Should your health care system invest in an ambulatory surgery center?

A decision-making framework
# Contents

## FEATURES

**COVER STORY: Should your health care system invest in an ambulatory surgery center? A decision-making framework**
Sean M. O’Neill, MD, PhD; Stanley K. Frencher, MD, MPH; Carlos A. Pellegrini, MD, FACS, FRCSI(Hon), FRCS(Hon), FRCS(Eng)(Hon); and David R. Flum, MD, MPH, FACS

Frank R. Lewis, Jr., MD, FACS:
15 years of visionary leadership at the American Board of Surgery
Lena Napolitano, MD, FACS, FCCP, FCCM; Anne Rizzo, MD, FACS; and Christine Shiffer, MBA

A history of health information technology and the future of interoperability
Mark Lukaszewski

Nursing workforce in surgery and trauma care delivery:
A global call to action
Gregory L. Peck, DO, FACS; Jessica Badillo, MSN, RN; Margot Consuelo Burbano, MSN, Enf. Esp.; Isabelle Citron, MD, BM BCh; Cristiane de Alencar Domigues, PhD, RN; Richard W. Lang III; Lisa A. Falcón, MSN, RN, TCRN, NE-BC; Kathleen Martin, MSN, RN; Sol Angelica Muñiz, MSN, RN, FN; Timothy Murphy, MSN, RN, ACNP-BC, TCRN, CEN, FAEN; Nobhojit Roy, MD, PhD; and Suzanne Willard, PhD, APN, FAAN

RAS-ACS Symposium essays:
Residents debate the future of leadership in surgery
Naveen F. Sangji, MD, MPH

Reframing surgical leadership in 2017: Surgeon-scientist or surgeon-advocate?
**Surgeon-scientist**
Kunal Jatin Patel, MD

Reframing surgical leadership in 2017: Surgeon-scientist or surgeon-advocate?
**Surgeon-advocate**
Neeraja Nagarajan, MD, MPH
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continued on next page
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continued on next page
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continued on next page
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Few topics are more controversial today than health care reform. An individual’s feeling about how to fund health care and whether health care is a right or a privilege is generally rooted in a combination of philosophic, political, and moral values. And while most Americans would agree that reining in health care spending is a worthy goal, these personal beliefs affect our perspective regarding the best approach to achieving this aim. They add an emotional element to an issue that truly is an economic problem.

The economics of health care

So, what are some key facts about the economics of health care? First, according to the Centers for Medicare & Medicaid Services (CMS), national health care expenses grew 5.8 percent to $3.2 trillion in 2015—about $9,990 per person—and accounted for 17.8 percent of the gross domestic product (GDP). CMS projects that health care spending will grow 1.2 percentage points faster than the GDP per year between 2015 to 2025. As a result, health care’s share of GDP spending is expected to rise to 19.9 percent by 2025.1

Medicare spending grew 4.5 percent in 2015, which was a slight dip from the 4.8 percent growth in 2014. Medicaid spending, however, has risen steeply in recent years. More specifically, federal Medicaid expenditures increased 12.6 percent in 2015.1

The number of uninsured individuals has dropped dramatically since the advent of Medicare and Medicaid. In 1963, 23.4 percent of Americans were uninsured. That percentage dropped to approximately 10 or 11 percent after Medicare and Medicaid were instituted.2 That number rose to about 16 percent in 2010 and dropped to approximately 9 percent in 2015.

Despite all the money funneled into health care and the expanded availability of health insurance coverage, some individuals argue that patients in other developed countries experience better outcomes with less spending per capita. However, this argument does not capture the full spending picture. In other economically developed countries, for every $1 spent on health care, about $2 is spent on social services. In the U.S., for every $1 spent on health care, about 55 cents is spent on social services.3

In addition, we tax approximately 18 percent of the GDP. Medicare, Social Security, and interest on consumer debt accounts for a total of 16 percent of taxes on GDP—meaning 2 percent in taxes is left for education and other social welfare programs.3

Health care reform proposals

Health care financing has been at the heart of every major effort to reform the nation’s health care system, and it remains the case in the most recent debate over the future of the Affordable Care Act (ACA). The increase in Medicaid spending and the decline in the number of Americans who are uninsured noted previously are both attributable to the implementation of the ACA, which expanded access to care primarily by increasing the affordability of individual/non-group health care plans and expanding Medicaid eligibility. How one feels about these developments, again, is traceable to the individual’s philosophic, political, and moral beliefs.

In fact, approaches to addressing the shortcomings in the ACA and health care reform in general are divided along partisan lines. Approximately 85 percent of Democrats indicate that the government should have a role in health care delivery and favor leaving the ACA largely intact or replacing the legislation with a single-payer system. Meanwhile, 65 percent of Republicans state that government should not have a significant role in health care, and the Republican-controlled Congress and White House have sought to repeal and replace the ACA.4

Republican proposals to replace the ACA tend to focus on cutting taxes and reducing health care spending. Initial efforts called for cutting Medicare and Medicaid spending, as well as subsidies for individual insurance plans. More recent efforts would shift all the cuts to Medicaid and to subsidies. For example, the Senate version of the American Health Care Act (AHCA) would eliminate the ACA’s marketplace subsidies and enhanced matching rate for the Medicaid expansion and replace them with a block grant. This legislation also would convert Medicaid’s federal-state financial partnership to a per capita cap and allow states to waive the ACA’s prohibition against

Looking forward

by David B. Hoyt, MD, FACS
Health care financing has been at the heart of every major effort to reform the nation’s health care system, and it remains the case in the most recent debate over the future of the ACA.

charging higher premiums for individuals with preexisting conditions. It also would eliminate the controversial individual mandate that requires all Americans to either purchase health insurance or pay a penalty.

Expanding access while controlling cost
So the question now comes down to, are we going to dismantle the ACA and get tax relief, or are we going to move further in the direction of universal coverage? And, if we move to expand access, how are we going to pay for it?

The good news is that some health policy experts argue that the U.S. could pay for expanded coverage by eliminating waste. Former CMS Administrator Don Berwick, MD, MPP, and RAND researcher Andrew Hackbarth, MPhil, for example, contend that the following forms of waste account for at least 21 percent of U.S. health care spending:

• Failures of care delivery
• Failures of coordinated care
• Overtreatment
• Administrative complexity
• Pricing failures
• Fraud and abuse

In the aggregate, elimination of these forms of waste would reduce health care spending by as much as $1.3 trillion annually.

Surgeons can contribute to waste reduction through excellent performance and by questioning the pricing structures and for-profit approaches applied in many of our institutions today. We can help policymakers develop alternative payment methodologies and commit to providing value-based care.

These are challenging times, and the American College of Surgeons has voiced its concerns about the potential effects of the AHCA on patient access to high-quality and safe surgical services and is committed to helping surgeons engage in the quality improvement activities and the educational programs they need to provide high-quality, cost-effective care.

Our commitment to improving efficiency and reducing waste will help to establish the economic platform on which it will be possible to expand access to care for all Americans. We assume this responsibility as advocates for each of our patients and for our profession.

If you have comments or suggestions about this or other issues, please send them to Dr. Hoyt at lookingforward@facs.org.

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Should your health care system invest in an ambulatory surgery center? 

A decision-making framework

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Ambulatory surgery centers (ASCs) offer the opportunity for surgeons to perform specific procedures more efficiently and conveniently than they can in hospital-based operating rooms (ORs). Consequently, health care systems are increasingly interested in ASCs as a strategic option for delivering surgical services. Although the long-term value proposition of a more efficient cost structure might appear compelling to individual health care systems, the decision to add an ASC must be made wisely based on local circumstances.

This article is intended for surgeon leaders and hospital executives who are considering building or buying an ASC, and provides a framework for assessing such an ASC investment opportunity. The authors examine why a health care system should consider investing in an ASC and when to avoid such an investment. This article describes fundamental investment options and offers a practical guide for establishing the viability of a health care system's ASC opportunities.

As with any major health care investment, numerous financial, legal, and regulatory intricacies are involved in fully realizing an ASC from start to finish. This article will help health care system leaders, particularly surgeons, perform the initial assessment necessary to guide ASC investment decision making.

**Trends in ambulatory surgery**

An ASC is a freestanding facility that “operates exclusively for the purpose of providing surgical services to patients not requiring hospitalization, and in which the expected duration of services would not exceed 24 hours following an admission.” Conversely, hospital ORs provide surgical services to both inpatients and outpatients who may require hospitalization and for whom the duration of services may exceed 24 hours. Nearly half of all operations performed in U.S. hospitals and ASCs are provided on an ambulatory basis.

Surgical techniques, payment models, and regulations have evolved as this ambulatory surgery model has become more established. Reimbursement rates for facility fees reflect hospitals’ higher overhead costs, and are typically higher—up to 40–70 percent higher—for hospital-based surgery than for procedures performed in ASCs. Recent estimates suggest that more than half of all outpatient procedures occur in hospital
ORs, but up to 40 percent of these operations could safely be shifted to ASCs. ASC market share trends for four common procedures in the Medicare population are outlined in Figure 1, this page. The long-term value proposition for the overall health care system is compelling; such a shift from hospitals to ASCs could result in a $25 billion savings to Medicare over 10 years.

At the local level, negotiating this shift is complicated and involves understanding the often competing priorities of health care systems, ASCs, surgeons, and patients. Independent ASCs and larger health care systems are frequently in direct competition for surgical cases. Surgeons and patients can both exert influence over whether an equivalent procedure will be performed in a hospital or an ASC, but little research is available to identify consistent preferences among either group. Convenience, habit, and familiarity likely play as strong a role as any other factor. Financially, surgeon-investors with an interest in an ASC are strongly incentivized to drive cases to their facility. Hospitals and health care systems cannot legally offer this financial incentive to non-investor surgeons.

Given their competing objectives, health care systems and ASCs have had an affiliation characterized much more by competition and contentiousness than by cooperation. This relationship has been changing, however, as health care systems increasingly turn to the ASC model. Investment options for health care systems include building a new ASC or acquiring an existing one. Additionally, health care systems can choose to invest as a solo venture or in partnership with outside investors, typically a physician group. The U.S. has more than 5,000 ASCs, and more than 90 percent are at least partially owned by physicians or physician groups. As of 2007, only a small minority was partially (16 percent) or fully (3 percent) owned by hospitals, but by 2015, some estimates had the total at 20–25 percent.

The settings in which future surgical care is provided will continue to evolve, and both hospitals and ASCs will be part of that evolution. The role of surgeons in this process is yet to be defined, but they are often at least partial investors in new ASCs. Non-investor surgeons may find they are being expected to perform more outpatient cases in a nonhospital OR.
Reasons to invest in an ASC

A health care system might consider investing in an ASC for various reasons, including those described in the following paragraphs. (For a brief overview of the advantages and disadvantages of investing, see Table 1, page 16.)

Improved cost structure

A growing body of published evidence shows that low-risk surgical procedures can be performed more efficiently in ASCs than in hospitals. Because ASCs are designed to deliver a narrow range of outpatient surgical services, they can be more efficient than hospitals in several significant ways, such as room turnover and facility overhead costs, and have greater flexibility in terms of staffing. Because surgeons at ASCs often perform the same types of cases repeatedly, ASCs only need to purchase a subset of the equipment and supplies. If these repetitive cases are frequently performed in hospital-based ORs, a health care system may have a significant opportunity to improve their cost structure by shifting those cases to an ASC.

Increased market share

When procedures that once took place in a hospital are performed in an independently owned ASC, those cases represent a loss of market share for the health care system, and the resulting revenue impact on the hospital can be substantial. Therefore, when a health care system invests in an ASC, it can gain back that lost market share or head off potential threats from future independent ASC competition.

Increased patient convenience/satisfaction

Aside from lower operating costs, an improved patient experience is often offered as a reason to shift cases from the hospital to an ASC. Improved patient satisfaction can be attributed to variables such as greater accessibility, more convenient parking, and quieter and less-confusing facilities. Compared with visiting a large hospital full of acutely ill patients, an ASC may project a more relaxed environment. The appeal of this image is self-evident; interestingly, however, little published research is available to confirm that patients do prefer the ASC setting.

Improved access to meet community needs

Health care systems are increasingly coming to view local or regional population health as part of their core mission. For hospitals and health care systems that comprise the health care safety net, meaning those with a high proportion of Medicaid and uninsured patients, the care of vulnerable populations is even more central to the organizational mission. From this standpoint, the efficiency gains that can be realized by an ASC relative to hospital-based care may allow a safety net health care system with constrained resources to better serve community needs. Traditional models have largely failed to eliminate disparities; albeit unproven, it is possible that the ASC model implemented in the safety net would improve access to surgical care for vulnerable populations. Revenue creation in this setting will be a steep challenge, which is the primary reason very few safety net ASCs exist today. Additionally, coordinating the multiple functions needed to efficiently execute ambulatory surgical care (for example, preoperative evaluation, transportation, pharmacy, follow-up visits) with vulnerable populations may be more challenging and require more investment relative to those with a high commercial payor mix. However, for a system focused on population health, increasing access to and efficiency of care for its population at the cost of a financial loss in one business unit may be a worthwhile tradeoff.

Reasons not to invest

There are numerous reasons not to invest in an ASC, including decreased revenue, upfront costs, case-volume requirements, and hesitancy to switch to ASC care on the part of patients and providers (see Table 1).

Decreased revenue

Because hospital-based ORs can charge higher facility fees than ASCs for equivalent procedures, if a health care system shifts those procedures out of the hospital
and into an ASC, it will see an immediate drop in revenue. This differential reimbursement has an uncertain future, however. Some payors already refuse hospital-based facility charges for procedures that could be done in an ASC. In the long run, trends that incentivize cost reduction and value improvement are likely to become more, rather than less, common. For many health care systems, then, the question is not whether to buy or build an ASC, but when.

Of note, prior to January 1, hospitals could actually purchase an existing ASC and then convert it to “hospital-based” status, making it possible for hospitals to start charging higher facility fees despite lower overhead costs. This loophole, however, was eliminated with passage of the Bipartisan Budget Act of 2015.

Although the specifics of future health care regulation are uncertain, health care systems that are able to deliver quality services in the most cost-effective, efficient, and patient-centered settings will be well-positioned to thrive.

Upfront costs
Construction or purchase prices for ASCs are often in the single- to double-digit millions. Purchasing land, contracting with physician groups and ASC staff, and fulfilling licensing and regulatory requirements also consume significant amounts of money and time. A pro forma financial analysis can produce cost estimates for specific potential sites, plans, and opportunities. This step provides great clarity by grounding conceptual plans in reality. Not all health systems are financially strong enough to pursue an ASC opportunity; a joint venture may mitigate this cost to some degree.

Case volume requirement
Because ASCs have high fixed costs relative to marginal costs, the most important factor in achieving positive financial margins is revenue. While contracts, reimbursement rates, and payor mix can sometimes be renegotiated to increase revenue, the primary strategy that ASCs use to achieve optimal revenue is maximizing surgical case volume and throughput. Financial stability thus depends almost entirely on reaching a minimum annual case volume threshold, and achieving it can be a challenge.

Higher margin procedures, such as orthopedics, will have a relatively lower threshold, and lower margin procedures, such as ophthalmology, a higher threshold. As a general rule, depending on the procedure and payor mix, this margin is typically somewhere between 2,000 and 4,000 cases annually for an average ASC with four ORs. If a health care system chooses to build a new ASC, increased volume has to come from a combination of its present hospital-based procedures and from new sources, such as additional surgeons or new referral networks. Hundreds of independent ASCs fail financially each year, and not achieving this volume threshold is often the critical factor. Additionally, when a health care system shifts procedures from a hospital to an ASC, this reduction in hospital-based procedures must be replaced to maintain financial margins.

Patient and surgeon choices
A health care system theoretically can shift all of its ASC-appropriate procedure volume out of hospital ORs; however, in practice, this move rarely occurs due to both patient and surgeon preferences. Typically, only

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved cost structure for equivalent procedures</td>
<td>Decreased revenue for equivalent procedures</td>
</tr>
<tr>
<td>Increased market share</td>
<td>Upfront investment/purchase costs</td>
</tr>
<tr>
<td>Improved patient experience</td>
<td>Case volume threshold for financial sustainability</td>
</tr>
<tr>
<td>Surgeon/physician preference for ASC setting</td>
<td>Surgeon/physician preference for hospital setting</td>
</tr>
<tr>
<td>Improved access to care for patients</td>
<td>Limited opportunity due to regulations</td>
</tr>
<tr>
<td>Opportunity to “start clean” with innovations to improve workflow, management, scheduling, staffing</td>
<td>Limited opportunity due to local market factors</td>
</tr>
</tbody>
</table>
40–60 percent of ASC-appropriate procedures end up shifting to a new ASC.

As part of a recent study comparing the cost of care for identical procedures performed in different settings, patients were allowed to independently choose a hospital or ASC for outpatient orthopaedic surgery, based on availability and convenience. As a result, 63 percent of all procedures (854 of 1,365) wound up being performed in the hospital, meaning only a minority of patients opted for the ASC when given a choice. As noted previously, little research into patient preferences has been conducted, but it is safe to assume that not every patient will opt for an ASC if given the choice. Likewise, surgeons may prefer to schedule procedures in the hospital, whether for convenience, habit, or a sense of security. Depending on the location, placing an ASC in a geographically separate site may significantly affect a surgeon’s daily or weekly workflow. If a new ASC is inconvenient for physicians, forcing them to schedule procedures at this facility will prove to be a leadership challenge. However, mutually satisfactory arrangements can often be achieved, such as locating an ASC near surgeons' clinics or offices. Eliminating logistical barriers will improve the chances of successfully shifting procedures from the hospital to the ASC.

Additionally, surgeons who have practiced their entire career in a tertiary care setting may be uncomfortable operating without immediate higher-level backup, even if the likelihood of needing it is very low. Anesthesiologists, for example, have developed contingency plans for rare and catastrophic complications. Although many surgeons are early adopters of new innovations, even relatively minor changes in practice can be challenging to implement. Finally, the lower costs of an ASC may not be fully realized if surgeons practice in exactly the same way. In comparison with hospital ORs, ASCs have more efficient cost structures derived from streamlined supply purchasing, faster case length and turnover, and typically limited focus on resident education. Surgeons who come from a tertiary care environment and do not alter their practices and preferences to accommodate these factors may impair the ASC’s ability to realize an optimal cost structure.

Assessing investment options
In general, health care systems have two fundamental investment options—build or buy. The investment can be pursued as a solo venture, or as a partnership with an outside investor group, typically a group of physicians. Table 2, page 18, summarizes the advantages and disadvantages of each option.

To navigate these complex influences in a practical way, the following framework can guide a health system in systematically considering the most salient issues in an ASC investment decision (see Table 3, page 19). The entire exercise may not need to be completed before a clear recommendation is apparent, but proceeding through the entire set of questions can be helpful in understanding a health system’s unique circumstances and limitations with respect to ASC investment.

Examine ASC-appropriate case volume
First, determine the number of ambulatory procedures performed annually in the health system and examine trends over the past five years. Determine what fraction of those procedures are ASC-appropriate. Which ones could safely be performed in the ASC setting? Remembering that typically only 50 percent of these procedures are successfully shifted to an ASC, cut the total number of ASC-appropriate procedures in half to arrive at an initial estimate of internally generated case volume.

If the total is more than 4,000–5,000 cases, procedure volume is likely to be less of a concern. If the total is between 2,000 and 4,000 cases, achieving the threshold to maintain a positive financial margin will likely require adding new sources of volume to the system, either through additional physicians or referral networks. If the total is below 2,000, achieving the volume threshold may prove challenging. The precise threshold will depend on procedure and payer mix, however. In any case, a health system should have a
high degree of confidence in these projections when moving forward with an investment decision.

Examine current reimbursement levels and trends
For these ASC-appropriate cases, calculate average reimbursement given the procedure and payor mix. It will be necessary to adjust current reimbursements by replacing hospital-based facility fees with lower, ASC-level facility fees. Examine trends from payors over the last five years and develop a sense of the volatility in reimbursement rates and likelihood of significant changes in the future. Generating these numbers will provide a realistic range of revenue expectations.

Assess barriers to shifting cases from hospitals to ASCs
Surveying the surgeons who will be practicing in the proposed ASC can be done relatively quickly and inexpensively, and is critically important. Making a large investment decision without knowing what the surgical staff expect can be very risky. Given the preferences of the health care system's surgeons, how

Continued on page 20
### TABLE 3.
DECISION-MAKING FRAMEWORK: SHOULD THIS HEALTH CARE SYSTEM INVEST IN AN AMBULATORY SURGERY CENTER?

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Objectives/Deliverables</th>
</tr>
</thead>
</table>
| 1. Estimate case volume | Estimate ASC case volume  
• Current volume  
• Future projections | Annual/quarterly estimates of ASC possible cases at current and future volume, by specialty and procedure |
| 2. Estimate revenue | Examine ASC case revenue  
• Current reimbursement for procedure and payor mix  
• Assess likelihood of changes for future reimbursement trends | Annual/quarterly estimates of ASC revenue, based on projected procedure mix, case volume, payor mix, reimbursement trends |
| 3. Assess barriers to achieving case volume | Assess barriers to converting current hospital-based outpatient surgery to the ASC setting  
• Internal: Surgeon or patient preferences  
• External: Degree of local market saturation, applicable regulatory limitations such as CON | • Results from survey of surgeons expected to practice at the ASC  
• Estimate of local market ambulatory surgery capacity and volume  
• Summary of applicable regulations and salient limitations |
| 4. Develop investment options | Explore local health care market to understand realistic options to:  
• Build: Locations and construction options  
• Buy: Existing ASCs, likelihood of acquisition  
• Solo: Financial resources and options  
• Partner: Potential investor groups | Enumerate specific alternatives with locations, expected barriers, and projected procedure volume |
| 5. Obtain formal financial projection | Develop financial projection(s) for:  
• ASC purchase options  
• ASC construction options  
• Operating costs | • Formal assessment of investment cost options  
• Formal assessment of projected operating costs |
| 6. Calculate expected margin | Calculate expected average contribution margin (CM)  
• Financial  
• Consider community needs | Annual/quarterly estimates of CM  
• Aggregate average  
• By specialty and procedure (identify strategic priorities) |
| 7. Calculate break-even point | Calculate:  
• Break-even case volume*  
• Time frame to break even†  
• ROI over fixed time‡ | • Break-even case volume  
• Time frame to break even  
• ROI over salient time (for example, five years) |
| 8. Synthesize findings | Use findings to inform decision making  
• Proceed: Decide investment type (purchase versus build) and partnership (solo versus joint venture)  
• Study further: Investigate areas in analysis with high uncertainty  
• Decline and reassess periodically | Decision |

---

*Break-even = Total investment cost/average contribution margin per case  
†Time frame to break even = Break-even case volume/expected cases per month  
‡ROI: Total revenue over fixed time period – total investment cost – total operating cost over fixed time period/total investment cost – total operating cost over fixed time period
many ASC-appropriate procedures can be expected to actually shift to the ASC? Survey and interview questions should specifically identify any particular advantages or disadvantages unique to the health care system, assess opinions on any specific locations or facilities under consideration, and elicit as honestly as possible the surgeons’ interest in practicing in an ASC. The answers will help a health care system understand to what degree internal procedure volume can supply an ASC, and to what degree procedure volume will need to be augmented by new sources.

Local health care market factors, including total case volume at competing institutions and regulatory requirements, may present barriers to successfully realizing an ASC. For each institution in the local market, obtain estimates of annual case volume and breakdown by specialty and location (hospital versus ASC). Although many counties in the U.S. have ASCs, some have relatively few. Assessing the degree of market oversaturation will influence decision making.

After assessing the local health care market, obtain a basic understanding of state regulatory requirements. Certificate of need requirements exist in 34 states, which can limit ASC growth in saturated markets. However, loopholes and exceptions can often be found.

Develop options for acquisition and partnership
The opportunities available for building or purchasing an ASC, as well as proceeding as a solo or joint venture, will depend on the circumstances of the local health care market. Each option should be explored and developed with realistic, specific alternatives enumerated. Generally speaking, if a health care system is in a relatively ASC-dense market, acquiring one or several ASCs will likely be a realistic option. Land acquisition costs will vary by market. Co-investment partners may be groups of local surgeons, or even national ASC firms. Keep in mind that if the health care system’s brand is strong locally

continued on next page

REFERENCES

(such as an academic medical center), it may have a competitive advantage in bidding for ASC acquisition targets.15

Obtain a financial projection
Formally develop upfront cost estimates for all of the options described in this article—specific alternatives for building versus buying and solo investment versus partnership. Generate estimates of operating costs, which can often be adapted from an existing local ASC cost structure.

Calculate contribution margin and break-even
Calculate the expected average revenue and expected average cost per procedure. Develop a range for these values depending on the number of procedures expected per year.

Next, calculate the average contribution margin, which is total projected revenue minus total projected cost, divided by total number of expected procedures. A positive contribution margin predicts whether the venture will be financially successful, and the higher the contribution margin, the greater the degree of financial safety. A negative contribution margin makes any investment opportunity financially inadvisable, unless it can reasonably be expected to turn positive in the future. Although health care systems are better able than independent ASCs to absorb significant financial shocks, independent ASCs are typically advised to maintain a contribution margin of 30 percent or more to guard against unexpected changes in procedure volume or reimbursement policy.

Dividing the upfront investment cost by contribution margin yields the investment break-even point; that is, the number of procedures that need to be performed to pay off the original investment. In general, if there is a high degree of confidence in projected future revenue and cost, a longer break-even period may be acceptable. When there is less certainty about future projections, a shorter

REFERENCES, CONTINUED


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break-even period is more desirable, as debts will be paid off more quickly.

Return on investment (ROI) can be calculated over a fixed period, which can be useful for boards and executive groups working within specific time horizons (such as a three-year plan). This is calculated as the total revenue minus total cost over a fixed period, divided by the total cost over that same period (including investment costs).

Synthesis
A health care system’s decision on whether to invest in an ASC will be based on the following factors: projecting expected case volume and revenue; assessing internal and external barriers; exploring realistic investment options; and calculating the average contribution margin, investment costs, and break-even period for these alternatives.

For some, achieving a threshold procedure volume may appear unrealistic, and for others, their ORs may be over capacity. Depending on procedure and payor mix, attaining a positive financial margin may be too uncertain. The surgeon workforce may be enthusiastic and willing to work around challenges to shift procedures to the ASC setting; alternatively, such a change may be so disruptive that physicians are unlikely to alter their practice patterns. Some health care systems may have multiple acquisition targets, and others may be limited to building on their own. Working through this framework systematically will help health care system leaders to understand whether investing in an ASC is a realistic and prudent strategic option, and if so, why. Areas of low precision or confidence can be identified for further investigation.

Given the overall trend of shifting surgical care to lower acuity settings, if a health care system’s initial assessment recommends against ASC investment, this exercise should be reevaluated periodically, especially if significant changes occur in the health care market. If the question of whether a health care system should invest in an ASC is
actually a question of when, and not if, continuing to reassess the situation as circumstances evolve is prudent.

Conclusion
In the long run, shifting appropriate surgical cases to ASCs is likely to be advantageous for health care systems in an environment dominated by value-based care efforts. The decision to invest in a specific ASC, however, will be informed by the specific circumstances faced by the health care system making the decision. The fundamentals of good business will always hold true: in the future, the health care systems that can manage to deliver the highest quality surgical services, at the most reasonable prices, will be the ones most likely to thrive.

Acknowledgments
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REFERENCES, CONTINUED
Frank R. Lewis, Jr., MD, FACS: 15 years of visionary leadership at the American Board of Surgery

by Lena Napolitano, MD, FACS, FCCP, FCCM; Anne Rizzo, MD, FACS; and Christine Shiffer, MBA
Frank R. Lewis, Jr., MD, FACS, has just completed a 15-year term (2002–2017) as executive director of the American Board of Surgery (ABS), with numerous remarkable accomplishments during his tenure. At the winter ABS meeting, Dr. Lewis also announced his retirement effective at the end of 2017. Hence, it is fitting to chronicle the life and career of this surgical leader, who has played such an important and dominant role in surgical education, training, and certification in the U.S. and around the world.

### Education and training

Dr. Lewis graduated cum laude with a bachelor of physics from Princeton University, NJ, and was inducted into Sigma Xi, the Scientific Research Honor Society. He received his medical degree in 1965 from the University of Maryland Medical School, Baltimore.

His initial goal was to be an internist. However, a one-year internship (six months medicine, six months surgery) at San Francisco General Hospital, CA, resulted in a change of heart. After a few weeks on the internal medicine service at San Francisco General, he recognized that managing chronic disease was not what he really wanted to do. During Dr. Lewis’ surgical training under the leadership of J. Englebert Dunphy, MD, FACS, chairman, department of surgery, and F. William Blaisdell, MD, FACS, chief of trauma and founder of the first U.S. trauma program in 1968, he was drawn to the excitement of the nascent field of acute care surgery, caring for patients with acute surgical issues and traumatic injuries.

It was too late to apply for surgical residency that year, but he was accepted into the surgical residency program at the University of California, San Francisco (UCSF), the following year in 1966. After completing his residency training in 1972, Dr. Lewis completed a National Institutes of Health trauma research fellowship with his mentor, Dr. Blaisdell, at San Francisco General.

Dr. Lewis served on the faculty of the UCSF from 1973 to 1992, rising from assistant professor to professor and vice-chair, department of surgery, and to chief of surgery at San Francisco General Hospital. For his overall teaching efforts, Dr. Lewis received the UCSF Surgery Residents’ Excellence in Teaching Award in 1990 and 1991, as well as the 1991 Alpha Omega Alpha Honor Medical Society Chapter Award for Outstanding UCSF Faculty Teacher.

He then moved east, and from 1992 to 2002, he served as chair, department of surgery, Henry Ford Hospital, Detroit, MI, and professor of surgery, Case Western Reserve University, Cleveland, OH.

Dr. Lewis’ clinical interests have centered on trauma and critical care, and his research has focused on cardiopulmonary physiology, cardiopulmonary effects of sepsis, and acute respiratory failure. He collaborated with Virgil Elings, MD, University of California, Santa Barbara, to develop the lung water computer, which allowed the quantitation of pulmonary edema using the double indicator technique. They established the validity of the technique in both human and animal models.

Dr. Lewis’ more recent work has focused on critical care physiology and specifically the cardiopulmonary effects of sepsis and of vascular resistance on cardiac output. In the course of more than 40 years, Dr. Lewis has published more than 175 articles in peer-reviewed journals.

### Leadership roles

Dr. Lewis has served in numerous leadership roles in the course of his surgical career. In addition to his roles as chief of surgery at San Francisco General from 1986 to 1992 and chair of surgery at Henry Ford Hospital for a decade, he has held many national leadership roles in surgery. Most notably, he served as Chair of the American College of Surgeons (ACS) Board of Governors, ACS First Vice-President, president of the American Association for the Surgery of Trauma, president of the Shock Society, and chair of both the ABS and the Residency Review Committee for Surgery (RRC-Surgery). The highlight of his career in surgery has been the last 15 years, during which he served as executive director of the ABS, promoting pivotal changes in surgical training and certification and lifelong learning.
ABS

Dr. Lewis’ accomplishments during his tenure as ABS executive director are numerous, and all of the ABS directors hold Dr. Lewis in high esteem. According to ABS chair John G. Hunter, MD, FACS, “There are not enough words in the English language to describe the service and contributions made by Dr. Lewis to American surgery over his 15 years as ABS executive director. We are deeply indebted to him for his visionary guidance and dedication to the mission of the board.” The following summarizes some of the numerous advances and major developments that occurred at the ABS during Dr. Lewis’ tenure.

At-large ABS director positions

Dr. Lewis is an advocate for surgeons in clinical practice. In 2005, Dr. Lewis and the ABS announced the creation of three at-large director positions to better reflect the diversity of the surgical community in the U.S. These positions were in addition to the ABS board of directors’ representation from 26 U.S. surgical organizations. This change has allowed surgeons in private or group practice to have greater representation on the board and, thereby, ensure its standards align with the needs of today’s practicing surgeons and myriad practice environments. The inclusion of ABS at-large directors has been highly successful in further broadening the board’s representation.

The first ABS public member role

Under Dr. Lewis’ leadership, a public member was added to the ABS board of directors to represent the public in its deliberations. In 2010, the first ABS public member, William Scanlon, PhD, a consultant and commissioner for the Medicare Payment Advisory Commission, was added to provide a public voice in all ABS deliberations. Dr. Scanlon just completed his term on the ABS, with Nancy M. Schlichting, MBA, immediate past-president and chief executive officer, Henry Ford Health System, succeeding him as public member this past July.

The first ABS mission statement

As a means to further focus the goals and future direction of the ABS, Dr. Lewis and ABS leaders sought to develop a mission statement for the organization. In 2014, the first mission statement of the ABS was introduced, with a focus on the board’s duty to the public. It reads as follows: “The American Board of Surgery serves the public and the specialty of surgery by providing leadership in surgical education and practice, by promoting excellence through rigorous evaluation and examination, and by promoting the highest standards for professionalism, lifelong learning, and the continuous certification of surgeons in practice.”

SCORE

An unwavering advocate for surgical residents and residency education, Dr. Lewis led an important effort as ABS executive director in the establishment of the Surgical Council on Resident Education (SCORE).

On November 20, 2006, the ABS hosted the inaugural meeting of SCORE, to examine the state of surgical training and develop a new national curriculum for general surgery residency training in the U.S. SCORE is composed of representatives from the principal organizations involved in surgical education: the ACS, the American Surgical Association (ASA), the Association of Program Directors in Surgery, the Association for Surgical Education, the RRC-Surgery, the Society of American Gastrointestinal and Endoscopic Surgeons, and the ABS. The meeting was organized by Dr. Lewis and ABS assistant executive director Richard H. Bell, Jr., MD, FACS, as a first step toward developing a comprehensive program to improve the training of U.S. surgeons.

SCORE emerged from the growing concern among the leadership of the ABS and other organizations that
traditional surgical training no longer could respond sufficiently to the pressures of the modern health care environment and that the quality of graduate surgical education and the overall attractiveness of surgery as a specialty were threatened. The rapid growth of new technology and surgical knowledge, along with limits on residency work hours and a projected shortage of surgeons in the near future, were all factors that prompted the creation of SCORE and inspired its objective of a new, innovative curriculum for surgery residency training. The ABS had seen firsthand an undesirable high degree of variability in the knowledge of graduated surgery residents, particularly regarding complex trauma and gastrointestinal cases.

At the November 2006 meeting, SCORE representatives reviewed the efforts of member organizations in improving surgical education and the attractiveness of surgery as a career choice. They also reviewed the proposals of the ASA Blue Ribbon Panel (2005) regarding the restructuring of surgical training and ultimately decided that SCORE would focus on opportunities for improving the traditional five-year surgery curriculum. The members of SCORE also agreed to move ahead with the development of a website dedicated to the provision of comprehensive, high-quality educational materials that would be available at a reasonable cost to all surgical residents.

The SCORE curriculum is now a national standard for defining what a surgeon should know and be able to do by the end of general surgery residency, and SCORE is a critical element in shaping the future of general surgery residency training. The SCORE portal (www.surgicalcore.org) comprises more than 750 learning modules and is used by 98 percent of the general surgery residency programs accredited by the Accreditation Council for Graduate Medical Education (ACGME).

Resident education
Dr. Lewis has led many initiatives that have shaped U.S. surgical training and certification, including the design and implementation of the FIRST (Flexibility in Duty Hour Requirements for Surgical Trainees) Trial, which Dr. Lewis initiated in partnership with ACS Executive Director David B. Hoyt, MD, FACS, and Ajit K. Sachdeva, MD, FACS, FRCSC, Director, ACS Division of Education. The study was funded by the ABS, the ACS, and ACGME, and was organized and directed by Karl Y. Bilimoria, MD, MS, FACS, John Benjamin Murphy Professor of Surgery, Northwestern University, Chicago, IL. The trial went from conception to initiation in seven months and to initial results 18 months later. The findings of the study led directly to changes in resident work hours as announced by the ACGME in March 2017.

Under Dr. Lewis’ leadership, the ABS has worked with all major organizations engaged in surgical education and quality improvement to foster education, training, and assessment that reflects best practices. A central focus of the ABS since 2013 has been to critically evaluate general surgery residency training, related to renewed concern about lack of autonomy afforded to general surgery residents, and to ensure that residents are fully prepared to enter independent practice at the completion of residency.

The ABS has convened multiple daylong retreats to review associated issues in surgical training, including...
resident work-hour limits, the reduction in open operative procedures performed during training, and the dramatic growth of post-residency fellowships. This critical evaluation led to a recommendation to pursue competency-based training as the ultimate goal, similar to the plan for implementation across all Canadian training programs by the Royal College of Physicians and Surgeons of Canada.

When asked in an interview with the AAST what advice he would give to students and residents interested in surgery as a career goal, Dr. Lewis said, “The most important thing is to really have a passionate interest in what you do. When you figure that out, jump into it and do it as well as possible to advance the science of it wherever you can, to constantly look at how you can do things in the best way. If you do that, it’s hard for anything else to be a problem.”

Maintenance of Certification
With Dr. Lewis’ guidance, the ABS has sought to optimize lifelong learning and certification to best serve both diplomates and the public. In a memorandum sent July 7 to all diplomates from ABS chair Mary E. Klingensmith, MD, FACS, and Dr. Lewis, the ABS announced that Maintenance of Certification (MOC) reporting requirements would be changed to require reporting only every five years instead of three, and that the required Self-Assessment Continuing Medical Education credits would be reduced by 50 percent. The ABS also announced that in 2018 diplomates would be offered alternatives to the traditional 10-year recertification exam. The ABS MOC Program will continue to evolve in response to diplomate feedback under Jo Buyske, MD, FACS, who assumed the role of ABS executive director September 1.

Conclusion
As ABS executive director, Dr. Lewis has been a visionary leader in many areas of surgical training and certification, including the development of a primary certificate in vascular surgery, the establishment of “flexible rotations” in surgical residency training, and the restructuring of the ABS to encompass advisory councils and component boards covering all areas of general surgery. His numerous accomplishments during his tenure as ABS executive director have clearly changed the landscape of general surgery in the U.S. ♦

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BIBLIOGRAPHY
Health information technology (HIT), particularly the electronic health record (EHR), plays an important role in how payors measure quality, and therefore, in how surgeons are reimbursed. This article looks at the evolving role of HIT, the challenges of achieving interoperability, and how Congress is working to ensure improved data exchange. It describes surgeons’ frustrations with the current data exchange system and what the American College of Surgeons (ACS) Division of Advocacy and Health Policy is doing to address these concerns. It outlines the significant amount of time the ACS has spent educating members of Congress, Health and Human Services (HHS), the Centers for Medicare & Medicaid Services (CMS), and the Office of the National Coordinator (ONC) about the challenges related to EHR interoperability.

Background on meaningful use
In 2004, President George W. Bush created the ONC for HIT, which is charged with synchronizing HIT in the U.S. health care sector. The Health Information Technology for Economic and Clinical Health (HITECH) Act was passed as part of the larger American Recovery and Reinvestment Act of 2009. In 2011, the meaningful use (MU) component of HITECH was implemented to expand the adoption of HIT and facilitate the use of EHRs.

The HITECH Act authorized CMS to establish the Medicare and Medicaid EHR Incentive Programs. These programs paid approximately $35 billion in incentive payments to eligible professionals, hospitals, and critical access hospitals to adopt, implement, upgrade, and demonstrate the use of certified EHR technology (CEHRT). The reporting requirements involve the ability of an EHR to perform such functions as generating problem lists, exchanging patient clinical data, or e-prescribing.

The MU program launched in stages beginning in 2011. The focus of Stage 1 was data capture and sharing. In 2014, the ONC created Stage 2, which sought to extend the requirements of Stage 1 and promote more advanced clinical processes. Stage 3 began this year and extends into 2018. Its focus is on improving overall outcomes, and the MU program is now a component of the Merit-based Incentive Payment System—specifically the Advancing Care Information
performance category—under the Quality Payment Program (QPP).³⁴

**Data blocking, or a language problem?**

EHRs have remained siloed in their data exchanges and have proven highly inefficient for machine-readable information shared among providers caring for a patient. The real impact of digital information has yet to reach a level adequate to enrich patient care outcomes or greatly increase surgical decision making. Some EHR systems have been accused of data blocking and adding service costs for providers seeking more effective means of data sharing.

When digital systems seamlessly exchange data with each other, it is referred to as interoperability. More specifically, true interoperability occurs when information held in one EHR transfers through a standardized wire format to a separate EHR in such a way that the information exchanged proves to be machine readable by the accepting EHR. Once that information is accepted in transfer, the receiving EHR should have enough appreciation of the content and the context of the data shared to be able to represent the information appropriately in the workflow of the clinicians using the transferred information.

The challenge is that each EHR vendor presents information in its own way, using its own terminology and values. High-level exchange information requires a decoding function that translates the sending EHR’s terminology and values along with the clinical context into a standard that crosses the wire format for the receiving EHR to read. The accepting EHR must interpret and represent the content in the right context using its own terminology and values. However, for many different reasons, often EHR developers, hospitals, health care organizations, and even providers intentionally and unintentionally block the exchange of electronic health data. The result is that digital health information is not seamlessly available for the multiple-use cases a surgeon could imagine for shared information. Fully shared information would increase physicians’ workflows, and that would enhance care, aid research, and provide cost savings.

Even the simplest data exchanges can prove to be challenging. Imagine trying to identify a patient with the most common surname in the U.S., “Smith.” To ensure that patient Smith is the same patient so that information can be transferred from one EHR to the next requires identification matching and a secure trust framework.⁵ At present, no HIT industry standards for reliable patient identification matching have been established.

Many members of Congress believe most interoperability shortfalls are associated with data blocking. Although data blocking is a concern, most EHR vendors meet the minimum requirements for sharing information. However, the evidence suggests that even though EHR vendors are meeting these minimum requirements, they are not optimally facilitating the data exchanges to accelerate interoperability.⁶ Complexity, lack of standards, and costs are the primary roadblocks vendors offer when asked to expedite interoperability solutions. To comply with the law, vendors often provide even the most basic information in PDF files, which are not easily interpreted by other EHRs, for transfer. Such transfers may be interpreted as minimum compliance with patient needs and may be viewed as an element of data blocking.

It is more likely that the complexity of information necessary to exchange has resulted in a lack of agreement over standards. The ONC, therefore, is unprepared to set such standards as requirements for CEHRT. The sooner the health information profession and clinical aspects of medicine come together and standardize the information fit for transfer, the more promptly the ONC can act to require standards in CEHRT that facilitate interoperability.

**Government fixes**

Members of Congress realize that interoperability is crucial in today’s health care environment. On April 16, 2015, President Obama signed the Medicare Access and CHIP (Children’s Health Insurance Program)
Reauthorization Act (MACRA) of 2015 into law. The primary purpose of this legislation was to permanently repeal the flawed sustainable growth rate formula used to calculate Medicare physician payment updates and replace it with the QPP. However, Congress also declared achieving widespread exchange of health information through interoperable certified EHR technology by December 31, 2018, as a national objective in MACRA. MACRA states that there shall be “widespread interoperability” and established metrics to determine whether, and to what extent, objectives have been met by this time.

MACRA defined interoperability as “the ability of two or more health information systems or components to exchange clinical and other information and use the information that has been exchanged by means of common standards to provide access to longitudinal information for health care providers to facilitate coordinated care and improve patient outcomes.”

Specifically, MACRA defines “widespread interoperability” as interoperability between CEHRT systems employed by meaningful EHR users under the Medicare and Medicaid EHR Incentive Programs and other clinicians and health care providers on a nationwide basis.

The Secretary of HHS delegated authority to carry out this section of MACRA to the ONC. If the Secretary determines that these objectives have not been reached by December 31, 2018, the Secretary must submit a report to Congress identifying barriers and provide recommended actions the federal government can take to achieve them by December 31, 2019.

In addition, the ONC has determined that two measures are the most appropriate indicators of having fulfilled the widespread interoperability MACRA requirement:

- **Measure 1:** Proportion of health care providers who are electronically engaging in the following core domains of interoperable exchange of health information: sending; receiving; finding (querying); and integrating information received from outside sources

- **Measure 2:** Proportion of health care providers who report using the information that they electronically receive from outside providers and sources for clinical decision making

On December 13, 2016, Congress passed the 21st Century Cures Act, which revised a definition of interoperability with three characteristics:

- Enables the secure exchange of electronic health information with, and use of electronic health information from, other HIT without special effort on the part of the user

- Allows for complete access, exchange, and use of all electronically accessible health information for authorized use under applicable state or federal law

- Does not constitute information blocking as defined in section 3022(a)

Like MACRA, the 21st Century Cures Act mandates support for interoperable network exchange to be spearheaded by the ONC in collaboration with the National Institute of Standards and Technology and other divisions of HHS. This work includes establishing and publishing details about a trusted exchange framework along with a directory of participating health information networks and rules for these networks to apply. It also calls for the establishment of a new HIT Advisory Committee to make recommendations to the ONC on the development of a policy framework to advance an interoperable HIT infrastructure. The new committee will replace the existing HIT Policy and Standards Committees.

This new committee also will be responsible for submitting annual progress reports on interoperability advancements to HHS and Congress, including recommendations for realizing improvements to interoperability in the health care industry. One new feature is that the ONC must implement a standardized process for receiving complaints about HIT lack of interoperability, and report those individuals or
groups responsible for information blocking. The bill also requires HHS to designate standards for health data exchange that improve interoperability.7

The 21st Century Cures Act takes aim at several policy changes and gives authority to the HHS Office of the Inspector General to investigate and penalize information blocking.7

Both MACRA and 21st Century Cures have the potential to improve interoperability. Both mandate that if interoperability goals are not accomplished in a timely manner, the HHS Secretary shall submit a report to Congress identifying barriers and provide recommendations to correct them.

**Effects on practice**

Surgeons are frustrated when EHR requirements demand more data entry, leaving less face time with patients. More and more, surgeons find themselves managing digital health information from all its various sources. Many surgeons point to EHR frustrations as a large contributor to burnout, adding to the physician wellness conundrum. EHRs should have workflow services built for patients and surgeons that fit the clinical circumstances and advance care.

Clinical care models are growing increasingly complex. The continuum of care for a patient frequently crosses several phases provided by multiple clinicians, each with unique EHRs. In surgery, these phases include preoperative evaluation, preoperative readiness, intraoperative care, postoperative care, and postdischarge follow-up care. To realize the full benefit of digital health information, we will need truly meaningful data following the patient through this continuum.

Information flows that track patients across these phases are now key to optimal quality and safe, affordable surgical care. The surgical care team involves a broad array of providers acting over time across the care continuum beginning with the decision to operate, long before the day of an operation. Complex patients require a team of physicians playing definitive roles in readying a patient for a surgical procedure and anesthesia. Often, these roles extend beyond the day of surgical care into the postoperative recovery period. Patients receive care longitudinally over time, and not always in one facility or under one EHR. Complex clinical care models track patients over time and space.

To fix this problem, Congress and regulatory agencies have tapped EHR vendors for solutions. However, this is a costly misstep, as interoperability problems cannot solely be solved by developing a better EHR. Many clinical institutions are looking beyond the EHR and are considering cloud-based solutions that operate outside the EHR firewalls. These cloud solutions enable tracking of patients across the continuum, providing inputs from patients, clinicians, insurers, and others. Interoperability could extend to medical devices, smartphones, laptops, and so on. If all digital health information partners complied with the same strict standards and terminologies for data elements, interoperable data would be more than just EHR. It would, in turn, encompass clinical data to move in EHRs, mobile devices, clouds, patient records, registries, and more. This level of interoperability would enable the industry to leverage digital health information for better health, improved care, and optimal cost-effectiveness.

**ACS action**

The ACS is working with Health Level Seven (HL7), an American National Standards Institute-accredited standards developing organization, and the Health Services Platform Consortium (HSPC) to create a framework for working interoperability in order to track patients across their care continuum with digital health information specific to their care needs.8,9

This interoperability framework is extremely complex. Individual patient models must define all workflows for clinical care, step by step. The care models must be mapped out for every instance and option for care. Each element of these models must be translated into specific clinical definitions all providers agree to accept. Then those definitions are assigned machine-readable terminologies from known standards held in recognized
libraries such as the Systematized Nomenclature of Medicine–Clinical Terms (SNOMED CT), and assigned logical observation identifiers names and codes (LOINC) and RXNorm. When appropriate, those terminologies need to be bound to a value set from the U.S. National Library of Medicine. Upon completion of these steps, the ACS plans to ask HL7 to accept these clinical definitions with their assigned terminologies and bound value sets to become an acceptable standard.

Once acceptable standards are agreed upon by the clinical community and the HL7 technology community, the final step will depend on the ONC and CMS requiring that these standards be part of EHR certification so that the information is available for an interoperable wire format exchange. The ACS believes that this affirmation by CMS should be at a scale large enough to set the de facto standard for EHR interoperability across payors.

Even though Congress has developed many pieces of legislation and programs to address interoperability concerns, our clinical care models remain complex and in need of change. The digital health care information needed to optimize modern care models must use standardized data that operates between EHRs, registries, and other smart HIT devices across the surgical care continuum. Clinicians and HIT engineers across the clinical domains must come together to ascribe clinical definitions that map to machine-readable formats using common terminologies and values. Additionally, the government must demand these aspects of interoperability be mandated as nationally required standards. To achieve this goal, the ACS will work with both the regulatory and legislative sides of government to implement effective, meaningful change.

REFERENCES

Nursing workforce in surgery and trauma care delivery: A global call to action

by Gregory L. Peck, DO, FACS; Jessica Badillo, MSN, RN; Margot Consuelo Burbano, MSN, Enf. Esp.; Isabelle Citron, MD, BM BCh; Cristiane de Alencar Domigues, PhD, RN; Richard W. Lang III; Lisa A. Falcón, MSN, RN, TCRN, NE-BC; Kathleen Martin, MSN, RN; Sol Angelica Muñiz, MSN, RN, FN; Timothy Murphy, MSN, RN, ACNP-BC, TCRN, CEN, FAEN; Nobhojit Roy, MD, PhD; and Suzanne Willard, PhD, APN, FAAN
This article is part of a series that describes efforts to improve global trauma care in Latin America. The first article in the series—“Using global surgical indicators to improve trauma care in Latin America”—was published in the April issue of the Bulletin.* In this article, the authors look at how improving nursing workforce can improve the availability of trauma care in low- and middle-income countries (LMICs). As in the other articles in this series, the authors describe efforts in Latin America that support the World Health Assembly (WHA) Resolution 68.15.

The need for interprofessional care
In the last 15 years, significant work has been conducted to quantify the global health care workforce burden. The World Health Report (WHR), a November 2006 expert assessment of shortfalls in global health care workforce, described the global health care workforce crisis and its massive effect in 57 countries and on 1 billion people, indicating that there is a global deficit of “2.4 million doctors, nurses, and midwives.” An additional 4.3 million health care workers were needed to fulfill the Millennium Development Goals established by the United Nations in 2000, which include eight anti-poverty targets in the identified countries outlined in the WHR. The report also documented variances in geographical workforce density ranging from 2.3 in Africa, to 4.3 in Southeast Asia, to as high as 24.8 in the U.S. (numbers per thousand population). In fact, countries with fewer than 2.3 skilled health care workers per 1,000 population were observed to have poor primary health care intervention coverage.1

The document, Working Together for Health, indicates that maximizing the capacity of the existing health care workforce is a key mechanism in decreasing the global health care burden. In alignment with comprehensive literature highlighting the benefits of systems-based interprofessional health care approaches to patient care, Working Together for Health highlights the need to enhance current healthcare member teamwork, with noted emphasis on the teamwork core skills sets of communication and leadership as a key mechanism in overcoming health care shortfalls.2-3 These concepts are consistent with the conclusions of various U.S. health care organizations that are documenting that teamwork—a critical component of interprofessional surgical teams—mitigates medical error and can be linked directly to improved patient outcomes and patient safety.4-7

The Agency for Healthcare Research and Quality (AHRQ) and The Joint Commission indicate that low expectations, poor communication and teamwork, and authority gradients can inhibit effective teamwork in health care environments, and remain key underlying reasons for underdeveloped health care safety cultures.6,7 AHRQ further indicates that hierarchical structures, such as those potentially related to gender or professional differences on a health care team, are well-documented obstacles to teamwork and patient safety.6

Nursing workforce disparities
Regional differences, as well as disparities in training, qualifications, gender, and profession, emphasize the imbalances in health care provider workforce shortage around the globe. Although almost two-thirds of all health care workers are women, data accentuates that women nurses are often underutilized and relegated to bed-making and other nonclinical tasks.6-11 These differences, combined with variances in employment credentialing requirements, and barriers that inhibit standardization of the trauma nursing specialty paradigm among LMICs can have a negative effect on care and management of the injured patient (see Table 1, page 36).12

According to the Center for Projects Developments study published in 2013, Colombia had 7,872 medical specialists, 1,471 surgeons, 1,977 anesthesiologists, and 1,008 specialists in trauma and orthopaedics. The National Association of Nurses in Colombia (ANEC) states Colombia had 44,520 registered nurses from 1997 to 2015, of which 93 percent were women (see Table 2, page 37, for other supporting data). However, in the 72 nursing graduate programs offered in Colombia, nursing curricula are not designed to prepare nurses for advanced roles in trauma nursing leadership, surgical systems enhancement, or interprofessional team-based care paradigms.

Brazil, the largest and most populous country in Latin America, offers free universal health coverage to all of its 207 million residents. According to the Federal Councils of Nursing and Medicine, the provider-to-patient ratio per 10,000 population is 22.9 for nurses and 21.4 for physicians, whereas the ratios for surgeons and anesthesiologists are 10.8 and 8.8 per 100,000 population, respectively, with mal-distribution of health care professionals to the southeast region overall. Qualifying and quantifying the surgery and trauma nurse specialty in Brazil’s health system (see Table 3, page 38) has proven difficult, as a higher level of education or training to work in specialty areas is neither mandated nor easily assessed.

Much like Latin America, regional maldistribution in total health care workforce is addressed in the literature from other areas of the world, as well. For example, a 2009 survey in India estimated health care density in urban areas at 42 health workers per 10,000 population and 11.8 per 10,000 population in rural areas. This imbalance was even more exaggerated when levels of qualification and training are considered: physicians, 13.3 urban/3.3 rural; nurses and midwives, 15.9 urban/4.1 rural per 10,000 population. Similarly, geographic areas that the World Bank has not classified as a LMIC—such as Puerto Rico, an unincorporated area of the U.S.—faced the same financial challenges and lack of human and material resources as those countries that the World Bank does classify as low-income. Here, health care
provider-to-patient ratio was affected when international migration occurred, increasing the impact of nursing shortages and specialty gaps on the island. 20 This type of shifting in the nursing workforce stemming from international migration, as well as a lack of global standardization in nursing education, licensure, and regulation, affects the quality of care and organizational performance globally. 21 This drives regional disparities in care and nursing competencies. 22–23 When specialty specific disparities exist as in the example of the trauma nursing specialty, middle- and high-income countries also experience challenges in health care delivery. 24

**Importance of nurses in surgical and trauma care delivery**

Nursing has the largest workforce of any health care profession and, therefore, may be a solution to providing emergency and essential surgical care globally. 22–23 The International Council of Nurses recognized the critical nature and positive health care impact provided through nursing in its report, *Nurses: A Force for Change: Improving Health Systems’ Resilience.* 25

The Lancet Commission on Global Surgery (LCoGS) put forth recommendations for implementation and evaluation of national surgical systems by proposing six core indicators to target the magnitude of the surgery and trauma burden by the year 2030. 26 Specifically, the LCoGS indicated that there is a need for global surgical workforce expansion to 20–40 surgery, anesthesia, and obstetrician physician specialists (SAOs) per 100,000 population by the year 2030. Although SAO roles are clearly delineated, nursing was more broadly categorized within the larger category of “allied health professionals,” and a “surgery and/or trauma nursing specialty” workforce density indicator was not delineated. However, this may require an adjustment because surgeons are unable to safely, consistently, and repeatedly execute surgical care delivery without nursing specialty professionals in surgery disciplines that are represented by the SAO density.

Since 2015, Rutgers Global Surgery has partnered with Rutgers School of Nursing, the Panamerican Trauma Society (PTS) nursing leadership, and select nursing professionals from Latin America to develop a support system for the role of nursing leadership in surgery and trauma nursing specialization. The academic interprofessional support system intends to empower and enhance interprofessional injury care in LMICs through education, training, networking, and team implementation for **continued on page 39**

### TABLE 2.
**AGE DISTRIBUTION OF HEALTH CARE PROFESSIONALS WITH NURSING TRAINING IN COLOMBIA**

<table>
<thead>
<tr>
<th>Age group</th>
<th>Women (percent)</th>
<th>Women</th>
<th>Men (percent)</th>
<th>Men</th>
<th>Total</th>
<th>Total</th>
<th>Women (percent)</th>
<th>Men (percent)</th>
</tr>
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<td>~0%</td>
<td>2</td>
<td>~0%</td>
<td>0</td>
<td>2</td>
<td>~0%</td>
<td>~0%</td>
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<td>21–25</td>
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<td>263</td>
<td>2,625</td>
<td>~1</td>
<td>~1</td>
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<td>26–30</td>
<td>~34</td>
<td>8,018</td>
<td>~4</td>
<td>958</td>
<td>8,976</td>
<td>~4</td>
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<td>31–35</td>
<td>~26</td>
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<td>36–40</td>
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<td>366</td>
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<td>41–45</td>
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<td>46–50</td>
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<td>67</td>
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<td>~0</td>
<td>31</td>
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<td>174</td>
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<td>20</td>
<td>194</td>
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<td>= or &gt; 61</td>
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<td>40</td>
<td>~0</td>
<td>10</td>
<td>50</td>
<td>~0</td>
<td>~0</td>
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<tr>
<td>Total</td>
<td></td>
<td>20,942</td>
<td></td>
<td>2,751</td>
<td>23,693</td>
<td></td>
<td>90%</td>
<td>12%</td>
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### TABLE 3. BRAZILIAN NURSING IN NUMBERS

<table>
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<tr>
<th>Region</th>
<th>Population</th>
<th>Nursing auxiliaries</th>
<th>Nursing technicians</th>
<th>Nurses</th>
<th>Nurses/inhabitants</th>
<th>Nurses/100,000</th>
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<td>North</td>
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<td></td>
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<td>Rondônia</td>
<td>1,787,279</td>
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<td>3,309</td>
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<td>185.14</td>
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<td>Acre</td>
<td>816,687</td>
<td>672</td>
<td>4,613</td>
<td>2,050</td>
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<td>27,326</td>
<td>8,731</td>
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<td>514,229</td>
<td>1,397</td>
<td>4,522</td>
<td>1,394</td>
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<td>271.09</td>
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<td>41,391</td>
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<td>127.37</td>
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<td>911</td>
<td>8,937</td>
<td>1,748</td>
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<td>223.45</td>
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<td>10,751</td>
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<td>0.0031</td>
<td>307.39</td>
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<td>18,670</td>
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<td>32,481</td>
<td>0.0018</td>
<td>183.43</td>
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<td>Northeast</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Maranhão</td>
<td>6,954,036</td>
<td>4,214</td>
<td>32,773</td>
<td>12,090</td>
<td>0.0017</td>
<td>173.86</td>
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<td>Piauí</td>
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<td>Paraíba</td>
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<td>55,794</td>
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<td>Bahia</td>
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<td>70,334</td>
<td>32,465</td>
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<td>222,068</td>
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<td></td>
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<td>191.01</td>
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<td>208.74</td>
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<td>0.0026</td>
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<td>1,088,231</td>
<td>474,372</td>
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<td>230.19</td>
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</table>

Sources:

defining trauma nursing workforce and expansion of the specialty (see Table 4, this page).

When we combine the LCoGS report and these symposia/workshop goals, the aim of improving surgical care delivery through maximizing the capability of existing workforce through improved nursing education, teamwork, and leadership begins to take shape in the international settings mentioned previously. Surgery and trauma nursing leadership could allow for an interprofessional establishment and continued development of data registry, performance improvement, and quality assurance initiatives, and be critical to decreasing perioperative mortality rates and increasing the total number of surgical interventions (LCoGS surgical care delivery indicators 3 and 4; see Table 5, page 40).

To achieve LCoGS national surgery/trauma qualification and quantification of LCoGS surgery care delivery indicators and World Development Indicator targets by 2030, nursing leadership and task-sharing in these systems administrative roles may prove to be pivotal.

Promoting the role of the trauma nurse
Globally, there is documented confusion about the role, importance, and the conceptual application of the trauma nurse specialty.12 The role of the trauma program manager (TPM), a nursing leadership position required for trauma center designation in North America, evolved as a result of inputs from the Society for Trauma Nurses and the American College of Surgeons (ACS) Committee on Trauma. Crouch and colleagues explained how a trauma nurse coordinator role in one country held 17 titles, and Walter and Curtis explained global variance between the context, scope, and impact of trauma practice.12,27 Barleycorn and colleagues discussed the differences in trauma training and education within LMICs, stating, “trauma education should be differentiated for newly qualified nurses and those with experience,” and “advanced-level training should focus on teamwork, trauma nurse leadership, and crisis-management skills.”24

Promotion of nursing leadership skills within every stage of the trauma program may foster intrapersonal and interpersonal consistency in various trauma nursing specialty roles,
enable systems workload task sharing, promulgate interprofessional care, increase cost-effectiveness, and diversify the talents of existing human capital. Nursing leadership and collaboration with surgeons within surgery/trauma program process improvement (PI) activities is a process that improves surgery care delivery by identifying preventable or potentially preventable complications and participating in loop closure after collaborative nurse and surgeon identification of opportunities for improvement. However, there is no evidence to suggest this occurs on a regular basis, or with interprofessional participation, in the LMICs. PI directorship is an example of a leadership responsibility that a TPM could fulfill in an international application of the TPM role. As the TPM oversees the trauma program in its entirety, unit or departmental trauma nurse managers can distribute capacity in order to prioritize growth of other components of the trauma program (for example, injury prevention, trauma registry, trauma education, and so on). Another trauma nurse specialist role includes the PI coordinator, who may fulfill a PI leadership role, that allows off-loading from the TPM during the early stages of TPM leadership. However, the underdevelopment of affordable and quality education/training that could promote this simple paradigm in the LMICs seemingly perpetuates professional and gender disparities in surgery and trauma workforce leadership.

Call for action
To meet the metrics set forth within the 2030 LCoGS document, the present generation of nurses must be systemically educated, trained, and empowered in leadership positions around the world. A focused engagement of an interprofessional workforce may stimulate systems enhancement and assist in addressing the global surgical burden.

Surgical care is in a period of marked transition. The burden imposed by professional, economic, social, and surgery’s gender culture barriers exacerbates global surgical care deficits. The need to transition from a traditional hierarchical to a team-based interprofessional care model is evident. The transition in Latin America requires collaborative interprofessional and multinational action between advocacy groups such as the ACS and the PTS, and linkage to national surgical societies in LMICs. For this type of evolution to be successful, an earnest evaluation of any individual and organizational

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**TABLE 5.**
**LCoGS CORE INDICATORS AND ASSOCIATED TRAUMA PROGRAM/SYSTEM ELEMENT**

<table>
<thead>
<tr>
<th>Category</th>
<th>LCoGS indicator</th>
<th>Description</th>
<th>Proposed trauma program/system element focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparedness</td>
<td>1</td>
<td>The geographic accessibility of surgical facilities</td>
<td>Prehospital system and integration with hospital registry</td>
</tr>
<tr>
<td></td>
<td>2*</td>
<td>The density of specialist surgical providers</td>
<td>Acute care surgeon/fellowships; trauma program manager</td>
</tr>
<tr>
<td></td>
<td>3*</td>
<td>The number of surgical procedures provided per 100,000 population</td>
<td>Trauma and emergent/essential hospital/societal registries</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>30-day perioperative mortality rates</td>
<td>Trauma and emergent/essential hospital/societal registries, formal trauma performance improvement and patient safety, and trauma morbidity/mortality review process</td>
</tr>
<tr>
<td>Impact</td>
<td>5*</td>
<td>The risk of impoverishing expenditure when surgery is required</td>
<td>Future work—ministries of health/education/finance and trauma/acute care surgery divisional business administration</td>
</tr>
<tr>
<td></td>
<td>6*</td>
<td>The risk of catastrophic expenditure when surgery is required</td>
<td>Future work—ministries of health/education/finance and trauma/acute care surgery divisional business administration</td>
</tr>
</tbody>
</table>

*World development indicators
gender and professional-based gaps must be conducted together and transparently.

The extension of qualified nursing specialty roles into hospital, national, societal, and ministerial leadership positions will require formal policy development and action. The authors advocate for the delineation of a specific nursing specialty workforce density alongside the physicians’ specialist SAO indicator. The modification of SAO to include nursing specialists will aid in achieving the intent specified within Working Together for Health and be instrumental in crossing professional and gender chasms to properly align surgical care delivery and successful national surgical planning in LMICs that achieves the WHA Resolution 68.15.

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continued on next page
president and chair of Rutgers Health Group; and professor of surgery, Rutgers University RWJMS; John G. Meara, MD, DMD, MBA, FACS, director, Program in Global Surgery and Social Change, Harvard Medical School; chair, department of plastic and oral surgery, Boston Children’s Hospital; and co-chair, The Lancet Commission on Global Surgery; Edgar Rodas, MD, FACS, associate professor of surgery, division of acute care surgery, Virginia Commonwealth University School of Medicine, Richmond; member of the Panamanian Trauma Society Trauma Systems Committee; and co-chair of the Panamanian Trauma Systems Committee’s Indicators Working Group; and Yuly Andrea Santa Mejia, Enf. Esp., nurse specialist in adult critical care, La Universidad de Antioquia; and an emergency nurse, Hospital San Vicente Fundación, Medellin, Colombia.

REFERENCES, CONTINUED

Each year, the Advocacy and Issues Committee of the Resident and Associate Society of the American College of Surgeons (RAS-ACS) hosts a symposium at the Clinical Congress that features a debate on a current and controversial issue relevant to surgeons in training and in practice. The committee members selected Reframing Surgical Leadership in 2017: Surgeon-Scientist or Surgeon-Advocate? as this year’s theme.

A changing regulatory and social environment has led to diminished individual surgeon autonomy in the operating room (OR) and in patient care. Historically, the surgeon has been the “captain of the ship” inside and outside the OR. In 2017, the surgeon is one of the many members of a health care team, often with limited autonomy.

In today’s environment, with an ever-increasing focus on quality, safety, and outcomes, every aspect of surgical care is scrutinized—from our training models, to our patient care practices, to our OR attire. Although surgeons welcome changes that improve patient outcomes, many are troubled by the increasing regulatory and administrative burdens that lead to further loss of autonomy. How can surgeons preserve their role as leaders in patient care?

Some members of the surgical community advocate for increased surgeon involvement in the world of health care policy and advocacy, business, and regulation. Other surgeons want to refresh the traditional roles of service, education, and innovative research. What should surgical leadership look like in the 21st century? Should we strive for a seat at the table of business and politics? Or should we strengthen our commitment to direct patient care, surgical education, and research?

Surgical residents from across the country participated in this discussion by submitting essays describing the future of leadership in surgery. We received a number of impressive entries. The first-place winners, Ciara Huntington, MD, postgraduate year (PGY)-5, general surgery resident, Carolinas Medical Center Charlotte, NC, and Jeffrey Howard, MD, PGY-4, general surgery resident, University of Louisville, KY, were invited to present their views at the ACS Clinical Congress 2017. Leading the discussion at the meeting were Amalia Cochran, MD, FACS, FCCM, Chair, ACS Professional Association political action committee Board of Directors, and an ACS Governor; Caprice C. Greenberg, MD, MPH, FACS, immediate past-president of the Association for Academic Surgery; and David A. Spain, MD, FACS, an ACS Governor.

Following are the second-place entries on the topic.

RAS-ACS Symposium essays:
Residents debate the future of leadership in surgery

by Naveen F. Sangji, MD, MPH
Let me start this response by saying that I see absolutely no reason why the answer to this prompt should not be “both.” However, in the spirit of fostering discussion and debate, I take the viewpoint that the future of surgical leadership should actually be a return to the roots of surgery and a return to the prominence of the surgeon-scientist. As a current research fellow in the midst of pursuing a PhD, I feel particularly compelled to make the case that further deterioration of the traditional roles of the academic surgeon (that is, patient care, surgical education, and surgical research) can only serve to stunt the frequency and magnitude of surgical breakthroughs.

Contributing factors
Much has recently been made of the precipitous decline of the surgeon-scientist, which is a discussion that appears to largely revolve around the abandonment of research, and especially basic science research, by the surgical community. As such, I believe the discussion should begin there. The scientific journal Nature recently published an editorial commenting on this trend, and it is not the only prominent media outlet to do so.* Keswani and colleagues have gone further in characterizing the issue of the diminished focus of basic science research by the surgical community. In a survey of 2,500 academic surgeons, they identified the factors at play: “pressure to be clinically productive, excessive administrative responsibilities, difficulty obtaining extramural funding, and desire for work-life balance.”†

As a resident, I have the advantage of being on the outside looking in, so to speak. Despite what some attending surgeons may think, residents do pay attention when attendings comment (and complain) about their lives, their pressures, and the inadequate amount of time allocated for the academic opportunities they must and want to pursue. Research can bring accolades and prestige to departments and hospitals, but it requires a long-term investment. I do not believe it is cynical to say that most hospital administrators do not take a 30,000-foot view of research, which is precisely what is required for basic science. This shortsightedness is driving the shift in mentality across the country.

What I take from all this is an academic environment that views surgical research as an extracurricular activity. It is almost as if administrators have the attitude of, “You can go out and play after you’ve finished your RVUs [relative value units] for today.” Perhaps most concerning is the fact that this is a trend that has been going on for decades and appears to be worsening.‡ This reduced emphasis on research will not work in modern-day science. National Institutes of Health

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I do not believe it is cynical to say that most hospital administrators do not take a 30,000-foot view of research, which is precisely what is required for basic science. This shortsightedness is driving the shift in mentality across the country.

Funding is on the decline, and the direct consequence is an increasingly competitive environment in which night and weekend science will get one nowhere. We live in a world where information and knowledge are changing at an unprecedented rate. Internists, pediatricians, pathologists—these physicians get weeks allocated out of every month to focus on grant-writing and research.

This forum is not intended to attack other specialties, but it does not take a highly critical mind to identify the patterns emerging when it comes to the inequities in supporting research and grant writing activity. Procedure-based specialties are invariably seen as the revenue generators. However, there are no “off-service” weeks for surgeons. Maybe there are some days where your partners begrudgingly round on your patients, but those never seem to happen as often as they should, or as often as your contract had promised. Given these circumstances, how exactly do you write a $1 million basic science grant with outdated knowledge of the field in your “free time?”

Making surgical science appealing again

While the problem is clear, the solution is perhaps less obvious. Nevertheless, the value of supporting basic science research needs to be emphasized. I want to be a purely academic surgeon, with a productive lab and a robust practice. Admittedly, these professional goals may seem increasingly ridiculous considering the assertions I’ve made in this essay.

In fact, many of my co-residents and colleagues across the country have different visions for their lives. The same factors identified as hindering academic success are identified for avoiding academic surgery altogether: pressures, responsibilities, lack of balance. While few would argue against the importance of research, many would argue the current barriers to research do not warrant the effort. The traditions of surgical research—established over the course of hundreds of years—no longer seem worth it. I emphasize the history of surgical research here in an appeal to the surgical psyche. For reasons I do not fully understand, surgeons, perhaps more than any other specialty, revere the history of their field.

At my institution, we have an entire society dedicated to the celebration of surgical history and surgical breakthroughs. The residents and attendings alike fawn over the giants of surgery. Physicians such as Alexis Carrel, MD; Joseph Lister, MD; Ephraim McDowell, MD; or Norman Shumway, MD, PhD, FACS, are celebrated for lifetimes worth of achievement, and yet we simultaneously abandon their legacies when we de-emphasize the essential role of surgeons in modern-day research. The need for more surgical breakthroughs will never disappear as long as surgical disease exists. More to the point, the need for surgeons to make those breakthroughs will never disappear.

We have all been on the receiving end of consults from services that have little-to-no understanding of surgical disease or operational processes. Basic science research is the same story in a different setting. How can we expect physicians or basic scientists to address the problems of transplant-related ischemia reperfusion injury if they have never even witnessed an organ procurement? I have classes with graduate students and pre-clinical MD/PhD students who have never set foot near a patient, and it is painfully obvious that, while they can regurgitate the appropriate words and phrases, the real burdens of these diseases are lost on them. To resolve the causes of and treatments for surgical disease, we need the involvement of surgeons. Bench to bedside only works when you have a foothold in both. The abandonment of the bench by surgeons is surely an abandonment of surgical progress. Society cannot afford for us to shirk this responsibility.
Late last week, I was struck with a familiar sense of helplessness. My patient, Mr. J, a gentleman in his 30s, had a piece of his skull missing, was nonverbal, and scored a three on the Glasgow Coma Scale. He was admitted for injuries sustained after being brutally assaulted while in prison. Having already undergone multiple operations, the prognosis for the return of his neurological function was close to zero.

As surgeons, we are trained to solve the problems in front of us—to work with our minds and hands to “fix” issues. However, we often care for patients like Mr. J for whom we have little to offer, those we cannot help get better using only our surgical skills. The issues that affect the care of these surgical patients are complex and run along society’s fault lines—imperfect health care delivery systems, unequal access to care, gun violence, homelessness, structural racism, and institutionalized sexism. As such, the solutions need to go beyond the traditional definitions of surgical care and straddle the social, economic, and the political.

“Medicine is a social science, and politics is nothing else but medicine on a large scale.”
— Rudolf Virchow

Reframing surgical leadership in 2017:
Surgeon-scientist or surgeon-advocate?

by Neeraja Nagarajan, MD, MPH
It is clear that for surgeons to continue to provide excellent clinical care, remain relevant in today’s health care environment, and strive for societal well-being as a whole, we have to be prepared to fully engage with health care in its entirety and lend ourselves to being not just clinicians and scientists, but also strident health care advocates.

**The evolving role of the surgeon-advocate**

The history of surgery illustrates the ever-changing role and scope of the surgeon and what they can do—from the “minimally educated, itinerant barber surgeons” of lore to today’s highly respected surgeon-scientists who practice evidence-based medicine.2

The surgeon-scientist has, over the last century, built an impressive body of work that often exists at the intersection of the social sciences and surgical care. Rigorous scientific inquiry has helped determine the causes of disease processes, while research has helped quantify the effect of socioeconomic determinants on individual and community health.3 However, today’s health care climate and its unique challenges mean that surgeon-leaders are called upon to take on new roles that move beyond well-established clinical and research frameworks.

Whereas health care problems are myriad, there are striking commonalities in the reasons that contribute to their continued prevalence. For example, smoking, a known carcinogen, is staging a comeback among young adults, especially in low- and middle-income countries.4 Obesity, a leading modifiable cause of mortality and morbidity, remains difficult to prevent and treat despite scientific advancements.5 Gun violence, with well-understood links to lax gun control laws, continues unabated in the U.S.6

The disparities in health care outcomes for racial, ethnic, and sexual minorities are documented extensively but have yet to be dismantled.7” There is little scientific uncertainty about the efficacy of vaccines or the inevitability of global warming—yet we live in interesting times, where scientific evidence is no longer correlated with public opinion or reflected in policy change. The failure to find workable solutions in health care today has not been due to a dearth of knowledge, but rather to a lack of effective health care policies, consensus among stakeholders, targeted health education, and political action.

A curious mix of naivety and arrogance has kept surgeons from engaging in policy work and political discourse. There is a tendency to view the study and practice of policy, advocacy, and public health as incompatible with real surgery, and that contributing to policymaking is something we only do when we can no longer perform surgery and engage in hard science. The reality is, health care and health policy experts exert influence over what kind of operations we can perform, the setting in which we perform them, who has access to our services, what our remuneration will be, and ultimately, how well we can do our jobs, and how satisfied we are performing them. As the surgeon-scientists among us well know, political will is linked to priority setting in biomedical research, and influences what kinds of research gets bankrolled, which disease studies are funded, what research methods we use, and which regions of the U.S. and around the world receive allocated resources.

**Engagement at all levels**

It is clear that for surgeons to continue to provide excellent clinical care, remain relevant in today’s health care environment, and strive for societal well-being as a whole, we have to be prepared to fully engage with health care in its entirety and lend ourselves to being not just clinicians and scientists, but also strident health care advocates. In doing so, we may seek inspiration from those among us who have already mastered working across disciplines and outside of established paradigms. Surgeons such as Atul Gawande, MD, MPH, FACS, a general and endocrine surgeon, Brigham and Women’s Hospital, Boston, MA, and a leader in the discussion of surgical quality improvement, have reached millions through the written word and focused national attention on topics as varied as surgical safety and end-of-life decisions.10

Others like Dorry Segev, MD, PhD, FACS, a transplant...
surgeon at Johns Hopkins University, Baltimore, MD, and an internationally recognized expert in the area of organ allocation, have taken their research to Capitol Hill and spearheaded the passage of legislation that allows for human immunodeficiency virus-positive organ transplant.11 Other physicians, such as Melina Kibbe, MD, FACS, chair, department of surgery, University of North Carolina at Chapel Hill, have harnessed the power of the media to draw attention to gender disparities in research and the widespread implications it has for efficacy and safety of treatment modalities in the market.12 Along with these high-profile examples of surgeon-advocates in action, there are many others who are quietly collaborating with and leading stakeholders, including patients, patient advocates, policymakers, public health professionals, the media, and others through this turbulent era in health care.

As surgeons, we prize single-minded focus and a certain insularity in our dedication to our craft, but we should vigilantly stand guard against this single-mindedness blinding us to the struggles of the patients we serve. Surgery is responsibility—our careers and our lives are built upon this foundation. But how far does this responsibility go? Does it stop with caring for Mr. J as he is now, or does it extend to preventing this situation from happening to others? Should a surgeon try to address the issues related to mass incarceration, the disproportionate arrests of men of color, and the effects of structural violence on patients and their families? The answer, I realized, captures the essence of what I believe is the role and future of surgeons as leaders. ♦

REFERENCES
The New Medicare Card Project

The New Medicare Card Project, which was established in the Medicare Access and CHIP (Children’s Health Insurance Program) Reauthorization Act of 2015, requires the Centers for Medicare & Medicaid Services (CMS) to remove Social Security numbers (SSNs) from all Medicare cards by April 2019. CMS will issue new Medicare cards that will feature a Medicare Beneficiary Identifier (MBI) in place of the SSN-based Health Insurance Claim Number (HICN), which is used to track Medicare billing, eligibility status, and claim status.

Why is CMS issuing new Medicare cards?
In addition to meeting a requirement mandated by statute, CMS is issuing new Medicare cards to combat identity theft and illegal use of Medicare benefits. The new Medicare cards will feature the MBI, which is a randomly assigned number integral to this fraud-prevention effort.

MBIs will comprise a mix of 11 uppercase alphabetic and numeric characters. The second, fifth, eighth, and ninth characters of the MBI will always be alphabetic. The use of several alphabetic characters makes MBIs visibly distinguishable from HICNs, which are primarily numeric.

Unlike HICNs, which list patients’ SSNs, MBIs are generated as “non-intelligent” unique identifiers, so they do not have any special meaning specific to beneficiaries. Although MBIs are “non-intelligent,” they are still confidential identifiers and should be used only for Medicare-related business.

How does CMS plan to implement the New Medicare Card Project?
CMS has a three-step plan to execute the New Medicare Card Project:

1. Generate MBIs for all beneficiaries. MBIs will be assigned to existing (active, deceased, or archived) and new beneficiaries.

2. Educate stakeholders and distribute new Medicare cards. CMS will mail the new Medicare cards in geographical waves. CMS will conduct targeted local outreach to patients, caregivers, and providers before the new cards are due to arrive in a geographical area.

3. Modify the systems and business processes. CMS will provide regular updates to accommodate receipt, transmission, display, and processing of the newly assigned MBI.

What is the timeline for the New Medicare Card Project?
CMS will begin mailing the new cards in April 2018 and will replace all old Medicare cards by April 2019. To help practices successfully convert to the MBI system, CMS will offer a transition period, beginning April 1, 2018, and ending December 31, 2019, during which providers will be allowed to submit either the HICN or MBI when billing Medicare. Providers should not submit both numbers on the same transaction.

After the 21-month transition period, CMS will not accept claims that include HICNs. CMS requires that all providers who submit or receive Medicare transactions containing HICNs modify their processes and electronic systems and be ready to accept MBIs by April 1, 2018.

While providers must use MBIs after December 31, 2019, HICNs may still be used in the following Medicare transactions:

- Claims appeals: CMS will accept appeals requests and related forms that contain either a HICN or MBI.
- Claims status queries: Providers can use either HICNs or MBIs to check the status of a claim with a date of service on or before December 31, 2019.
- Span-date claims: Providers can submit claims using either the...
HICN or MBI for patients who began receiving services in an inpatient hospital, home health, or religious nonmedical health care institution before December 31, 2019, but stop receiving such services after December 31, 2019.

Will these new Medicare cards affect Medicare benefits?
No, the new Medicare cards and MBIs will not affect the benefits that a Medicare beneficiary receives.

What resources will be available for providers to look up patient MBIs?
Starting in April 2018, when providers input a HICN into the HIPAA (Health Insurance Portability and Accountability Act) Eligibility Transaction System (also known as HETS) to check a patient’s Medicare eligibility status, the system will indicate whether CMS has mailed a new Medicare card to the beneficiary. CMS will begin including both the HICN and MBI on every claims processing decision sent to providers in October 2018.

In June 2018, CMS will release an MBI look-up tool in Medicare Administrative Contractor (MAC) secure web portals that will allow providers to look up MBIs for Medicare beneficiaries. To find a beneficiary’s MBI in the MAC portal, providers must know the patient’s first name, last name, date of birth, and SSN. This tool is intended for providers to be able to access a beneficiary’s MBI at the point of service without disrupting the clinical workflow. CMS encourages practices to subscribe to their MAC’s portal to ensure that providers have a mechanism to access patients’ MBIs. CMS has created a list of MAC websites (www.cms.gov/Medicare/New-Medicare-Card/Providers/MACs-Provider-Portals-by-State.pdf) to help providers locate their MAC’s portal.

What steps can providers take to prepare for the new Medicare cards?
• Visit the CMS provider website (www.cms.gov/Medicare/New-Medicare-Card/Providers/Providers.html) and sign up for the weekly Medicare Learning Network (MLN) Connects newsletter (www.cms.gov/Outreach-and-Education/Outreach/FFSPrevPartProg/Provider-Partnership-Email-Archive.html) to receive updates on the New Medicare Card Project.
• Participate in CMS quarterly calls to get additional New Medicare Card Project information. CMS will let providers know when calls are scheduled in MLN Connects.
• Verify all Medicare patient addresses. If the addresses on file are different from the addresses listed on electronic eligibility transactions, providers should ask patients to contact the Social Security Administration (https://faq.ssa.gov/ics/support/KBAnswer.asp?questionID=3704) and update their Medicare records, which may require coordinating between billing and office staff.
• Work with CMS to help Medicare patients adjust to their new Medicare cards. CMS will produce posters and other educational materials (www.cms.gov/Medicare/New-Medicare-Card/New-Medicare-Card-Messaging-Guidelines-July-2017.pdf) that providers can share with patients to educate them about New Medicare Card Project-related changes.

Where can I go for more information or questions on the New Medicare Card Project?
More information about the New Medicare Card Project is available on the CMS website (www.cms.gov/Medicare/New-Medicare-Card).
Surgeons who have questions about complying with the New Medicare Card Project may contact CMS at NewMedicareCardSSNRemoval@cms.hhs.gov, or the American College of Surgeons Division of Advocacy and Healthy Policy at regulatory@facs.org.
Appendicitis is the most common abdominal surgical procedure in the pediatric population, yet diagnosis can prove challenging in many cases. Standard diagnostic approaches include history and physical exam, white blood cell count, and diagnostic imaging. Both ultrasound (US) and computed tomography (CT) scans have been reported to improve diagnostic accuracy in appendicitis. Although CT has a higher sensitivity for diagnosing appendicitis than US, ongoing concerns have been raised about the radiation exposure and increased costs associated with CT scans.

The American College of Radiology (ACR) has published guidelines that state, “In children, US is the preferred initial examination as it is nearly as accurate as CT for diagnosis of appendicitis but is without ionizing radiation exposure.” Without diagnostic imaging, misdiagnosis of appendicitis can carry significant consequences, including progression to perforated disease in a case of missed appendicitis; and in a case of a “negative appendectomy,” the considerable cost and morbidity of undergoing an unnecessary operation. Although the goal of evaluating patients with suspected appendicitis is timely diagnosis with minimal CT use and risk of removing a normal appendix, there exists a great variation among children’s hospitals in US and CT use and negative appendectomy rates. This variance remains a critical problem in pediatric surgery, in light of extensive literature detailing the adverse effects of increased CT scan usage, such as exposure to ionizing radiation, and risk of future malignancies in the pediatric population.

The local problem: Overuse of CT scans
Children’s of Alabama, Birmingham, is a tertiary care, freestanding children’s hospital. It is a 380-bed facility, which provides services to all pediatric patients in the state of Alabama, resulting in approximately 15,000 annual overall admissions and 6,200 annual surgical admissions. Approximately 75 percent of surgical admissions present directly to the children’s hospital, whereas 25 percent are transferred from other facilities in the state. In a recent comparative analysis of 29 children’s hospitals participating in the American College of Surgeons National Surgical Quality Improvement Program Pediatric (ACS NSQIP® Pediatric), Children’s of Alabama was noted to be a high outlier for preoperative CT scan use for appendicitis and a low outlier for compliance with the ACR guidelines. The rate of preoperative CT scan use at Children’s of Alabama was 70 percent of all appendicitis admissions, which is well above the aggregate cohort rate of approximately 25 percent. Similarly, only 30 percent of appendicitis admissions at Children’s of Alabama had preoperative US scans in contrast to an aggregate cohort rate of approximately 85 percent.

How was the QI activity put in place?
To address the overuse of CT scans, Children’s of Alabama created a multidisciplinary focus group comprising senior members of the department of pediatric surgery, pediatric emergency medicine, and pediatric radiology. This group was charged with establishing the best clinical and radiological approach to evaluating pediatric appendicitis. The group met three times over the period of several months in order to direct its focus to specific issues. The first meeting centered on initial exploration. Group members discussed and described current methods of evaluating a child with suspected appendicitis. Specific topics of focus were perceived barriers for use of US in suspected appendicitis, perceived
radiological challenges, and specific populations that may need to forgo imaging or need CT imaging. As part of this meeting, the workgroup created a standard template for the reporting of US findings in children with appendicitis to aid the physician in making a decision about whether to operate or perform additional diagnostic imaging.

At the second meeting, the group focused on the development of an evidence-based algorithm for the initial evaluation of children with suspected appendicitis, incorporating the barriers discussed in the previous meeting. Following this meeting, the workgroup created an algorithm based on the Pediatric Appendicitis Score (PAS) as described later in this column.

During the third meeting, the group met with the members of each department to gather feedback from all clinicians, house staff, nurses, and radiology technicians prior to implementation. At the final meeting, which occurred mid-implementation, the group addressed challenges with implementation of the algorithm, adherence to the algorithm, and suggested changes to improve the algorithm.

This meeting occurred four months after initiation of the algorithm-based approach.

**Description of the QI activity**

Children’s Hospital of Alabama sought to improve the imaging strategies for pediatric appendicitis by concentrating on the following three actionable goals:

- Develop an algorithm based on best practices in the literature, which health care professionals can use when faced with diagnosis of a child with appendicitis
- Create a standard template for reporting of US findings in children with appendicitis to aid the physician in deciding whether to pursue surgery or additional diagnostic imaging
- Attempt to achieve a significant reduction in the baseline rate of CT scan use for children with suspected appendicitis while improving the US utilization rate

To develop the algorithm, a comprehensive literature search was performed to determine the most appropriate clinical risk stratification tool. We opted to use the PAS developed by Samuel, considering its validation in the literature. The PAS allowed for initial patient risk-stratification into low, moderate, or high risk for appendicitis. Based on this
initial classification, imaging modalities and other diagnostic interventions were determined according to the algorithm outlined in Figure 1, page 52. This algorithm was further linked with a web-based order set in the electronic health record for emergency medicine providers to enable a “point and click” interface.

Based on a classification system developed by Nielsen and colleagues, all patients were grouped into the following categories:

- Normal appendix
- Appendix not visualized or partially visualized without secondary signs of appendicitis
- Appendix not visualized or partially visualized with secondary signs of appendicitis
- Acute appendicitis

Patients in the first two categories were considered negative for appendicitis, while those matching the description in the latter two categories were considered positive.

All data were evaluated on a quarterly basis to follow trends in use of US and CT, thus monitoring both the implementation and success of the QI program.

**Necessary resources and skills**

Engagement of all pediatric surgeons, radiologists, and emergency physicians was crucial to the success of this initiative. For that purpose, specific department-level meetings were held in each of the specialties involved. During those meetings, members of the department were encouraged to contribute to the formation of the pathway and were queried regarding the obstacles or difficulties they could foresee in its implementation. Consequently, when the pathway was implemented, those individuals were vested in its successful launch.

No additional direct clinical costs were incurred. The only additional expenses for this project were in the employment of a statistician and data entry personnel for the quarterly evaluations of US and CT use rates.

**Results**

The PAS algorithm and radiological reporting template were implemented September 1, 2016. For the next eight months, all appendicitis admissions were evaluated for demographics, clinical characteristics, use of diagnostic imaging, and rates of negative appendectomies. Those variables were then compared with all appendicitis admissions in the eight months prior to implementation.

The changes in imaging modality rates before and after protocol implementation are illustrated in Figure 2, this page. Since initiation of the PAS-based protocol, the rates of CT scans among appendicitis admissions almost halved to 35 percent of admission, while the rates of US studies more than doubled to 65 percent of admission.

Concurrently, no differences were noted in length of hospital stay; postoperative complication rates; rates of intraoperative findings of complicated appendicitis (perforation, abscess, and so on); or rates of negative appendectomy between the pre-protocol and the post-protocol cohorts.

Approximately 25 percent of appendicitis admissions presented to our institution as transfers from other hospitals throughout the state. Those patients overwhelmingly underwent CT imaging in the referring facilities. To address this
problem, Children’s is presenting its protocol and data at local, regional, and state meetings in an effort to increase the rate of US evaluations in referring facilities.

Another setback that Children’s of Alabama faced in implementing this algorithm is that US scans are not performed overnight at the facility. Following a meeting with the pediatric radiology department, the exact timing of US availability was determined. That information was then disseminated to the house staff in pediatric surgery and pediatric emergency medicine. If individuals with PAS score >3 are evaluated at times when US is unavailable, they are admitted overnight for imaging in the morning.

Assuming an approximate cost of $697 for a limited abdominal US and an approximate cost of $3,889 for a CT scan of abdomen/pelvis with intravenous contrast, the hospital’s pre-protocol imaging costs for the monitored period was $201,309. Post-protocol the cost was $133,176, yielding a net cost savings of $68,133, or a 33.8 percent decrease in imaging costs.

**Lessons learned**

Institutions considering undertaking a similar QI activity should evaluate the rates of different imaging modalities used in the appendicitis admissions in their facility and compare them with the ACS NSQIP Pediatric cohort to determine the extent of deviation from the national standard. Involve collaborators from radiology and emergency medicine departments at an early stage of planning and create a standardized protocol for clinical evaluation of right lower quadrant pain, which takes into account history, physical findings, and lab values. Furthermore, evaluate the radiological capabilities of your institution when establishing your clinical pathway.

To ensure successful implementation, the authors recommend interval audits of US and CT rates. Arrange a mid-implementation meeting to discuss any concerns or complications, as well as receive feedback on the pathway. Conduct individual meetings as necessary to address identified barriers created by system process changes.

As final words of advice, Children’s of Alabama found that a multidisciplinary effort and collaboration between surgical, radiological, and emergency medicine specialists is absolutely necessary for such a program to be implemented and maintained. And lastly, create posters of the clinical pathway to be displayed in physician work areas of the surgical and emergency house staff. Those materials can be useful in facilitating calculation of the PAS score and improving compliance with the pathway.

**REFERENCES**

Patients diagnosed with rectal cancer often face the possibility of complete organ loss, and 25 percent of patients with stage II/III rectal cancer require a permanent colostomy. Improvements in systemic therapy and use of neoadjuvant treatment have encouraged efforts to avoid radical resections. This trend has been seen with other solid malignancies including breast, anal, and head and neck cancers. For rectal cancer, there is ongoing investigation regarding whether preoperative chemotherapy along with less aggressive surgical resection will allow preservation of the rectum and rectal function and avoid the need for a stoma.

The NEO Trial (CCTG CO28)
The CCTG (Canadian Clinical Trials Group) CO28 Neoadjuvant chemotherapy, Excision and Observation (NEO) Trial has been activated at designated centers in the U.S. and Canada. It aims to treat patients diagnosed with T1-T3a/b, low- to mid-rectal tumors with neoadjuvant chemotherapy followed by minimally invasive transanal surgery. Study objectives are to establish the feasibility and safety of this approach to allow sphincter preservation.

Current treatment of T1-T3 rectal tumors includes radical surgery with an open or laparoscopic total mesorectal excision (TME), while preoperative chemoradiation is added for patients with T3-T4 or N+ tumors. Population-based studies in the U.S. have documented an increasing use of local excision/transanal surgery in the treatment of T1 or T2 rectal tumors. However, a significant proportion of T1-T2 tumors are pathologically node-positive and the literature demonstrates an increased rate of local relapse when patients are treated with transanal local excision alone.\(^1\)\(^-\)\(^4\)

Staging and treatment
Patients enrolled in CO28 are staged with pelvic magnetic resonance imaging (MRI) and endoscopy (see Figure 1, page 56). Clinically node-negative tumors that are eligible for the NEO trial must meet the following criteria: T1, T2, or T3a/b but extend less than 5 mm beyond the muscularis propria; amenable to minimally invasive transanal excision; and exhibit no high-risk pathology features.

Patients are treated with three months of neoadjuvant chemotherapy with FOLFOX (Oxaliplatin, Leucovorin, and 5-Fluorouracil) or CAPOX (Capecitabine and Oxaliplatin). If evidence of tumor regression is found on rectal endoscopy and MRI, patients proceed to tumor excision by surgeons experienced in transanal endoscopic microsurgery (TEMS) or transanal minimally invasive surgery (TAMIS).

Participating surgeons must have performed at least 20 TEMS/TAMIS procedures and must submit an unedited video of the first patient they enroll. Local excision is permitted for very low tumors when appropriate. Subsequent treatment is determined on the basis of tumor pathology on the resected specimen. Completely resected tumors downstaged to pT0 or pT1 without any histologic high-
risk factors have a low risk of nodal involvement and are treated with observation.\textsuperscript{5,6} Endoscopic and cross-sectional imaging is repeated every four to six months for 36 months and annually in years four and five. It is recommended that patients with tumors that do not achieve downstaging to pT1 after systemic chemotherapy proceed directly to standard TME surgery. Preoperative pelvic radiation is recommended only for patients with ypT3+ or node-positive tumors.

Study leads are Hagen Kennecke, MD, MHA, FRCPC, co-author of this column, and Carl J. Brown, MD, FACS, colon and rectal surgeon, Providence Health Care, Vancouver, BC. The study will be run by the Canadian Clinical Trials Group at select Canadian and U.S. cancer centers. Per-case funding will be provided and chemotherapy supply is expected to be commercially available. Contact Hagen.Kennecke@virginiamason.org for study information and participation. ♦

FIGURE 1. STUDY SCHEMA OF THE NEO TRIAL, CO28

The primary endpoint is the rate of downstaging to pT0 or pT1 upon excision after neoadjuvant chemotherapy. The study will be considered successful if at least 65 percent of patients are managed with rectal organ preservation.

REFERENCES

The 34th president of the U.S., Dwight D. Eisenhower, underwent surgery on June 9, 1956, to treat a small bowel obstruction. After a distinguished career in military and public service, Mr. Eisenhower assumed the presidency in 1952 at age 62. A debilitating myocardial infarction in 1955 had already complicated his tenure when he began experiencing severe abdominal pain on June 8, 1956, after a dinner soirée featuring Jane Powell and Bob Hope.

President Eisenhower had suffered bouts of intestinal discomfort throughout his life, with severe symptoms in 1923 resulting in an uncomplicated appendectomy. After another episode in May 1956, his physicians diagnosed him with Crohn’s disease, a pathology only recently described in the medical literature. As President Eisenhower’s condition degenerated, bowel obstruction from postoperative adhesions versus Crohn’s disease were the diagnoses debated among his physicians.

This abdominal pain began just after midnight on June 8. The president’s personal physician, Howard Snyder, MD, initially assumed this episode would pass like the others and prescribed Milk of Magnesia and a tap water enema. The pain worsened, complicated by bilious vomiting. As President Eisenhower’s heart rate climbed and his blood pressure dropped, Dr. Snyder initiated intravenous hydration, consulted surgery, and transferred the president to Walter Reed Army Hospital, Washington, DC, where his vital signs stabilized. Once the president was admitted to the hospital, a nasogastric tube was placed that promptly drained voluminous gastric fluid, and radiographs confirmed the clinical diagnosis of bowel obstruction.

The surgical team assembles

The surgical team consisted of Leonard Heaton, MD, FACS, Surgeon General of the U.S. Army; Isidor Ravdin, MD, FACS, chairman of surgery, University of Pennsylvania, Philadelphia; Brian Blades, MD, FACS, chairman of surgery, George Washington University, Washington, DC; and John Lyons, MD, FACS, the premier private practice surgeon in Washington at the time. When the president’s condition failed to improve and follow-up radiographs evidenced worsening obstruction, the surgical team unanimously agreed to operate. President Eisenhower’s cardiologists concurred that he could tolerate a laparotomy, albeit at higher risk. With Dr. Heaton designated as primary surgeon and Dr. Ravdin as first assistant, the operation commenced.

In the early morning hours of June 9, the team explored President Eisenhower’s abdomen through a right paramedian incision. After lysing adhesions, they found 30–40 cms of thickened, indurated, contracted terminal ileum resulting from Crohn’s, the source of the obstruction. They did not observe any active inflammatory bowel disease and elected to bypass the obstruction with an ileocolostomy rather than resect the diseased bowel. Intestinal bypass was a common operation in the 1950s, but the choice nonetheless precipitated much controversy from physicians who believed it left the president at increased risk for recurrence. Subsequent events proved the team’s decision correct.

President Eisenhower’s recovery was essentially unremarkable except for a minor wound infection. His prolonged convalescence in the hospital and at his Gettysburg, PA, farm did complicate foreign relations and arguably contributed to the 1956 Suez crisis among Egypt, Israel, Great Britain, and France. President Eisenhower’s incapacity following the operation and his heart attacks eventually led to the 25th Amendment, which established contingency plans.

President Eisenhower and his bowel obstruction

by Justin Barr, MD, PhD, and Theodore N. Pappas, MD, FACS
for presidential disability and was ratified in 1967. His health continued to deteriorate, with a major stroke in his second term and multiple myocardial infarctions and bowel obstructions through the 1960s. A severe obstruction in February 1969 required a subsequent operation for adhesive disease. President Eisenhower died on March 28 following this surgery from yet another myocardial infarction.

The American College of Surgeons (ACS) provided a supporting role throughout President Eisenhower’s treatment for his small bowel obstruction. In fact, Dr. Ravdin was presiding over an ACS Board of Regents meeting in Chicago, IL, when his wartime friend Dr. Heaton summoned him to the nation’s capital. Dr. Ravdin decamped mid-meeting, leaving Loyal Davis, MD, FACS, the 43rd President of the College, in charge. The day after President Eisenhower’s operation, the Board of Regents sent Dr. Ravdin a formal letter of reprimand for practicing itinerant surgery. In this same, contradictory missive, the Regents simultaneously complimented Dr. Ravdin on “the honor he brought” to the College; it has been this panegyric narrative that has endured. In 1960, Dr. Ravdin served as President of the ACS. President Eisenhower formally acknowledged the College for its leader’s assistance, and the College inducted him as an Honorary Fellow in 1957.

REFERENCES

Joint Commission details new pain assessment, management standards in $R^3$ Report

by Carlos A. Pellegrini, MD, FACS, FRCSI(Hon), FRCS(Hon), FRCSEd(Hon)

In late August, The Joint Commission released an $R^3$ Report, also known as the Requirement, Rationale, and Reference Report, on the development of new and revised Joint Commission pain assessment and management standards for hospitals. The standards are the result of an 18-month standards revision project that included a focus on the safe and judicious prescribing of opioids. The project was part of a national effort to address the opioid crisis in the U.S., which is designed to ensure that physicians assess and treat pain appropriately, and that patients have a substantial involvement in pain assessment, treatment, and goal setting and an understanding of the safety issues associated with the use of analgesics of all kinds. Surgeons are, of course, deeply involved in this issue, given that pain is so central to pre- and postoperative patient management.

To develop these new and revised standards, The Joint Commission engaged in the following activities:

- Conducted an extensive literature review, as well as a field review
- Convened a technical advisory panel—composed of members of leading health care organizations—to talk about high-quality and safe initiatives regarding pain assessment and management
- Visited hospitals to research leading practices on pain assessment and management, particularly the safe use of opioids
- Formed a standards review panel to appraise draft standards

Requirements that may affect surgeons

These pain assessment and management standards, which take effect January 1, 2018, are designed to improve the quality and safety of care provided by Joint Commission-accredited hospitals. They require hospitals to make pain assessment and management, as well as safe opioid prescribing, a priority.

What do these standards mean for surgeons? The hospitals where surgeons hold privileges will have to meet new requirements that will affect pre- and postoperative activities. Even if these requirements have no direct effect on surgery, surgeons will want to be fully informed about the standards, which are as follows:

- Leadership 04.03.13—Pain assessment and pain management, including safe opioid prescribing, is identified as an organizational priority for the hospital.
  - Element of performance (EP) 3: The hospital provides staff and licensed independent practitioners (LIPs) with educational resources and programs to improve pain assessment, pain management, and the safe use of opioid medications based on the identified needs of its patient population.

- EP 4: The hospital provides information to staff and LIPs on available services for consultation and referral of patients with complex pain management needs.

- EP 6: The hospital facilitates practitioner and pharmacist access to the prescription drug monitoring program databases.

- EP 7: Hospital leadership works with its clinical staff to identify and acquire the equipment needed to monitor patients who are at high risk for adverse outcomes from opioid treatment.

- Medical Staff 05.01.01—The organized medical staff has a leadership role in the organization performance improvement activities to improve quality of care, treatment, and services and patient safety.
  - EP 18: The medical staff is actively involved in pain assessment, pain management, and safe opioid prescribing through the following activities:
    - Participating in the establishment of protocols and quality metrics
Reviewing the performance improvement data

**Provision of Care, Treatment, and Services 01.02.07**—The hospital assesses and manages the patient’s pain and minimizes the risks associated with treatment.

- **EP 3:** The hospital treats the patient’s pain or refers the patient for treatment.
- **EP 4:** The hospital develops a pain treatment plan based on evidence-based practices and the patient’s clinical condition, past medical history, and pain management goals.
- **EP 5:** The hospital involves patients in the pain management treatment planning process through the following efforts:
  - Developing realistic expectations and measurable goals that are understood by the patient for the degree, duration, and reduction of pain
  - Discussing the objectives used to evaluate treatment progress (for example, relief of pain and improved physical and psychosocial function)
  - Providing education on pain management, treatment options, and safe use of opioid and nonopioid medications when prescribed
- **EP 6:** The hospital monitors patients identified as being high risk for adverse outcomes related to opioid treatment.
- **EP 7:** The hospital reassesses and responds to the patient’s pain through the following activities:
  - Evaluation and documentation of response(s) to pain intervention(s)
  - Progress toward pain management goals including functional ability (for example, ability to take a deep breath, turn in bed, and walk with improved pain control)
  - Side effects of treatment
  - Risk factors for adverse events caused by the treatment
- **EP 8:** The hospital educates the patient and family on discharge plans related to pain management, including the following:
  - Pain management plan of care
  - Side effects of pain management treatment
  - Activities of daily living, including the home environment, that might exacerbate pain or reduce effectiveness of the pain management plan of care, as well as strategies to address these issues
  - Safe use, storage, and disposal of opioids when prescribed

**Performance Improvement (PI) 01.01.01**—The hospital collects data to monitor its performance.

- **PI 02.01.01**—The hospital compiles and analyzes data.

To view the entire list of pain assessment and management standards, which are available online through the end of the calendar year, visit [www.jointcommission.org/prepublication_standards_%E2%80%93_standards_revisions_related_to_pain_assessment_and_management/](http://www.jointcommission.org/prepublication_standards_%E2%80%93_standards_revisions_related_to_pain_assessment_and_management/).

After January 1, 2018, these standards may be accessed in the main Joint Commission manual. The *R3 Report* is a Joint Commission publication for accredited organizations and interested health care professionals that details the resources used for development of new requirements. The *R3 Report* goes into more depth than the main manual, providing a rationale statement for each element of performance. View the *R3 Report* at [www.jointcommission.org/r3_issue_11/](http://www.jointcommission.org/r3_issue_11/).

**Disclaimer**
The thoughts and opinions expressed in this column are solely those of Dr. Pellegrini and do not necessarily reflect those of The Joint Commission or the American College of Surgeons.
This year marks the 10th anniversary of the iconic iPhone. Similar to what Apple’s visionary team did for the music industry with the introduction of the iPod in October 2001, Apple reinvented the smartphone by introducing a handheld device featuring a touchscreen and a virtual keyboard with capabilities including the ability to play music, send and receive e-mail, browse the web, send and receive text messages, and follow GPS navigation. Almost two-thirds of Americans owned a smartphone (either an iPhone or other smartphone brands) in 2016, representing a threefold increase from 2010.*

Driven to distraction
Distracted driving has always been around, whether an individual was leaning over to pick up an eight-track that had fallen under the car seat, eating a meal, shaving, applying makeup, fiddling with the entertainment/navigation system, or reading the paper—any action other than driving while operating a motor vehicle impedes safety. The smartphone, however, has taken distracted driving to a new level. Texting is the most alarming activity when the user is behind the wheel, because reading or sending a text takes your eyes off the road for up to five seconds. If you were driving at 55 miles per hour, that driving distraction is the equivalent of driving the entire length of a football field with your eyes closed.†

In 2015, according to the U.S. Department of Transportation, National Highway Traffic, and Safety Administration (NHTSA), 391,000 people were injured and 3,477 were killed in motor vehicle crashes involving distracted drivers. Teenagers were the largest age group reported as driving distracted at the time of a fatal crash.‡ During daylight hours, upward of 660,000 drivers are using smartphones while driving, which is a startling number of vehicles on the road with distracted drivers.

The percentage of passenger-vehicle drivers visibly manipulating handheld devices or text messaging remained constant in 2015 at 2.2 percent. These findings are from the National

Texting is the most alarming activity when the user is behind the wheel, because reading or sending a text takes your eyes off the road for up to five seconds. If you were driving at 55 miles per hour, that driving distraction is the equivalent of driving the entire length of a football field with your eyes closed.
Occupant Protection Use Survey, which is conducted annually by trained data collectors observing at probabilistically sampled intersections under the auspices of NHTSA’s National Center for Statistics and Analysis.‡

To examine the occurrence of drivers injured while using a handheld interactive electronic device in the National Trauma Data Bank® (NTDB®) research admission year 2015, medical records were searched using the International Classification of Diseases (ICD), 10th Revision, Clinical Modification codes. Specifically searched were records that contained a code of V40-V49A (car occupant) that had a post-decimal place value of zero (driver) and an activity code of Y93.C2 (handheld interactive electronic device). A total of six records were found that contained a discharge status, including five patients discharged to home and one to a nursing home (see Figure 1, this page). Of these patients, 83 percent were male, on average 28 years of age, had an average hospital length of stay of 3.3 days, and an average injury severity score of 8.6. Of those tested for alcohol, two out of five were positive and over the legal limit.

Make sure teens get the message
In the transition to ICD-10, the numbers of distracted drivers reported in the NTDB may be relatively low for this year, but the magnitude of the problem remains significant, especially for teenage drivers. Parents should lead by example and have conversations with younger-age drivers about the risks of distracted driving. Educators and employers can play a role by spreading the word at school or in the workplace. Help all drivers, especially teenagers, avoid the attraction to driving with distraction.

Throughout the year, we will be highlighting these data through brief reports that will be found monthly in the Bulletin. The NTDB Annual Report 2016 is available on the American College of Surgeons website as a PDF file at facs.org/quality-programs/trauma/ntdb. In addition, information is available on our website about how to obtain NTDB data for more detailed study. To submit your trauma center’s data, contact Melanie L. Neal, Manager, NTDB, at mneal@facs.org.

Acknowledgement
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Barbara Lee Bass, MD, FACS, FRCS(Hon), installed as 98th ACS President

Barbara Lee Bass, MD, FACS, FRCS(Hon), the John F. and Carolyn Bookout Presidential Endowed Chair and chair, department of surgery, Houston Methodist Hospital, TX, was installed as the 98th President of the American College of Surgeons (ACS) at the Convocation Ceremony at Clinical Congress 2017 in San Diego, CA.

Dr. Bass is highly regarded for her outstanding clinical and academic contributions to general surgery and her commitment to teaching the next generation of surgeons. She is the executive director of the Houston Methodist Institute for Technology, Innovation and Education (MITIE), a state-of-the-art education and research facility developed to safely train practicing health care professionals in new technologies and procedures. She is professor of surgery at Weill Cornell Medical College, New York, NY, and the Houston Methodist Institute for Academic Medicine, and senior member of the Houston Methodist Hospital Research Institute. Dr. Bass was elected to honorary fellowship in the Royal College of Surgeons earlier this year.

Before taking on her roles at Houston Methodist Hospital in 2005, Dr. Bass was professor of surgery (1994–2005), associate chair for research and academic affairs, and general surgery residency program director, department of surgery, University of Maryland, Baltimore (1999–2005). While at the University of Maryland, Dr. Bass also served as chief, gastrointestinal surgical research (1994–2005), Veterans Affairs (VA) Medical Center, Baltimore. Earlier appointments included faculty positions at the George Washington University School of Medicine, the Uniformed Services University of Health Sciences (USUHS), and the Walter Reed Army Institute of Research.

A Fellow of the College since 1988 and the 2013 recipient of the Distinguished Service Award—the College's highest honor—Dr. Bass served as an ACS Regent (2001–2010) and on the Executive Committee of the Board of Regents (2005–2009). As a Regent, she was a member of the Finance Committee (2005–2010), Member Services Liaison Committee (2004–2008), Central Judiciary Committee (2002–2005), and the Scholarship Committee. She is a Past-Chair of both the ACS Committee on Education (2003–2006) and the Clinical Congress Program Committee (2005–2011).


Dr. Bass has been a champion of the National Surgical Quality Improvement Program (ACS NSQIP®) since its inception at the VA. While at the VA Medical Center in Baltimore, she helped to launch the program, and served as a principal investigator at a participating institution in the Agency for Healthcare Research and Quality’s testing...
Dr. Bass is highly regarded for her outstanding clinical and academic contributions to general surgery and her commitment to teaching the next generation of surgeons.


A contributor to a number of ACS educational initiatives, Dr. Bass was an author for the Surgical Education and Self-Assessment Program (1996–2002). During her term as an ACS Regent and Chair of the American Board of Surgery, she served on the American Surgical Association’s Blue Ribbon Committee, cosponsored by the ACS, to evaluate and recommend changes in surgical training. As Chair of the Program Committee, she led the Clinical Congress strategic planning process in 2006. As a result, the annual meeting was restructured progressively between 2007 and 2010 to facilitate access to high-quality specialty and program-specific content tracks. Programmatic review, targeted expansion, a review course for board examination preparation, Meet-the-Expert Sessions, and Town Hall meetings were added to the Clinical Congress during this process. Dr. Bass continued to serve as a consultant to the Program Committee until 2014.

She serves as Co-Chair of the Committee on Skills Training for Surgeons in Practice with Ajit K. Sachdeva, MD, FACS, FRCSc, Director, ACS Division of Education. This committee is working to address retooling needs and strategies for practicing surgeons who need to acquire new skills. To launch this effort, she hosted the “Retooling Reimagined” symposium at MITIE in 2016 and a national invitational meeting of stakeholders at the ACS this summer.

Dr. Bass has held leadership roles in other professional organizations, including serving as chair, American Board of Surgery; president, Society for Surgery of the Alimentary Tract; president, Society of Surgical Chairs; and treasurer, American Surgical Association. She has inspired other women in surgery and as a result has received the Nina Starr Braunwald Award and the Olga Jonasson Distinguished Member Award from the Association of Women Surgeons. A mentor to more than 50 pre- and postdoctoral fellows, she has authored or co-authored 155 peer-reviewed papers, and has delivered more than 60 named lectureships and many other invited lectureships in the U.S. and around the globe.

Dr. Bass’ research programs in gastrointestinal cell biology, computational surgery, surgical outcomes sciences, and clinical research have been funded by the National Institutes of Health (NIH), the VA Research program, the National Science Foundation, and other groups. Her first grant was an ACS Faculty Research Award (1987). She has served as a member of the NIH Surgery and Bioengineering Section and has served on the editorial boards or as associate editor of many surgical journals, including the Journal of the American College of Surgeons, Annals of Surgery, and Surgery. Her continuing practice in endocrine and breast surgery affords her the opportunity to enjoy the rewards of serving patients as a surgeon and to contribute to the education and training of residents and medical students. Dr. Bass graduated summa cum laude with a bachelor of science degree from Tufts University, Medford, MA (1975). She earned her medical degree (1979) from the University of Virginia, Charlottesville, where she was elected to the Alpha Omega Alpha Honor Medical Society. She completed her surgical internship and general surgery residency at George Washington University, Washington, DC (1986), while completing a gastrointestinal surgical research fellowship and serving as Captain, U.S. Army Medical Corps (1982–1984).

**Vice-Presidents**

During the Convocation, Charles D. Mabry, MD, FACS, was installed as ACS First Vice-President, and Basil Pruitt, Jr., MD, FACS, FCCM, MCCM, was installed as ACS Second Vice-President. Dr. Mabry is a general surgeon from Pine Bluff, AR, and associate professor of surgery and practice management advisor to the chair, department of surgery, University of Arkansas.
Dr. Mabry’s command of analytical data and effective communication skills led to his appointment to represent the ACS on the American Medical Association Relative Value Update Committee. In a related activity, he serves on the ACS General Surgery Coding and Reimbursement Committee.

for Medical Sciences, Little Rock. Dr. Mabry also is medical director of physician practice management, Jefferson Regional Medical Center, Pine Bluff.

Dr. Mabry serves on the Governor’s Trauma Advisory Committee for the State of Arkansas and is Chair of the Committee’s Quality Improvement Subcommittee. He is Chairman of the Board for the Arkansas Preferred Provider Organization. He previously served on the Continuing Medical Education Committee and Vice-Chair of the Board for the Arkansas Foundation for Medical Care. In addition, he has served on the Governor’s Advisory Council for Emergency Medical Service–Training Committee.

A Fellow of the College since 1988, Dr. Mabry has been a tireless and committed volunteer since he joined the Young Surgeons Committee in 1989. His command of analytical data and effective communication skills led to his appointment to represent the ACS on the American Medical Association Relative Value Update Committee (1992–present). At present, Dr. Mabry is a member of the ACS Health Policy Advisory Group and Chair of the Health Policy Advisory Council.


Dr. Mabry has been recognized with appointments to NIH study sections, the VA Merit Review Board for Surgery, and the Shriners Hospitals Research Advisory Board and Clinical...
Dr. Pruitt served as Commander and Director of the U.S. Army Institute of Surgical Research for 27 years and became a trailblazer in the management of trauma, burns, and critical care patients worldwide.

Outcomes Studies Advisory Board. He has served as a reviewer and referee for the Hong Kong Research Grants Council, the BC (British Columbia) Health Research Foundation and Alberta Heritage Foundation, the U.S. VA, and the NIH. Perhaps Dr. Pruitt’s most enduring legacy is his mentorship of a cadre of leading physicians and scientists, including 46 directors of burn centers, more than 20 department chairs, and 11 past-presidents of the American Burn Association.

Dr. Pruitt has received national and international commendations for his contributions to patient care. A few examples include the National Safety Council’s Surgeons Award for Distinguished Service to Safety, the Danis Prize of the Société Internationale de Chirurgie, the Medallion for Scientific Achievement of the American Surgical Association, the Distinguished Investigator Award of the Society of Critical Care Medicine, the G. Whitaker International Burns Prize, the Tanner-Vandeput-Boswick International Burn Prize, the Lifetime Achievement Award of the Society of University Surgeons, the Roswell Park Medal, and the King Faisal International Prize in Medicine. This year, the ACS has distinguished Dr. Pruitt as an Icon in Surgery.


He has played an active role on the Committee on Trauma (1974–1980, Senior Member, 1980–1984), the International Relations Committee (1982–1989, Chair 1987–1989), and the Surgical History Group (2013–present; Chair, Program Committee, 2014–present). He has served as an Advanced Trauma Life Support instructor (1981–present), on Surgical Education and Self-Assessment Program development committees, as a Scudder Orator (1984), and as an Excelsior Surgical Society/Edward D. Churchill Lecturer (1988).

He served on the Executive Committee (1974–1980) and as a Councilor (1981–1984) of the South Texas Chapter of the ACS.

In addition to his many years of service to the College, Dr. Pruitt has served as president of 12 surgical societies, including the American Burn Association, American Association for the Surgery of Trauma, American Surgical Association, Halsted Society, International Society for Burn Injuries, Southern Surgical Association, and the Western Surgical Association. He is an Honorary Fellow of the Society of Black Academic Surgeons and an honorary member of the Japanese Association for Acute Medicine. He served for 20 years as the associate editor and 17 years as the editor-in-chief of the Journal of Trauma.

Dr. Pruitt graduated from Harvard College, Boston, MA (1952), and Tufts Medical School (1957). He completed his initial surgical training at Boston City Hospital (1962) and completed his surgical residency at Brooke General Hospital, San Antonio, TX (1964).
At the Convocation Ceremony at Clinical Congress 2017 in San Diego, CA, the American College of Surgeons (ACS) presented the 2017 Dr. Mary Edwards Walker Inspiring Women in Surgery Award to SreyRam Kuy, MD, MHS, FACS. This award was established by the ACS Women in Surgery Committee (WiSC) and is presented annually at the Clinical Congress in recognition of an individual’s significant contributions to the advancement of women in the field of surgery.

The award is named in honor of Mary Edwards Walker, MD. Dr. Walker volunteered to serve with the Union Army at the outbreak of the American Civil War and was the first female surgeon ever employed by the U.S. Army. Dr. Walker is the only woman to have ever received the Congressional Medal of Honor, the highest U.S. Armed Forces decoration for bravery. Through Dr. Walker’s example of perseverance, excellence, and pioneering behavior, she paved the way for today’s women surgeons.

Dr. Kuy’s career embodies the spirit of this award and demonstrates her personal determination, professional excellence, and commitment to public service.

**Inspiration to practice**

Dr. Kuy was born in a labor camp in Cambodia in 1978 during the Cambodian genocide known as the Killing Fields. Following the overthrow of the Khmer Rouge, her family fled to a refugee camp in Thailand where Dr. Kuy, her sister, and her mother were severely injured by a grenade. All three lives were saved by surgeons volunteering at the refugee camp. These volunteer surgeons helped inspire Dr. Kuy to pursue a career in medicine.

Her family moved to the U.S. in 1981 and settled in Oregon. Dr. Kuy attended Oregon State University, Corvallis, and went on to complete medical school at Oregon Health & Sciences University, Portland. She earned her master’s degree in health policy, public health, and outcomes research at Yale University School of Medicine, New Haven, CT, as a Robert Wood Johnson Clinical Scholar.

**An accomplished early career**

As associate chief of staff, Michael E. DeBakey Veterans Affairs (VA) Medical Center, Houston, TX,
Dr. Kuy oversees 5,000 staff in a complex VA hospital with the busiest emergency department and operating rooms in the VA system. Dr. Kuy previously served as chief medical officer for Medicaid in the Louisiana Department of Health, Baton Rouge. Under her leadership, Louisiana was the first state to develop a Zika prevention strategy for pregnant Medicaid patients. Dr. Kuy also led initiatives that enabled women with breast cancer to have access to reconstructive surgery and testing, led efforts to coordinate medical disaster relief efforts during the historic Louisiana flooding of 2016, and led Louisiana Medicaid’s initiative to tackle the opioid epidemic.

Dr. Kuy developed statewide health performance metrics, pay-for-performance incentives, and novel Medicaid Expansion Early Wins measures, which enabled the state of Louisiana to assess how access to care directly affects lives. Before serving as Chief Medical Officer for Louisiana Medicaid, Dr. Kuy served in numerous leadership roles in the VA system, including the following: director, Center for Innovations in Quality, Outcomes and Patient Safety; assistant chief, general surgery; and chair, Systems Redesign Committee. She also was a member, Quality, Safety & Value Board, Overton Brooks VA Medical Center, Shreveport, L.A.

Dr. Kuy’s successful efforts to reduce patient mortality and morbidity and decrease adverse events were profiled by the VA National Center for Patient Safety. Her work in increasing veterans’ access to care through clinic efficiency was profiled by the Association for VA Surgeons, and the templates she developed were disseminated for implementation at VA medical centers across the country. Dr. Kuy has served on the National Quality Forum, the National Board of Medical Examiners, and the Accreditation Council for Continuing Medical Education.

In 2017, Dr. Kuy was selected to be a Presidential Leadership Scholar, a joint, bipartisan leadership program taught by Presidents George W. Bush, William J. Clinton, and George H. W. Bush. She subsequently delivered the keynote commencement address at the Bush Institute. Dr. Kuy received the Greater Baton Rouge Business Report’s 40 Under 40 Award for her work to improve health care quality in the Louisiana Medicaid population, the Ford Foundation’s Gerald E. Bruce Community Service Award for her work serving veterans, and Random Acts’ Caught in the Act national public service award. Dr. Kuy also was selected for the Early Career Achievement Award in 2017 by Oregon Health & Sciences University School of Medicine.

Dr. Kuy is grateful for the many incredible mentors and teachers who have inspired her on her journey, and she is proud to be a part of the surgical family. She has dedicated her career to improving the quality of medical care and increasing the public’s access to quality care. The College is proud to have Dr. Kuy as a member and looks forward to what challenges she will tackle next.
Honorary Fellowship in the ACS awarded to 10 prominent surgeons

Honorary Fellowship in the American College of Surgeons (ACS) was awarded to 10 outstanding surgeons from around the world at the October 22 Convocation that preceded the official start of Clinical Congress 2017 in San Diego, CA. The granting of Honorary Fellowships is one of the highlights of Clinical Congress. This year’s recipients were as follows.

Patrick J. Broe, MCh, FRCSI, FRCSEd(Hon), of Dublin, Ireland, is a past-president (2012–2014) and emeritus clinical professor of surgery of the Royal College of Surgeons in Ireland (RCSI). After graduating from the University College Dublin Medical School in 1974 and completing his basic surgical training in Ireland, he was granted RCSI Fellowship in 1978. Dr. Broe completed the Higher Surgical Training Program in Ireland, eventually becoming Consultant General Surgeon to Beaumont Hospital, Dublin, in 1987 until his recent retirement from that role. Elected as an RCSI council member in 1991, Dr. Broe has continuously served in a leadership role in the organization. He has chaired several RCSI committees centered on surgical education and training. As RCSI president, Dr. Broe revamped the duration and scope of surgical training along the lines of a residency program. In his role as Group Clinical Director in the RCSI Hospitals Group, he has a continued medical leadership role with an emphasis on quality and safety and reconfiguration of surgical services to ensure adequate elective work within the group. His prominence as a surgical educator was recognized with the coveted Association of Surgeons in Training’s 2015 Silver Scalpel Award for inspirational trainers.

Miguel A. Cainzos, MD, PhD, FACS, of La Coruña, Spain, is recognized internationally for his contributions as a surgical investigator and educator. Dr. Cainzos has done important work to reduce surgical infections in Spain. He was appointed Director of the National Plan to Reduce Surgical Infections by Spain’s Ministry of Health in 1996, and over the following four years established a network to enable multicenter studies on surgical infections across specialties. His leadership resulted in reduced surgical infections and the establishment of national guidelines for their prevention. Dr. Cainzos has been a Fellow of the ACS since 1997, serving as Spain Chapter President (2000–2009), Chapter Governor (2009–2015), and member of the International Relations Committee (2008–2014). He created Internet-based educational courses for the Surgical Infection Society-Europe and the European Society for Surgical Research that many European surgical residencies use. He was head of the department of surgery, University of Santiago de Compostela, La Coruña (1993–2004), and has been president of the Surgical Infection Society-Europe and the European Society for Surgical Research.

Francisco J. F. Castro Sousa, MD, FACS, of Coimbra, Portugal, has been a leader in Portuguese surgery for nearly 40 years. He trained and has practiced at the Coimbra University Hospital, eventually becoming chair of surgical services (1998–present) and professor of surgery at University of Coimbra Medical School (1990–present). Dr. Sousa has been dedicated to better patient care and trainee education at those institutions and beyond, serving as president of the medical school’s scientific board (1998–2004) and dean (2004–2009). He was named honorary professor of surgery at the Complutense University of Madrid, Spain, and has been a visiting professor in the U.S. and globally. He has served as secretary and president of the Portuguese Society of Surgery, among other roles, and has been a leader and member of several
other domestic and international medical societies. A Fellow of the ACS since 1996, Dr. Sousa served as an International Governor (2009–2015) and President of the Portugal Chapter (2010–present). In addition, he has published more than 800 scientific articles and five books on improving research in general surgery, laparoscopy, and robotics. Dr. Sousa founded the Coimbra Liver and Transplantation Programme in 1992.

Renzo Dionigi, MD, FACS, FRCSed(Hon), ASA(Hon), of Milan, Italy, has had a prolific surgical career that has spanned both U.S. and international surgery. Early in his career, Dr. Dionigi conducted research at the University of Cincinnati College of Medicine, OH, in the areas of surgical infection, immunology, and transplantation. In the 1970s, he worked closely with Stanley Dudrick, MD, FACS, to introduce the concept and practice of total parenteral nutrition to Europe, and he studied the effects of artificial nutrition on some aspects of the immune response. Dr. Dionigi became a professor of surgery at the University of Pavia, Italy, in 1984, and in 1986 was assigned by the medical faculty there to open a branch of the Pavia Medical School in Varese. He became chief of the department of surgery and dean of the new medical school in 1990. In the early 1990s, he was instrumental in founding the University of Insubria, which now has more than 12,000 students. A Fellow of the ACS since 1980, Dr. Dionigi has written more than 700 scientific publications and seven books, including the sixth edition of the renowned Chirurgia, and has received many awards, accolades, and distinguished appointments, including the Invernizzi Award, Italy’s highest medical teaching honor.

Juan Hepp, MD, FACS, of Santiago, Chile, will be recognized for his contributions to liver and transplantation surgery in Chile. He was awarded a German Academic Exchange Fellowship in 1981 to study abdominal surgery and transplantation in Hanover. Dr. Hepp returned to Chile and performed the first liver transplantation in the country in 1985. He cofounded the “Corporacion pro trasplante hepático” (1988) and the “Corporacion de trasplantes” (1989), the latter of which was in charge of transplant procurement and, now, supports transplantation in Chile. He also was involved in drafting an amendment to the transplant law in 1994 and in many other pro-transplantation activities in the country. In 1992, he joined Clinica Alemana de Santiago, a 440-bed, private, not-for-profit academic institution. He was appointed director of surgery in 1999 and medical director in 2012. Dr. Hepp launched Clinica Alemana de Santiago’s liver transplant program in 1993, which provides special financial support to make liver transplantation available to all. In 2001, he was involved in creating the Clinica Alemana School of Medicine, Universidad del Desarrollo, where he has served as professor since 2007. Dr. Hepp is a past-president of the Chilean Society of Surgery (2008).

Valerie J. Lund, CBE, MB, BS, FRCS, FRCSEd, of Wraybury, U.K., has led a distinguished career for nearly 40 years, during which she contributed to surgery and her specialty, otolaryngology-head and neck surgery. Dr. Lund is professor of rhinology, University College London, and an honorary consultant at several hospitals. She has been honored for her groundbreaking contributions to the treatment of paranasal sinus cancer and has been involved in endoscopic sinus surgery and its extended applications since the 1980s. Dr. Lund is a prolific medical writer, having contributed 36 books and monographs, 86 book chapters, and more than 320 peer-reviewed
papers to the scientific corpus. In addition to lecturing widely, Dr. Lund has been awarded numerous honors from around the world for her work in otolaryngology and rhinology; these distinctions include the George Davey Howell Memorial Prize from the University of London in 1990, the W. J. Harrison Prize from the Royal Society of Medicine in 2012, and several honorary degrees and society fellowships from around the world. She was awarded a Commander of the British Empire (CBE) in 2008 for her service to medicine in the U.K.

**Masatoshi Makuuchi, MD, PhD**, of Tokyo, Japan, will be recognized for years of clinical and academic service, as well as his contributions to the use of ultrasonography in surgery. Dr. Makuuchi has worked in several leadership positions at prestigious medical institutions, including professor and chairman, the first department of surgery, Shinshu University School of Medicine (1990–1994); and professor and chairman, hepatobiliary-pancreatic surgery division, artificial organ and transplantation division department of surgery, University of Tokyo (1997–2007). He also has served as president of surgical organizations and has delivered more than 1,000 guest lectures and written more than 1,000 journal articles. In the early 1980s, Dr. Makuuchi developed various surgical techniques and new procedures involving ultrasonography, including ultrasonically guided percutaneous transhepatic cholangiography and bile drainage, intraoperative ultrasonography, ultrasonically guided subsegmentectomy, and four new techniques for hepatectomies preserving the inferior right hepatic vein. Dr. Makuuchi’s continuing success in using ultrasonography for a variety of hepatic and gastroenterologic procedures has made him one of the world’s foremost experts in the applied surgical use of the technology.

**Clare L. Marx, CBE, DL, MB, BS, FRCS**, of Woodbridge, U.K., is immediate past-president of the Royal College of Surgeons of England. She was the first woman in the history of the organization to hold the office, as well as the first woman to serve as president of the British Orthopaedic Association. An orthopaedic surgeon, Dr. Marx trained in the London, U.K., area and was appointed as a consultant orthopaedic surgeon at St. Mary’s Hospital and St. Charles Hospital, London, in 1990. She served as consultant trauma and orthopaedic surgeon at Ipswich Hospital, U.K., from 1993 to 2014, where she chaired several hospital committees. Dr. Marx joined the RCS in 1981, and was elected president in 2014. In that role, Dr. Marx established the Emerging Leaders program to encourage women to enter the surgical profession. She chairs the RCS Invited Review Mechanism Committee, as well as the Trauma and Orthopaedic Specialist Advisory Committee, which developed a new training curriculum for the specialty. In 2007, she received a CBE for her service to medicine. Dr. Marx was appointed Deputy Lieutenant of Suffolk County and elected president of the British Orthopaedic Association in 2008.

**Orgoi Sergelen, MD, PhD, FACS**, of Ulaanbaatar, Mongolia, is being honored for her commitment to treating the people of Mongolia, which has the world’s lowest population density. To address the absence of basic surgical care, Dr. Sergelen led the Mongolian World Health Organization’s Global Initiative for Emergency and Essential Surgical Care. This coordinated effort to address the absence of adequate capacity for emergency and essential surgical care services in low- and middle-income countries resulted in dramatic
improvements in surgical and anesthetic care capabilities in more than 300 isolated rural communities. Dr. Sergelen orchestrated the nationwide expansion of laparoscopy over a 10-year period. In 2005, when nearly 50 percent of the population was still nomadic, only 4 percent of gallbladders were removed laparoscopically; now, laparoscopic cholecystectomy is available in 17 of 21 provinces. She also introduced the Advanced Trauma Life Support® program to Mongolia, where traumatic injury is the third leading cause of death. Dr. Sergelen led the development of lower-cost liver transplant and orchestrated inclusion for all transplantation into the government health plan. This initiative improved intensive care unit capability, pathology, gastrointestinal support, and pharmacy, strengthening the entire health care system in Mongolia.

Fu-Chan Wei, MD, of Taipei, Taiwan, is a world-renowned pioneer in reconstructive microsurgery. He has been a professor of surgery at Chang Gung Memorial Hospital and Chang Gung University, Taipei, since 1990 and in that time has served as chairman of vascularized composite allotransplantation, (2011–present); dean of the Medical College (2003–2011); and chair, department of plastic surgery (1994–2000). Dr. Wei and his team reconstructed and optimized functional aesthetic outcomes for more than 22,000 patients who suffered from traumatic injury or tumor resection, and his work to develop autologous tissue transplantation has revolutionized reconstruction for those patients. He also is the innovator of the osteoseptocutaneous fibula flap, which dramatically improved the reconstruction of composite bone and soft tissue defects in the jaw and extremities. In addition to his clinical accomplishments, Dr. Wei has welcomed more than 1,300 visiting surgeons from 75 countries to observe him and his team. He has personally trained and mentored more than 100 fellows in his specialty and has been a visiting professor around the world; contributed more than 500 scientific articles, 18 books, 100 books chapters, and 600 invited lectures; and has been awarded nearly every major honor in the fields of plastic surgery and microsurgery.

Courtney M. Townsend, Jr., MD, FACS, ACS Immediate Past-President, conferred the Honorary Fellowship to each of the renowned surgeons. Sir Rickman Godlee, president of the Royal College of Surgeons of England, was awarded the first Honorary Fellowship in the ACS during the College’s first Convocation in 1913. Since then, 468 internationally prominent surgeons, including the 10 chosen this year, have been named Honorary Fellows of the ACS. Following are the full citations provided by colleagues and friends of the Honorary Fellows.

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Prof. Patrick J. Broe is a general surgeon from Dublin, Ireland. He is emeritus clinical professor of surgery and was president of the Royal College of Surgeons in Ireland (RCSI) from 2012 to 2014. Recently retired from surgical practice, he is group clinical director for the RCSI Hospitals Group.

Graduating in 1974 from the University College Dublin Medical School, Professor Broe did his basic surgical training in Ireland and was granted RCSI Fellowship in 1978. He spent two years stateside doing laboratory-based research into the pathogenesis of acute pancreatitis and its complications at the Johns Hopkins Hospital, Baltimore, MD, which formed the basis of his master's degree in surgery. He spent a year at Guy’s Hospital London, U.K., followed in 1985 by the higher surgical training programme in Ireland, eventually becoming consultant general surgeon to both Richmond and later Beaumont Hospitals.

Elected as an RCSI council member in 1991, Professor Broe has continuously served in a leadership role. He chaired many committees and, under his presidency, the Training Committee totally revamped the duration and scope of Irish surgical training along the lines of a residency programme.

His prominence as a surgical educator was recognized when he was awarded the coveted Association of Surgeons in Training's 2015 Silver Scalpel Award for inspirational trainers who have scored highly across five categories: leadership, resourcefulness, training and development, professionalism, and communication.

Professor Broe has a continued medical leadership role with important emphasis on quality and patient safety, as well as reconfiguration of surgical services in his current role as group clinical director. He is a remarkable individual who has dedicated his professional life to the development of surgery in Ireland and who is well deserving of this honor. I am privileged to present him for Honorary Fellowship in our American College of Surgeons, as he once welcomed me into honorary fellowship with the RCSI.

Citation for Prof. Patrick J. Broe, MCh, FRCSI, FRCSEd(Hon)

by A. Brent Eastman, MD, FACS, FRCSI(Hon), FRCSEd(Hon)
Citation for

Prof. Miguel A. Cainzos, MD, PhD, FACS

by Mark Malangoni, MD, FACS

Prof. Miguel A. Cainzos is a general surgeon from Santiago de Compostela, Spain. He is recognized internationally for his contributions to education and surgical infections. He has been a Fellow of the American College of Surgeons (ACS) since 1997 and has helped advance the international presence of the College.

Professor Cainzos earned his medical and doctoral degrees in surgery, both summa cum laude, at the University of Santiago de Compostela. After completing a general surgery residency at the Hospital General de Galicia in 1980, he pursued additional training in the U.S., the U.K., and Germany and was appointed assistant professor of surgery at the University of Santiago de Compostela in 1983. He was promoted to professor with tenure in 1995 and is now chief of the division of general surgery at both the Hospital General de Galicia and the Hospital Clinico Universitario. He was head of the department of surgery at the University of Santiago de Compostela from 1993 to 2004.

Professor Cainzos has been president of the Surgical Infection Society (SIS)-Europe and the European Society for Surgical Research and is a member of numerous professional organizations. He has served as President of and Governor for the Spain Chapter of the ACS.

In 1996, the Spanish Ministry of Health appointed Professor Cainzos director of the national plan to reduce surgical infections. Over the next four years, he established a network enabling multicenter studies on surgical infections across specialties, resulting in a reduction in surgical infections and establishment of national guidelines for their prevention.

Professor Cainzos is a consummate clinician and educator. He has published more than 110 peer-reviewed articles and seven books, as well as created Internet-based educational courses for the SIS-Europe and European Society for Surgical Research that are used in many European surgical residency programs.

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Citation for

Prof. Miguel A. Cainzos, MD, PhD, FACS
Citation for
Prof. Francisco J. F. Castro Sousa, MD, FACS

by Enrique Moreno González, MD, FACS(Hon)

Prof. Francisco J. F. Castro Sousa is a general surgeon from Coimbra, Portugal. He was born in Coimbra and attended medical school at the University of Coimbra. He began his general surgery training there before accepting a visiting fellowship at Mount Sinai Hospital, New York, NY, followed by additional training at the University of Paris, France, with Henri Bismuth, MD, FACS(Hon), receiving his specialty certification in 1980.

Since 1988, Professor Castro Sousa has been chief of service at Coimbra University Hospital and shortly thereafter was promoted to professor of surgery. From the start, he has been dedicated to better patient care and began serving as a member of the commission faculty and the council of the medical school. He has been vice-president and president of the Scientific Board, president of the Directive Board, and dean of the University of Coimbra Medical School.

Professor Castro Sousa was named an honorary professor of surgery at the Complutense University of Madrid, Spain, and has been a visiting professor in New York; Boston, MA; Rochester, MN; Copenhagen, Denmark; and other cities around the world. He is an honorary member of the French Association of Surgery, the Surgical Rumanian Academy, and the Brazilian College of Digestive Surgery, and was a member of the Portuguese Medical Association. Professor Castro Sousa held many leadership roles with the Portuguese Society of Surgery, such as secretary, vice-president, president of the directory board, and president; he also served as president of both the Laparoscopic Chapter and the Hepato-Pancreato-Biliary Chapter. He has been extremely active in the American College of Surgeons (ACS) since becoming a Fellow in 1995 and is President of the ACS Portuguese Chapter and the Governor for Portugal.

With more than 800 scientific articles and five surgical books published, he is dedicated to improving surgical research and finding new approaches in general surgery, laparoscopy, and robotics. He is equally dedicated to hepatobiliary and pancreatic surgery and founded the Coimbra Liver Transplantation Programme. He is known worldwide as a surgical leader who is dedicated to improving education and patient care and promotes the highest standards related to ethical behavior. For all these reasons, Professor Castro Sousa is deserving of Honorary Fellowship in College. ♦
Prof. Renzo Dionigi is a general surgeon from Varese, Italy. Professor Dionigi has had a remarkable career and is highly deserving of this honor by measure of his academic qualifications and contributions to U.S. and international surgery.

He received his medical degree and surgical training at the famed University of Pavia, Italy. Early in his career, he studied under the supervision of William A. Altemeier, MD, FACS, and James Wesley Alexander, MD, FACS, at the University Cincinnati School of Medicine, OH. During those three years, he conducted research in the areas of surgical infections, immunology, and transplantation and was fortunate enough to meet his lovely wife, Janet.

A close and collegial collaboration with Stanley Dudrick, MD, FACS, resulted in Professor Dionigi being the first to introduce the concept and practice of artificial nutrition to our European colleagues. Even with his extensive expertise in surgery, since his 1984 appointment as professor of surgery at the University of Pavia, his major clinical interest has been focused on advanced oncologic surgery, particularly hepato-pancreato-biliary surgery. He also is the architect of novel techniques for immuno-guided surgery.

In 1986, he was charged with opening a new branch of the Pavia Medical School in Varese. He became both surgery department chair and dean of the new medical school. Additionally, he was instrumental in the founding of another new university, the University of Insubria, which now has more than 12,000 students, and was the school’s first rector.

He has authored more than 700 scientific publications and seven books, including the sixth edition of the renowned Chirurgia, and has received many awards, accolades, and distinguished appointments, including the Invernizzi Award, Italy’s highest medical teaching honor.

Renzo is an Honorary Fellow of the Royal College of Surgeons of Edinburgh and the American Surgical Association. He has been an active American College of Surgeons Fellow for many years, and I can think of no one more deserving of this coveted honor.
Prof. Juan Hepp is a general surgeon from Santiago, Chile. Professor Hepp was born in Southern Chile, where while accompanying his physician father on rounds, he decided to become a surgeon. After finishing surgical training, he was awarded a German Academic Exchange Fellowship to study abdominal surgery and transplantation in Hanover, Germany.

Returning to Chile, he performed the country's first liver transplant in 1985. He co-founded the "Corporacion pro trasplante hepatico" in 1988 and the "Corporacion de trasplantes" in 1989, which was in charge of transplant procurement. He also was instrumental in drafting Chile's amendment to the transplant law in 1994.

In 1992, he joined Clinica Alemana de Santiago, a 440-bed private, not-for-profit academic institution. He was appointed director of surgery in 1999 and medical director in 2012. Professor Hepp, in 1993, launched the hospital's liver transplant program, which provides special financial support that makes liver transplant available to all who need this procedure. Focusing his clinical work mainly on abdominal and hepatobiliary surgery, he was one of the leaders to implement laparoscopic cholecystectomy in Chile in 1990. He wrote the first book on laparoscopic cholecystectomy in Spanish and three others on laparoscopic and hepatobiliary surgery.

In 2001, he was involved in creating the Clinica Alemana School of Medicine, Universidad del Desarrollo, where he has served as professor since 2007. He supported the Joint Commission International accreditation in 1993 at his institution and in 2010 joined the Presidential Commission for Health Reform in Chile.

Professor Hepp is the Governor for the Chile Chapter of the American College of Surgeons and was Chapter President from 2001 to 2002; he also is past-president of the Chilean Society of Surgery (2008). He was made an honorary member of the European Surgical Association in 2010 and the American Surgical Association in 2016.

Juan, his wife Carmen, and their five children enjoy spending time at their farm in Patagonia.
**Citation for Prof. Valerie J. Lund, CBE, MB, BS, FRCS, FRCSEd**

by Gerald B. Healy, MD, FACS, FRCS(Hon), FRCSI(Hon)

**Prof. Valerie J. Lund** is an otolaryngologist from Wraysbury, U.K. Her career has spanned almost 40 years and has been distinguished by many seminal contributions to surgery and her specialty, otolaryngology–head and neck surgery.

A daughter of the U.K., Professor Lund is professor of rhinology at University College, London, and consultant to numerous British hospitals. She has been honored around the world for her groundbreaking contributions to the endoscopic treatment of paranasal sinus cancer. This approach has saved many patients from radical and disfiguring surgery. Her many honors include giving numerous named lectureships and achieving honorary society memberships in the U.S., Belgium, Denmark, the Netherlands, Germany, Spain, Romania, Russia, and South Africa. She was also named the prestigious Sims Commonwealth Professor in 2002; this is a joint appointment by the Royal Colleges of Australia, New Zealand, Canada, England, and South Africa. Professor Lund was also one of the first women induct ed into the Collegium Amicitiae Sacrum, her specialty’s most distinguished international honor society, with only 200 members worldwide. Her majesty, Queen Elizabeth II, awarded her a Commander of the British Empire (CBE) in 2008 for her services to medicine in the Empire.

A tireless educator, Professor Lund has worked to enhance surgical education and training at the Royal College of Surgeons of England, where she served on the governing council from 1995 to 2006. She has mentored numerous young surgeons and investigators and has seen them go on to make significant contributions to surgery worldwide.

Valerie enjoys archaeology, cooking, and, best of all, eating. She is a wonderful colleague and friend. The words that best describe her character and career are integrity, intellect, and innovation, and I am delighted that she will be bestowed Honorary Fellowship in the American College of Surgeons for her tireless dedication to patients, students, and colleagues alike. ♦
**Citation for Prof. Masatoshi Makuuchi, MD, PhD**

by Junji Machi, MD, PhD, FACS

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**Prof. Masatoshi Makuuchi** is a general surgeon from Tokyo, Japan. He was born and raised in Tokyo.

Professor Makuuchi received his medical degree in 1973 from the University of Tokyo, the top medical school in Japan. Since then, he has remained at the University of Tokyo and related institutions. He moved up the academic ladder, chairing the surgical department, and has been the president of many surgical societies and has held honorary professorships and fellowships both in Japan and internationally.

Professor Makuuchi’s remarkable contributions in surgery are too many to list here; therefore, allow me to summarize his most significant clinical and academic achievements. Professor Makuuchi was the number one pioneer of intraoperative ultrasound. In late 1970s, he developed ultrasound probes specifically for use during hepatic resection for hepatoma. My former mentor, the late Bernard Sigel, MD, FACS, was the pioneer of intraoperative ultrasound in the U.S., and both Drs. Makuuchi and Sigel, together with the late Lloyd Nyhus, MD, FACS, were the key persons to advocate, encourage, and support the general use of ultrasound by surgeons as a future potential surgical tool, even in the early 1980s.

Professor Makuuchi created many innovative surgical procedures, ultrasound-guided hepatic resections, and transplantations. Over many years, he continued academic surgical works, including basic and clinical research. He was an excellent educator and many active hepatic surgeons in Japan are his former students and residents. His contributions to hepatic surgery are evident not only in Japan, but around the world. He visited many developed and developing countries and invited foreign surgeons to his institute to teach them his innovative techniques.

Professor Makuuchi is a distinguished surgeon, educator, and researcher, as well as a world-renowned leader, which is evidenced in his service as professor emeritus at Tokyo University and his recent appointment to president of the Towa Hospital. ♦
**Citation for**

**Prof. Clare L. Marx, CBE, DL, MB, BS, FRCS**

by Hilary A. Sanfey, MB, BCh, MHPE, FACS, FRCSI

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**Prof. Clare L. Marx** is an orthopaedic surgeon from Woodbridge, U.K. She is immediate Past-President of the Royal College of Surgeons of England (RCS) and was the first woman to hold this office. Additionally, she is the first woman to serve as president of the British Orthopaedic Association.

Professor Marx studied and completed her training at the University College London Medical School before accepting a fellowship in arthroplasty at Brigham and Women’s Hospital, Boston, MA. Subsequently, she was appointed consultant orthopaedic surgeon at St. Mary’s and St. Charles Hospitals, London, before moving to Ipswich Hospital as the clinical director of the accident and emergency department and chairing the medical staff committee.

An advocate for elevating professionalism, the RCS under her leadership published *Good Surgical Practice*, examining outcomes of underperforming surgeons. She has emphasized the importance of aspects of surgical performance by building patients’ trust through compassionate communication. Professor Marx chairs the RCS Invited Review Mechanism, underscoring patient safety, as well as the trauma and orthopaedic specialist advisory committee, which developed a new curriculum for the specialty. She participates in numerous educational committees, including chairing the Specialty Appointment Committee for Orthopaedic Surgery, and served as orthopaedic advisor for the National Confidential Enquiry into Perioperative Deaths. In 2007, she received a Commander of the British Empire for services to medicine and was appointed deputy lieutenant of Suffolk county in 2008.

Troubled by low percentages of women entering surgery, she has changed the status quo by successfully breaking down barriers and creating pathways for others to follow. Through her mentorship, many women surgeons have achieved societal leadership positions.

Equally concerned with challenges in delivering quality training with reduced work hours, Professor Marx believes professionals need to continuously strive for improvements in the quality and care of their patients. During her presidency, the RCS issued an apology regarding junior physicians’ contract negotiations and perceptions that the RCS was unsupportive of trainees.
**Citation for**

**Prof. Orgoi Sergelen, MD, PhD, FACS**

by Raymond R. Price, MD, FACS

**Prof. Orgoi Sergelen** is a general surgeon specializing in liver transplantation and laparoscopic surgery from Ulaanbaatar, Mongolia. Mongolia is the most sparsely populated country in the world, and Professor Sergelen has been a true pioneer in modern surgical care. Challenges of a rugged geography, serious political and financial constraints, and the large nomadic population have never prevented her from improving health care in Mongolia. Despite her naysayers, she has led several projects that are presenting impressive examples of possibilities for other low- and middle-income countries (LMICs).

Addressing this absence of basic surgical care, Professor Sergelen led the Mongolian World Health Organization’s (WHO) Global Initiative for Emergency and Essential Surgical Care (GIEESC). This coordinated effort addressing absence of adequate capacity for emergency and essential surgical care services in LMICs resulted in dramatic improvements in surgical and anesthetic care capabilities in more than 300 isolated rural communities. The World Health Organization designated Mongolia as the first WHO GIEESC Collaborating Center, with goals to expand the Mongolian success regionally in Central and Southeast Asia.

In 2005, when nearly half of the population was still nomadic and only 4 percent of gallbladders were removed laparoscopically, Professor Sergelen orchestrated the expansion of laparoscopy. Now laparoscopic cholecystectomy is available in 17 of 21 provinces. With trauma as the third leading cause of death in Mongolia, she oversaw the introduction of the Advanced Trauma Life Support® program.

Professor Sergelen led the development of lower-cost liver transplants and orchestrated inclusion for all transplantation into the government health plan in Mongolia, where liver cancer is the most prevalent cancer. This initiative improved intensive care unit capability, pathology, gastrointestinal support, and pharmacy, strengthening their overall health care system.

Professor Sergelen, truly one of modern surgery’s most impactful leaders for LMICs, has challenged the popular dogma that surgery was too expensive and instead broadened the world’s view of the impact surgery can have for all communities. ♦
Prof. Fu-Chan Wei is a plastic surgeon from Taipei, Taiwan. He is a world-renowned pioneer in reconstructive microsurgery.

Professor Wei was born in Tainan, Taiwan, and received his medical degree from the Kaohsiung Medical College. He completed plastic surgery training at the Chang Gung Memorial Hospital in Taipei, with additional fellowship training in hand and microsurgery at the University of Toronto, ON, and at the Kleinert Institute in Louisville, KY. He has served on the faculties of the Chinese Medical University; the Taipei Medical University; and the Chang Gung Medical College, where he was dean of the college from 2003 to 2011. He is now the chief of the Center of Vascularized Composite Allo-Transplantation at Chang Gung Memorial Hospital.

Professor Wei’s contributions to plastic surgery, especially to microsurgery, are legendary. His work to develop autologous tissue transplantation revolutionized cancer and trauma patient reconstruction. In addition to being a master clinician, Professor Wei is a prolific author, researcher, and educator. His scholarship has profoundly influenced his surgical peers; 1,335 visiting surgeons from 75 countries have gone to Taiwan to observe him and his team. His influence extends to the next generation, as well, and he has personally trained and mentored more than 100 fellows. Over the years, he has been recognized with virtually every major honor awarded in plastic surgery and microsurgery. The American Society of Plastic Surgery named him one of the 20 most important innovators in the last 40 years of plastic surgery.

Through his career of hard work, innovation, and achievement, he remains a kind and humble physician dedicated to restoring the health and dignity of his fellow human beings. He is the ideal role model for all plastic surgeons to emulate, and he is greatly deserving of this honor. ♦

Citation for Prof. Fu-Chan Wei, MD

by Kant Y. Lin, MD, FACS
Call for nominations for the ACS Board of Regents and ACS Officers-Elect

The American College of Surgeons (ACS) 2018 Nominating Committee of the Fellows (NCF) and the Nominating Committee of the Board of Governors (NCBG) will be selecting nominees for leadership positions in the College as follows.

Call for nominations for Officers-Elect
The 2018 NCF will select nominees for the three Officer-Elect positions of the ACS: President-Elect, First Vice-President-Elect, and Second Vice-President-Elect. The deadline for submitting nominations is February 23, 2018.

Criteria for consideration
The NCF will use the following guidelines when considering potential candidates:

- Nominees must be loyal members of the College who have demonstrated outstanding integrity and an unquestioned devotion to the highest principles of surgical practice.
- Nominees must have demonstrated leadership qualities, such as service and active participation on ACS committees or in other components of the College.
- The ACS encourages consideration of women and underrepresented minorities for all leadership positions.

All nominations must include the following:

- A letter/letters of nomination
- A personal statement from the candidate detailing their ACS service and interest in the position (for President-Elect position only)
- A current curriculum vitae (CV)
- The name of one individual who can serve as a reference

Further details
Entities such as surgical specialty societies, ACS Advisory Councils, ACS Committees, and ACS Chapters that would like to provide a letter of nomination must provide a description of their selection process and the total list of applicants reviewed.

Any attempt to contact members of the NCF 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.

Nominations must be submitted to officerandbrnominations@facs.org. If you have any questions, contact Emily Kalata at 312-202-5360 or ekalata@facs.org.

Call for Nominations for Board of Regents
The 2018 Nominating Committee of the Board of Governors (NCBG) will select nominees for pending vacancies on the Board of Regents to be filled at Clinical Congress 2018. The deadline for submitting nominations is February 23, 2018.

Criteria
The NCBG will use the following guidelines when considering potential candidates:

- Nominees must be loyal members 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, such as service and active participation on ACS committees or in other components of the College.
- The ACS encourages consideration of women and underrepresented minorities for all leadership positions.
- The NCBG recognizes the importance of the Board of Regents representing all who practice surgery in both academic and community practice, regardless of practice location or configuration.
Nominations are open to surgeons of all specialties, but particular consideration will be given this nomination cycle to those in the following specialties:

- Burn and critical care surgery
- Gastrointestinal surgery
- General surgery
- Pediatric surgery
- Surgical oncology
- Transplantation
- Trauma
- Vascular surgery

Only individuals who are currently and expected to remain in active surgical practice for their entire term may be nominated for election or reelection to the Board of Regents.

All nominations must include the following:

- A letter of nomination
- A personal statement from the candidate detailing their ACS service and interest in the position
- A current curriculum vitae
- The name of one individual who can serve as a reference

Further details
Entities such as surgical specialty societies, ACS Advisory Councils, ACS Committees, and ACS Chapters that would like to provide a letter of nomination must provide at least two nominees and a description of their selection process along with the total list of applicants reviewed.

Any attempt to contact members of the NCBG by a candidate or on behalf of a candidate will be viewed negatively, and may possibly result in disqualification.

Applications submitted without the requested information will not be considered.

Nominations may be submitted to officerandbnominations@facs.org. If you have any questions, contact Emily Kalata at 312-202-5360 or ekalata@facs.org.

For information only, the current members of the Board of Regents who will be considered for re-election are (all MD, FACS): John L. D. Atkinson, James C. Denneny III, Timothy J. Eberlein, Henri R. Ford, Enrique Hernandez, L. Scott Levin, Linda Phillips, Anton A. Sidawy, Beth H. Sutton, and Steven D. Wexner.

ACS accepting 2018 Jacobson Promising Investigator Award applications

The American College of Surgeons Surgical Research Committee is accepting applications until February 23, 2018, for the 2018 Joan L. and Julius H. Jacobson II Promising Investigator Award. This award recognizes outstanding surgeons engaged in research, advancing the art and science of surgery, and demonstrating early promise of significant contributions to the practice of surgery and the safety of surgical patients.

This award is intended for surgeons who are at the “tipping point” of their research careers with a track record indicative of early promise and potential. Well-established surgeon-scientists are ineligible for the award.

For details on award criteria and nomination procedures, visit the Jacobson Promising Investigator Award web page at facs.org/quality-programs/about/cqi/jacobson.
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Making quality stick: *Optimal Resources for Surgical Quality and Safety*

**The SQO and review processes:**
**Keys to staying on track**

**Editor’s note:** In July, the American College of Surgeons (ACS) released *Optimal Resources for Surgical Quality and Safety*—a new manual that is intended to serve as a trusted resource for surgical leaders seeking to improve patient care in their institutions and make quality stick. Each month, the Bulletin will highlight some of the salient points made throughout “the red book.”

Every hospital dedicated to quality improvement and patient safety should have a Surgical Quality Officer (SQO) on staff, as well as established processes for conducting case review and peer review.

The role of the SQO is a relatively new one at many institutions, but it is a position of increasing relevance. The SQO leads efforts to establish and maintain the infrastructure and standards necessary to ensure that the surgical care provided within an institution is optimal and that all team members have the resources, tools, training, and competencies needed to provide safe, high-quality, cost-effective, and reliable care.

*Optimal Resources for Surgical Quality and Safety* outlines the key responsibilities of the SQO; describes the skills, training, and personal attributes that will ensure the SQO’s success; identifies resources that the SQO can use; and describes the committees with which the SQO interacts.

Among those committees are the panels that are responsible for case review and peer review. At the most basic level, case review and peer review refer to the formal processes that health care professionals use to evaluate their clinical work and ensure that prevailing standards of care are being met. The manual describes five types of review—single-discipline case review, multidisciplinary case review, peer review of individual surgeons, data/registry review, and educational review conferences.

Surgeon leadership by the SQO or the chief of surgery is of the utmost importance in ensuring adherence to established protocols and the fair conduct of all reviews. Case review and peer review are defining characteristics of surgery as a profession that is committed to self-regulation, identification of outliers, and research and innovation aimed at improving quality and safety.

Be sure to read next month’s overview of *Optimal Resources for Surgical Quality and Safety*, which will focus on the role of the Surgical Quality and Safety Committee and credentialing and privileging.

*Optimal Resources for Surgical Quality and Safety* is available for $44.95 per copy for orders of nine copies or fewer and $39.95 for orders of 10 or more copies at [web4.facs.org/eBusiness/ProductCatalog/product.aspx?ID=853](http://web4.facs.org/eBusiness/ProductCatalog/product.aspx?ID=853).

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**Coming next month in JACS and online now**

**Responding to crisis:**
**Surgeons as leaders in disaster response**

Susan Briggs, MD, FACS, discusses how the demands of disaster relief have changed significantly over the last decades, and highlights some of the notable contributions of surgical teams responding to past and present humanitarian crises.

This article and all other JACS content is available at [www.journalacs.org](http://www.journalacs.org).
Associate Fellows who are interested in pursuing the next level of membership and who meet the criteria for Fellowship are encouraged to start the application process now. Applications for American College of Surgeons (ACS) Fellowship for induction at the 2018 Clinical Congress in Boston, MA, are due December 1, 2017.

ACS Fellowship is granted to physicians who devote their practice entirely to surgical services and who agree to practice in accordance with the College’s professional and ethical standards.

The College’s Fellowship Pledge and Statements on Principles, found on the ACS website at facs.org, outline the ACS standards of practice. All ACS Fellows and applicants for Fellowship are expected to adhere to these standards.

Surgeons voluntarily submit applications for Fellowship, thereby inviting an evaluation of their practice by their peers. In evaluating the eligibility of Fellowship applicants, the College investigates each applicant’s entire surgical practice. Applicants for Fellowship are required to provide to the appointed committees of the College all information deemed necessary for the investigation and evaluation of their surgical practice.

It is our intention that all Associate Fellows consider applying for Fellowship within the first six years of their surgical practice. To encourage that transition, Associate Fellowship is limited to surgeons who have been in practice less than six years.

**Requirements**

The basic requirements for Domestic (U.S. and Canada) Fellowship are as follows:

- Certification by an appropriate American Board of Medical Specialties surgical specialty board, an American Osteopathic Association surgical specialty board, or the Royal College of Surgeons in Canada

- One year of surgical practice after the completion of all formal training (including fellowships)

- Appointment at a primary hospital with no reportable action pending

A full list of the domestic requirements can be accessed at facs.org/member-services/join/fellows. The list of requirements for International Fellowship is online at facs.org/member-services/join/international.

Associate Fellows who are up-to-date with their membership dues may apply online for free by visiting facs.org/member-services/join and clicking on the link for either Fellow or International Fellow. You will need your login information to access the application. If you do not have your login information, contact the College’s Member Services staff at 800-293-9623 or via e-mail at facsapplications@facs.org.

The application requests basic information regarding licensure, certification, education, and hospital affiliations. Applicants also are asked to provide the names of five Fellows of the College, preferably from their practice location, to serve as references. Applicants do not need to request letters of recommendation; simply list the names in your application, and the College staff will contact your references.

If you need assistance finding ACS Fellows in your area, go to facs.org and click on the “Find a Surgeon” button.

When your application is processed, you will receive an e-mail notification providing details about the application timeline along with a request for your surgical case list.

All Fellowship applicants are required to participate in a personal interview by an ACS committee in their local area. Exceptions are made for military applicants. Following the interview, you will receive notification by July 15 of the action taken on your application. Approved applicants are designated as Initiates to be inducted as Fellows during the Convocation Ceremony at the Clinical Congress.

Contact Member Services with questions at any time throughout the application process. We look forward to you becoming a Fellow of the American College of Surgeons.
CALL FOR ABSTRACT SUBMISSIONS

The American College of Surgeons Division of Education welcomes abstract submissions to the following programs:

Owen H. Wangensteen Scientific Forum
- ORAL PRESENTATIONS*
- e-POSTER PRESENTATIONS
*Accepted authors are encouraged to submit full manuscripts to JACS

Video-Based Education
- VIDEO PRESENTATIONS
Videos are peer reviewed and may be recommended for inclusion in the ACS Video Library following presentation

Submission Information
- Online submissions only
- The submission period begins after December 1, 2017
- Deadline: 5:00 pm (CST) Wednesday, March 1, 2018
- Abstract and video specifications and guidelines will be posted on facs.org
I was honored to be the 2017 American College of Surgeons (ACS) Traveling Fellow to Japan. My husband and sons and I traveled to Japan in April. We began our journey in Tokyo, where we were greeted at the airport by Prof. Seiichiro Yamamoto, MD, a colorectal surgeon and my husband’s cousin. My husband had not seen Seiichiro since he was eight years old, but somehow they were able to spot each other in the sea of passengers at Narita International Airport. Professor Yamamoto helped us settle into our lodgings in Tokyo and then returned to work. Because of the time change and long trip, we all slept well, but we woke early and ready to explore Tokyo. We walked the streets and watched the sunrise and headed to the Tsukiji fish market, which was bustling with tourists and employees. The rest of the day was spent exploring the Imperial Palace gardens, temples, and shrines.

**Jikei University**

Although I was unable to observe operations at Jikei University, Prof. Katsuhiko Yanaga, MD, PhD, FACS, President of the ACS Japan Chapter, kindly arranged to meet at Jikei with some of the general surgeons, followed by dinner with his colleagues, including Taigo Hata, MD, at Andaz Tokyo Toranomon Hills hotel in downtown Tokyo. Though it was a rainy night, the view of the city was expansive, and the surgeons explained that many buildings, especially hotels, are being constructed in anticipation of the 2020 Olympic Games scheduled to take place in Tokyo. I was pleased to learn that many of Dr. Yanaga’s colleagues had spent time at the University of California, San Francisco (UCSF), both with Lawrence W. Way, MD, FACS, professor emeritus of surgery, division of general surgery, and in the pediatric surgery group. Professor Hata was keen to spend time at UCSF in the future to learn more about surgical oncology or hepatobiliary surgery.

**Kyoto University Hospital**

Prof. Shigeo Hisamori, MD, PhD, facilitated my visit to Kyoto and Kyoto University Hospital. We took the Shinkansen train from Tokyo to Kyoto—one of the highlights of the trip for my sons. We were lucky to be in Kyoto at the height of the cherry blossom season. The rivers and canals lined with...
cherry blossoms were beautiful as were the temples and shrines.

I spent the day with Dr. Shigeo and the residents and medical students. I observed a laparoscopic low anterior resection in the operating room and was most impressed to observe the precise and deliberate surgical technique and speed with which the operation was conducted. The team performed multiple emergency procedures the same day, including perforated diverticulitis and appendicitis. I enjoyed hearing more about the medical school, residency, and transition to practice structure in Japan, and I shared how it contrasted with the U.S. approach. The medical students and residents in particular were keen to have a chance to either do research or some clinical training in the U.S.

**Japan Surgical Society**

It was an honor to be included in the welcome dinner and the presidential dinner at the Japan Surgical Society Meeting in Yokohama. The pride and history of Japanese surgery was evident at the welcome dinner, during which I had the pleasure of dining with the president of the German Surgical Society, Tim Pohlemann, MD, PhD, and his traveling fellow and Japanese hosts. It was interesting to learn of the longstanding exchanges between Japanese and German surgeons. The presidential dinner was more intimate but equally beautiful, and it was a privilege to speak with world leaders in colorectal surgery, including Antonio M. de Lacy Fortuny, MD, PhD, Barcelona, Spain, and Michael Solomon, MB, BCh, BAO, MSC, FRACS, Sydney, Australia.

I attended a few of the international sessions at the meeting, including those led by Dr. Lacy and then-ACS President Courtney M. Townsend, Jr., MD, FACS. The following day, at the suggestion of Katsuhiko Yanaga, MD, PhD, FACS, and by the invitation of Kazumi Kawase, MD, FACS, I attended the Japan Association of Women Surgeons meeting. Many of the women surgeons brought their young children to the meeting. Hideko Yamauchi, MD, FACS, a breast surgeon at St. Luke’s International University, translated for me as the women in the room went around and introduced themselves, describing their surgical role/training, family situation, and goals. The themes were familiar—the stresses of balancing work and family, challenges with figuring out how to advance both spouses’ careers, and so on. The one difference was the training structure and the variability of years of training and the timing of the transition from training to practice. Dr. Yamauchi mentioned that there is great interest in formalizing the training process along the lines of the American Board of Surgery. It was inspiring to see the interest in surgery from young Japanese women, including both university and medical students. The future is bright for women surgeons around the world.

Finally, Dr. Yamamoto invited me to his medical school (class of 1991) get-together at a pub. The camaraderie and long-term friendships that were evident reminded me that no matter where you are in the world, the unique nature of surgery and team-based care that we practice leads to intense and lasting friendships that always seem to pick up right where they left off, no matter how long it has been since you have seen a colleague.

In summary, it was a great privilege to visit Japan as the ACS Traveling Fellow to Japan. Everyone was incredibly kind and hospitable, and I hope that one day I will be able to reciprocate the warm welcome.
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## Calendar of events

*Dates and locations subject to change. For more information on College events, visit [www.facs.org/events](http://www.facs.org/events) or [facs.org/member-services/chapters/meetings](http://facs.org/member-services/chapters/meetings).*

### November

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<tr>
<td>South Korea Chapter</td>
<td>November 2–4</td>
<td>Seoul, South Korea</td>
<td>Dr. Hyung-Ho Kim, <a href="mailto:hhkim@snubh.org">hhkim@snubh.org</a>, ackss.or.kr</td>
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<tr>
<td>Keystone Chapter</td>
<td>November 3</td>
<td>Allentown, PA</td>
<td>Lauren Newmaster, <a href="mailto:lnewmaster@pamedsoc.org">lnewmaster@pamedsoc.org</a>, <a href="http://www.keystonesurgeons.org">www.keystonesurgeons.org</a></td>
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<tr>
<td>Wisconsin Surgical Society</td>
<td>November 3–4</td>
<td>Kohler, WI</td>
<td>Terry Estness, <a href="mailto:wisurgical@att.net">wisurgical@att.net</a>, <a href="http://www.wisurgicalsociety.com">www.wisurgicalsociety.com</a></td>
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### December

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<td>New Jersey Chapter</td>
<td>December 2</td>
<td>Iselin, NJ</td>
<td>Andrea Donelan, <a href="mailto:njsurgeons@aol.com">njsurgeons@aol.com</a>, <a href="http://www.nj-acs.org">www.nj-acs.org</a></td>
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<td>Brooklyn-Long Island Chapter</td>
<td>December 6</td>
<td>Uniondale, NY</td>
<td>Teresa Barzyz, <a href="mailto:Acsteresa@aol.com">Acsteresa@aol.com</a>, <a href="http://www.bliacs.org/">www.bliacs.org/</a></td>
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<td>Trinidad and Tobago Chapter</td>
<td>December 10</td>
<td>Port of Spain, Trinidad and Tobago</td>
<td>Dilip Dan, <a href="mailto:dilipdan5@gmail.com">dilipdan5@gmail.com</a></td>
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<td>Massachusetts Chapter</td>
<td>December 2</td>
<td>Boston, MA</td>
<td>Brittany Fiore, <a href="mailto:bfiore@prri.com">bfiore@prri.com</a>, <a href="http://www.mcacs.org">www.mcacs.org</a></td>
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### January 2018

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<td>Southern California Chapter</td>
<td>January 19–21</td>
<td>Santa Barbara, CA</td>
<td>Tracey Dowden, <a href="mailto:socalsurgeons@gmail.com">socalsurgeons@gmail.com</a>, <a href="http://www.socalsurgeons.org">www.socalsurgeons.org</a></td>
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### February

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<td>Puerto Rico Chapter</td>
<td>February 22–24</td>
<td>San Juan, PR</td>
<td>Aixa Velez-Silva, <a href="mailto:acspuertoricochapter@gmail.com">acspuertoricochapter@gmail.com</a>, <a href="http://www.acspuertoricochapter.org">www.acspuertoricochapter.org</a></td>
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<tr>
<td>South Texas Chapter</td>
<td>February 22–24</td>
<td>Houston, TX</td>
<td>Janna Pecquet, <a href="mailto:janna@southtexasacs.org">janna@southtexasacs.org</a>, <a href="http://www.southtexasacs.org/">www.southtexasacs.org/</a></td>
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<td>Lima, Peru</td>
<td>Dr. Herrera-Matta, <a href="mailto:scgperu@gmail.com">scgperu@gmail.com</a></td>
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### Future Clinical Congresses

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<td>2019</td>
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<td>2020</td>
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