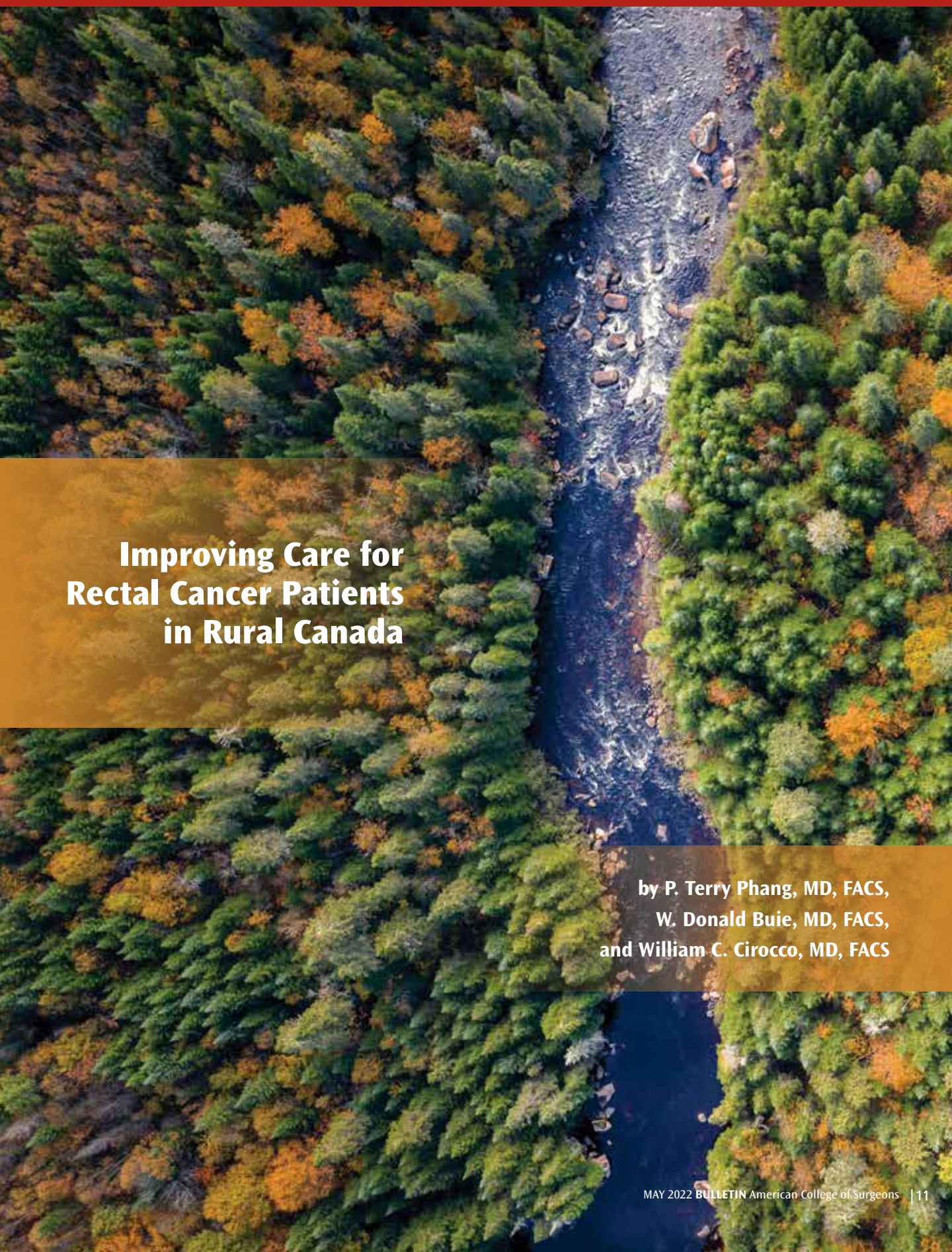
## The Arbiter of All Things Surgical

As you explore the new website and consider how you can help articulate positive messages about surgeons and surgery as a profession, think about our motto: To Heal all with Skill and Trust.

Together, we can more clearly convey our inherent value and build trust among external audiences. Surgery drives the machinery of our hospitals, but not everyone acknowledges that.

I want the American College of Surgeons to be known as the arbiter of all things surgical. We want everyone to know that we all strive to exemplify our motto every day—truly healing all with skill and trust, both individually and as an organization. Please join me in helping tell this story. ♦

If you have comments or suggestions, please send them to Dr. Turner at executivedirector@facs.org.



# Improving Care for Rectal Cancer Patients in Rural Canada

by P. Terry Phang, MD, FACS,
W. Donald Buie, MD, FACS,
and William C. Cirocco, MD, FACS

Recognizing the significance of high local recurrence rates for rectal cancer patients in British Columbia, [a local tumor group] designed a management plan aimed at standardizing care across the province with the goal of reducing local recurrence.

## HIGHLIGHTS

- Provides an overview of the Canadian approach to improving rectal cancer outcomes that centers on developing standards of care among all disciplines involved in managing these patients
- Summarizes the state of rectal cancer care in rural British Columbia and outlines a QI project that improved access to care
- Describes the development and implementation of a provincial evidence-based care pathway to standardize rectal cancer care and improved outcomes in Alberta

The lines have crossed. Survival rates for rectal cancer now surpass those for patients with colon cancer.[1] This improvement in rectal cancer survival is the culmination of 30–40 years of advances in imaging to determine clinical stage, refinements in neoadjuvant therapy, and attention to surgical principles and pathologic techniques, including establishing margin status, lymph node involvement, and grading of surgical specimens. The successful management of rectal cancer requires a multidisciplinary approach with technology and specialists typically clustered in metropolitan areas, which are less accessible to patients in small towns and rural areas across the US and Canada.

The American College of Surgeons (ACS) National Accreditation Program for Rectal Cancer (NAPRC) certifies centers that meet rigorous criteria to provide all aspects of multidisciplinary care for rectal cancer patients. A compendium of established standards across the many required specialty services recently was collated into the Fundamentals of Rectal Cancer Surgery (FRCS) posted on the American Society of Colon and Rectal Surgeons (ASCRS) website (*fascrs.org*). Although all of these components may be in place, access to care remains an issue for many Canadian and US patients because of obstacles related to time and distance to specialty centers and specialists. This challenge has been debated previously without resolution.[2]

Most rural or small-town patients lack the resources or support to travel long distances, and these individuals usually prefer to stay close to home and be treated by local nonspecialist surgeons. Anecdotal reports show that the practice of specialist surgeons managing the rural patient have proven successful but unsustainable.[3]

A potential solution involves local general surgeons managing these distant patient populations using the standards and principles of multidisciplinary care established in the FRCS. The following description of how rectal cancer care evolved in British Columbia (BC) and Alberta (AB) highlights this approach. This topic was discussed during a panel session at Clinical Congress 2021, Treatment of Rectal Cancer in the Community.

## Evolution of Rectal Cancer Care in BC

A high local recurrence rate for rectal cancer was identified in a 1996 audit of patients treated for rectal cancer in BC. General surgeons in the province initiated the review in response to a high rate of postoperative local recurrence of cancer. Pelvic recurrence at 4 years occurred in 16% of rectal cancer patients for all stages and in 27% of stage III patients.[4]

Factors contributing to a higher rate of local recurrence after surgical resection of rectal cancer than after resection of colon cancer include difficulty defining and dissecting surgical anatomy in the deep pelvis compared with the open abdomen, nonstandardized resection of the rectum, and poor adherence to international standards for the provision of neoadjuvant radiotherapy. Approximately 10% of operative reports included statements that the rectal cancer was resected with clear gross radial margins and that all mesorectal lymph nodes were removed. Only 50% of pathology reports assessed whether radial margins were histologically cancer-free. The mean number of

lymph nodes identified at pathology evaluation was six instead of 12. Adjuvant radiotherapy was provided to 50% of eligible rectal cancer patients with stage II or III rectal cancer.

Recognizing the significance of high local recurrence rates for rectal cancer patients in BC, the Colorectal Surgical Tumour Group of the Surgical Oncology Network (SON) of BC Cancer designed a management plan aimed at standardizing care across the province with the goal of reducing local recurrence. The plan included:

- Review to define the problem
- Strategy development to address the problem
- An education program for specialists
- Implementation of the strategy, including an information campaign to raise awareness among family physicians
- Outcomes analysis using data from patient follow-up
- Provision of feedback to participating specialists and family physicians

Total mesorectal excision (TME) was the recommended surgical technique for excision of the rectal cancer and all mesorectal lymph nodes in an intact mesorectal fascia envelope. Local recurrence rates at 10 years for curative resections using TME reported by Heald and colleagues were as low as 4%.[5] A new protocol for preoperative short-course radiotherapy recommended by Pahlman and colleagues in Sweden reduced local recurrence from 27% to 11% after follow-up at a minimum of 5 years.[6] The combination of short-course preoperative radiotherapy and TME resulted in a 2-year local recurrence of 2.4% in a Dutch national trial.[7]

After review of published outcomes in England, Sweden, and the Netherlands, the clinical guidelines for rectal cancer management in BC were modified to include preoperative clinical staging using computed tomography (CT), magnetic resonance imaging (MRI), and endorectal ultrasound to serve as the basis for recommending short-course preoperative radiation for stages II and III rectal cancer followed by TME.[8] Guidelines for pathology reporting include assessment of the radial resection margin and examination of at least 12 lymph nodes.[9,10] Clinically fixed tumors and lesions having predicted close or threatened resection margins prompted a recommendation for long-course neoadjuvant (preoperative) chemoradiotherapy.

To implement the new treatment strategies, an education program was designed for surgeons, pathologists, and radiation oncologists involved in the care of these rectal cancer patients. Education sessions offered in 2002–2003 consisted of lectures, live surgery with a video link to the audience, and hands-on dissection of the pelvis in cadaver labs.[11] Session topics included imaging, radiotherapy, and chemotherapy in the preoperative phase, specimen processing, gross and microscopic findings, and standardized pathology reporting. World experts from Sweden, the Netherlands, the UK, and the US were invited instructors. Course participants responded favorably to the educational value of the sessions and knowledge retention tests suggested good knowledge transfer.[12]

The next step was to implement the treatment plan and to inform family physicians in BC of the new rectal cancer management strategy. This information was transmitted via the *BC Medical Journal* in a July–September 2003 two-part theme issue.

The Colorectal Surgical Tumour Group of the SON collected and analyzed data on patient outcomes. Patients treated with curative-intent major resection of rectum cancer in the year after the education courses were audited. This group of patients was compared with patients treated in the initial study. The main finding was a decrease in 2-year pelvic recurrence from 18.2% to 9.2% for

As with many QI projects, important aspects of care requiring further attention include the community of family physicians, surgeons, oncologists, and pathologists who are integral to the care of rectal cancer patients.

stage III rectal cancer and from 9.6% to 6.9% overall.[13] Use of adjuvant radiotherapy increased to 65%, mostly given in the preoperative (neoadjuvant) setting. Negative radial margins were achieved in 87% of patients. Pathology reporting revealed an increased assessment of the radial margin to 97% of cases and an average of 12 lymph nodes harvested per case.

The final step of the quality improvement (QI) process involved providing feedback to participants. Ongoing reports were provided to BC surgeons at the annual spring meeting of the BC Surgical Society and to oncologists at the annual fall meeting of BC Cancer, as well as through the SON newsletter. A rectal cancer education course update took place in 2008 to report the final outcomes. Feedback to family physicians in BC continues to be provided in the *BC Medical Journal*.

As with many QI projects, important aspects of care requiring further attention include the community of family physicians, surgeons, oncologists, and pathologists who are integral to the care of rectal cancer patients. Technical problems with surgical resection of rectal cancer persist in BC. Positive radial margins for rectal cancer location in proximity to the anal sphincter were recorded in 35% of specimens with cancers in the distal third of the rectum (less than 5 cm from the anus).[14] The high rate of positive radial resection margin in the distal third of the rectum was anticipated. Nagtegaal and colleagues for the Dutch collaborative reported a 30% positive margin rate for distal third rectal cancer patients associated with a high perforation rate of 13.7% and a survival rate of 38.5%.[15]

Defining anatomy and precise dissection in the deep pelvis can be difficult. Additional training is needed to consistently achieve clear radial excision margins along TME planes in the narrow fixed bony pelvis, crowded with surrounding genital and urinary organs. Radical resection of distal-third rectal cancer may require TME plus wide levator excision, resulting in a large pelvic floor defect, which may require vascularized flap reconstruction using a transposed abdominal rectus musculocutaneous flap. If the rectal cancer does not invade the anal sphincter, a sphincter-sparing resection and stapled or hand-sewn colo-anal anastomosis may be performed. Also in BC, the rate of permanent colostomy for distal-third rectal cancer did not decrease after the education courses, in contrast to the 10% permanent colostomy rate in specialized units, according to the authors' personal observations.

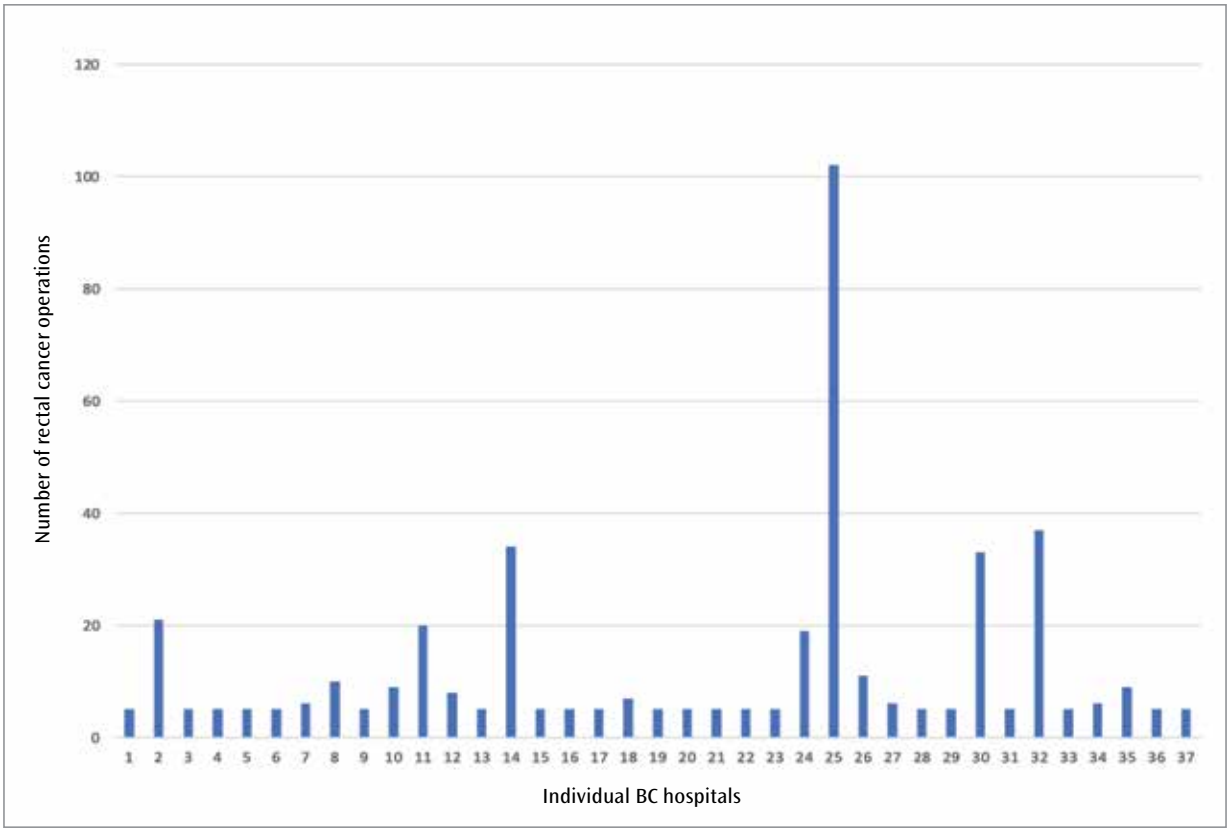
Thus, it seems reasonable to recommend that surgeons who operate for rectal cancer less frequently could refer difficult distal-third rectal cancers to specialist surgeons in high-volume centers.[16]

Rectal cancer management is best decided in a multidisciplinary conference (MDC) that includes diagnostic radiology, surgery, pathology, and medical and radiation oncology. Input from geriatrics, nursing, and patient support groups may be included in discussions.

MDC discussion of individualized rectal cancer case management options that could enable organ preservation or optimization of radiotherapy and chemotherapy is recommended. Organ preservation options include endorectal techniques and transanal endoscopic surgery for early cancers, along with potential nonoperative management for patients who have complete clinical response after neoadjuvant or total neoadjuvant therapy.

MDC discussion will invoke evidence-based treatment options from clinical trials: MRI in Rectal Cancer European Equivalence (MERCURY) Study and Preoperative Radiation or Selective Preoperative Radiation and Evaluation before Chemotherapy and TME (PROSPECT) Trial. These studies provide evidence-based case selection for safe avoidance of preoperative radiation.[17,18] The Rectal cancer And Preoperative Induction therapy followed by Dedicated Operation (RAPIDO) Trial, Neoadjuvant chemotherapy with FOLFIRINOX and preoperative chemoradiotherapy for patients with locally advanced rectal cancer (PRODIGE) Trial, and Organ Preservation of Rectal Adenocarcinoma (OPRA)

FIGURE 1.
2020 BC RECTAL CANCER CASES BY HOSPITAL:
Evolving practice of referring distal third rectal cancer to high-volume specialist centers (hospitals 2, 11, 14, 24, 25, 30, and 32)




Trial provide evidence-based optimized treatment sequencing, radiotherapy duration, and chemotherapy regimen.[19-21] In BC, the referral of patients with cancer in the distal third of the rectum to high-volume specialist centers continues to evolve (see Figure 1, this page).

Multidisciplinary discussions and collaboration provide optimal strategies for neoadjuvant treatment and surgical intervention. QI in rectal cancer treatment in BC ideally will continue in cycles of assessment, strategy, and execution with help from the SON.

Within this multidisciplinary framework of care, limitations in resources and geographic expanse pose challenges to QI in this large province. Referrals of patients with distal third of the rectum cancer to high-volume specialist centers continue to evolve. Patient awareness, education, and advocacy will continue driving the quest to improve outcomes of rectal cancer care in BC.

## The Alberta Experience

Alberta comprises approximately 4.4 million people spread over 661,800 km$^2$, an area slightly smaller than Texas. Provincial healthcare is delivered through Alberta Health Services (AHS), the largest fully integrated health system in Canada, with 125,000 employees and five comprehensive cancer centers. An estimated 500 to 525 rectal cancers are diagnosed annually, with approximately 50 surgeons performing operations in 85% of patients at 16 hospitals.

In 2013, an internal review of rectal cancer outcomes in the province by surgeon investigators identified several quality-of-care issues. Variability in both practice and reporting was associated with variable

While variable practice at the individual and system level directly affects outcomes, variable reporting has an indirect effect because of the multidisciplinary nature of rectal cancer care and limitations resulting from incomplete communication.

outcomes. While variable practice at the individual and system level directly affects outcomes, variable reporting has an indirect effect because of the multidisciplinary nature of rectal cancer care and limitations resulting from incomplete communication.

A Partnership for Research and Innovation in the Health System grant from AHS and Alberta Innovates was obtained to develop and implement a provincial evidence-based care pathway to standardize rectal cancer care and improve outcomes in 2014–2018. Although the initial project was focused on improving surgical care, it became apparent that QI would require a multidisciplinary approach because of the interdisciplinary nature of rectal cancer care. QI focused on four areas:

- The adoption of standardized synoptic MRI reporting to help promote increased use of pelvic MRI for preoperative staging[22]
- Increased evaluation of appropriate T3 and stage III tumors for neoadjuvant therapy[23]
- Establishment of regular MDCs for rectal cancer in all five cancer centers[23]
- Improved surgical quality with decreased positive circumferential resection margins (CRMs), increased TME completeness, and consolidation of rectal cancer operations to high-volume surgeons[10,24]

Baseline provincial data for rectal cancer care in 2010–2013 were collected from the Alberta Cancer Registry, Alberta Cancer Surgery database, and chart review. The data were gathered from five disciplines: surgery, radiology, pathology, radiation oncology, and medical oncology. At the time, fewer than 50% of patients underwent a preoperative MRI, and synoptic reporting was limited. In some regions, fewer than 50% of appropriate patients were evaluated for neoadjuvant treatment, and surgical quality was variable, with incomplete pathologic reporting of important variables such as CRM and grading of TME specimens.

Opinion leaders representing the five disciplines at the five provincial cancer centers were engaged to review the baseline data and determine best practices, adopt standards of care, identify appropriate quality measures, and determine/adopt best reporting practices (synoptic, if possible). These elements were incorporated into a comprehensive rectal cancer care pathway.

Five change management strategies were adopted to influence both process and practitioner behavior, including:[25]

- Clinical care pathway use
- Use of practice guidelines
- Continuing medical education (CME)
- Exposure to opinion leaders
- Targeted audit and feedback

Focused discipline-specific education days in surgery, radiology, and pathology with invited international opinion leaders were scheduled in the two major centers with video links. CME continued throughout the study period, with regular outreach using tailored traveling talks about local and provincial outcomes with clinicians at the five provincial cancer centers. An audit/feedback system was created to collect individual quality and process measures for radiologists, surgeons, and pathologists with discipline-specific report cards for individual practitioners distributed through a secure web portal. Synoptic MRI, surgical, and pathology reports were adopted with embedded computer prompts.

Improvements were realized in all four QI areas on a provincial basis. By the end of the study period, staging pelvic MRIs were obtained in 83% of patients, more than 80% of which were reported synoptically.

As of 2018, more than 90% of T3 cancers were evaluated by an oncologist, with 86% of those patients receiving neoadjuvant treatment. MDC is now established in all five cancer centers.

From a surgical perspective, the CRM positivity rate stabilized with a mean rate of 6% in 2016–2018. As of 2018, quality of pathologic specimens had improved with complete (grade 3) mesorectal excision in 73% of cases and near complete (grade 2) in another 18%. Some consolidation of surgery occurred, with high-volume surgeons performing 75% of all operations.

Change management strategies that were most successful included CME with opinion leaders and meetings with local clinicians discussing results and comparing them with provincial standards. MDCs improved communication and referrals between disciplines and helped drive synoptic reporting as colleagues recognized the importance of complete reports for optimal decision-making. Individual audit and feedback for practitioners reinforced individual performance.

Initially, the effort was greeted with some resistance to change because of traditional views of physician autonomy and perceived loss of control. Follow-up discussion centered on the benefits of participating within a larger surgical QI collaborative and the gains for patients with respect to appropriateness, safety, and quality. Early investigators fielded questions about the validity of the data. These concerns were countered through transparent discussion of the methodology of data acquisition and discussion of the results by center, with individual data relegated to report cards available only to each surgeon.

In addition, some clinicians perceived the change to synoptic reports as added work. Discussions at MDC demonstrated the importance of specific data points for decision-making by other disciplines; synoptic reports ensured all essential data were present and accessible.

Open communication to articulate key goals and striving to foster inclusiveness ensured that everyone's viewpoint was represented and established

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Fortunately, several methods of enhancing rectal cancer outcomes are available other than long-distance travel.

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a connection with the decision process. Although the logical piece is important to stimulate interest in change, the emotional piece is essential to change behavior.

QI has no endpoint. Our ongoing challenges in the care of rectal cancer patients include:

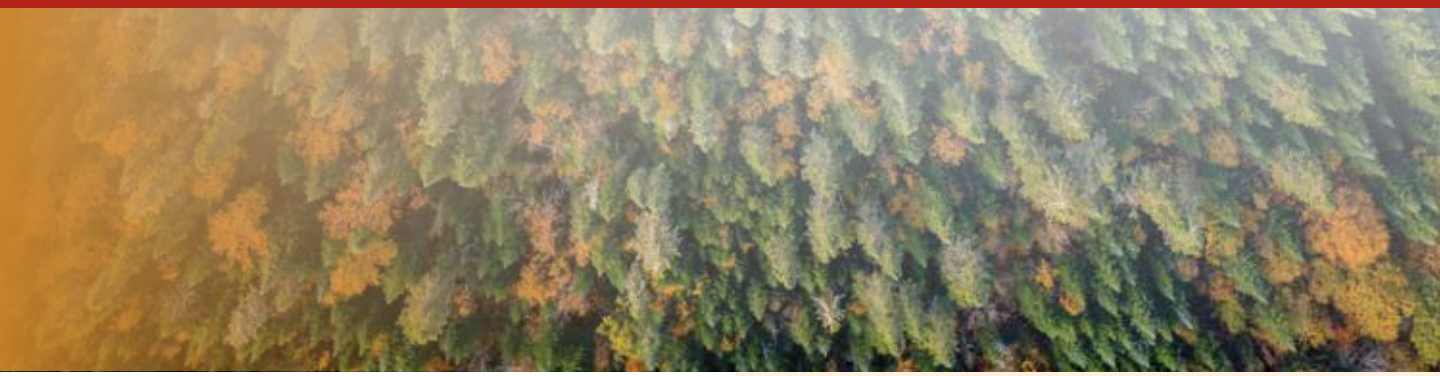
- Reliable and sustainable data collection
- Continuous evaluation and modification of data elements to ensure they remain relevant
- Regular communication with group meetings both to evaluate QI and to implement changes in practice and maintain interest
- Continued consolidation of rectal cancer operations to high-volume surgeons

Although most surgical care is provided by colorectal surgeons and surgical oncologists, at present, 18% of surgical care is delivered by generalists. Smaller cancer centers have identified generalists with special interest and training in rectal cancer surgery. Cases are preferentially sent to these individuals, several of whom have become high-volume surgeons with excellent outcomes. This model has worked well as our population density in many parts of the province is low. More complex cases are triaged to subspecialists as required.

## Summary

Fortunately, several methods of enhancing rectal cancer outcomes are available other than long-distance travel.[26] General surgeons in BC recognized the problem of local recurrence of rectal cancer, initiated the response, and followed through on delivery and integration of multidisciplinary care.

In Alberta, a multifaceted approach to improve multidisciplinary care was enacted to improve obvious deficiencies in the care provided. Accordingly, rectal cancer cases scattered among general surgeons were



funneled to select surgeons within various groups who were committed and educated in TME, so that low-volume rectal cancer surgeons could become high-volume rectal cancer surgeons by virtue of increased case numbers and enhanced surgical expertise.[27]

In Kentucky, the Markey Cancer Center Affiliate Network was established, linking small rural hospitals with academic centers for initiation of guideline-based therapy closer to home and complex surgical care at the high-volume academic center. Furthermore, these established networks may facilitate communication between surgeons when emergent intervention in a rural hospital becomes necessary. For instance, the location and type of diverting stoma in the acutely obstructed rectal cancer patient in a rural setting can be optimized by a preoperative discussion between the attending rural surgeon and the specialist surgeon at the network academic center.[28]

Raising local standards and practices of rectal cancer care (decentralization) is in opposition to the European solution of centralized rectal cancer care. Centralization of rectal cancer care to high-volume academic centers has been documented to increase distance traveled, to decrease access to care, and is associated with higher mortality.[28] Furthermore, Xu and colleagues state that "consideration needs to be given to the risk of cutting off access to care for vulnerable socioeconomic groups."[29] These authors also suggest that "targeting standardizing quality of care through widespread adoption of NAPRC standards, as opposed to centralization alone, could help mitigate volume differences and improve outcomes and survival in patients with rectal cancer."[29]

The Canadian experience offers varied approaches to improving rectal cancer outcomes, with the common thread of striving to provide established standards of rectal cancer care among all disciplines involved in managing these patients. ♦

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# Invited Commentary on Improving Care for Rectal Cancer Patients in Rural Canada

by Garth A. Olds, MD, FACS

I would like to thank Dr. Phang and colleagues for allowing me the privilege to comment on their article, "Improving Care for Rectal Cancer Patients in Rural Canada."

Efforts to improve surgical quality and outcomes are never-ending. As the American College of Surgeons (ACS) celebrates 100 years of several quality programs, it is worth noting that the College in recent years has developed the National Accreditation Program for Rectal Cancer (NAPRC). NAPRC accreditation of centers and institutions has rather quickly spread to more than 100 sites and is changing the landscape of rectal cancer care.

Dr. Phang and colleagues championed change for rectal cancer patients in British Columbia and Alberta—a long and dedicated journey that instituted standards of care, which ultimately led to improved outcomes for rectal cancer patients. Change is never easy and typically involves behind-the-scenes conflict and differences of opinion. However, healthcare professionals who have the vision and can see the big picture of improved outcomes and quality of life are never easily deterred or derailed. Congratulations to all of the physicians and hospital staff involved in these efforts.

Despite all of the numerous quality programs and financial resources available, some patients continue to slip through the net. Can we agree that the holes in this net need to be fixed?

It may be impracticable for a patient to drive hundreds of miles for ongoing cancer treatment. Add winter conditions typical of eastern Montana, and the 270-mile drive from Sidney to Billings may become impossible, with roads that are impassable and downright dangerous.

Perhaps the solution to managing the rural cancer patient may be taken from the rural trauma systems playbook. Extensive trauma care networks exist throughout the rural west, many at critical access hospitals. Chart review and trauma care have been shared and evaluated at the state level for years. General surgeons are the backbone of these rural trauma programs and are leaders at their hospitals and institutions.

Multidisciplinary tumor boards in rural settings face many of the same challenges of covering expanses of land mass to provide standardized care for rectal cancer patients. The use of the Fundamentals of Rectal Cancer Surgery education module developed by the American Society of Colon and Rectal Surgeons can be a vehicle to unite the cancer care team around common goals and practices, no matter how small or rural the medical center. The virtual tumor board has become a key and indispensable feature of these efforts.

We have seen changes to rural surgery over the past few years, including surgical specialists leaving academia and the big city to practice in smaller cities like Sidney, MT. For example, colorectal surgeon Peter G. Deveaux, MD, FACS, FASCRS, has teamed up with medical and radiation oncologists in Sidney to bring his expertise to rural eastern Montana and western North Dakota. I look forward to hearing how Dr. Deveaux is developing this quality program during his presentation at the ACS Montana Chapter meeting in January 2023 in Big Sky, MT.

The quest for quality keeps rolling on. It is quite an exciting time for rural surgeons, with changes coming to help us improve the lives of our patients. ♦

# Invited Commentary on Improving Care for Rectal Cancer Patients in Rural Canada

by Gary L. Timmerman, MD, FACS

The ACS CoC and the ASCRS collaborated to create the National Accreditation Program for Rectal Cancer to help standardize and, ultimately, improve outcomes and survival for our patients with rectal cancer.

My congratulations to Drs. Phang, Buie, and Cirocco for their thorough documentation and delineation of a changing paradigm, specifically rectal cancer management. The authors detailed the issues of recent anatomical designations defined through advanced radiographic imaging, new neoadjuvant and adjuvant interventions through multidisciplinary teams and guidelines, and, finally, standardization of operative techniques and operative/pathologic reporting. Furthermore, they recognize the barriers and limitations of surgical specialty access and geographic disparities, holding to the idea that whenever possible, deliver surgical care where the patients are.

The American College of Surgeons (ACS) Commission on Cancer (CoC) and the American Society of Colon and Rectal Surgeons (ASCRS) collaborated to create the National Accreditation Program for Rectal Cancer (NAPRC) to help standardize and, ultimately, improve outcomes and survival for our patients with rectal cancer. A standards manual was created to delineate expectations for centers that manage rectal cancer. These standards pertain not only to surgeons, but also to the multidisciplinary teams that provide care throughout the cancer event. Unsurprisingly, these centers are populated by experienced colorectal surgeons and possess the resources to fulfill all requirements.

As a non-colorectal surgeon in a state with fewer than five colorectal surgeons, rural general surgeons in South Dakota typically are involved in the diagnosis of rectal cancer and overall treatment of patients. Given the broad geographic expanse of our state and region and extremes of weather, travel to tertiary centers is certainly a concern, particularly for emergent care. Thankfully, these urgent interventions have been addressed through our state's trauma system. However, the diagnosis of a rectal malignancy rarely has been considered for emergent transfer, and, thus, most patients can travel electively to higher levels of care when needed. Therefore, the question has been raised: What is the role of the rural general surgeon in rectal cancer, and could a disparity or deficiency of rectal cancer care exist in those communities?

I queried many surgeons from South Dakota about their practice patterns for rectal cancer. Although not a scientific analysis, most

said they would make the diagnosis, contact a tertiary care surgeon, and then help arrange for patient transfer as needed. All of these surgeons agreed that they would not subject their patients to lesser care locally.

Harris and colleagues in 2010, Cogbill and colleagues in 2017, and Stinson and colleagues in 2021, all compiled data on a rural surgeon's yearly case log.*†‡ All authors noted that fewer than 5% of colorectal procedures were performed annually. The "loss" of that surgical caseload and income in those communities would not be a significant factor in the decision to transfer.

The surgeons with whom I spoke also acknowledged the changes in standard surgical technique, as well as the necessary resources required for total comprehensive rectal cancer care. However, some components of the total care could still be obtained at their rural locations, such as port placement, some neoadjuvant and adjuvant therapies, and surveillance endoscopy and follow-up—all in coordination with the management plan of the involved tertiary center. Most of our rural surgical practices have an affiliation with these tertiary centers and can participate in virtual gastrointestinal multidisciplinary clinics as needed or requested. Furthermore, some rural general surgeons work in CoC-accredited hospitals and subscribe to the NAPRC standards and expectations, providing surgical care and outcomes comparable with the tertiary care centers.

Finally, I cannot exclude those instances in which emergent intervention is indeed required (acute obstruction or hemorrhage) or family members simply refuse travel to tertiary centers. I also would note that access to the Fundamentals of Rectal Cancer Surgery course appears to be a wonderful resource for non-colorectal surgeons in these circumstances and is available for purchase from the ASCRS website.

Thank you for the opportunity to comment. ♦

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†Cogbill TH, Bintz M. Rural General Surgery. A 38-year experience with a regional network established by an integrated health system in the midwestern United States. *J Am Coll Surg.* 2017;225(1):115-123.

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# Invited Commentary on Improving Care for Rectal Cancer Patients in Rural Canada

by Steven D. Wexner, MD, PhD(Hon), FACS, FRCSEng, FRCSEd

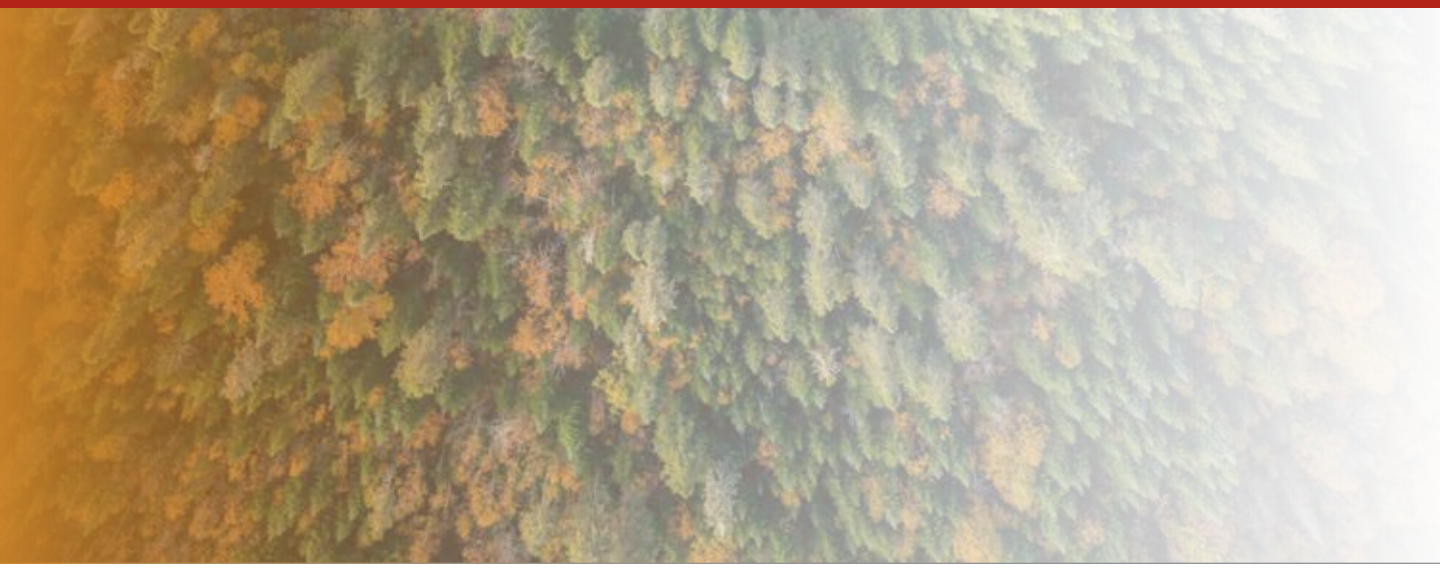
The program now known as the NAPRC was endorsed by the Commission on Cancer and the ACS Board of Regents in the spring of 2014. At present, almost 100 programs either received or are in various stages of seeking NAPRC accreditation. Thus, the 2011 goal of matching improved multidisciplinary team outcomes in Europe is well under way.

I commend Drs. Phang and Cirocco for authoring "Improving Care for Rectal Cancer Patients in Rural Canada." I also thank them for allowing me to offer some comments about their excellent study.

Rectal cancer care has been revolutionized during the past half-century, as noted by the authors, due in part to the impetus and passion of Prof. R. J. "Bill" Heald, CBE, MChir, FACS(Hon). Dr. Heald's teachings led to improvements in rectal cancer outcomes in many European countries, including decreases in the rates of creation of permanent stoma and in local recurrence and increases in survival. Other added benefits included decreased morbidity and mortality and more frequent use of evidence-based guidelines.

A US initiative began in 2011 to improve and optimize the outcomes of rectal cancer care throughout the nation. The program now known as the National Accreditation Program for Rectal Cancer (NAPRC) was endorsed by the Commission on Cancer and the ACS Board of Regents in the spring of 2014.[1] At present, almost 100 programs either have received or are in various stages of seeking NAPRC accreditation.[2] Thus, the 2011 goal of matching improved multidisciplinary team outcomes in Europe is well under way.

Dr. Phang and colleagues in Canada led a similar initiative in British Columbia and Alberta including—as noted in the article's Figure 1, page 15—an evolving practice of referring distal third rectal cancers to high-volume centers. Geography and lack of resources create potential challenges to offering NAPRC care throughout the US. Specifically, it is incumbent upon us to ensure that access to evidence-based standards practice care in rectal cancer care can be made available to patients throughout the country. A previous study from the mountain



states shows, unfortunately, adherence to such care is not universal. Specifically, Swords and colleagues revealed that nearly 20% of patients in the intermountain region did not undergo appropriate evidence-based staging or treatment.[3] These omissions were associated with increased rates of circumferential margin positivity, node positivity, and local recurrence.

Therefore, there is definite opportunity for us to strategically ensure that NAPRC multidisciplinary team evidence-based standards practice care designed to improve and optimize outcomes for patients with rectal cancer is accessible to all US patients. We are cognizant of this issue and will certainly work to ensure that these goals are met.

One initial step that can be taken to ensure fulfillment of this goal is that all surgeons who care for patients with rectal cancer can access the American Society of Colon and Rectal Surgeons (ASCRS) Fundamentals of Rectal Cancer Surgery educational module.[4] This tremendous resource helps ensure that surgeons caring for rectal cancer patients are completely up to date with the comprehensive body of literature and familiar with the technical nuances, facets, and challenges of rectal cancer surgery. Companion modules exist for both radiologists, as designed by the American College of Radiology, and pathologists, as designed by the College of American Pathologists. Therefore, even surgeons who do not work in an NAPRC-accredited centers can avail themselves of the very robust Fundamentals of Rectal Cancer Surgery module, regardless of ASCRS membership. ♦

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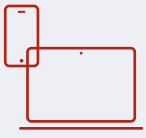
# New ACS Website Aims to Enrich Member Experiences



## WEBSITE HIGHLIGHTS

- User-friendly, modern design
- Significantly improved search functionality
- Increased personalization
- Responsive to various browsers and screen sizes

The much-anticipated launch of the new *facs.org* is here. The website debuted on May 1, providing a modern visual design, enhanced capabilities, intuitive navigation, and more intelligent search results.

The new site has been in the making for more than a year and is grounded in extensive research to ensure that it better meets the needs of users.

"We talked with our members and interviewed website architects and other design experts to combine best practices and technologies so that our users would have a positive and productive experience every time they access the site," explained Patricia L. Turner, MD, MBA, FACS. "We knew that our old website was dated, and it had become nearly impossible to find things via the search function. The new *facs.org* is a dramatic improvement over the previous site, and we are confident that surgeons, other medical professionals, and patients—no matter what device or browser they use—will find the site intuitive and easy to navigate."

The website premiere also marks the official launch of the new College branding, which uses colors and design elements to build upon the ACS legacy of skill and trust, while also providing a consistent, unified style for all ACS programs. This unification of College programs integrates with other efforts to advance surgery, expand membership, and train a new generation of leaders.

"Having this fresh new website with a new logo and embarking on a strategic analysis of our programs to meet the demands of our members and patients in the next few years show that the College is moving forward by recognizing the importance of our young surgeon members to the future of all surgical specialties represented in the College," said Anton N. Sidawy, MD, FACS, Chair of the ACS Board of Regents, and professor and Lewis B. Saltz Chair, department of surgery, George Washington University, Washington, DC. "We have so

FIGURE 1. *FACS.ORG* HOME PAGE


Login button, magnifying glass, hamburger menu

FIGURE 2. HAMBURGER MENU


"You are in control of the personalization and will contribute to your own experience. That is very appealing to me."

—Tyler G. Hughes, MD, FACS, ACS Secretary

much to offer, and the website will help showcase it to our various audiences around the country and around the world."

## Customized User Experience

Anyone familiar with the old website will notice the change immediately. Instead of a content-heavy site, with extensive and sometimes confusing navigation structures, the new site offers dynamic images, sharper headlines, clearer language, and an opportunity to travel through the pages based on their own user journey (see Figure 1, this page). For example, a nonmember participant in a quality program may have different needs than a surgeon member, so their web journeys might differ.

ACS members themselves often have different goals when accessing the site.

"The places I frequent most relate to the Resident and Associate Society (RAS) of the College, job postings, and Surgical Education and Self-Assessment Program® materials," explained RAS Chair Yewande Alimi, MD, MHS, minimally invasive and bariatric surgeon, MedStar Georgetown University Hospital, Washington, DC. "The new website is more exciting, intuitive, and personalized to align with my status as an Associate Fellow and recent resident."

## FIGURE 3. FOOTER NAVIGATION


From the footer navigation, users can access major hubs of the site, from Professional Growth & Wellness to Jobs for Surgeons to Advocacy.

For ACS Secretary Tyler G. Hughes, MD, FACS, clinical professor of surgery and director of medical education, Kansas University School of Medicine, Salina, visits to *facs.org* tend to focus on Board of Regents pages and news features. "I'm really excited that this is not going to be a static site. When I visit a website, I want to see different content—what's new, what I need to know, how I can help my colleagues," said Dr. Hughes.

## Significant Improvements in Search Functionality

Users of the previous version of *facs.org* often expressed frustration at the site's search functionality because it produced too many results that weren't quite what they wanted. The new search function delivers more relevant results and will continue to improve, using data to refine search results and deliver what the user wants to find.

"You are in control of the personalization and will contribute to your own experience. That is very appealing to me," said Dr. Hughes.

In addition, visitors who would like to explore the site via more extensive navigation can click on the "hamburger" menu at the top right of the screen (see Figure 2, page 26) to uncover menus such as About Us, Advocacy & Policy, Quality Programs, For Medical Professionals, and For Patients. Through this menu, they also can access the ACS Store, donate to the ACS Foundation, find SurgeonsPAC, and view the job board. A footer navigation (see Figure 3, this page) at the bottom of each page also provides a menu of options.

Many different pathways are available to match different user styles, and the site is responsive for various browsers and screen sizes, especially mobile devices.

The extensive research conducted on viewing habits and preferences indicated that users prefer to scroll through content rather than constantly click to new pages. They also are more likely to use a mobile device today than only a few years ago—a trend confirmed with data from the old *facs.org*.

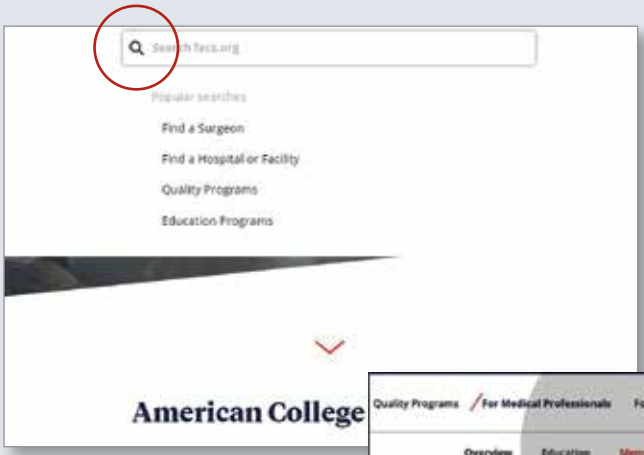
## Personalization in Stages

It's important to note that personalization features will be enhanced in stages over the coming months.

The site will account for the user's geographic location, and the search function will learn more about users each time they view the site, creating more powerful and relevant search results.

For example, Kenneth W. Sharp, MD, FACS, a member of the ACS Board of Regents and professor

## FIGURE 4.
## SEARCH BY CLICKING ON THE MAGNIFYING GLASS




Click on the magnifying glass to use the search function

## FIGURE 5.
## TRAINING VIDEO


of surgery, Vanderbilt University Medical Center, Nashville, TN, uses the magnifying glass (see Figure 4, this page) to search for local chapters. If he allows the site to use geolocation, the search function will display the Tennessee Chapter at the top of the results. In addition, if he frequently uses the same set of search terms, those terms will autopopulate in future visits to the search drop-down menu.

"This site is much more contemporary and intuitive. I find it to be easier and more efficient to use," said Dr. Sharp. "I especially like the video capabilities and having content suggested for me based on my searches."

As the personalization features build and a member's record includes more detail, a logged-in member could expect to see content related to specialty, practice setting, career stage, and areas of interest.

In the coming months, the single sign-on also will be improved so that members can seamlessly log in to their online *Journal of the American College of Surgeons* subscription through *facs.org*.

### Make the Most of Your Journey

As the new *facs.org* matures and more visitors use it, data analytics will help prompt additional changes for an even more customized and user-friendly experience.

"We're using business intelligence to determine what kind of experience we want to provide to the user. In simple terms, we want people to get to the site and feel they have found what they need—plus more," Dr. Turner added. "I hope you share my enthusiasm for these new initiatives as we build on our distinguished legacy and work together to advance the mission of the American College of Surgeons."

If you haven't explored the new website yet, visit *facs.org* today and don't forget to log in to your ACS account. Logging in will help personalize your user and search experience in the future. Send your feedback to website@facs.org. A video tutorial (see Figure 5, this page) also is available at *https://www.youtube.com/watch?v=WPQzHtEF_uQ* or by scanning the QR code. ♦

Board of Governors
AMERICAN COLLEGE OF SURGEONS

# 2021 ACS Governors Survey: Surgical Training Paradigms: From Medical School into Practice

by
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*Editor's note:* The American College of Surgeons (ACS) Board of Governors (B/G) conducts an annual survey of its domestic and international members. The survey is intended to provide a means of communicating the concerns of the Governors to the College leadership. The 2021 ACS Governors Survey, conducted in July and August 2021 by the B/G Survey Workgroup, had a 95% (277/292) response rate. For the second time, the leadership of the ACS Young Fellows Association (YFA) (Fellows younger than 45 years old), completed the survey. Several results from the YFA survey have been included in this article for purposes of comparison.

One of the 2021 survey topics was the surgical training paradigm. This article outlines the Governors' and YFA's leadership's feedback on related issues.

## Background

The importance of medical education is embedded in the practice of medicine. The singular significance of medical education is the first concept introduced in the Hippocratic Oath. Since then, a variety of frameworks have been introduced to guide surgical education and training. Until the 20th century, US medical schools were lightly regulated, if at all, and surgical training was "an apprenticeship at best."[1]

Over time, both medical schools and postgraduate surgical training evolved. A pioneer in the field was William S. Halsted, MD, FACS. The program he developed at The Johns Hopkins School of Medicine, Baltimore, MD, near the end of the 19th century was patterned after a system prevalent in Germany at the time. One of the hallmarks was that during the final phase of training the resident had the privilege of providing almost completely autonomous patient care.[1-3]

TABLE 1.
What Should a Surgical Readiness Rotation Include?

| | |
|---|---|
| Starting IVs | 76.32% |
| Placing NG tubes | 82.89% |
| Placing Foley catheters | 80.92% |
| Identification and initial treatment of shock | 89.47% |
| Identification and initial treatment of pulmonary embolus | 69.08% |
| Identification and initial treatment of sepsis | 82.89% |
| Identification and initial treatment of ACS/MI | 65.13% |
| Knot tying | 89.47% |
| Suturing | 90.13% |
| Sterile technique | 94.08% |
| Other (please specify) | 26.32% |

Halsted also introduced the pyramid system to surgical training, with no predetermined duration of training. In the 1930s, Duke University School of Medicine, Durham, NC, also had a pyramid system for progressive autonomy but was limited to 6 years of training.[2]

For the past several decades, most surgical training programs have resembled the structure implemented by Edward D. Churchill, MD, FACS, at Massachusetts General Hospital, Boston, in the 1940s—a rectangular model in which those who enter the program and maintain satisfactory performance are expected to complete it.[2,3]

Recently there has been a resurgence of discussion about our surgical training paradigms in response to increased treatment options and technology and changing societal expectations. Surgical educators today are particularly concerned about:[4-8]

- Experiences in medical school (especially in the fourth year)
- The impact of duty-hour restrictions on surgical residents
- The decrease in resident autonomy while in training
- The best way to incorporate new techniques and technologies into practice once surgeons have completed formal training

This reevaluation of the status quo is in keeping with surgery's commitment to continuous improvement and lifelong learning.

While surgical training has been through a process of continual, gradual evolution, more recently surgeon educators have suggested a more fundamental restructuring of the US surgical education and training system.[4] Because of the many stakeholders involved and the complexity of interrelated issues, the B/G Survey Workgroup sought to understand the Governors' and YFA leadership's perspectives on some of these topics.

## Medical School Preparation for Surgical Residencies

The curricula in medical schools have undergone significant changes. One transformation that has been discussed recently is the structure and content of the fourth year. A number of medical educators have indicated that the educational value of the fourth year of medical school has declined. Some residency program directors also have said that incoming residents are not optimally prepared to function at the postgraduate level.[9,10]

With these perspectives in mind, some institutions offer a training experience designed specifically to ensure that their graduates are ready to assume the responsibilities required at the start of residency training.[11-13] The ACS also has invested in this area

of educational development through the Fundamentals of Surgery curriculum released in 2009, and the ACS/Association of Program Directors in Surgery/Association of Surgical Educators (ACS/APDS/ASE) Resident Prep Curriculum introduced in 2014.

The 2021 B/G annual survey included questions about surgical training in medical schools, residency, and practice. In total, 277 members of the B/G and 33 members of the YFA leadership completed the survey. Approximately 55% of the Governors who responded indicated that medical schools should require a surgical readiness rotation before advancement to a surgical residency. Approximately 18% of the Governor respondents disagreed, and approximately 27% were unsure.

Respondents younger than 51 years old were more likely to support such a requirement than Governors ages 51 and older. Of the 54 respondents younger than 51 years old, 36 (67%) favored such a requirement, 7 (13%) opposed it, and 11 (20%) were unsure. Among the 223 respondents ages 51 and older, 116 (52%) favored such a requirement, 42 (19%) opposed, and 65 (29%) were unsure. The responses from YFA leaders were similar, with 55% in favor, 20% opposed, and 25% unsure.

The survey asked which areas should be covered in a surgical readiness rotation (see Table 1, page 30) and made an open-ended inquiry as to what other topics should be included. The skills that most Governors thought should be part of this type of educational experience included sterile technique (94%), suturing (90%), knot tying (89%), and identification and initial treatment of shock (89%).

These skills were followed by identification and initial treatment of sepsis (83%), placing nasogastric (NG) tubes (83%), and placing Foley catheters (81%). Starting IVs (76%), identification and initial treatment of pulmonary embolus (PE) (69%), and identification and initial treatment of acute coronary syndrome or myocardial infarction (ACS/MI) (65%) were less consistently considered necessary.

YFA results mirrored those of the Governors, with knot tying and suturing viewed as the most important skills needed, and the least important being initial treatment of PE and initial treatment of ACS/MI.

Additional suggestions were made in the free text responses. Multiple Governors identified the following skills as essential: Advanced Trauma Life Support®, note and order writing, line placement (especially arterial lines and central venous catheters), chest tube placement, and communication/presentation skills. The YFA free text responses also highlighted instrument identification.

Forty-nine Governors responded to the question regarding why a surgical readiness rotation is necessary. Several of the Governors' comments centered on three themes:

- It is the residency program's responsibility—not the medical school's—to teach these skills (echoed in the responses from the YFA leadership)
- A requirement is unnecessary
- Experience would vary too greatly across different institutions

Furthermore, multiple respondents said that such a requirement could create a barrier to attracting students into surgical fields. Finally, some respondents raised concerns about the College attempting to impose requirements on medical schools.

When asked about the ACS/APDS/ASE Resident Prep curriculum:

- 29% of the respondents were unaware of this resource
- 38% were unaware but were interested in learning more
- 17% were aware of the program and had used it
- 13% were aware of the program and indicated that they might use it in the future
- 4% were aware of the program but had no plans to use it

The YFA responses were nearly identical: 28%, 37%, 18%, 15%, and 3%, respectively.

## Residency Programs

Just as concerns have been voiced about medical student readiness to start surgical residencies, questions have been raised about whether graduating surgical residents are prepared to enter practice or fellowship training.[5-8] These concerns seem to be attributed primarily to two changes in residency training over the past quarter century: the reduced number of hours that residents spend in the hospital and the decrease in resident autonomy.[5-8,14,15] Discussions about the need to reevaluate our systems have been ongoing over the same period,[4,15] and interest in exploring alternative models seems to have increased in recent years.[1-3, 15-20] Most recently, the ACS released a new manual, *Optimal Resources for Surgical Education and Training*, "The Gold Book," which provides additional guidance and resources in this area.[21]

## Competency-Based Education and Promotion

Over the past several years, a shift from time-based to competency-based graduate medical education, particularly in surgical fields, has received considerable attention. This concept was piloted with the residency program in orthopaedic surgery at the University of Toronto, ON, and then fully adopted after initial success.[16,20] A broad discussion of the potential benefits and costs of such an approach was presented at Clinical Congress 2021 during the Resident and Associate Society (RAS) Symposium (see the August 2021 and March 2022 issues of the *Bulletin*).*†

The proponents of shifting residency training to a competency-based approach without predetermined timelines suggest that this strategy allows trainees to develop the competence in each area at their own speed and recognizes that the time needed to do so may vary. Thus, the trainee who needs more time to achieve competence in a particular skill can do so more easily, and the trainee who achieves competence more quickly can move on to the next step and thereby reduce some of the inefficiencies and potential expense the system harbors.[17]

A number of concerns about a complete shift to a competency-based approach also have been raised. One contention has been that programs already are competency-based. If, at the end of a rotation or the end of the standard time of a training program, a trainee has not demonstrated the level of competence expected, then the trainee will be required to undergo additional education or have the program director attest that he or she has demonstrated enough competence to sit for the board certification examination and to enter independent practice.

Others argue that a competency-based system will encourage trainees to achieve the minimum level of competence needed rather than continued refinement and improvement.[17] Finally, concerns have been voiced about the assessment of competence and the potential for implicit or explicit biases to influence these determinations.

Among both supporters and opponents of a fundamental change in our surgical residency training paradigms, some have concerns about operationalizing such a system. Specific concerns include:

- Patient care needs
- Educational opportunities "overloaded" with learners or, conversely, an inadequate number of learners
- Financing graduate medical education under such a system

Many (166) Governors (60%) supported the concept of competency-based promotion in residency training, but 45 (16%) opposed it, and 66 (24%) were unsure. When these responses were analyzed further based

*Ryans R, Heremans K, Vigneshwar N, Koo K, Essig R. RAS-ACS Symposium: Competency-Based Training: A Gateway to Efficiency or a Hurried Sprint to the Finish Line? *Bull Am Coll Surg.* 2022;106(8):56-61.

†RAS-ACS Symposium: Competency-Based Training: A Gateway to Efficiency or a Hurried Sprint to the Finish Line? *Bull Am Coll Surg.* 2022;107(3):25-32.

on the Governor's geographic location (US, Canada, or international), it was noted that 9 of the 11 Canadian respondents (82%) supported the concept, whereas 29 of 47 (62%) international respondents supported it, and 128 of 219 (58%) US respondents supported the concept. The YFA leaders responded similarly, with 64% in support, 12% in disagreement, and 24% unsure.

More variability was apparent in the responses regarding the logistical and financial feasibility of implementing a competency-based promotion system. When asked whether they believed that competency-based promotion was logistically feasible, 38% (105) of the Governors responded yes, 29% (80) said no, and 33% (92) were unsure. Nearly 27% (74) said they believe that competency-based promotion is financially feasible, 29% (80) reported it was not, and 44% (123) were unsure. Among YFA respondents, 33% said it was possible, 27% did not, and 40% were unsure.

## Flexibility in Surgical Training

The American Board of Surgery (ABS), in 2011, approved the option for flexibility in surgical training (FIST). This new structure allows, with advanced approval from the ABS and the Review Committee-Surgery of the Accreditation Council for Graduate Medical Education (ACGME), for 12 of the last 36 months of time-based training to be customized to meet a resident's interests or needs. Several residency programs in surgery offer this option, and though some challenges need to be addressed, overall satisfaction is high.[22] An interim analysis did not detect significant differences in ABS In-Training Examination scores or in ACGME milestone requirements for the residents who participated in FIST compared with residents who did not.[23]

Respondents indicated strong support for flexibility in surgical training programs to better meet their residents' needs. Among the Governors, 79% indicated that they believed programs should be able to vary experiences to better meet the needs of trainees' anticipated practice models; 8% disagreed, and 14% were unsure. Seventy percent said they supported a 2-to-3-year core surgical curriculum followed by flexibility in the last 12–36 months to concentrate on an area of interest; 12% did not support this concept, and 18% were unsure.

The YFA had similar responses, with a resounding 76% in support of FIST and only 6% opposed.

When asked about potential benefits or concerns with FIST as an open-ended question, the responses fell into the following general categories, and the same themes were repeated frequently among respondents. Potential benefits included:

- Better preparation for specialty practice
- Improved ability to assign rarer cases to residents who will care for such patients in the future (more efficient use of resources)
- Greater resident engagement

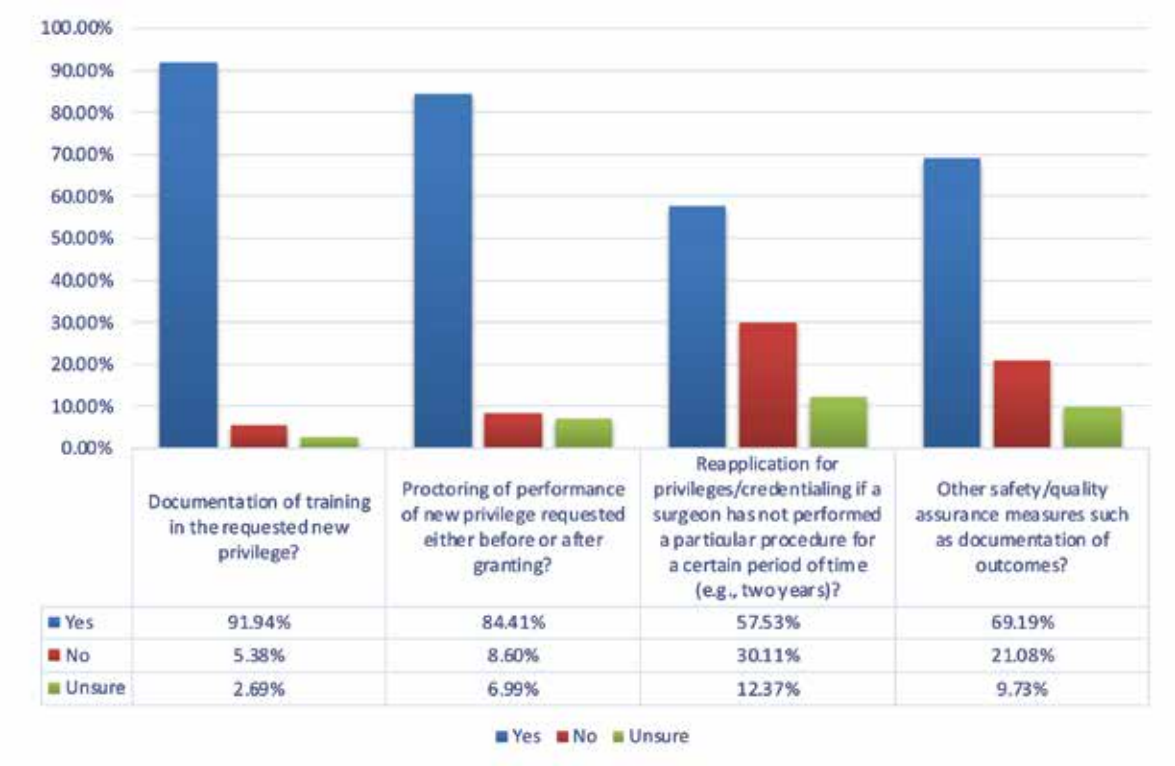
Potential concerns included:

- Loss of a standardized general surgery skill set and the inability to predict practice needs in the future (including taking call)
- Logistics of varied resident schedules
- Clinical/educational supply meeting resident demand if a high percentage of residents want to pursue the same opportunities
- Fairness and possible bias/disparities
- Residents with interests that change over time

## Practicing Surgeons

Surgical practice requires lifelong learning, and surgical fields continue to evolve. Better understanding of diseases as well as the development of new or improved techniques and technologies foster the continued growth and refinement of all surgical disciplines. What at times has been unclear is how surgeons who have completed their formal training

FIGURE 1.
What Does Your Hospital Require?




| | Documentation of training in the requested new privilege? | Proctoring of performance of new privilege requested either before or after granting? | Reapplication for privileges/credentialing if a surgeon has not performed a particular procedure for a certain period of time (e.g., two years)? | Other safety/quality assurance measures such as documentation of outcomes? |
|---|---|---|---|---|
| Yes | 91.94% | 84.41% | 57.53% | 69.19% |
| No | 5.38% | 8.60% | 30.11% | 21.08% |
| Unsure | 2.69% | 6.99% | 12.37% | 9.73% |

should decide when to adopt new ideas or treatments and how to do so safely and responsibly.

The topic of credentialing surgeons, especially in the adoption of new procedures, has been discussed in the ACS Communities. Some guidance was provided in the 2017 ACS manual *Optimal Resources for Surgical Quality and Safety* ("The Red Book").[24] Subsequently, in October 2018, the College put forth a Statement on Credentialing and Privileging and Volume Performance Issues,[25] which defined principles for learning and incorporating new surgical procedures and technologies into practice. These principles include "mastering didactic content, technical training in an inanimate model, precepted incorporation of the new technique or technology into practice, and demonstration of satisfactory patient outcomes." The College also is working on an accreditation program for rural surgery that provides guidance on this issue.

The 2021 B/G annual survey sought to explore training for attending surgeons in addition to residents and medical students. Among the Governors, 77% indicated that university programs should offer education regarding new procedures and technologies to private practice groups in their specialty; 4% thought they shouldn't, and 19% were unsure. Interestingly, the responses to this question were similar regardless of practice type and were similar to the YFA leadership responses of 66% in favor, 6% opposed, and 27% unsure (numbers rounded).

Asked whether hospitals had a standard process for granting privileges to attendings for using new procedures, techniques, and technologies, 67% of the respondents said yes, 19% said no, and 14% were unsure. These responses differed greatly from the YFA responses, which were more evenly split: 40% said yes, 30% said no, and 30% were unsure. Of the Governors who affirmed that a standardized approach existed in their institutions, 186 answered more specific questions about the process. Ninety-two percent indicated a requirement for documentation of training in the requested new privilege; 5% indicated that their institution did not have such a requirement, and 3% were unsure. Furthermore, 84% indicated that their institutions had proctoring of performance of a new privilege, 9% indicated they did not have proctoring, and 7% were unsure (see Figure 1, this page).

Fewer hospitals require reapplication for privileges/credentialing if a specified amount of time has passed since a surgeon has performed a procedure; 58% responded that their hospital does, 30% that their hospital does not, and 12% were unsure. However, 69% indicated that their hospital requires other safety/quality assurance measures (such as documentation of outcomes) with new privileges, procedures, or technology; 21% indicated their hospital does not, and 10% were unsure.

## Recommendations

Surgical training is a process of lifelong learning that starts in medical school and continues throughout one's practice. The surgical training paradigms have changed and evolved over time and are at a critical point of evaluation. The responses to this survey seem to be consistent with much of the literature. Governors and YFA leaders have some concerns about the existing models of surgical education in both medical school and residency, but it is difficult to find consensus around which aspects of our surgical training paradigms should change or how best to do so.

Respondents expressed a range of opinions around the idea of a surgical readiness rotation in medical school. Approximately half the respondents said that such an experience should be required, whereas the rest felt that it should not be a requirement or were unsure. If such an experience exists, there was greater consensus around the educational content that should be included, but respondents indicated that the ACS should not attempt to create additional mandates for medical schools.

Two-thirds of the respondents were unaware of the ACS/APDS/ASE Resident Prep Curriculum. More than half of those who were unaware of the program expressed an interest in learning more about it. This finding would suggest that perhaps clerkship directors of medical school surgical rotations would benefit from more regular dissemination of information about this and other pertinent resources available to them.

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*continued on next page*

Ongoing discussions regarding surgical residency training, the optimal degree of flexibility, and the idea of competency-based education and promotion undoubtedly will continue. The survey results reflect a broad spectrum of opinions. Hence, the Governors would recommend that the ACS act as a facilitator for these ongoing discussions rather than advocating for one approach or another at this time.

Finally, innovation and evolution of surgical techniques and technologies will continue. The responses to these survey questions suggest a reasonable level of consistency among hospitals, although this process can be challenging, particularly in rural and community hospitals. The College's Statement on Credentialing and Privileging and Volume Performance Issues[25] and "The Red Book" provide some guidance.[24] The ACS should continue to monitor and advocate for best practices in this realm to allow for the development and adoption of novel treatment options while maintaining the safety and trust of our patients. ♦

## Contributors

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# The COT at 100:

## Setting the Standard for Quality Programs

by Meera Kotagal, MD, FACS,
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and Melanie Neal

## HIGHLIGHTS

- Outlines the evolution of COT standards to ensure trauma center quality
- Describes the goals and revision process for each edition of the *Resources for Optimal Care of the Injured Patient*
- Identifies the role of trauma registries in collecting high-quality data to assess patient outcomes and center performance
- Highlights future goals, including incorporating PROMs into the data collection process, to advance the care of the injured patient

For the past 100 years, the American College of Surgeons (ACS) has led national and global initiatives to improve the quality of patient care in multiple areas, including trauma, cancer, and general surgery. Trauma care efforts have focused on both the development and implementation of standards for the optimal care of the injured patient, development of a trauma center consultation and verification program, and establishment of trauma registries, including the National Trauma Data Bank® (NTDB®) and, ultimately, the Trauma Quality Improvement Program® (TQIP®).

Initially, quality improvement (QI) in trauma centers focused on developing and supporting adequate structures and processes to ensure care for the injured patient. The ACS Committee on Trauma (COT) first published *Optimal Hospital Resources for Care of the Seriously Injured* (now *Resources for Optimal Care of the Injured Patient*) in 1976. Since then, this manual has outlined the equipment, personnel, and infrastructure needed for centers to provide high-quality trauma care and subsequently led to the Verification, Review, and Consultation (VRC) Program. This approach has revolutionized the care of severely injured patients and has become the model for comprehensive QI across the House of Surgery. This seminal work was followed by key efforts to create standardized data registries and to allow for benchmarking and collaborative efforts to improve quality through TQIP.

## Establishing Standards for Trauma Center Quality

In 1976, a COT taskforce published an article in the *Bulletin*, "Optimal Hospital Resources for Care of the Seriously Injured," which called for hospitals to commit to providing the resources, facilities, and personnel to address the needs of seriously injured patients. Along with requirements for personnel and equipment, it called for regularly scheduled mandatory quality assurance audits and reviews of all professional and nonprofessional services. This taskforce developed an implementation plan based on the hospital resources article. A reporting format was created to ensure the standards were applied appropriately and discretionary interpretation was minimized.

The evolution of the standards document corresponded with the evolution of the philosophy of care by the COT. The initial title, *Optimal Hospital Resources for Care of the Injured Patient*, has evolved into *Resources for Optimal Care of the Injured Patient*. This subtle title change underscores a shift in emphasis from optimal hospital resources to optimal care given the available resources, and reflects an important and abiding principle that the needs of injured patients should be addressed both at the point of injury and wherever they receive care.

On April 16, 1980, the Task Force for the Implementation of the Hospital Resources Document developed a Verification Consultation Program for Level I and II hospitals for the COT's approval. Implementation of this program was hotly debated, with the ACS leadership expressing its views that it was too regulatory in nature and would be cost-prohibitive. The COT was initially allowed to proceed with a consultation process only.

In spring 1986, the National Commission for the Accreditation of Trauma Centers was formed external to the ACS with the intent of carrying out review and formal accreditation of trauma centers. The COT, under Donald D. Trunkey, MD, FACS, then-COT Chair, agreed that while the idea put forth by the national commission was a good one, the COT Executive Committee asserted that this activity should remain the purview of the COT and, certainly, the ACS. After several years of advocating for the ACS to implement such a program, the Board of Regents approved it in October 1986, and implementation began in earnest for a true trauma verification process led by the COT.

TABLE 1. VRC PROGRAM ACTIVITIES AS OF 2022

| Program | ACS COT-Verified Centers | VRC Site Visits in 2021 |
|---|---|---|
| Adult Level I | 132 | 53 |
| Adult Level II | 196 | 79 |
| Adult Level III | 118 | 56 |
| Adult Level I & Pediatric Level II | 33 | 12 |
| Adult Level II & Pediatric Level II | 13 | 2 |
| Peds Level I | 47 | 18 |
| Peds Level II | 7 | 7 |
| Total | 546* | 227 |

*Verified centers as of March 1, 2022

The Verification Review Committee Program was formally established in 1987. Frank L. Mitchell Jr., MD, FACS, was appointed as the first Chair of the then-Ad Hoc Committee on Verification/Consultation. The first Level I trauma center, Detroit Receiving Hospital, MI, was verified in 1987, followed in 1988 by the verification of the first Level II trauma center, Ascension Via Christi, Wichita, KS.

Pediatric trauma center criteria then were developed, and the first pediatric trauma center consultation was performed in 1989 at Norton Children's Hospital, Louisville, KY. The first *Resources for Optimal Care of the Injured Patient* book was released in 1990. Based on the red cover it became known as the "Red Book," which started the tradition of referring to subsequent updates to the standards by the color of the book. The first Level III trauma center, Exeter Hospital, NH, was verified in 1990. At present, the ACS has verified 546 trauma centers and conducts more than 227 verification site visits annually (see Table 1, this page).

## Evolution of the Standards

The 1990 Red Book introduced the "broken man" image on the manual's cover, which has become synonymous with the ACS COT *Resources for the Optimal Care of the Injured Patient* manual and the COT as a whole. (see sidebar, page 40).

The 1999 "Gold Book" expanded and replaced the manual's "Quality of Trauma Care Personnel" chapter with separate, more detailed "Clinical Functions" chapters for general surgery, emergency medicine, neurosurgery, and orthopaedic surgery. With the Gold Book came a change in the nomenclature from quality assurance to performance improvement (PI), providing trauma providers with a new lexicon of key terms such as "opportunities for improvement" and "loop closure."

A notable change in the 2006 "Green Book" was the incorporation of patient safety into PI. The new acronym, PIPS (Performance Improvement and Patient Safety), was coined to embody the goal of reducing inappropriate variations in care and thereby improving patient safety and outcomes. Regular data submission to the NTDB became a requirement, and today the NTDB houses the largest aggregation of trauma registry data ever assembled and is used extensively in trauma research.

The "Orange Book," published in 2014, was the sixth edition of *Resources for Optimal Care of the Injured Patient* and represented a Herculean effort because of extensive changes. In this revision, the principles for developing an inclusive trauma system were further refined. The Orange Book's PIPS section was more than twice the size of the same section in the Red Book. The operational concepts of the PIPS process now were required to be in a written plan outlining in a formal document the configuration and details of the trauma center's PI program. The Orange Book introduced a new criterion requiring participation in national risk-adjusted benchmarking, allowing trauma centers to begin comparing their outcomes with other similar centers.

## Goals of Revisions to Resources for Optimal Care

The approach to each edition and its subsequent revision process has evolved as the changing landscape of trauma care results in new opportunities and needs.

The approach to each edition and its subsequent revision process has evolved as the changing landscape of trauma care results in new opportunities and needs. Each edition requires numerous stakeholders volunteering significant time, energy, experience, and knowledge to provide constructive feedback and to draft each new manual.

1990 2014 2016 (very briefly!) 2016

## DON'T MESS WITH THE BROKEN MAN!

Since its introduction in 1990 on the cover of the Red Book, the COT Broken Man has become a beloved icon, universally representing the injured patient. Everything the COT does, every decision the COT leaders make, is weighed against the questions of whether we are acting in the best interests of the severely injured patient. These principles guide the decisions of the COT, carrying more weight than business imperatives, preferences, or any other considerations. The Broken Man reminds us why we act as a group and why individually we chose trauma as our calling. The patient (Broken Man) is our reason for being.

Over the years, the Broken Man has gone through some stylistic refreshes, at least one of which was soundly rejected. Ronald M. Stewart, MD, FACS, COT Chair (2014–2018), presided over the most recent refresh a few years ago and had definite thoughts about the suggested changes to its appearance. Suffice it to say that all future designers will be cautioned, "Don't mess with the Broken Man!" Going forward, our Broken (hu)Man may be refined gently, but it will continue to stand as an enduring reminder of our patients and why we have dedicated ourselves to doing what we do so well.

Each edition requires numerous stakeholders volunteering significant time, energy, experience, and knowledge to provide constructive feedback and to draft each new manual (see Figure 1, page 41).

Future editions of the *Resources for Optimal Care of the Injured Patient* will continue to build on the ongoing integration of the VRC, PIPS, TQIP, and trauma systems concepts into one seamless program leading to a Trauma Quality Program that is easier and more effective to implement. The primary goal for the revision process continues to be the provision of better definitions of the resources needed to provide optimal care of injured patients within an appropriately designed and funded system of care.

Another goal of the revision process is to use an evidence-based scientific method when data are available. The COT seeks not only to identify and support new potential criteria, but also to apply new research to existing standards and to recommend the elimination of criteria proven to be of limited value.

The goal remains to continue to develop consistent and clear standards that are value-based and patient-centric—that benefit all patients rather than a single institution or program. The latest revision has focused on creating standards that are easier to understand and

## FIGURE 1. EVOLUTION OF THE RESOURCES MANUALS 1976–2022


- *Optimal Hospital Resources for Care of the Seriously Injured*—1976
- *Hospital Resources for Optimal Care of the Injured Patient and Appendices A through J*—1979
- *Hospital and Prehospital Resources for Optimal Care of the Injured Patient and Appendices A through J*—1983
- *Hospital and Prehospital Resources for Optimal Care of the Injured Patient and Appendices A through J*—1986/1987
- *Resources for Optimal Care of the Injured Patient*—1990, "Red Book"
- *Resources for Optimal Care of the Injured Patient*—1993, "Blue Book"
- *Resources for Optimal Care of the Injured Patient*—1999, "Gold Book"
- *Resources for Optimal Care of the Injured Patient*—2006, "Green Book"
- *Resources for Optimal Care of the Injured Patient*—2014, "Orange Book"
- *Resources for Optimal Care of the Injured Patient*—2022, "Grey Book"

implement and are more objectively verified during the site visit. The standards also have been consolidated to eliminate redundancy. The next edition represents greater alignment with and standardization of all ACS Quality Programs. The new *Resources for the Optimal Care of the Injured Patient* was released in April 2022. And while its new cover is a charcoal gray, we plan to begin using the actual name of the book as it more accurately describes to the uninitiated the importance of its contents.

## Data-Driven QI

QI relies on high-quality data to assess patient outcomes and trauma center performance. The COT's continuing focus on providing the best possible care to the injured patient links the efforts of the VRC focused on standardization of resources to the work of creating reliable and usable data through the NTDB and TQIP. These combined efforts to develop standards and improve quality resulted in the creation of the NTDB as a national repository for data collected through trauma registries. In turn, review and use of the data eventually resulted in the development of the National Trauma Data Standard (NTDS)—the standard set of definitions and formats for data collection—and ultimately to the development of TQIP, which, through the reports provided to participating centers, allows the centers to compare their processes and outcomes with their peers.

In the early 1970s, David R. Boyd, MD, FACS, and colleagues described the first hospital trauma registry that was developed to enable research and patient monitoring. Subsequently, the Major Trauma

In 2004, the NTDB reached a milestone by accruing a cumulative total of 1.1 million records, meeting a challenge from the ACS Board of Regents to significantly expand participation through submission of data.

Outcomes Study, developed by Howard R. Champion, MD, FACS, and coordinated through the COT, collected data from trauma centers across the US in 1982–1989. This pioneering work led to the Trauma and Injury Severity Score methodology, which combined the Revised Trauma Score and the Injury Severity Score and established national norms to provide a predicted risk of mortality that could be used to identify patient cases that, when reviewed, would identify QI opportunities.

In 1986, *Hospital and Prehospital Resources for Optimal Care of the Injured Patient* identified the trauma registry as essential for verification. Registries allowed individual centers to measure processes of care and outcomes that then facilitated the development of institution-specific performance improvement initiatives that led to lower morbidity and mortality.

## The NTDB

As COT Chair, Dr. Trunkey appointed the Ad Hoc Committee on Quality Assurance, in 1985, with Frank L. Mitchell Jr., MD, FACS, as the first Chair, followed by Dr. Champion. In 1990, another committee was established to focus on the development of a national trauma registry with Charles L. Rice, MD, FACS, as the first Chair of the Subcommittee on the Trauma Registry.

Also in 1995, David B. Hoyt, MD, FACS, Chair, Subcommittee on the Trauma Registry, and Immediate Past-ACS Executive Director, established a workgroup to develop the NTDB. This panel sought broad stakeholder input, reviewed all relevant existing data sets, and incorporated quality indicators as established by the COT Quality Improvement Subcommittee (formerly the Ad Hoc Committee on Quality Assurance).

Through the leadership of John Fildes, MD, FACS, Chair, Ad Hoc Committee on NTDB, the first NTDB annual report (based on 181,000 records) was published in 2001, with the first pediatric report published in 2003. In 2004, the NTDB reached a milestone by accruing a cumulative total of 1.1 million records, meeting a challenge from the ACS Board of Regents to significantly expand participation through submission of data.

Richard Fantus, MD, FACS, Chair of the Trauma Registry Advisory Ad Hoc Committee from 2006 to 2011, soon began demonstrating the power of the data in a series of 200 consecutive articles in the *Bulletin* with creative titles ranging from "Hit the road, jacked—road rash injuries" to "Who let the dogs out?" Dr. Fantus' final column was published in 2019.

## TQIP

Although significant progress was made at the individual trauma center level through the aforementioned efforts, the need for a national risk-adjusted benchmarking program in trauma was evident from the NTDB data published. Despite the standardization of structure and processes orchestrated by the VRC, mortality outcomes varied substantially, supporting the need for additional programs and measures beyond structures and processes of care to improve outcomes for injured patients.

The development and implementation of TQIP began with the creation of a TQIP Project Team in 2006, led by H. Gil Cryer, MD, FACS, under the direction of Dr. Fildes, incoming COT Chair. The project team was charged with piloting and launching a program to provide risk-adjusted outcomes to participating trauma centers. In addition to guiding improvement efforts, this information would allow the COT to identify high-performing centers that could share best practices and guidelines with the broader community, thus elevating the care of injured patients. Dr. Nathens, a coauthor of this article, assumed responsibilities for TQIP in 2008,

*continued on page 44*

## PAST-CHAIRS

### Ad Hoc Committee on Verification/Consultation; Trauma Center Consultation/Verification Committee

- Frank L. Mitchell Jr., MD, FACS (1987–1995)
- Charles E. Lucas, MD, FACS (1995–2000)
- Robert L. Coscia, MD, FACS (2000–2006)
- Frank L. Mitchell III, MD, FACS (2006–2010)
- Chris Cribari, MD, FACS (2010–2014)
- Rosemary A. Kozar, MD, FACS (2014–2017)
- R. Todd Maxson, MD, FACS (2017–2018)
- Daniel R. Margulies, MD, FACS (2018–2020)
- William H. Marx, DO, FACS (2020–2022)
- Nilda M. Garcia, MD, FACS (2022– )

### Subcommittee on the Trauma Registry (Programs)

- Charles L. Rice, MD, FACS (1990–1993)
- David B. Hoyt, MD, FACS (1994–1997)
- Ronald G. Tompkins, MD, FACS (1997–2004)
- John Fildes, MD, FACS (2004–2006)
- David E. Clark, MD, FACS (2006–2008)
- Avery B. Nathens, MD, PhD, FACS, FRCSC (2008–2009)

### Trauma Registry Advisory Ad Hoc Committee

- Richard J. Fantus, MD, FACS (2006–2011)

### Trauma Quality Improvement Program (TQIP) Advisory Committee

- Avery B. Nathens, MD, PhD, FACS, FRCSC (2011–2016)

### Ad Hoc Committee on the National Trauma Data Bank/ Quality and Data Resources Committee (QDRC)/ TQIP Committee

- J. Wayne Meredith, MD, FACS (1997–2000)
- John Fildes, MD, FACS (2000–2004)
- Avery B. Nathens, MD, PhD, FACS, FRCSC (2009-2011)
- Michael L. Nance, MD, FACS (2011–2016)
- Michael C. Chang, MD, FACS (2016–2022)

TQIP recognizes that providing centers with data is insufficient to support meaningful changes in patient care. Thus, TQIP offers resources on how to develop and execute performance improvement initiatives.

and provided foundational leadership to the development of the program. In 2016, Dr. Nathens was formally hired as the Medical Director for Trauma Quality Programs and continues to serve in that position.

## Making Meaningful Comparisons

Although the National Surgical Quality Improvement Program® (ACS NSQIP®) could serve as a guide for the development of TQIP, the unique qualities of trauma patients versus general surgery patients required that statistical analytic methodologies be developed specific to trauma patients. Thus, both the data collected and the outcomes reported by TQIP needed to be specific to the trauma population. In addition, TQIP needed to consider which patients would be eligible for inclusion. To ensure that equitable comparisons were made between centers, TQIP based analysis on consistent patient cohorts across hospitals.

The feasibility of TQIP as a QI program was tested in a successful pilot study conducted in 2008–2009 under the leadership of Dr. Nathens and the ACS COT staff. In 2014, Pediatric TQIP launched to provide a similar approach to QI for pediatric trauma patients and risk-adjusted benchmarking for pediatric trauma centers. That year, TQIP Collaboratives also debuted. The goal of collaboratives is to provide a self-identified group of trauma centers, typically defined by state, with assistance in identifying opportunities for improvement across the group that may not otherwise be apparent for each individual center and to help facilitate PI efforts across the collaborative participants. In 2016, the program was expanded to include Level III trauma centers.

As of February 2022, 885 programs were enrolled. Program participants included 526 Level I and II centers, 160 pediatric centers, and 199 Level III centers from all 50 states, Washington, DC, and three countries. Six regional and 15 state collaboratives also were registered. TQIP offers ongoing training and continuing education opportunities for trauma registrars through a variety of mechanisms, including webinars, interactive question-and-answer sessions, and annual course modules.

## Patient Outcomes, Processes of Care, Risk-Adjustment, and Center Reports

Outcomes that TQIP measures include mortality and complications. These outcomes, as all aspects of TQIP benchmark reports, have evolved and remain a work in progress as TQIP adapts to the changing needs and priorities of participants and the trauma community at large. Because the structures and processes of care directly affect patient outcomes, TQIP also provides reports on several processes of care that are specific to the trauma population. TQIP uses hierarchical, linear models to create the risk-adjusted outcomes used in TQIP benchmark reports. These models produce odds ratios or, in some cases, risk-adjusted time-to metrics, as measures of hospital performance (see Figure 2, page 45).

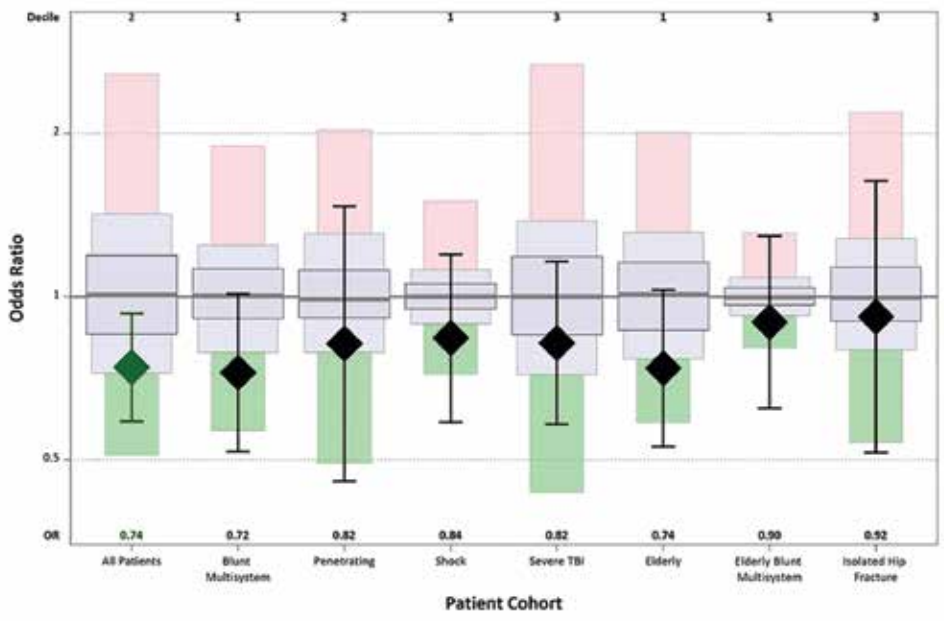
## Transforming Data into Performance Improvement Efforts

TQIP recognizes that providing centers with data is insufficient to support meaningful changes in patient care. Thus, TQIP offers resources on how to develop and execute performance improvement initiatives. Collaboration between centers is a key means by which TQIP facilitates QI efforts. TQIP always has provided feedback regarding what aspects of data quality or care could benefit from improvement; however, the task of identifying, designing, and implementing an intervention has been dependent on the participating site itself. To address this gap, TQIP is now piloting a program to provide peer coaching for participants

*continued on page 46*

FIGURE 2.

## PROCESSES OF CARE




## RISK-ADJUSTED MORTALITY BY COHORT

**First Operative Internal or External Fixation in Patients with Mid-Shaft Femur Fracture**

| | Mid-Shaft Femur Fracture | Operative Fixation | Time to Operative Fixation (hours) | Operative Fixation more than 24 Hours | Unknown Time to Operative Fixation |
|---|---|---|---|---|---|
| Group | N | N (%) | Median (IQR) | N (%) | N (%) |
| All Hospitals | 22,032 | 20,071 (91.1) | 16.1 (8.23-23.62) | 4,838 (24.2) | 69 (0.3) |
| Your Hospital | 61 | 55 (90.2) | 14.87 (7.08-20.45) | 10 (18.2) | 0 (0.0) |

**Cerebral Monitoring for Severe TBI Patients**

| | Severe TBI | Cerebral Monitoring | Time to Cerebral Monitoring (hours) | Unknown Time to Cerebral Monitoring |
|---|---|---|---|---|
| Group | N | N (%) | Median (IQR) | N (%) |
| All Hospitals | 26,371 | 6,156 (23.4) | 4.05 (2.25-9.67) | 56 (0.9) |
| Your Hospital | 80 | 20 (25.0) | 3.32 (1.72-8.54) | 0 (0.0) |

**Surgery for Hemorrhage Control for Hemorrhagic Shock Patients**

| | Patients | Surgery for Hemorrhage Control | Time to Surgery for Hemorrhage Control (hours) | Unknown Time to Surgery for Hemorrhage Control |
|---|---|---|---|---|
| Group | N | N (%) | Median (IQR) | N (%) |
| All Hospitals | 9,003 | 4,745 (52.8) | 0.93 (0.55-1.93) | 35 (0.7) |
| Your Hospital | 33 | 18 (54.5) | 0.6 (0.48-1) | 1 (5.6) |

2016 TQIP Annual Scientific Meeting: Dr. Wayne Meredith (left) and Dr. Michael Chang

under the leadership of Dr. Nathens and Michael C. Chang, MD, FACS, Heidi A. Hotz, RN, and Robbie Dumond, BSN, MHA.

Consistent with the aim of helping to identify and implement interventions, TQIP also launched the TQIP Mortality Reporting System in 2019, through the efforts of Samuel P. Mandell, MD, FACS, and now led by Aaron Jensen, MD, FACS, aimed at collecting structured mortality reviews for use in multi-institutional retrospective analyses.

The ACS TQIP Annual Conference, formerly known as the ACS TQIP Annual Scientific Meeting and Training, plays a key role in educating and supporting centers to help them provide quality care. Under the leadership of Dr. Chang, outgoing Trauma Quality Pillar Chair and TQIP Conference Program Chair, the meeting has drawn a range of attendees including, but not limited to, trauma medical directors, program managers, program coordinators, and registrars from participating and prospective TQIP centers. The 2019 meeting drew nearly 2,000 individuals from more than 730 institutions in the US and around the world. The 2020 program, which took place virtually because of the pandemic, had more than 6,300 participants.

## The Future

The VRC Program represents a standard process for trauma center verification that has resulted in improved outcomes. The continued emphasis on quality outcomes only will grow in the future. Although the goal of zero preventable deaths after injury may never be achieved, continuous QI can reduce mortality and morbidity for injured patients. Furthermore, we need to move beyond measuring mortality as the primary outcome to ensure that we are optimizing all dimensions of care for the injured patient.

TQIP continually evolves to respond to the needs of its participating centers and to push the envelope on advancing care for the injured patient. As inhospital mortality rates continue to decline, we recognize the need to focus on strategies to optimize long-term functional outcomes. To address this challenge, TQIP is developing a pilot program to incorporate patient-reported outcome measures (PROMs) into the data collection process. The PROMs Work Group, led by Angela M. Ingraham, MD, FACS, Joseph V. Sakran, MD, MPH, MPA, FACS, and Sarah F. Parker, BSN, RN, TCRN, is exploring the collection of PROMs from trauma survivors and confronting the unique challenges associated with accomplishing this goal.

TQIP supports advances in care through research, and TQIP data have been used to support many studies exploring variations in care and factors associated with improved outcomes. As a core member of the Coalition for National Trauma Research, the COT recently invested in creating a platform to support incremental data collection, which when combined with TQIP data, can serve as infrastructure to support prospective observational and interventional trials.

Over the past 100 years, the COT has focused on quality of care of injured patients—setting standards for resources and care through the work of the VRC, and continually working to improve that care through the Trauma Quality Programs.

## Conclusion

Over the past 100 years, the COT has focused on quality of care of injured patients—setting standards for resources and care through the work of the VRC, and continually working to improve that care through the Trauma Quality Programs.

TQIP has revolutionized the care of the injured patient through risk-adjusted benchmarking of outcomes between trauma centers. TQIP translates data into action through the critical examination of individual center and collaborative reports as well as the distribution of best practices and lessons learned through the program's annual meeting and other forums. Through TQIP, centers have identified areas for improvement and implemented changes to reduce variability and complications in trauma care and to improve resource use and patient survival. ♦

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TRAILBLAZING WOMEN
MINORITY SURGEONS

PAMELA CHEN, MD

# Dr. Yeu-Tsu Margaret Lee: Pioneering Asian-American Military Surgeon

by Susan Tsai, MD, MHS, FACS

As a young child, she recalled her mother bemoaning their lack of access to medical care. These were formative experiences, which propelled her from a very young age to pursue a career in medicine.

**Editor's note:** The Women in Surgery Committee (WiSC) of the American College of Surgeons (ACS) hosted a session at Clinical Congress 2021 on Breaking Barriers: Minority Women Pioneers in Surgery. The *Bulletin* is publishing a series of articles based on the presentations given during this program. In this final installment, the author chronicles the achievements of Yeu-Tsu Margaret Lee, MD, FACS, in celebration of Asian-American and Pacific Islander Heritage Month.

Yeu-Tsu Margaret Lee, MD, FACS, was awarded the 2018 Dr. Mary Edwards Walker Inspiring Women in Surgery Award, which the WiSC presents annually. Nearly 4 years later, her inspirational life story continues to draw interest. Despite a life marked by extreme adversity, her resilience and endless desire to be of service to others has left a lasting and remarkable legacy of humanitarian service.

> *"A lotus flower blooms most beautifully from the deepest and thickest mud."*
>
> *–Chinese proverb*

## Perilous Childhood

Dr. Lee was born in Xian, China, to a large family of six children.* Her father was a lawyer, and her mother was a high school teacher. From the age of 5, she experienced tremendous adversity. Her family survived the 1937 Nanjing Massacre during the Japanese occupation of China, which claimed the lives of approximately 300,000 Chinese people in just 6 weeks. At that time, her family fled Nanjing to Chongqing, but because of the harsh conditions, three of her older siblings died of dysentery. As a young child, she recalled her mother bemoaning their lack of access to medical care. These were formative experiences, which propelled her from a very young age to pursue a career in medicine.

*Klein SB. Yeu-Tsu Margaret Lee, MD, FACS: A Life of service. *Bull Am Coll Surg.* May 2016. Available at: https://bulletin.facs.org/2016/05/yeu-tsu-margaret-lee-md-facs-a-life-of-service/. Accessed March 21, 2021.

Dr. Lee with her mother, father, and younger sister

Opposite page: Portrait of Dr. Lee by Pamela Chen, MD, a pediatrics resident, Boston Combined Residency Program, Boston Children's Hospital and Boston Medical: pamela.chen@childrens.harvard.edu.

For more information on the artist and painting, see: Chen P, Kasper J, Khoshbin S. The Women Before Me: My Journey Painting Honor Wall Portraits of Women Physicians. *Acad Med.* 2021; 9(8):1091-1094. MID: 34010860. Available at: https://bit.ly/3KeS9bX.

Dr. Lee, first row, far left, as a University of Michigan resident

1990: Deployment to Operation Desert Shield and Operation Desert Storm

Dr. Lee completing her first marathon at age 40

After living through another massacre in the Communist Revolution in 1949, her family was uprooted a second time and forced to flee to Taiwan. Her family lived in reduced circumstances, having lost many of their possessions in the preceding displacements.

Despite these personal hardships, Dr. Lee continued to excel as a student. Although women were rarely encouraged or accepted for post-baccalaureate training, Dr. Lee was accepted into the prestigious National Taiwan University, Taipei. Unfortunately, her family could only afford to support her education there for a little more than a year. To continue her education, she received additional support from a Catholic missionary organization, which sponsored the completion of her education in the US.

## Medical Education and Training

In 1955, Dr. Lee emigrated to study at the University of South Dakota, Sioux City, on a scholarship and completed her undergraduate education. She continued to excel academically and was accepted into Harvard Medical School, Boston, MA, on a full scholarship. She was one of four women in a class of 90 students. Dr. Lee graduated from Harvard Medical School cum laude 4 years later. During her student clerkship at Boston's Children's Hospital, she remembered seeing a baby with gastroschisis. It was then that she began to appreciate the indispensable role of surgery to correct disease, and Dr. Lee decided to become a surgeon.

Surgical training programs rarely accepted women at that time. However, Dr. Lee knew Charles Gardiner Child III, MD, FACS, chair of surgery at Tufts University School of Medicine, Boston. He had accepted the position of chair of surgery at the University of Michigan School of Medicine, Ann Arbor, and she applied to that residency program and was accepted in 1961. When she joined the University of Michigan, she was the only woman in the department of surgery, including trainees and faculty.

While in Ann Arbor, she met and married her husband. Unfortunately, she suffered a series of miscarriages and hospitalizations, which interrupted her residency. Given the pyramidal training program structure at the time, she was asked to transition to research. Instead, Dr. Lee transferred to the University of Missouri School of Medicine, Columbia, where she completed her surgical residency and went on to complete a clinical fellowship in surgical oncology.

## Military Surgical Career

Following her training, Dr. Lee was retained as an assistant professor at the University of Missouri until 1973, when she was recruited to the University of Southern California, Los Angeles, as an associate professor and the head of the tumor surgery service. During this time, she practiced at Los Angeles County Hospital and trained several residents from Tripler Army Medical Center, Honolulu, HI, who were doing rotations at the University of Southern California Medical Center—also known as the Los Angeles County Hospital—to gain experience with penetrating trauma. She began to develop a reputation both nationally and abroad as an educator and surgeon.

In 1983, she accepted the position of chief of surgical oncology at Tripler. She served as the coordinator and facilitator of the educational program for the general


Dr. Lee participating in missionary surgery


Dr. Lee and her Peace Garden during Operation Desert Shield and Operation Desert Storm

surgery service and was responsible for the emergency medical team. In 1990, she volunteered for a tour of duty as part of Operation Desert Shield and Desert Storm. She volunteered because she was the only surgeon at Tripler who did not have young children, so she felt it was her duty to serve.

She was deployed to northern Saudi Arabia as a general surgeon with the 13th Evacuation Hospital, the 332nd Medical Brigade, and the Seventh Army Corps. While she was there, the medical corps built a 400-bed hospital with three operating rooms. She cared for both soldiers and prisoners of war. Following the war, she was promoted to the rank of colonel and awarded the "A" Proficiency Designator—the highest level of professional accomplishment within the Army Medical Department. Dr. Lee's receipt of the American College of Surgeons Mary Edwards Walker Inspiring Women in Surgery Award was particularly meaningful, as Dr. Walker was the first female surgeon to serve in the US Army, paving the way for women in surgery and the military.

## A Lifetime of Grace under Fire

Unfortunately, in 1999, Dr. Lee was involved in a serious motor vehicle collision that required a prolonged intensive care unit stay and multiple reconstructive procedures. Following her accident, she retired from the US Army but remained active as a clinical professor of surgery at the University of Hawaii, Honolulu. In her retirement, she continued to feel an urge to serve, and she began to participate in medical mission trips. For the next 18 years, she partnered with a not-for-profit medical organization, Surgical Medical Assistance Relief Teams (SMART). The goal of this organization is to provide healthcare services to children in low-income countries.

For the next 8 years, she would travel the world to care for underserved populations. In this capacity, Dr. Lee served as a leader of the Central American Surgical Tour Group to the People's Republic of China. She led the Hawaiian Medical Mission to China and was a leader of the women's delegation to Russia and Romania. She continued to teach surgery at Tzu-Chi Buddhist Medical Center in Hualien, Taiwan, four times a year. In addition, she participated in medical missions to Ghana, Honduras, Cambodia, Laos, and the Philippines.

Surgeons are no strangers to adversity. Indeed, some would say that surgeons flourish in times of crisis. Dr. Lee exemplifies the indomitable spirit that many surgeons strive to achieve, not only in her professional life, but in her personal life as well. For example, when she moved to Hawaii, the US Army Physical Readiness Test (PRT) motivated her to start running. Not only did she start running to pass the PRT but at the age of 40, she ran her first marathon and went on to run 16 more marathons.

Throughout her life, Dr. Lee encountered many challenges and persevered, but her greatest legacy may be her service to humankind. Although she was no stranger to war and conflict, she was tirelessly motivated to be of service to others, perhaps always haunted by her own childhood experiences. Dr. Lee embodies endless optimism for a better future. Even during Operation Desert Shield and Operation Desert Storm, you could find her tending to a Peace Garden at the base. ♦

PROFILES IN ACS LEADERSHIP:

# A Few Questions for Linda G. Phillips, MD, FACS

**Editor's note:** The *Bulletin of the American College of Surgeons* (ACS) publishes a series of articles profiling leaders of the College. The series is intended to give readers a look at the person behind the surgical mask and inspire members to consider taking on leadership positions within the organization and the institutions where they practice.

This month we profile Linda G. Phillips, MD, FACS, Vice-Chair, ACS Board of Regents. Dr. Phillips is the Truman G. Blocker Jr., MD, Distinguished Professor and chief, department of surgery, division of plastic surgery, and professor, School of Medicine, University of Texas Medical Branch (UTMB), Galveston.

## Why did you decide to go into surgery, particularly plastic and reconstructive surgery?

I grew up in the Chicago, IL, area and went to the University of Chicago Pritzker School of Medicine for medical school and residency. I knew I wanted to be a physician early in life and was fascinated with the scientific research and the cases that the surgeons there were doing. About 2 weeks into my surgery rotation, I knew I wanted to be a surgeon.

I knew that I wanted to enter a surgical field that demanded a high degree of delicate, fine motor skill. I was drawn to plastic and reconstructive surgery because of all the scientific advances that were being made in the field and by the variety of cases plastic surgeons do—from reconstructive surgery for burns and breast patients to more aesthetic procedures. So, I went on to do additional general surgery training at Northwestern University Medical Center, Chicago, and to complete my plastic surgery training at Wayne State University, Detroit, MI.

## Who have been some of your mentors along the way, and what did you learn from them?

I have too many to mention, and I don't want to leave anyone out, but one would have to be Martin Robson, MD, FACS, when I was training at Wayne State. He was

I was drawn to plastic and reconstructive surgery because of all the scientific advances that were being made in the field and by the variety of cases plastic surgeons do—from reconstructive surgery for burns and breast patients to more aesthetic procedures.

very committed to putting the science into plastic surgery. He ran a lab that was making important contributions to wound healing.

Other mentors, many of whom are my peers, include Elof Eriksson, MD, FACS; Renee Hartz, MD, FACS, a cardiac surgeon; Mary McGrath, MD, MPH, FACS, who once held my seat as Vice-Chair of the ACS Board of Regents; and Susan MacKinnon, MD, FACS, who is doing great work in terms of restoring nerve function for patients with upper extremity injuries. They all have done important research in the field and have made important contributions to improving quality of life for plastic and reconstructive surgery patients.

## Describe your journey to becoming Vice-Chair of the ACS Board of Regents.

Most of my pathway has focused on surgical education, research, and ethics. Being invited to participate in the Surgical Forum (now the Scientific Forum) at Clinical Congress as a trainee was a great entrée to the ACS. I was inducted into the College as a Fellow in 1988.

I started taking on leadership positions in the College in the 1990s, first serving on the Committee on Medical Student Education (1993–1999) and as a Senior Member of the committee (1999–2003). I also have been active in the Southern Texas Chapter of the ACS since I joined the faculty at UTMB. Getting involved at the chapter level is a good place to start. I met wonderful mentors that way and served on the Southern Texas Credentials Committee (2013–2021).

I was introduced to the Association of Women Surgeons, which meets annually in conjunction with Clinical Congress, by Past-Chair of the ACS Board of Regents Beth Sutton, MD, FACS, and Past-Regent Margaret Dunn, MD, FACS, and served on the ACS Women in Surgery Committee as a member (2001–2007) and a consultant (2007–2011).

I also served on the Advisory Council for Plastic and Maxillofacial Surgery (2000–2009), chairing the council from 2004 to 2009. As member of the Advisory Council Chairs, I had the opportunity to interact with Fellows in all of the specialties and to learn about the issues of concern to them.

During my time on the Advisory Council for Plastic and Maxillofacial Surgery, I also served as the council's liaison to the Clinical Congress Program Committee (2003–2009). Serving in this role gave me the chance to further collaborate with surgeons of other specialties and from other parts of the country, as well as to learn about all the work that the surgeon volunteers and ACS staff do to offer our annual meeting. I served on the Nominating Committee of the Fellows from 2006 to 2009 and chaired that committee in 2009.

I became a Regent in 2015. Serving as a Regent really is a privilege. The Regents all work very hard to serve the members and to enact policies that will improve surgical care. As a Regent, I have chaired the Central Judiciary Committee (2016–2021) and served on the Ethics Committee (2017–2020) and Bylaws Committee (2016–2017).

## How has the College changed since you became a Fellow?

It's become much more diverse in terms of the members' gender, race, and surgical specialty. And because our members now are facing so many challenges in terms of reimbursement and workforce shortages, they really want the College and the Regents to be responsive and to advocate for them. They want to see the value for their dues. So, the College has had to invest more resources not only in providing educational opportunities and maintaining standards of care, but also in advocacy and health policy, as well as quality improvement.

## How do you achieve work-life balance?

I love spending time with my family. Of course, that's been a little different because of COVID-19, but my

Dr. Phillips and her husband, William A. Phillips

Dr. Phillips feeding the kangaroos at a wildlife preserve in Tasmania

Dr. Phillips and her husband, William A. Phillips

children and grandchildren and I FaceTime quite a bit and keep in touch that way.

I love to travel, especially with my family. We decided at one point that rather than exchange gifts at the holidays we would share an experience, so every Christmas became the family ski trip. I especially enjoy traveling outside the US and visiting places that I have read about and seeing original works of art.

I enjoy cooking and baking and sharing what I make with my family, friends, and colleagues. My specialty is cheesecake. I make it for our division functions.

### What advice do you offer to young surgeons and residents who want to achieve leadership positions in the ACS and their institutions?

Start by working with committees. Talk to people who serve on those committees and express your interest in their work and what you might be able to do to help them. If a senior surgeon sees that you are enthusiastic and sincere, they will sponsor you, bring you to meetings, and introduce you to people who can help you get more involved. The College didn't have the Resident and Associate Society or the Young Fellows Association when I joined, but

From left: Beth Sutton, MD, FACS, Past-Chair of the ACS Board of Regents, Dr. Phillips, and ACS Past-President Barbara Bass, MD, FACS

75th Anniversary of the American Board of Plastic Surgery (ABPS), three former ABPS chairs: Dr. Phillips (center), Nicholas B. Vedder, MD (left), and Donald H. Lalonde, MD

these organizations provide excellent opportunities to become familiar with the ACS and to address challenges that your peers are facing.

Get involved, but don't overextend yourself. If you don't have the time to devote to a project or an assignment or don't have the right skill set, be honest. It's better to say no than to not give the work the attention it deserves.

We need to have young surgeons involved in our advocacy efforts, so we can maintain our standards in surgical education and quality of care.

## How would you describe your leadership style?

I would describe it as collaborative leadership, whether as committee chair, department chair, or ACS Regent. I will offer a suggestion on what we can do differently and then ask other leaders to provide their input on the change. When we stay true to ourselves and don't try to compete with other stakeholders, but rather try to reach consensus, we improve our chances of success.

When leading in the operating room (OR) and in the research lab, where we focus on the biology of surgical infections, I try to handle concerns in a professional manner by correcting the situation at hand and waiting to discuss the matter in private. I will ask the resident what surprised them about the situation and why it was a surprise. I've tried to mentor as I was mentored.

## What do you like best about being a surgeon, particularly a plastic surgeon?

Almost every day, I learn something new and feel challenged in the lab and in the OR. I specialize in wound healing, body contouring after massive weight loss, reconstructive and aesthetic breast surgery, and cosmetic facial and body contouring. Our understanding of these conditions is always changing and helping to improve patient outcomes.

The most satisfying part of being a plastic surgeon is the realization that we have an impact on our patients' quality of life by alleviating pain and elevating their confidence. And they so appreciate it. I get hugs at every clinic. That's their gift to me. ♦

CANCER RESEARCH PROGRAM™

Program of the American College of Surgeons

## ACS Cancer Research Program:

# Implications of the KEYNOTE-522 Trial for Patients with Early Stage Triple-Negative Breast Cancer

by Elizabeth A. Mittendorf, MD, PhD, FACS

Immunotherapy is frequently used to treat patients with triple-negative breast cancer (TNBC). Based on the KEYNOTE-355 trial, pembrolizumab, a monoclonal antibody targeting the programmed death-1 (PD-1) receptor, was approved for treating patients with metastatic TNBC that is positive for programmed death-ligand 1 (PD-L1) expression.[1] Subsequently, pembrolizumab was approved for use in the preoperative setting for early stage TNBC patients, regardless of PD-L1 status.[2,3]

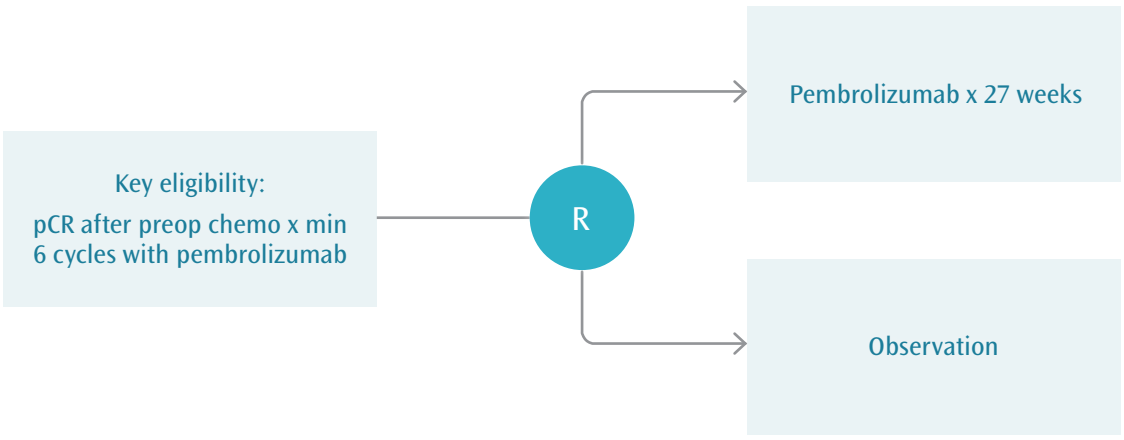
The KEYNOTE-522 trial randomized 1,174 patients with clinical T1N1-2 or T2-4N0-2 TNBC to preoperative pembrolizumab plus chemotherapy or placebo plus chemotherapy. Following preoperative therapy, all patients in the trial underwent surgery, then continued pembrolizumab or placebo to complete a year. The trial's coprimary endpoints were pathologic complete response (pCR) and event-free survival (EFS).

After the first 602 randomized patients underwent surgery, an interim analysis was performed that showed a pCR rate of 64.8% in patients receiving pembrolizumab versus 51.2% in patients receiving placebo, a statistically significant difference.[3] The EFS data were not mature. At the fourth planned interim analysis, after 39.1 months median follow-up, the estimated 36-month EFS rate was 84.5% in the pembrolizumab arm versus 76.8% in the placebo arm, a statistically significant difference.[2] The trial was, therefore, positive for both primary endpoints, leading the US Food and Drug Administration to approve pembrolizumab in combination with chemotherapy in the preoperative setting for early stage TNBC patients.

The approval of pembrolizumab for use in the preoperative setting is particularly important for surgeons who are often the first provider to see newly diagnosed breast cancer patients. Given the survival benefits, it is critical that surgeons identify patients who are eligible for this preoperative therapy regimen of pembrolizumab plus chemotherapy. As detailed above, the trial enrolled patients with cT1N1-2 or T2-4N0-2 TNBC and the EFS benefits were seen regardless of whether

The approval of pembrolizumab for use in the preoperative setting is particularly important for surgeons who are often the first provider to see newly diagnosed breast cancer patients.

FIGURE 1. OptimICE-pCR TRIAL SCHEMA




Stratification factors:

- Baseline nodal status
- Receipt of anthracycline chemotherapy: yes vs. no

the patient's tumor expressed PD-L1.[2] Therefore, there is no need to send the biopsy specimen for PD-L1 testing to identify patients who may benefit from the addition of pembrolizumab to chemotherapy. The benefit was apparent regardless of the patient's clinical nodal status, suggesting that all patients who met eligibility criteria potentially benefitted.

When our group at the Dana-Farber Brigham Cancer Center, Boston, MA, initially discussed the trial data, one cohort of interest was patients with cT1c tumors and a negative clinical exam. These patients would have been ineligible to participate in the KEYNOTE-522 trial. In an analysis presented at the Society of Surgical Oncology 2022 International Conference on Cancer Care, we looked at cT1cN0 TNBC breast cancer patients who underwent surgery as their initial intervention to determine rates of pathologic node positivity. In our institutional database, which included 175 cT1cN0 patients undergoing surgery upfront, approximately 15% had pathologically node-positive disease. Similarly, in a cohort of 18,608 patients identified in the American College of Surgeons National Cancer Database, approximately 11% were pathologically node-positive.[4]

Based on these data, we have begun routinely performing axillary ultrasound to identify patients with nodal disease who may benefit from preoperative therapy with pembrolizumab plus chemotherapy. Another important point for surgeons to recognize is that patients who receive pembrolizumab can experience immune-related toxicities, some of which can be lifelong. In the KEYNOTE-522 trial, immune-related adverse events (irAEs) of any grade occurred in 33.5% of patients receiving pembrolizumab; 12.9% were grade 3 or greater.[2] The most common irAEs were hypothyroidism (15.1%) and hyperthyroidism (5.2%). Of importance to surgeons was the 2.6% rate of adrenal insufficiency. The symptoms of adrenal insufficiency can be nonspecific, including nausea, loss of appetite, weight loss, fatigue, hypoglycemia, and hypotension. The diagnosis, therefore, may be difficult to make without additional testing.

At the Dana-Farber Brigham Cancer Center, our practice is to check morning cortisol levels at baseline and at completion of the preoperative pembrolizumab before the operation. Patients found to have adrenal insufficiency are referred to endocrinology. The finding of adrenal insufficiency does not instigate a change in the operative

It is important to draw surgeons' attention to a pending clinical trial that will address whether patients experiencing a pCR require a full year of pembrolizumab.

plan; however, anesthesia will administer hydrocortisone preoperatively. The Society for Immunotherapy of Cancer has published a comprehensive review of the management of irAEs, but it predated the approval of any immunotherapeutic agent in the neoadjuvant setting, so it does not address this particular question.[5] New guidelines to address specifics of preoperative immunotherapy are in development.

KEYNOTE-522 was a critical trial that informed management of early stage TNBC; however, a number of questions remain:

- What is the optimal chemotherapy backbone?
- What are the biomarkers of response and toxicity?
- Do we need to continue a full year of pembrolizumab in patients experiencing a pCR?

A discussion of these issues is outside the scope of this piece. Nonetheless, it is important to draw surgeons' attention to a pending clinical trial that will address whether patients experiencing a pCR require a full year of pembrolizumab. This question will be addressed in OptimICE-pCR, a clinical trial led by Sara Tolaney, MD, and the Alliance for Clinical Trials in Oncology. OptimICE-pCR will randomize patients who receive preoperative pembrolizumab plus chemotherapy and experience a pCR to complete a year of pembrolizumab or observation (see Figure 1, page 57). The trial's primary objective is to determine whether observation is noninferior to adjuvant pembrolizumab with respect to invasive disease-free survival. Surgeons are encouraged to consider enrolling their patients with pCR after pembrolizumab plus chemotherapy in this important study. ♦

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## A look at The Joint Commission:

# Ensuring the Safe Reuse of Critical Instruments and Devices

by Lenworth M. Jacobs Jr., MD, MPH, FACS

Every day, surgical instruments and other critical devices—those that enter sterile tissues—are reprocessed and reused in hospitals, ambulatory surgery centers, and other healthcare facilities. Consequently, the costs of physical space, supplies, equipment, and personnel to reprocess and sterilize reusable devices can become burdensome, and some organizations choose to use disposable instruments and devices for critical procedures in some or all areas of their facility.

For organizations performing reprocessing, ensuring that those instruments and devices are reusable—meaning they are in good condition and can be cleaned and sterilized following validated manufacturer instructions—is critical to patient safety. Issue 64 of The Joint Commission's *Quick Safety*—"Ensuring critical instruments and devices are appropriate for reuse"—examines this topic.

The newsletter notes that "careful inspection of critical instruments and devices for soil or damage, including but not limited to bioburden, oxidation, corrosion, pitting, discoloration, cracking, peeling, chipping, lifting or improperly applied identification tape, or etching that leaves rough or frayed edges, is a critical step in protecting patients from potential cross-contamination."*

## Effective Interventions

The *Quick Safety* newsletter notes that effective interventions to prevent reprocessing of instruments or devices that are inappropriate for use include:

- Standardized instrument and device visual inspection occurring during each step of the decontamination, cleaning, and sterilization processes with final inspection before use and removal of any instrument inappropriate for use

For organizations performing reprocessing, ensuring that those instruments and devices are reusable—meaning they are in good condition and can be cleaned and sterilized following validated manufacturer's instructions—is critical to patient safety.

*The Joint Commission. *Quick Safety*. Issue 64. Ensuring critical instruments and devices are appropriate for reuse. February 2022. Available at: https://www.jointcommission.org/resources/news-and-multimedia/newsletters/newsletters/quick-safety/quick-safety-issue-64/. Accessed March 24, 2022.

- An infection preventionist review of critical instruments and devices during the purchasing process
- Having the manufacturer's instructions readily available for use and review
- Education, training, and competency of staff who are responsible for reprocessing, oversight, or supervision of reprocessing sterile products regarding their role in the reprocessing of reusable instruments and related job duties
- Effective maintenance and refurbishment processes, as well as replacement plans for items that cannot be refurbished or are no longer suitable for use
- Use of rinse water that meets the device manufacturer's instructions for use
- Compliance with maintenance instructions for all devices and equipment used for reprocessing, such as automated dilution and flushing devices, ultrasonic cleaners and washer decontaminators, sterilizers, and water treatment systems
- Education, training, and competency of staff handling instruments at the point of use to ensure that they understand which instruments should or should not be reused and what to do if an item that should not have been reprocessed is identified
- Understanding of the key issues that can lead to damaged instruments and devices and how to avoid instrument damage, including:
  - Using fragile instruments meant for delicate procedures for other procedures
  - Exposing instruments for prolonged periods of time to blood and other body fluids or allowing those substances to dry on instruments
  - Using saline, corrosives, or abrasives
  - Transporting instruments in a way that could lead to damage

The issue of *Quick Safety* also lists special considerations for single-use devices. ♦

## Disclaimer

The thoughts and opinions expressed in this column are solely those of Dr. Jacobs and do not necessarily reflect those of The Joint Commission or the American College of Surgeons.

## DEI in Action:

# Patching the Leaky Pipeline:
## Increasing Diversity in Surgery through Parallel Initiatives Targeting Four Educational Levels

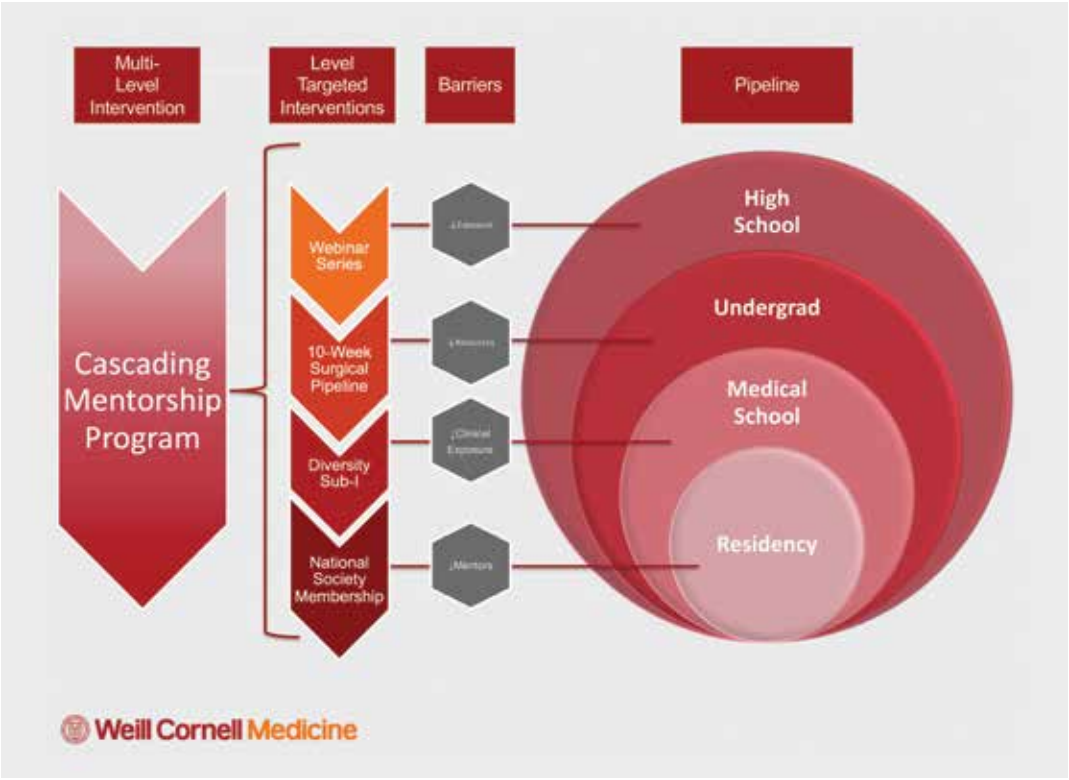
by Solange Bayard, MD,
James G. Connolly, MD,
Josh Johnson, MD,
Misha Armstrong, MD, MPH,
Emily Manin,
Brenden A. Bratton,
Reine-Marcelle Ibala,
Katherine Taylor Fortson,
Taylor Wallace,
Hillary Polk,
Lamisha Shah,
Tamika Gillot,
Minerva Romero Arenas, MD, MPH, FACS,
Vivian Bea, MD, FACS,
Fabrizio Michelassi, MD, FACS,
Stephen Oh, MD, MS, FACS,
and Lisa Newman, MD, MPH, FACS

Diversity in healthcare improves patient outcomes, mitigates healthcare disparities, and fosters scientific innovation.[1-3] However, Blacks; Latinos; Native Americans; Native Hawaiians and Pacific Islanders; individuals who identify as lesbian, gay, bisexual, transgender, queer (LGBTQ+); and low-income people are disproportionately underrepresented in medicine (URiM).[4] Lack of diversity is particularly evident among surgeons, resulting from underrepresentation and disproportionate attrition.[5] Blacks, for example, represent 13% of the US population, yet account for only 8% of medical school applicants, 6% of matriculating medical students, 5% of surgical residents, and 2% of full professors of surgery.[6] This trend in attrition is characterized as the "leaky surgical pipeline."

The underrepresentation of minorities in surgery is multifactorial and the cumulative result of disproportionate challenges that candidates face. URiM students have less exposure to careers in medicine and role models.[7-10] Standardized exams have racial bias and lack correlation to clinical performance.[11] Socioeconomic factors, including access to study materials, contribute to gaps in academic achievement.[12] In addition, implicit bias and microaggressions negatively influence feedback, interviews, and promotions.[13,14]

Several events in 2020, including the COVID-19 pandemic and the Black Lives Matter movement, forced our country to confront systemic racism in all aspects of society, including public health. Heightened awareness of our need to strengthen the healthcare workforce through increased diversity led to a national call to action to increase URiM representation. This national effort respects the importance of all aspects of diversity in the health professions across the domains of race/ethnicity, culture, gender identity, and sexual orientation.

FIGURE 1. WCM/NYP HOSPITAL NETWORK PIPELINE PROGRAM




## New York Hospital Network Creates Multilevel Pipeline

The American College of Surgeons robustly responded to the call for achieving health equity through improved diversity in the surgical workforce by establishing the Diversity, Equity, Inclusion, and Anti-Racism Grant Program. The Weill Cornell Medicine (WCM)/New York Presbyterian (NYP) Hospital Network, NY, is proud to report on our use of this funding to support a multilevel pipeline program for prospective surgeons.

Pipeline programs have proven effective in supporting URiM students to enter their field of interest by mitigating attrition and increasing matriculation to medical school. Most pipeline programs focus on one educational level and customize programming with level-appropriate support. These programs can mitigate level-specific barriers, but the impact often is limited to one subgroup. Alternatively, multilevel pipeline programs have the potential for synergistic and longitudinal impact.

The WCM/NYP department of surgery established an Anti-Racism Committee (ARC) in October 2020, inclusive of surgical faculty and trainees from the Manhattan, Brooklyn, and Queens, NY, hospital campuses. Our surgical pipeline program includes targeted initiatives for four education and training levels, as well as a mentoring program that uses the concepts of intergenerational learning—a system in which knowledge, values, and practice cascade from one generation of health professionals to another.

Through a series of preprogram focus group discussions, we defined the barriers facing URiM high school students, undergraduate students, medical students,

Heightened awareness of our need to strengthen the healthcare workforce through increased diversity led to a national call to action to increase URiM representation.

and surgical residents. Using a combination of level-specific interventions and programming focused on systemic barriers, this surgical pipeline program aims to increase the number of URiM surgeons while engaging mentors who can be paired with junior colleagues (See Figure 1, page 62).

## Goals of the Program

The strategic aims for each level of student or trainee are:

### Address URiM high school student barriers

URiM high school student barriers include lack of early exposure to careers in medicine/surgery, fewer learning opportunities, and lower self-efficacy.[15] To increase exposure to careers in surgery at a young age, the ARC High School Pipeline Program highlights URiM role models in a webinar series, which focuses on paths to a career in surgery, tools to overcome barriers, and opportunities for high school students. Webinars are open to all URiM high school students and advertised widely.

### Address URiM undergraduate student barriers

URiM undergraduate student barriers include sparse clinical opportunities and inadequate guidance.[16] ARC implemented a 10-week surgery exposure and skills-based course providing resources for professional development, medical school application, and surgical exposure through a lecture series with supplemental online assignments. Topics included surgical subspecialties such as gender-affirming surgery, global surgery, journal club, Medical College Admission Test tips, professionalism, personal statements, and interview workshops.

### Address URiM medical student barriers

URiM medical student barriers include inadequate surgical clerkship experience and few role models.[16] URiM medical students will be offered visiting sub-internships with the program director or chair of the department to increase clinical exposure and evaluate their clinical abilities before they apply for residency. In addition, monthly networking events with medical students and residents will take place to foster mentorship.

### Address URiM surgical resident barriers

URiM surgical resident barriers include few role models from similar backgrounds and decreased social and educational support.[10,17] To improve the visibility of URiM

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*continued on next page*

This national effort [toward increased URiM representation] respects the importance of all aspects of diversity in the health professions across the domains of race/ethnicity, culture, gender identity, and sexual orientation.

role models and increase access to resources, URiM surgical residents will be supported to become members of national organizations, such as the Society of Black Academic Surgeons, Latino Surgical Society, National Medical Association, and Health Professionals Advancing LGBTQ+Equality. The program will support the costs of attending one national meeting annually for each resident to increase networking and social support.

### Address common barriers through cascading surgical mentorship

URiM trainees at all levels of the pipeline have fewer mentors. All URiM students involved in ARC pipeline programs will be included in surgical mentorship families. Mentoring Cascade teams comprise URiM faculty, fellows, residents, and medical students, which allows for mentorship at every level of training and creates a cascade of relationships. The exchange of knowledge, values, and practice will help to foster strong surgical mentorship bonds.

The program's impact will be measured by internal quality assessments and observational studies. Participants complete pre- and postprogram surveys, providing feedback and perspective. The program also collects longitudinal data on whether participants complete additional pipeline programs, matriculate to medical school, or apply to surgical residency. The program is monitored in real time through bimonthly assessments with the project leads and project administrator. Updates are reported at the bimonthly ARC meetings.

It is anticipated that this program will increase matriculation to medical school and surgical residency by fostering exposure to careers in surgery, development of surgical skills, and surgery-specific mentorship. ♦

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Franklin Martin, MD, FACS,
Founder of the American College of Surgeons

## From the Archives:

# The Buxton Mission School, the Original "Pipeline" of Black Surgeons: Part 2

by Don K. Nakayama, MD, MBA, FACS

**Editor's note:** The following is the second of two "From the Archives" articles regarding the Buxton Mission School and its surgeon graduates. The first article ran in the March 2022 issue of the *Bulletin*.

A 19th century example of an educational "pipeline" that directed promising Black students toward careers in medicine was the Buxton Mission School. Founded in 1846 in western Ontario, the school educated the children of enslaved Blacks from the American South who arrived by way of the Underground Railroad.[1] Four of its six students in Buxton's inaugural class of 1850 became physicians,* of whom three served as surgeons to the Union Army in the Civil War.[2] The founding of the school was described in Part 1 of this series.

*Note: The fourth Buxton physician was Richard Johnson, who attended medical school at Edinburgh University, Scotland, and became a missionary in Africa. Buxton's two nonmedical alumni were Thomas Stringer, who built churches and schools in Ontario and in Mississippi, where in 1869 he became the first Black state senator; and Alfred Lafferty, who graduated from the University of Toronto and became a well-known lawyer and educator.

### Anderson R. Abbott, MD

The parents of Dr. Abbott (see photo, page 66) emigrated from Alabama to western Ontario in 1835, where their children could freely learn to read and write, a right denied Blacks in the antebellum South. After studying at Buxton, Dr. Abbott attended colleges in Toronto and Ohio before receiving a degree in medicine from the Trinity Medical College, Toronto.[3]

Dr. Abbott received a commission in the Union Army in the Civil War. Assigned to the Contraband Hospital in Washington, DC, he later served as the executive officer of the facility.

In April 1865, Dr. Abbott was among the physicians attending President Lincoln after his assassination. He received one of Lincoln's shawls from Mrs. Lincoln as a memento of his service to the President.[4] In 1894, he was appointed surgeon-in-chief of Provident Hospital in Chicago, IL, succeeding its founder, Daniel Hale Williams, MD, FACS.[2]

### Jerome R. Riley, MD

Born in 1840 in Detroit, MI, Dr. Riley (see photo, page 66) was only 4 years old when his family moved to Canada, where he attended the Buxton Mission School. After passing the examination in medicine in 1861, he set up practice in western Ontario.[5] Like Dr. Abbott, Dr. Riley joined the Union Army in 1864 as a member of the Contraband Hospital surgical staff.

After the war, he completed a formal degree in medicine in 1873 at Howard University, Washington, DC. He settled in Pine Bluff, AR, where he was the county physician and coroner. Unlike most Blacks in the South who were members of the Republican Party, Dr. Riley was an active Democrat, and served as a delegate to the state's constitutional convention of 1874 that ushered the state's re-entry into the Union.

### John H. Rapier Jr., MD

Dr. Rapier (see photo, page 66) was connected through his grandmother to John Catron,

OBLATE SISTERS OF PROVIDENCE

Dr. Anderson Abbott

PUBLIC DOMAIN

Dr. Jerome R. Riley

ANNE STRAITH JAMIESON FONDS, & SPECIAL COLLECTIONS, WESTERN LIBRARIES, WESTERN UNIVERSITY, LONDON, ON

Dr. John H. Rapier Jr.

one of the seven Supreme Court Justices in the majority in the Dred Scott decision of 1857.[2] Born in Florence, AL, Dr. Rapier and his two brothers were sent to Chatham to attend the Buxton Mission School.

He believed emigration was the only feasible route to liberty. Unable to get sponsorship to resettle in Liberia, he briefly looked to Nicaragua under William Walker, a soldier of fortune who was purportedly fighting for the freedom of its native people.[2] He also tried Haiti and Jamaica but was unable to surmount cultural and language barriers and poverty even more dire than in the American South.

Dr. Rapier returned to the US, where he studied medicine, first at the University of Michigan, Ann Arbor, then at the College of Physicians and Surgeons of Keokuk, IA, where he received his degree in 1864. Degree in hand, Dr. Rapier received a position as a medical officer in the US Army and was assigned to the Contraband Hospital.[2]

Dr. Rapier died in Washington, DC, sometime in 1865 from unknown causes at age 30—a tragic illustration of an intelligent, energetic man frustrated at every turn by the racial strictures of American society.

*Black Surgeons and Surgery in America* is available for free download and hard copy for purchase at *facs.org/publications/black-surgeons-and-surgery-in-america*. ♦

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# ACS COT Centennial Celebration Promotes Vision for the Future and a Transition in Leadership

by Tony Peregrin

The American College of Surgeons Committee on Trauma (ACS COT) hosted its 100-year anniversary celebration at its Annual Meeting, March 9–12 in Seattle, WA. Total registration for the event—the first in-person ACS COT Annual Meeting since 2019—was 743, with 571 in-person registrants, including staff, and 172 virtual registrants.

COT members, past COT leaders, Scudder Orators, Advanced Trauma Life Support® (ATLS®) Program partners from around the globe, and other colleagues attended the meeting, which recognized the committee's history of improving trauma care. Since its founding, the COT has transformed the care of the injured patient by setting standards for emergency trauma care and industrial, automobile, and traffic safety, and is now working to support firearm injury and violence prevention, among other activities.

The theme of the 100th anniversary celebration is Looking to the Future through the Lens of Legacy, which underscores the role of the next generation of trauma surgeons in furthering the COT's mission of developing and implementing programs that support injury prevention and ensure optimal patient outcomes.

A commemorative book, also titled *Looking to the Future through the Lens of Legacy,* is available for purchase at *https://image3.source4.com/welcomehybrid.asp?UID=236634*. In addition, an interactive timeline (*cot100.facs.org/#timeline*) was developed to provide a visual representation of the people and events that shaped how surgeons care for the injured patient.

A highlight of the meeting was the transition in leadership, with Jeffrey D. Kerby, MD, PhD, FACS, installed as Chair of the ACS COT. Dr. Kerby is the 21st Chair of the COT and succeeds Eileen M. Bulger, MD, FACS, in this role.

Program highlights included leadership reports from the ACS COT Advocacy, Quality, Education, and Systems Pillars, updates from Regional Committees, and the 45th Resident Trauma Papers Competition. First- and second-place winners in Basic Laboratory Science and Clinical Research were announced at the COT 100th anniversary banquet.

Presentations that focused specifically on the influence of the ACS COT on the evolution of trauma care included Reflections on the Impact of the COT, Recognition of Military Service, The Regional COT and Global Engagement, and Looking to the Future. These presentations are freely available for all to view at *bit.ly/3ju4HBh*.

## Reflections on the Impact of the COT

This session featured past Chairs of the COT, including David B. Hoyt, MD, FACS, former ACS Executive Director (COT Chair, 1998–2002); J. Wayne Meredith, MD, FACS, MCCM, the 2020–2021 ACS President (COT Chair, 2002–2006); John Fildes, MD, FACS (COT Chair, 2006–2010); Michael F. Rotondo, MD, FACS (COT Chair, 2010–2014); and Ronald M. Stewart, MD, FACS, (COT Chair, 2014–2018).

"This really is a momentous event," said Patricia L. Turner, MD, MBA, FACS, ACS Executive Director. "You are the most

Dr. Patricia Turner


Dr. Ronald Stewart

influential force in trauma care today," she added. "I am sure Dr. [Charles L.] Scudder would be incredibly proud of the all the accomplishments of the COT."

"The energy and impact of COT education is like the Old Faithful Geyser—impressive, and it looks like incredible energy, and it is," said Dr. Meredith, who spoke virtually on The Impact of COT in Education. "But it represents an even more enormous energy beneath the surface, which periodically bursts forth to amazing effect."

Dr. Meredith noted that millions of individuals worldwide have been trained in COT programs including ATLS, Rural Trauma Team Development Course™ (RTTDC), Advanced Surgical Skills for Exposure in Trauma (ASSET), Advanced Trauma Operative Management (ATOM®), Basic Endovascular Skills for Trauma (BEST), STOP THE BLEED®, and other courses. "But perhaps the most important impact of the trauma education programs is the way they bring us together to develop courses, promulgate courses, and teach the courses. Trauma education binds all of us to a common mission."

In a session titled Quality Improvement: From Analog to Digital, Dr. Fildes outlined the pathway for how COT quality improvement migrated to a digital format:

- 1982: The Major Trauma Outcome Study was commissioned, with data extracted from 80,544 records by hand and analyzed by computer.
- 1988: The Centers for Disease Control and Prevention convened a group to define a data set for trauma.
- 1989: The ACS Board of Regents committed significant resources to establish the National Trauma Data Bank® (NTDB®).
- 1995: The ACS COT convened a consensus conference to define the 86 NTDB data elements.
- 1997: The first call for data was issued.
- 1999: The NTDB was analyzed and plans for an Annual Report were made.

"More than 1,515 publications have been developed from NTDB and Trauma Quality Improvement Program® (TQIP®) data," Dr. Fildes said, including a growing number of ACS COT best practice guidelines. "We are on a curvy, uphill, unpredictable path," he said, referring to the evolving nature of quality improvement data.

Dr. Stewart outlined the early history of injury prevention in the ACS COT, noting that three factors have led to the decrease in injury-related deaths:

- Reduction in exposure to dangerous jobs (such as mining, manufacturing, and farming) and enhancements to safety improvements in the areas of transportation and housing
- Enhancements in the medical care provided to injured patients, many of which originated with the military
- Development of evidence-based injury control strategies, such as those related to motor vehicle safety

Regarding firearm injury prevention, Dr. Stewart noted that the COT followed specific guiding principles, including viewing the issue as a medical/public health problem rather than a political issue, seeking out evidence-based violence prevention

Members of COT Region 13 representing the four branches of the US Armed Forces, present a gift at the COT Annual Meeting recognizing the valued partnership between the ACS COT and the military. From left: Colonel Stacy A. Shackelford, MD, FACS, USAF, MC, Dr. Margaret Knudson, Colonel Jay A. Johannigman, MD, FACS, USAR, Dr. Eileen Bulger, Commander Travis M. Polk, MD, FACS, USN, and Lieutenant Colonel Brian J. Gavitt, MD, MPH, FACS, USAF, MC.

programs, and establishing a forum for professional dialogue to develop consensus.

Dr. Rotondo outlined the goals of the ACS COT Trauma System Evaluation and Planning Committee (TSEPC) in a session titled Trauma System Development: Health Policy and Advocacy. Dr. Rotondo, the third chair of the TSEPC, noted that the committee's aim of fostering trauma system development nationwide is driven by expanding the scope of the consultation program, broadening federal partnerships, and advocating for trauma system funding. Development and implementation of a National Trauma and Emergency Preparedness System (NTEPS) at the federal level, based on the 2016 National Academies of Sciences, Engineering and Medicine (NASEM) report, will support the daily needs of the injured patient and serve as the framework for mass casualty and disaster response and support. Dr. Rotondo emphasized the role of strong leadership at the federal level and ongoing advocacy efforts to implement a national system that supports state and regional systems and unites them within a common framework.

"My message to you today is that we are at a critical time right now when it comes to advocating for the right kind of quality improvement," Dr. Hoyt said in his presentation, The COT and the American College of Surgeons. "Just as [Ernest A.] Codman, [MD, FACS,] faced real dilemmas when it came to transparency about care…we are at a critical time when it comes to authentic quality improvement that truly improves care."

"The quality model, with the four guiding principles of continuous quality improvement that the COT established… is the way that we establish public trust," he said. Those principles include standards, infrastructure, rigorous data, and verification, he said, noting that all 17 ACS Quality Programs are based on these four principles.

"The ACS and the COT inspire each other," Dr. Hoyt said, pointing out that visionary leadership, system development, and research are integral to patient-centered care in the future.

In a brief video, C. Thomas Thompson, MD, FACS, (COT Chair 1978–1982), highlighted key milestones in the COT's ongoing efforts to eliminate preventable death and disability from injury.

## Recognition of Military Service

"Approximately 90% of ACS Fellows participated in World War II, many from academic surgery programs," said M. Margaret "Peggy" Knudson, MD, FACS, Medical Director, Military Health System Strategic Partnership–ACS (MHSSPACS). At the end of World War II, surgeons who had served during the conflict gathered at the Excelsior Hotel in Rome, Italy, to discuss their experiences. This was the first meeting of what would be called the Excelsior Surgical Society, noted Dr. Knudson. The meetings continued annually until the death of the last World War II veteran

Dr. Eileen Bulger

Dr. Sharon Henry

member, Michael E. DeBakey, MD, FACS. In 2015, with the experiences from the conflicts in the Middle East and the renewed interest in combat casualty care, the Excelsior Surgical Society was revived, and the College was designated as its official home. At present, the Excelsior Surgical Society has more than 350 active members and offers a full day of programming at the annual Clinical Congress, including two Named Lectures.

Today, the primary objectives of the MHSSPACS include sharing information about surgical quality, trauma systems, surgical education, research, and more.

Future MHSSPACS goals include participating in a national trauma and emergency preparedness system; expanding trauma and emergency care throughout the US, including key military treatment facilities (part of the military-civilian partnership and the readiness mission); and expanding response to disasters by involving US military personnel.

Select attendees participated in a special recognition of all ACS members who have served or are actively serving in the military, as well as those who have participated in the Senior Visiting Surgeons Program. More than 65 members were honored with a Military Challenge Coin, which recognizes achieving success at the end of a mission, marks camaraderie in an elite group of individuals, and honors the actions of all coin recipients.

A letter from former US President Barack Obama, which describes his support of the mission and accomplishments of the COT and, in particular, "the heroic contributions of military surgeons," was displayed during this session.

## Regional COT and Global Engagement

Speakers who outlined the history and global impact of the Regional Committees on Trauma included Dr. Bulger, Raul Coimbra, MD, PhD, FACS (COT Vice-Chair, 2010–2015), Karen J. Brasel, MD, FACS (ATLS International Chair, 2014–2018), and Maria F. Jimenez, MD, FACS (past-Region 14 Chief, Chair International Injury Care Committee, 2016–2019). Sharon Henry, MD, FACS, ATLS Global Program Chair, and Patrick M. Reilly, MD, FACS, Vice-Chair of the ACS COT and Chair of the Regional Committee on Trauma, provided a brief overview of the session.

Dr. Bulger described the evolution of the Regional Committees, which began when Dr. Scudder charged members of the original Committee on Fractures (COF) with forming local committees to advance fracture care. "By 1947, there were 87 local committees with more than 1,800 members. To manage this growth, the COT divided the US and Canada into 13 regions and established new Section Chief roles," Dr. Bulger said.

The accomplishments of the Regional Committees include:

- Setting standards for ambulance equipment and training providers
- Setting standards for emergency departments
- Implementing the National Safety Council state motor vehicle safety program
- Establishing the first ATLS course
- Developing the surgical skills course
- Forming the RTTDC and the Disaster Management and Emergency Preparedness Course

Dr. Jeffrey Kerby

Dr. Kimberly Joseph

At present, the COT has 10 US regions, two Canadian regions, one military region, and four international regions for a total of 17 Regional Committees on Trauma worldwide. "The grassroots of the COT are the regional committees," Dr. Bulger said.

"In 2011, we had a dream to create a strategy to increase our international reach," Dr. Coimbra said. "Trauma is a global disease that has been neglected globally. Our ultimate goal is to improve trauma care globally," he said, noting that the goals of the COT international regions include:

- Develop local, regional, and national trauma systems
- Develop performance improvement processes in trauma care tailored to the reality and needs of the country
- Promulgate the educational opportunities of the ACS COT according to the needs of the country, including ATLS, PHTLS, ASSET, ATOM, DMEP, and RTTDC
- Collaborate with other stakeholders, societies, and specialty groups to improve the care of the injured patient

Dr. Coimbra also described the evolution and aim of the International Injury Care Committee, which seeks to advance the care of injured patients through education, advocacy, and quality improvement based on a foundation of understanding, trust, collaboration, and a free exchange of ideas.

Dr. Brasel summarized the global promulgation of ATLS, now in its 10th edition, which is the standard for educating physicians about early care of the injured patient. The course, which is region-run and offered in 84 countries in seven languages, has expanded to the point that the annual number of courses offered outside the US exceeds the number given within.

The Trauma Evaluation and Management (TEAM) Course, adapted from ATLS core content, provides a standardized introductory course in the evaluation and management of trauma specifically for medical students and multidisciplinary team members.

Dr. Jimenez described the evolution of the Latin America and the Caribbean Trauma Center Consultation and Verification Program and how that initiative intends to provide "a cost-effective framework from which global trauma systems can be developed worldwide." She said the program "places trauma as a high health priority" and promotes the development of legislative health policies. A crucial initial step for this verification program was translating *Optimal Resources for the Care of the Injured Patient* into Spanish and Portuguese.

Dr. Jimenez and a team from Region 14 translated the text, adapting the US standards to create a manual that is relevant to the medical culture and conditions of that region. The first edition of the translated text was completed in January 2017.

Dr. Jimenez also covered lessons learned from trauma center site visits and the criteria for becoming a Region 14 verification reviewer. (This pilot program is still in development.)

Dr. Henry moderated a panel featuring the perspectives of both present and past international region chiefs regarding the role of the COT within their regions

2022 Resident Trauma Papers Competition presenters, discussants, and moderators

and surgical societies. Panelists included George Abi Saad, MD, FACS, Michael Hollands, MD, FACS, Scott D'Amours, MD, FACS, Saud Al Turki, MBBS, FACS, Andrew Baker, MD, and Joakim Jorgensen, MD, FACS.

## Looking to the Future

Present and future COT leaders summarized new initiatives and emerging projects, particularly as they relate to the future of trauma care. Presenters included Avery Nathens, MD, PhD, FACS, FRCSC (Medical Director, ACS Trauma Quality Programs), Brian Eastridge, MD, FACS (Chair, ACS COT Trauma Systems Pillar and Committee), Kimberly Joseph, MD, FACS, FCCM (outgoing Chair, ATLS Committee and incoming COT Education Pillar Chair), Brendan T. Campbell, MD, MPH (Chair, ACS COT Injury Prevention and Control Committee), John H. Armstrong, MD, FACS (Chair, ACS COT Advocacy Committee), Meera Kotagal, MD, MPH, FACS (a participant in the Future Trauma Leaders Program, 2020–2022), and Dr. Kerby (outgoing Chair, ACS COT Membership Committee, and, as previously stated, incoming Chair, ACS COT).

Dr. Nathens underscored the importance of patient-reported outcome measures (PROMs). "PROMs assess the outcomes and value of care from the patient perspective," Dr. Nathens said, noting that these measures reveal whether an operation or intervention was successful based on why the patient sought care and whether the treatment aligned with initial goals of care.

A TQIP PROMs pilot is set to launch this year, and participating sites will have access to a data collection platform that will allow patients to enter their own data. The PROMs in the pilot include mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Additional pilot measures include questions assessing the ability to participate in social activities and measures related to care transition.

Patients will provide feedback at 1-, 6-, and 12-month intervals. "Over time, data will inform treatment decisions and lead to innovative models of care focusing on trauma survivorship," Dr. Nathens said.

Dr. Eastridge highlighted the COT Trauma Systems Pillar's mission to "develop and lead programs, initiatives, and collaborative efforts that optimize regional and state trauma systems and establish a framework for a national trauma system to reduce preventable deaths and disability."

He summarized the history and evolution of trauma system development via a condensed timeline of milestones, beginning with the 1966 report from the National Research Council, *Accidental Death and Disability: The Neglected Disease of Modern Society,* through the publication of the NASEM *National Trauma Care System Report* in 2016.

As for the future of trauma systems, Dr. Eastridge said a primary focus for trauma leadership is to develop a NTEPS that would:

- Reduce rates of injury in the population
- Ensure timely access to equitable, high-quality care
- Enhance survivability and minimize disability for injured patients

Dr. Turner (standing, second from right) with COT Chairs. Standing, from left: Drs. Michael Rotondo, David Hoyt, and John Fildes. Seated, from left: Drs. Jeffrey Kerby, Eileen Bulger, and Ronald Stewart.

- Maximize survival after mass casualty events
- Accelerate high-quality research to advance trauma care

Dr. Joseph called on educators to "embrace adult education theory, instructional design principles, and project management skills," with enhanced attention to ensuring diversity, equity, and inclusion (DEI). "When we look at our content, we need to always ask ourselves, 'What voices need to be heard that are not in the room?'" she said.

An updated MyATLS app is in development, she said, noting that the new version will be more agile, easier to update, and include elements of gamification and more personalized education.

Dr. Campbell noted that the key to injury prevention includes advocacy at the federal and state levels with a focus on primary prevention, which targets risk factors for injury and disease, and primordial prevention, which targets social and economic policies affecting health. Dr. Campbell said the "COT has, and will continue to make, an enormous difference" in injury prevention, which he called a "major public health problem that typically follows predicable patterns." He noted, "Many interventions are possible. The trick is to pick the most cost-effective one."

"Advocacy moves minds and hearts to act," said Dr. Armstrong. He identified pathways for trauma surgeons to engage in advocacy, including resources available at *surgeonspac.org, surgeonsvoice.org,* legislator-staff visits, and voting. "Let's hear what some decision-makers in Washington have to say about what is on their minds when it comes to what we do," he said, introducing a video clip of policymakers outlining their support of the ACS mission to provide affordable, high-quality care.

Dr. Kerby outlined the six primary principles that underpin the COT's DEI Work Group: diverse representation, inclusive leadership, structural competency, accountability, lifelong learning, and sharing evidence-based knowledge. "We want to incorporate these DEI principles into strategic planning across all of the COT pillars and align our DEI initiative with the larger ACS DEI efforts," Dr. Kerby said.

"Looking to the future, we're going to have great leadership," Dr. Kerby added, introducing the incoming COT Membership Committee Chair, Krista Kaups, MD, MSc, FACS.

Dr. Kerby also highlighted the Mentoring for Excellence in Trauma Surgery (METS) Program, established in 2015, which includes participants from the Future Trauma Leaders (FTL) Program, liaisons from the ACS Resident and Associate Society and Young Fellows Association, and the COT's Firearm Injury Prevention Clinical Scholars. METS participants are paired with a mentor and assigned to research, quality improvement, injury prevention, advocacy, or education projects in their areas of interest and work appointed to COT committees for 2 years.

A video, "Advice to Young Trauma Surgeons," concluded Dr. Kerby's presentation. The video features clips of more than 40 interviews with trauma surgeons discussing mentorship, the benefits of collaboration, finding your niche, advice for problem solving, and the importance of putting the patient first. Interviewers included Drs. Kerby, Bulger, Hoyt, and Stewart.

"As we look to the next 100 years of the COT, the future lies in equity."

—Dr. Kotagal

Dr. Kotagal offered the perspective of a future trauma leader. "As we look to the next 100 years of the COT, the future lies in equity," said Dr. Kotagal, who participated in the FTL Program from March 2020 to October 2022. "How do we improve outcomes, including long-term functional outcomes, for all our patients, so that the outcome for the patient who happens to be injured is not dependent on where they are born or who they were born to?" she asked, noting that the COT is "filled with changemakers…who need to develop interventions that target and close equity gaps."

## Conclusion

Throughout 2022 and beyond, the ACS COT will continue to work to raise public awareness of traumatic injury as a major public health issue and advocate for investment in the development of a national trauma and emergency preparedness system.

The ACS COT will continue the 100th anniversary celebration in conjunction with the ACS Clinical Congress 2022, October 16–20, in San Diego, CA, with events such as the Scudder Oration on Trauma and a Special Session examining the accomplishments and a vision for the future of the COT. ♦

100 years
Commission on Cancer | 1922–2022

# ACS Cancer Programs Come Together for Annual Meeting and CoC Centennial

More than 200 volunteer leaders, committee members, and American College of Surgeons (ACS) staff gathered in person in Rosemont, IL, and virtually March 22–23 for the 2022 ACS Cancer Programs Annual Meeting. In addition to participating in multiple committee meetings, attendees joined general sessions on topics including cancer staging and synoptic reporting, using the "patients' lens" to restructure standards, and quality improvement initiatives. In addition, ACS Cancer Programs recognized the Commission on Cancer's (CoC's) 100-year anniversary.

"As medical director of the seven cancer programs, I see each program as being unique. Each one makes a special contribution to improving cancer care," said ACS Cancer Programs Medical Director Heidi Nelson, MD, FACS. "And yet, when we meet and work together as we did during the March meetings, I see that we are better together; the sum is much greater than the individual parts."

## Cancer Programs

The American Joint Committee on Cancer (AJCC) Editorial, Education and Promotions, Implementation, and Membership and Bylaws committees met to discuss recent accomplishments and plans for the coming year.

"The AJCC staging system provides a powerful tool for optimum cancer care," said AJCC Chair Robert K. Brookland, MD, FACR, FACRO. "Bringing leaders together and in person was critical to best identify our challenges and opportunities as we move forward."

Members of the National Accreditation Program for Rectal Cancer (NAPRC), Accreditation, Education, Executive, and Quality Committee reviewed many accomplishments, including growth in the number and variety of programs, refinement of standards, and published peer-reviewed data attesting to the value of the NAPRC.

"We will integrate this information as we enter our inaugural reaccreditation year," explained NAPRC Chair Steven D. Wexner, MD, PhD(Hon), FACS, FRCSEng, FRCSEd. "We are eager to collaborate with other ACS Cancer Programs, to share best practices with them, and to work together to improve cancer care."

The Commission on Cancer Accreditation, Advocacy, Education, Member Organization Steering, and Quality Integration committees met over the course of the 2 days. CoC Chair Timothy W. Mullett, MD, MBA, FACS, said they believed the meetings represented a much-needed reunion for CoC colleagues.

"We were able to review progress with the successful Return to Screening Quality Improvement Initiative and Clinical Study," said Dr. Mullett. "We also introduced the new Just ASK Tobacco Assessment in Cancer Programs Quality Improvement Initiative and Clinical Study. We anticipate that most programs in the country will benefit from this project. Additionally, we reviewed the commission's progress with Pediatric Cancer Programs, network settings, and explored the value of rural cancer programs as a mechanism to impact disparities in cancer care in this special population."

The Cancer Surgery Standards Program (CSSP) Content Development and Education Committee also met.

"Our program members thoroughly enjoyed the opportunity to meet and interact in person," said CSSP Chair Matthew H.G. Katz, MD, FACS. "The group is well-positioned to integrate with all the cancer

COC 100th anniversary guests toast the occasion

Dr. Timothy Mullett


Commemorative ice sculpture

From left: Marilyn Winchester, ACS Cancer Programs Program Coordinator Karen Taubert-Boone, and David Winchester, MD, FACS, Past-COC Medical Director

programs to drive forward synoptic operative reporting and improve the quality of surgical care nationwide."

In addition, the National Accreditation Program for Breast Centers (NAPBC) Advocacy and Outreach, Education and Dissemination, Quality Improvement and Information Technology, and Standards and Accreditation Committees met.

"We were able to convey to the other cancer programs the importance and unique nature of sculpting the accreditation process and standards to reflect the patient journey," said NAPBC Chair Scott H. Kurtzman, MD, FACS. "Going forward, we will double down on utilizing the implementation process and quality improvement methodologies in everything we do."

Dr. Nelson noted that a common theme heard across all the programs was the need for standardization, which is essential to the work of improving quality of cancer care.

"We all accept accreditation standards, staging standards, and coding standards for the registries and National Cancer Database," said Dr. Nelson. "We are now starting a new journey, that of standardizing point-of-care documentation of surgical care. It will be an impactful, if long, journey."

## CoC Centennial Celebration

A highlight of the meeting was the Tuesday evening banquet celebrating the CoC's 100th anniversary. In his remarks, Dr. Mullett reviewed the CoC's major accomplishments, honored and thanked past and present leaders and volunteers who have helped to shape and build the CoC, and looked ahead to new ways the CoC will improve cancer care in the future. More information on the anniversary, including historical articles and images, video interviews, and bylined articles, can be found at *coc100.facs.org*.

"This was a memorable evening, recognizing the path we have taken to bring us to today and to be prepared to continue to care for cancer programs and their patients in the future," Dr. Mullett said. ♦

# Register for the 2022 ACS Quality and Safety Conference

Healthcare professionals dedicated to raising the bar on the quality of surgical care and patient safety are invited to attend the 2022 American College of Surgeons (ACS) Quality and Safety Conference (QSC). The conference will take place at the Hilton Chicago, IL, July 15–18.

Sessions at this year's conference will include content from the many established ACS Quality Programs, including the ACS Quality Verification Program (ACS QVP), National Surgical Quality Improvement Program (ACS NSQIP®), Cancer, Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP), Children's Surgery Verification (CSV) Program, and Geriatric Surgery Verification (GSV) Program. Plenary sessions will include experts on:

- Leadership
- Diversity, equity, and inclusion
- Standardization in the quality and safety setting
- Centennial anniversaries of the ACS Committee on Trauma and the Commission on Cancer
- Planetary health
- Framework for establishing a surgical quality program

New this year, the ACS will host the Quality Improvement (QI) Basics Workshop, which will be held in parallel to the conference each day. The workshop will offer a guided, hands-on approach to the implementation and tracking of QI projects in your institution. Workshop participants also will be given access to the online course.

The ACS QSC leaders are looking forward to having attendees back in person and will focus on gathering participants to network and learn from one another. Each evening of the conference, a networking event/social will be held. Throughout the conference, breaks and meals will offer attendees additional opportunities to meet. ACS staff will be available to meet, engage, and answer any questions attendees may have.

A select number of abstracts will be highlighted. All abstracts will be shared through the on-demand platform, which will be made available at the start of the conference.

Additionally, a variety of conference sessions will be recorded and made available on the on-demand platform after the in-person conference. Attendees will be able to claim educational credits on the in-person sessions as well as those made available through the on-demand platform postconference.

Visit the ACS Quality & Safety Conference web page at *facs.org/quality-programs/quality-safety-conference* for details and a link to register. ♦

Dr. Hendren

## In Memoriam:

# Dr. W. Hardy Hendren III, Pioneering Pediatric and Urologic Surgeon

**W. Hardy Hendren III, MD, FACS,** Past-Second Vice-President of the American College of Surgeons (ACS) and recipient of the Jacobson Innovation Award, passed away peacefully at home March 1 in Duxbury, MA. He was 96 years old.

## Childhood and Education

Dr. Hendren was born February 7, 1926, in New Orleans, LA, and raised largely in Kansas City, MO. An excellent student, he sang in the church choir and became an Eagle Scout. He first discovered what would be his lifelong passion—surgery—while dissecting a tadpole, and also was influenced by watching a boyhood friend die from a congenital defect that was incurable at the time.

He attended the Woodberry Forest School in Virginia, graduating in 1943. Dr. Hendren enrolled at Dartmouth College, Hanover, NH, but after a semester enlisted as a US Navy aviation cadet during World War II. He was called to active duty in October 1943. He earned his wings and was carrier-qualified, though peace came before he could be sent into combat.

Dr. Hendren returned to Dartmouth, but not before marrying the love of his life, Eleanor McKenna, in 1947. He earned his bachelor's degree from Dartmouth in 1948 and in 1950 completed Dartmouth's 2-year medical program. He then transferred to Harvard Medical School, where he graduated cum laude in 1952. As a senior at Harvard, it was his inspiration and leadership that created the National Internship Matching plan, now known as the National Resident Matching Program.

After serving as an intern and assistant resident at Massachusetts General Hospital (MGH), Dr. Hendren was a senior surgical resident at Children's Hospital, Boston (now Boston Children's Hospital), where he trained under the pioneering pediatric surgeon Robert E. Gross, MD, FACS. Dr. Hendren served in 1958 as chief surgical resident at MGH under Edward D. Churchill, MD, FACS, and then as chief surgical resident at Boston Children's.

After 8 years of training, Dr. Hendren returned to MGH at Dr. Churchill's request, founding the department of pediatric surgery. He served as chief from 1960 to 1982 and began to specialize in the repair of pediatric conditions that previously had been considered intractable. In 1969, he became the first surgeon in Boston to successfully separate conjoined twins.

## Pioneering Procedures

Dr. Hendren was renowned for his technical prowess, and during his years at MGH, he developed pioneering approaches to general pediatric surgery and pediatric urology. He perhaps is best known for his groundbreaking success in the correction of complex genitourinary defects such as cloaca, a defect involving multiple abdominal organs and systems that generations of surgeons before him had pronounced impossible to fix.

Megaureter repair was another of Dr. Hendren's contributions that became

Dr. Hendren and his wife Eleanor

a staple of reconstructive urology. Many of these complex operations lasted 18 hours or more, earning him the nickname "Hardly Human"—a term used endearingly by friends and fearfully by some house staff.

His quest for technical perfection was legendary. He often performed massive reconstruction operations, and if he thought that there was any imperfection after many hours in the operating room, he would restart the procedure. Over 2 decades, Dr. Hendren built the department of pediatric surgery at MGH into an internationally renowned clinical and research center.

In 1982, Dr. Hendren was named to the post once held by his mentor Dr. Gross—chief of surgery at Boston Children's Hospital. During his 16 years as chief, Dr. Hendren continued training surgeons, many of whom went on to become chiefs of surgery and pioneers at other institutions. He operated on thousands of patients and was the first Robert E. Gross Professor of Surgery at Harvard Medical School.

## Global Leadership

Dr. Hendren was invited to teach and operate around the world. He operated in more than 60 countries, on his own time and at his own expense, and regarded the experience as a great privilege.

These efforts, along with his work in the US, where he also lectured and operated in many cities—and where he gave free care to patients who were without the means to pay—would bring him more than two dozen major honors, including the 2012 ACS Jacobson Innovation Award. The College named him an Icon in Surgery in 2016.

In addition to training surgeons around the globe, Dr. Hendren wrote more than 400 scientific papers, monographs, book chapters, and books. He also was a medical photographer and filmmaker; he shot and developed photographs for a number of his articles and made 20 medical documentaries.

He was active and served in leadership roles in many of the world's leading surgical organizations. Before serving as Second Vice-President of the ACS (1997–1998), he served on the Board of Governors (1980–1986), Advisory Councils for Surgical Specialties (1981–1986), Committee on Video-Based Education (1974–1984), and Communications Committee (1997–1998).

The founder and twice-elected president of the American Pediatric Surgical Association, he also held leadership positions in the American Surgical Association, American Urological Association, American Academy of Pediatrics, and New England Surgical Society. He was an honorary fellow of the Royal Colleges of Surgeons of England, Ireland, and Glasgow.

Dr. Hendren earned the Distinguished Eagle Scout Award, presented to him in December 2011 by fellow Distinguished Eagle Scout Michael Dukakis, former Governor of Massachusetts. Dr. Hendren received a personal letter of

Dr. Hendren at the 2016 Clinical Congress Icons of Surgery presentation

congratulations from another Distinguished Eagle Scout, astronaut Neil Armstrong.

In 2008, Harvard Medical School established the Hendren Chair in Surgery and two faculty development endowed fellowships in his name. A third, the Eleanor and Hardy Hendren Endowed Fellowship, was established at the department of surgery at Boston Children's Hospital with funding from grateful families.

In 2012, Dr. Hendren was named the Distinguished Robert E. Gross Professor of Surgery, Harvard Medical School; Surgeon-in-Chief, Emeritus, Boston Children's Hospital; and Honorary Surgeon, MGH. Among his greatest joys toward the end of his life was receiving news from patients about their lives, careers, children, and even grandchildren.

A not-for-profit foundation, The Hendren Project, was established in 2014 to honor his contributions to global surgical care. With more than 5,000 regular users from 138 different countries, surgeons work with the resources of The Hendren Project to meet online through a series of virtual events at which peers and experts present and discuss difficult patient cases.

## A Friend and Colleague's Experience

"Dr. Hendren was a great humanitarian. Not only was he a surgical pioneer, but a warm and gracious human being," said ACS Past-President Kathryn Anderson, MD, FACS. "He was one of the very first to promote the inclusion of women in surgery and treated them as equal to men in ability," she said.

"Not only was he a hero to his patients but, if they had come to him from across the country or the world, he had them stay at his home. His steely blue eyes sometimes would give him the appearance of aloofness, but to those who came to know him, his personal interest in their lives and families and his genuine warmth and kindness endeared him to the many who will greatly miss him," Dr. Anderson added.

Dr. Hendren is survived by his wife of 75 years, Eleanor—to whom he always credited much of his success—and his children and their spouses: Douglas Hardy Hendren, MD, and Nancy Hendren, Harrisonburg, VA; William Grant Hendren, MD, FACS, and Linda Hendren, Duxbury, MA; Robert Bruce Hendren, MD, and Dominique Hendren, Goshen, KY; David Fraser Hendren and Astrid Hendren of Medfield, MA; and 11 grandchildren and five great-grandchildren. His only daughter, Sandra McLeod Hendren, a teacher and nurse, died of complications of diabetes in 1984. ♦

# ACS Chapters have 70-Plus Years of History


by Luke Moreau

Although 1952 may be best known as the year that brought us the Corvette and Queen Elizabeth II, it also was a significant year in American College of Surgeons (ACS) history.

In 1952, the College issued charters to 28 local chapters, the most granted in a year since the ACS started issuing them in 1951. This year, 18 of those remaining chapters are celebrating their 70th anniversary (see Table 1, this page).

These 18 local chapters, and 100 others worldwide, continue to complement ACS membership by providing outstanding educational programming, advocacy efforts, networking and leadership opportunities, and mentorship at the local level.

The ACS congratulates all the chapters celebrating platinum anniversaries this year. Please keep ACS Chapter Services, Division of Member Services, informed of any special activities during this momentous year, and the ACS will highlight them on social media and in the *ACS Brief*.

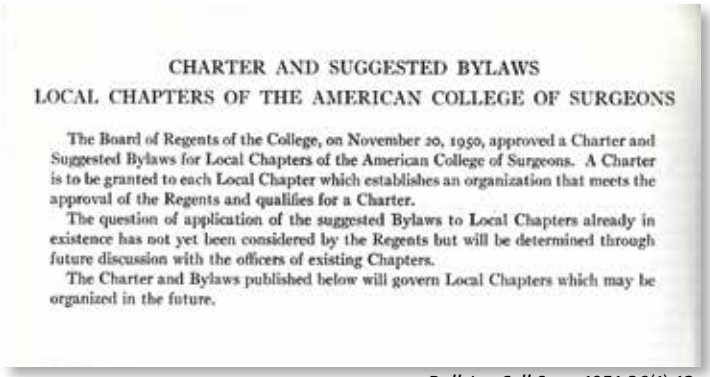
## ACS Chapters: The Early Years

According to Eleanor K. Grimm, Secretary to ACS Founder Franklin H. Martin, MD, FACS,

TABLE 1.
ACS CHAPTER CHARTERS ISSUED IN 1952

| Chapters still active | Chapters since consolidated into larger regional, state, provincial, and country chapters |
|---|---|
| Alabama | 2nd District of Texas |
| Arizona | 3rd District of Texas |
| Chile | 4th District of Texas |
| Indiana | 5th District of Texas |
| Louisiana | Bronx, NY |
| Michigan | Calgary and Southern Alberta |
| Nebraska | Northwest Texas |
| New Hampshire | Sao Paulo, Brazil, |
| New Jersey | Southeastern Pennsylvania |
| Northern California | Westchester, NY |
| Puerto Rico | |
| South Carolina | |
| South Dakota | |
| Southern California | |
| Southwest Missouri | |
| Tennessee | |
| Washington | |
| West Virginia | |

## FIGURE 1.
## PROPOSED CHAPTER CHARTER AND BYLAWS



CHARTER AND SUGGESTED BYLAWS
LOCAL CHAPTERS OF THE AMERICAN COLLEGE OF SURGEONS

The Board of Regents of the College, on November 20, 1950, approved a Charter and Suggested Bylaws for Local Chapters of the American College of Surgeons. A Charter is to be granted to each Local Chapter which establishes an organization that meets the approval of the Regents and qualifies for a Charter.

The question of application of the suggested Bylaws to Local Chapters already in existence has not yet been considered by the Regents but will be determined through future discussion with the officers of existing Chapters.

The Charter and Bylaws published below will govern Local Chapters which may be organized in the future.

*Bull Am Coll Surg.* 1951;36(1):12.

AMERICAN COLLEGE OF SURGEONS

CHARTER No. 2 GRANTED BY THE BOARD OF REGENTS OF THE

AMERICAN COLLEGE OF SURGEONS

TO FELLOWS OF THE AMERICAN COLLEGE OF SURGEONS

LOCATED IN

The State of Maine

The above reproduction presents the text and form of the Charter prepared for The Maine Chapter of the Fellows of the American College of Surgeons. In finished form the Charter is appropriately illuminated, and it measures twelve by sixteen inches.

*Bull Am Coll Surg.* 1951;36(9):186.

## HISTORIC HIGHLIGHTS

The first meeting of chapter officers took place at the 1951 Clinical Congress in San Francisco, CA. The goal of this meeting was to allow chapter officers to meet, exchange ideas, and hear reports from Officers of the College. Similar chapter officer meetings continue to this day.

The Brooklyn-Long Island Chapter holds Charter No. 1, but it almost went to Edmonton. According to the minutes of the April 1951 meeting of the Board of Regents, it was suggested that Edmonton receive Charter No. 1 because it was the first chapter organized in 1928. The assignment of charter numbers was held in abeyance at that meeting, and the Brooklyn-Long Island Chapter was ultimately granted Charter No. 1.

from 1913 to 1935, and then Secretary to the Board of Regents, Executive Committee, and Administrative Board, "a so-called chapter of the ACS" first organized in Chicago, IL, circa 1916.* The purpose of this chapter was to produce a daily bulletin concerning clinics in Chicago hospitals.

Chapters, as we know them today, began forming in Edmonton, AB (1928), Brooklyn-Long Island, NY (1930), Hawaii (1931), Southern California (1941), and Georgia (1943). By all accounts, the mission of these early chapters was to meet the needs of local surgeons, and although the ACS was aware of them, they were not officially authorized by the ACS.

*Eleanor K. Grimm Transcript Notebooks, Volume VI, Chapters, Reel 40, page 3.

## TABLE 2.
## CHAPTER CHARTERS ISSUED IN 1951

| Charters issued in 1951: Chapter still active | |
|---|---|
| Brooklyn-Long Island | Georgia |
| Hawaii | Idaho |
| Illinois | Kansas |
| Maine | Northwestern Pennsylvania |
| Oklahoma | Rhode Island |
| Utah | Vermont |

| Charters issued in 1951: Chapters since consolidated into larger regional, state, provincial, and country, chapters |
|---|
| Boise Valley, ID |
| Edmonton |
| Montana |
| Rock Island (Illinois) and Regional District |
| Toledo, OH |

As chapters continued to form, starting in 1949 the Board of Governors and Board of Regents began discussions about the value of chapters. Both bodies endorsed the organization and expansion of local chapters, and Governors were encouraged to form local chapters to "elevate the prestige of the College by promoting interest in its ideals, improving conditions of surgical practice, and by stimulating better surgical training."†

At the November 1950 meeting of the Board of Regents, the Regents approved a proposed charter and set of bylaws for local chapters (see Figure 1, page 82). The Regents determined that chapters were heterogeneous in organization and structure and that it would benefit the College if chapters used a standard set of bylaws and had a similar organizational structure.

For a chapter to receive a charter, it first needed to organize members at the local level, appoint officers, and adopt the approved bylaws issued by the College. Once these criteria were met, a chapter could submit its application to the Board of Regents for approval.

† Local Chapters of the College. Saunders P. *Bull Am Coll Surg.* 1950;35(3)187-188.

The process of granting chapter charters remains similar today.

In 1951, 17 chapters received charters (see Table 2, this page). By the end of 1952, the ACS had 45 chapters in the US, Canada, and Latin America.

### ACS Chapters Today

In many ways, chapters have changed little since they were standardized more than 70 years ago. The ACS now has 118 chapters worldwide—65 in the US, three in Canada, and 50 internationally. At their core, ACS chapters strive to offer benefits to ACS members at the local level, including:

- Networking opportunities that enable members to build strong professional relationships with surgical peers
- Opportunities to participate in advocacy activities at the state and federal levels that impact surgeons and patients
- Convenient educational meetings and local continuing medical education
- Leadership opportunities within the chapter council that can translate to future leadership roles within the College
- A forum to engage and mentor young surgeons, trainees, and medical students
- Occasions to give back to the profession through volunteerism, both domestically and internationally

If you are interested in getting involved with your local ACS chapter, visit *www.facs.org/member-services/chapters/find* or contact Luke Moreau at lmoreau@facs.org for details about domestic chapters and Brian Frankel at bfrankel@facs.org for more information about international chapters. ♦

### Acknowledgment

The author would like to thank Michael Beesley, Assistant Archivist, ACS Division of Member Services, for his help in researching and locating early references to ACS chapters in the Board of Regents minutes and the *Bulletin*.

# Incoming Residents Encouraged to Reap the Rewards of ACS Membership

The American College of Surgeons (ACS) proudly welcomed 1,619 medical and osteopathic school graduating seniors who made the match with surgery (categorical) residency programs and the 632 MDs and DOs who matched in surgery (postgraduate year one only) earlier this spring. ACS Executive Director Patricia L. Turner, MD, MBA, FACS, posted a video message congratulating the newly matched residents as they take their next step on the path to becoming surgeons and encouraging them to become Resident Members of the College. Watch the video at *bit.ly/3Jy0JC9*.

In addition, 240 students matched in neurosurgery, 875 in orthopaedic surgery, 47 in thoracic surgery, and 84 in vascular surgery. The National Residency Matching Program (NRMP) announced the match numbers March 18. Additional data will be published this month in the NRMP's 2022 *Main Residency Match Results and Data Book*.

## Benefits of Resident Membership

Joining the College as a resident represents an important milestone in your surgical career, and signifies your personal commitment to furthering your professional development and conducting your surgical career with the highest professional standards. The ACS is here to support you on your path to ACS Fellowship. Resident Members are eligible for a number of benefits:

- Access to the *Journal of the American College of Surgeons* and other publications, including the *RAS* [Resident and Associate Society] *E-News*
- Discounts on educational products to guide your career in surgery, including the Surgery Resident Program at the annual Clinical Congress
- Opportunities for engagement at the annual Clinical Congress, Leadership & Advocacy Summit, Quality and Safety Conference, and local chapter meetings
- Leadership and networking opportunities through the RAS
- Access to members-only discount programs

To learn more about these and other benefits, view the Resident Membership brochure at *bit.ly/38zuEx7*.

## Apply ASAP

Resident membership is available to surgical residents who have completed allopathic or osteopathic medical school and are enrolled in an accredited training program focused on one of the 13 surgical specialties, as well as individuals who have completed an initial residency and are involved in surgical research or a surgical fellowship. Residents in an oral and maxillofacial surgery residency program who are single-degree (DDS/DMD) are not eligible for ACS Resident membership but may apply for Affiliate membership.

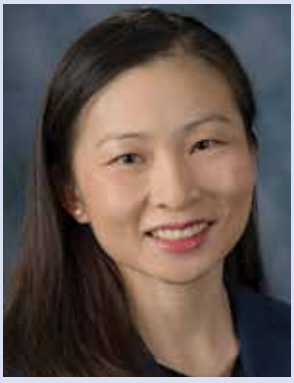
Complete the online application for Resident Membership at *bit.ly/3rg5B8S*. If you are an existing member or created a login from a previous purchase, use your login to access the application. Otherwise, you will need to create a login.

Before beginning your application, have the following information accessible:

- Information about your medical education
- Verification that you are in residency training, fellowship training, or research (visit *bit.ly/37FA8pS*)
- Information about your graduate degree (other than your MD)

For questions or to request your log-in information, contact enroll@facs.org or call 1-800-293-4029. ♦

# ACS Faculty Research Fellows for 2023–2024 Announced


Dr. Lily Cheng


Dr. Katherine Hekman


Dr. Kristy Broman


Dr. Sean Ronnekleiv-Kelly

The American College of Surgeons (ACS) has awarded Faculty Research Fellowships to four individuals for 2023–2024. The fellowship assists a surgeon in the establishment of their research program under mentorship with the goal of transitioning to an independent investigator. The fellowship award is $40,000 annually for 2 years and supported through the generosity of Fellows, chapters, and friends of the College.

The award recipients are as follows:

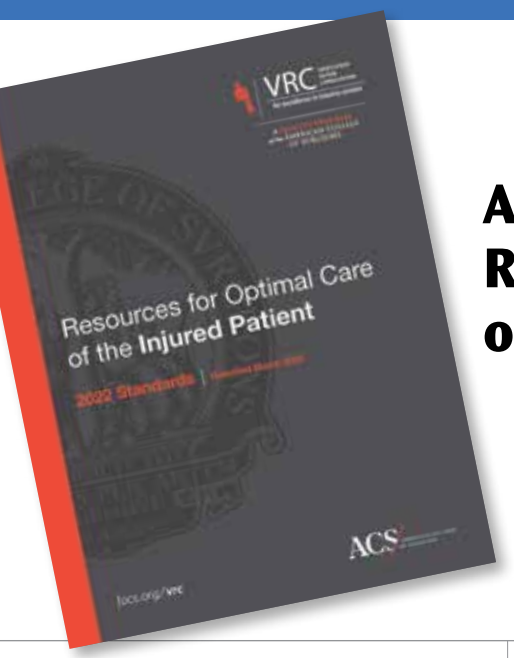
- Franklin H. Martin, MD, FACS, Faculty Research Fellowship: **Lily Cheng, MD,** Baylor College of Medicine, Houston, TX. Specialty: Pediatric surgery. Research title: Investigating the Role of Biomechanical Forces on the Enteric Nervous System in Hirschsprung Disease.

- **Katherine E. Hekman, MD,** Emory University School of Medicine, Atlanta, GA. Specialty: Vascular surgery. Research title: Driving Mitochondrial Bioenergetics of iPSC-ECs toward a Lymphangiogenic Phenotype for the Treatment of Lymphedema.

- **Kristy Kummerow Broman, MD, MPH,** University of Alabama at Birmingham. Specialty: Surgical oncology. Research title: Quality of Care and Patient Preferences for Cancer Surgery at Hub versus Affiliate Sites within Health Systems.

- **Sean Ronnekleiv-Kelly, MD,** University of Wisconsin School of Medicine and Public Health, Madison. Specialty: Surgical oncology. Research title: Targeted Combination Therapy in a Novel in Vivo Model of Fibrolamellar Carcinoma.

The online application for the Faculty Research Fellowship will re-open in September; visit the ACS website at *facs.org/member-services/scholarships/research/acsfaculty* or use the QR code for more details. ♦




# ACS Committee on Trauma Releases New Standards for Care of the Injured Patient

The American College of Surgeons Committee on Trauma (ACS COT) released its new standards for care of the injured patient in *Resources for Optimal Care of the Injured Patient (2022 Standards)*, now in its seventh edition.

The resources manual outlines the personnel, resources, policies, and practices required for ACS COT trauma center verification. Research has shown that centers that meet the standards deliver better patient outcomes.

The ACS COT revised the standards to incorporate new evidence and practices while eliminating standards wherever possible. Standards were consolidated and clarified to facilitate implementation. From the 387 standards in the 2014 edition, the 2022 edition has 110 clear, concise standards. Above all, the new standards will continue to support and advance optimal care for injured patients while making it easier for centers to incorporate these standards into daily practice.

"The updated resources manual will enhance the care ACS-verified trauma centers deliver. The COT carefully reviewed evidence related to the delivery of optimal trauma care, worked closely with key stakeholders and specialty organizations, and determined that with these new standards, ACS-verified trauma centers will continue to deliver exceptional trauma care," said Avery Nathens, MD, PhD, FACS, Medical Director, ACS Trauma Quality Programs. "In our revision of the standards, we focused on what's best for patients while acknowledging the challenges faced by centers in their delivering high quality of care."

The updated standards are part of a broader effort to align the ACS COT's efforts with the accreditation and verification processes of all ACS Quality Programs. The standards manuals have the same layout across all ACS Quality Programs to ensure consistency for hospitals participating in multiple programs.

"These standards provide the framework for the trauma center verification site visit process. By meeting these standards, trauma centers show that they have the resources and commitment to provide the best possible care for patients in their communities," said Nilda Garcia, MD, FACS, Chair of the ACS COT's Verification, Review, and Consultation (VRC) Committee.

Established in 1987, the ACS COT's VRC Program supports hospitals in delivering the highest quality of trauma care. Through the trauma center verification process, the ACS COT ensures that centers are applying the standards needed to provide optimal care. At present, there are 578 ACS-verified trauma centers in the US.

The new *Resources for Optimal Care of the Injured Patient (2022 Standards)* is available for trauma centers to download today at *bit.ly/3jwx8yC* or using the QR code. ♦

# Call for Nominations: 2022 Mary Edwards Walker Inspiring Women in Surgery Award

The American College of Surgeons (ACS) Women in Surgery Committee (WiSC) is accepting nominations for the annual Dr. Mary Edwards Walker Inspiring Women in Surgery Award, which will be presented at Clinical Congress 2022. The award will recognize an individual's significant contributions to the advancement of women in surgery. All nominations must be submitted online by 12:00 noon CT **May 20, 2022**.

Candidates must meet the following eligibility requirements:

- Nominees must have demonstrated a commitment to the advancement and inspiration of women in surgery.
- Nominees must be members of the ACS, either in active practice or retired.
- Present members of the WiSC are ineligible for this award. (View the WiSC roster at *bit.ly/3pM5QHS*.

## Required Documents

The following documents must be submitted with nominations to be considered:

- One letter outlining how the nominee has contributed to the advancement of women in the field of surgery.
  - Please do not solicit and submit additional letters of reference or support for your nomination. One letter of nomination is sufficient.
- A current curriculum vitae of the nominee, not to exceed five pages.
- Self-nominations are acceptable and should include a letter of reference.

Submit your nominations at *bit.ly/3sTgoXW*.

The awardee will be notified no later than June 30, 2022.

Questions can be submitted to Jenny Mohan at jmohan@facs.org. To learn more about the award, go to *bit.ly/3CDJcXL*.

## About Mary Edwards Walker, MD

The Dr. Mary Edwards Walker Inspiring Women in Surgery Award is named in honor of Mary Edwards Walker, MD, for her exemplary inspiration as the first female surgeon employed by the US Army and the only woman to receive the Congressional Medal of Honor, the highest US Armed Forces decoration for valor.

After the US Civil War, Dr. Walker devoted her life to supporting women's suffrage and was a frequent lecturer on healthcare, temperance, and women's rights. Most notably, Dr. Walker was unwavering in her commitment to service to her country and the surgical profession and repeatedly excelled in the face of significant adversity. Through Dr. Walker's example of perseverance, excellence, and pioneering behavior, she paved the way for the women surgeons of today. ♦

# Call for Nominations for ACS Secretary

The 2022 Nominating Committee of the Board of Regents (NCBR) will be selecting a nominee for the position of Secretary of the American College of Surgeons (ACS). The deadline for submitting nominations is **May 31, 2022**.

## Position Responsibilities

The ACS Secretary shall oversee the minutes of the annual meetings of the members, give notices in accordance with the provisions of law and the *Bylaws* of the ACS, and perform such other duties as may from time to time be assigned by the Board of Regents. The Secretary has the co-responsibility with the Executive Director to provide such oversight.

## Criteria for Consideration

The NCBR will use the following guidelines when considering potential candidates:

- Nominees must be loyal Fellows of the College who have demonstrated outstanding integrity along with an unquestioned devotion to the highest principles of surgical practice.
- Nominees must have demonstrated leadership qualities that might be reflected by service and active participation on ACS committees or in other components of the College.
- Members of the NCBR recognize the importance of achieving representation of all who practice surgery.
- The College encourages consideration of women and other underrepresented minorities.

All nominations must include a letter of recommendation, an up-to-date curriculum vitae, and a personal statement from the candidate detailing ACS service and the name of one individual who can serve as a reference. Any attempt to contact members of the NCBR by a candidate or on behalf of a candidate will be viewed negatively and may result in disqualification. Applications submitted without the requested information will not be considered.

Submit nominations to SecretaryNominations@facs.org. For more information, contact Lynese L. Kelley, Director of Leadership Operations for the NCBR, at lkelley@facs.org or 312-202-5203. ♦

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