



SAME-DAY SURGERY

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➔ INSIDE

Patients infected with COVID-19 experience poor outcomes after surgery. 88

Engineer offers solution to surgeons' back, neck pain . . . 90

Conversion rate from hip arthroscopy to total hip is high for certain patients . . . 91

Affordable Care Act's changes reduced surgery costs for low-income patients. . . 93

SDS Manager: Answering readers' questions. 95



Managing Surgical Risk, Budgets Is Trickier Than Ever

As surgery centers and surgeons grapple with COVID-19 through the summer months, many have experienced lower-than-expected volumes. Meanwhile, the demands of taking more infection prevention measures and the risk of a second wave have resulted in organizations making emergency management a priority.

“You have to get organizations thinking not just about how it’s going to impact them in their bottom line, but also its wider community impact,” said **Jayson Kratoville**, MPA, interim director of the National Center for Security & Preparedness at the University at Albany, State University of New York. Kratoville spoke at a June 18, 2020, media conference hosted by Newswise.

Surgery centers have lost business during the COVID-19 public health emergency, but as they reopen many challenges remain. Plenty of operating rooms (ORs) were closed for months because of the pandemic, and they would take only emergency cases, says

Stuart Fischer, MD, FAAOS, editor-in-chief of the website for American Academy of Orthopaedic Surgeons (AAOS). Fischer also is a surgeon at Summit Orthopedics and sports medicine in Summit, NJ. “Even simpler procedures like breast biopsies and others that needed to be done fairly quickly were put on hold,” Fischer says.

Some chose to put off elective surgeries voluntarily. Some government officials issued various orders regarding how to handle such procedures. “I’m in Texas, and the orders were pretty specific. If the person is not at risk of losing their lives or permanent harm or disability, then those surgeries could not be performed, and you could lose your license with the Texas Medical Board,” says **Mary Dale Peterson**, MD, MSH-CA, FACHE, FASA, president of the American Society of Anesthesiologists. It was pretty forceful, and we’ve seen lots of furloughs and layoffs.”

Some physicians, including anesthesiologists, volunteered to help local health systems and were redeployed to intensive care units (ICUs). But

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AUTHOR: Melinda Young
EDITOR: Jonathan Springston
EDITOR: Jill Drachenberg
EDITORIAL GROUP MANAGER: Leslie Coplin
ACCREDITATIONS DIRECTOR: Amy M. Johnson, MSN, RN, CPN

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most anesthesiologists saw a huge reduction in their work, adds Peterson, executive vice president and chief operating officer of Driscoll Health System of Corpus Christi, TX.

After the lockdown ended, surgeons figured there would be a backlog of elective procedures that needed to be performed. Everyone thought the main problem surgery centers would face this summer was finding ways to schedule new appointments for all these patients. That never happened for many surgery centers.

“The reality is that many people took time off from work and don’t want to take any more,” Fischer says. “Many lost jobs and health insurance. Many are afraid to go to the medical environment. There isn’t the caseload one might have expected.”

This phenomenon was common. “We heard there was going to be this humongous backlog of patients, charging back in, and I don’t think we’re seeing that backlog,” Peterson says. “We’ve been open for elective surgery for a month or so, and we’ve gotten through pretty much a lot of our backlog.” Surgeons will regain clients partly by letting people know

about safety and infection prevention efforts. “First, [surgeons] should establish a program of safety and safeguards for surgery,” Fischer says. “This includes screening patients, pre-op testing, sanitizing the rooms, and testing their own personnel.”

Most centers will test staff regularly, and they will establish the proper institutional infection prevention regimen. Once they do that, surgeons will need to communicate their precautions to patients so patients will know the facility is as safe as it possibly can be, Fischer explains.

Even under optimal infection prevention conditions, there could be problems with patients and COVID-19. Patients could be infected shortly after their surgery, which could lead to bad outcomes.¹

Stakes are high when it comes to surgery and COVID-19. Surgery patients who test positive for the virus a week before surgery or who test positive within 30 days after surgery are more likely to die within a month after the procedure. This is especially true for male patients. Researchers observed an overall mortality rate among surgery patients with COVID-19 to be 23.8%.¹ “A patient could

EXECUTIVE SUMMARY

Surgery centers face multiple challenges as they navigate the new landscape of fewer cases, risk from COVID-19, and little government help.

- Many operating rooms were closed for two months because of the pandemic, and surgery centers still face economic issues.
- Anesthesiologists and other physicians helped hospitals during the COVID-19 crisis, including converting anesthesia machines into ventilators to help with the shortage.
- Many surgery centers expected loads of patients to present wishing to reschedule elective procedures that were put off during the lockdown. However, since resuming normal business, there are surgeons reporting smaller-than-expected caseloads.

be COVID-negative at the time of surgery and then acquire it, or they could be positive before the surgery, but we didn't know that until after the surgery," says **Haytham Kaafarani**, MD, MPH, director of the Center for Outcomes & Patient Safety in Surgery and director of research at Massachusetts General Hospital in Boston.

Because of the pandemic, it takes surgery centers longer to clean rooms and sterilize them between cases, Fischer notes. Also, many facilities will not allow visitors to stay in a surgical waiting room. Some facilities require visitors to drop off patients and pick them up, he adds.

"Most facilities will require testing several days before elective surgery," Fischer says. "After they take the test, they self-isolate and quarantine. That diminishes the risk of infection, somewhat."

Surgery centers' infection prevention precautions, concerns over the pandemic and its continued effect on individual patients, and worries about the economic viability of surgery practice, have made 2020 one of the most challenging years for the industry. For instance, some anesthesia and other healthcare companies were struggling even before COVID-19. Now, their situation is much worse, Peterson notes.

"One large staffing company was thinking about declaring bankruptcy," she says. "There is concern out there because the dollars that the federal government put out in the CARES Act went to hospitals. There was no designated funding for physicians in the same way there was for hospital systems."

The little funding that came through paycheck protection and Medicare was not close to the losses physicians incurred, Peterson

adds. The American Society of Anesthesiologists is working on obtaining potential payments that are dedicated to physicians and anesthesiologists, recognizing their extra sacrifice.

"They not only had canceled elective surgeries, but many redeployed themselves, doing the highest-risk work, intubating COVID patients in ICUs," Peterson explains. "They were in cities like New York and Boston when those places ran out of ICU ventilators. Our anesthesia machines have ventilators, so we worked with the Food and Drug Administration [FDA] to develop guidance and education for our members. Through the FDA's green light, we could redeploy these machines to use for COVID patients as ventilators."

Converting anesthesia machines into ventilators is straightforward, but requires anesthesiologists to work closely with ICU staff to manage the machines. Without help from anesthesiologists, some hospitals would have run out of ventilators.

"We saw it coming, and we intervened just in the nick of time by redeploying those resources," Peterson reports.

The American Society of Anesthesiologists has proposed anesthesiologists receive a 20% bump in payments for that type of service.

"We would like retrospective pay for what we've done, as well as a mechanism to pay anesthesiologists for that service," Peterson offers.

The same thing could happen for physicians who worked with COVID-19 patients, which led them to miss out on regular cases, she adds.

As surgery centers and physicians struggle with the aftermath of the first wave of the pandemic, they are bracing for a potential double-whammy this fall.

"If hospitals are overwhelmed again, you would see disaster planning come into play again, and that would be very unfortunate," Peterson says. "Not only is it affecting the livelihood of physicians, but it also impacts patients. A number of patients had heart attacks and strokes and didn't receive the care they needed during the pandemic."

For instance, there was double the rate of ruptured appendices during that period because people were not coming into the emergency room as often, Peterson explains.

"We need to get word out to the public that they should come in for needed care, and care should only be delayed for so long," she says. "We've learned a lot; we've learned how to deploy resources, and we can manage patients better in the ICUs now." ■

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COMING IN FUTURE MONTHS

- Study: Frail patients experience worse outcomes
- Patients with abdominal aortic aneurysms need surgery, not antibiotics
- Retain valuable staff during pandemic's second wave
- Advice about shoring up the supply chain

Surgery Patients Infected with COVID-19 Experience Poor Outcomes

Investigators found a COVID-19 infection is associated with a 23.8% mortality rate among surgery patients within 30 days after surgery.¹

When COVID-19 was present, either before or after surgery, patient outcomes were worse in cases studied (between Jan. 1 and March 31, 2020). Also, men and patients older than age 70 years infected with the virus were more likely to die 30 days after surgery.

The authors researched the question of whether surgeons should cancel or postpone elective surgeries during the pandemic, particularly when patients test positive for the virus, says **Haytham Kaafarani**, MD, MPH, director of the Center for Outcomes & Patient Safety in Surgery and director of research at Massachusetts General Hospital in Boston.

“Maybe it’s time to shift the needle and wait until patients are no longer positive,” he offers. “If the surgery is elective, then I think the answer, based on our data, is you really should avoid elective surgery if you can.”

For instance, some procedures are elective, but time-sensitive (e.g., procedures for cancer patients). Those could be postponed for a few weeks, but maybe not longer if it would cause their condition to deteriorate, Kaafarani says. “There are some

situations where we could manage the disease without surgery,” he adds.

The international, multicenter, observational cohort study included 1,128 patients with SARS-CoV-2 infection who underwent surgery at 235 hospitals in 24 countries. Overall, 268 patients died within 30 days after surgery, a 23.8% mortality rate. More than half of the 1,128 patients (577) experienced pulmonary complications, and these patients accounted for 82.6% of all deaths.

Investigators incorporated data on different types of surgeries, including elective procedures and emergency surgery. About three-fourths of the surgeries were emergency cases, and one-fourth were elective surgeries. Procedures included head and neck, cardiac, gastrointestinal, OB/GYN, neurosurgery, ophthalmology, orthopedics, thoracic, and others.

The cohort of cases included about 32% of emergency surgery patients who received a preoperative SARS-CoV-2 diagnosis and 66% who were diagnosed after surgery. Data were missing for some patients.

Half of emergency surgery patients experienced pulmonary complications with their disease. For that group, the mortality rate was 39.6%. For patients who did not experience pulmonary complications,

the mortality rate was 4.6%. The preoperative COVID-19-positive patients who underwent elective surgery died at a rate of 14.3% when they experienced pulmonary complications and 6.7% if they did not.

The mortality rate also was high among patients who were diagnosed with SARS-CoV-2 after surgery. Those who underwent emergency surgery and experienced pulmonary complications died at a rate of 43.1%. For patients who did not experience pulmonary complications while undergoing emergency surgery, the mortality rate was 10.7%.

For those who underwent elective surgery and received a COVID-19-positive diagnosis after the operation, the mortality rate was 28.3% if they experienced pulmonary complications and 10.8% if they did not.

The study was created to address surgeons’ concerns about patient safety during the COVID-19 pandemic. “This study involves surgeons from all over the world coming together to replace the anecdotes with data,” Kaafarani says. “We’re all wondering if it’s safe to operate on COVID-positive patients.”

For this study, surgeons were part of a group called the COVIDSurg Collaborative. “They were [performing] all kinds of surgery, but we know that COVID-19 is a pulmonary disease, and surgery could cause a cascade [effect],” Kaafarani says. “Our most intriguing finding is that it’s not necessarily related to anesthesia. Clearly, those on general anesthesia are at higher risk, but mortality was [higher] in all these patients.”

The COVIDSurg Collaborative continues its investigation into the effect of COVID-19 on surgery.

EXECUTIVE SUMMARY

Researchers found patients infected with COVID-19 die at a rate of 23.8% within 30 days after surgery.

- Investigators observed most deaths were among patients with pulmonary complications.
- Patients who died were more likely to be men and older than age 70 years.
- Investigators included data about elective procedures and emergency surgeries of many different types.

Based on their data collected to date, surgeons should avoid elective surgery for COVID-19 patients, if possible, Kaafarani concludes, unless the procedure is time-sensitive.

Surgeons could decide which elective cases could be postponed safely and even which patients could manage their condition without an operation. For example, if a patient has acute appendicitis, the standard procedure is to remove the appendix. But during the pandemic, surgeons could consider an alternative and reasonable approach of treating the patient with antibiotics, Kaafarani suggests.

“If, during the pandemic, the patient has a COVID diagnosis, then in those cases we should choose the nonoperative option, rather than take them to surgery. The risk of [complications during] surgery in a patient with COVID infection is high,” Kaafarani says. “We’re not talking about small complications; the smallest one was pneumonia. Some had prolonged need for mechanical ventilation, and some had ARDS [acute respiratory distress syndrome] ... and a good number of patients do not survive it.”

Kaafarani worked as a full-time surgeon on the frontlines of the pandemic. His takeaway is surgeons have to make judgment calls on whether to proceed with surgery on COVID-19 patients.

“Nothing replaces the judgment of the surgeon,” he says. “Every patient has their own risk factors, but the data should make people think twice before offering surgery to anyone, especially patients over 70.”

Investigators tried to see what factors would predict, independently, a high risk of mortality after surgery. The subset of patients at the highest risk were those who were older than age 79 years.

“Patients over 70 had about two times higher risk of dying after surgery,” Kaafarani reports.

Cancer patients and people undergoing emergency surgery also were at higher risk of dying after surgery. Men had almost twice the risk of dying after surgery if they were positive for COVID-19 vs. women, he adds.

As surgeons prepare for the pandemic to continue, and even resurge in some places, there are several

**SURGEONS
SHOULD AVOID
ELECTIVE
SURGERY FOR
COVID-19
PATIENTS, IF
POSSIBLE.**

important questions they should consider, according to Kaafarani:

- How can we ensure we are not performing elective surgery on patients with active infection?
- How can we make sure that if we perform surgery on someone with a COVID-19 infection, they do not contract the virus after the procedure?
- If someone is positive for COVID-19 but are stable, when would it be safe to perform elective surgery on them?

“We don’t have answers to all of these questions, and we’re still trying to figure these out,” Kaafarani notes.

But the answer to the first question is for surgery center staff to test patients for SARS-CoV-2 as part of their pre-op workup. If patients are infected with the virus, then the surgery should be postponed, Kaafarani says.

“When would it be safe to do surgery on COVID patients?”

Kaafarani asks. “I don’t think anybody knows the answer to this question yet, but we are starting to design a study to help us answer the question of when it’s safe to operate on patients after they recover from the COVID infection.”

Kaafarani, in his roles as an acute care surgeon and an emergency and critical care specialist, has treated hundreds of COVID-19 patients in the intensive care unit during the pandemic’s early months.

“It’s not as bad now as it was [in the spring], but it was tough for many reasons, including how these patients were very ill and some of the sickest patients you would see in the hospital,” he explains. “A good proportion of the COVID patients did not make it. Our mortality rate at MassGen was much lower than reported in other places like New York, China, and Italy. We were proud we were able to save a lot of people, but it was difficult to see some of them not survive. We [treated] patients in their 20s and 30s who were very sick.”

One of the most difficult challenges was communicating with families via video and phone.

“It was hard to not have families around to look them in the eye and hold their hands if they were struggling,” Kaafarani admits. “A salute goes out to all the healthcare workers, nurses, physicians — we all came together as a team to provide the care, sometimes at the expense of our own health.” ■

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Engineer Offers Solution to Alleviate Surgeons' Back, Neck Pain

Surgeons frequently report neck, shoulder, and back pain, but will work through it, even if chronic pain could force them into early retirement.

“Surgeons typically believe it is part of their culture to be in pain,” says **Susan Hallbeck**, PhD, PE, CPE, scientific director for health care systems engineering at the Mayo Clinic in Rochester, MN. “They just work hard and go into the operating room (OR), not leaving until the patient is off the table. And they don’t take breaks. It’s the culture.”

Research shows surgeons give their highest pain rating to neck pain, which could be a symptom of poor posture and neck flexion issues.

“I can say that surgery is a pain in the neck,” Hallbeck says. “Surgeons fear that the pain they have from OR will reduce their ability to perform future surgeries.”

Hallbeck and colleagues tested 53 surgeons who performed 116 procedures at the Mayo Clinic’s Arizona location.¹ They followed surgeons from the incision time to close time, observing their posture

and ergonomics during surgery. The authors noticed surgeons did not leave the OR during procedures. While performing operations, these surgeons leaned forward more, with overall poor posture.

Investigators compared open surgeries for those with and without loops-magnifying glasses. They observed using the loops-magnifying glasses increased neck flexion by 10 degrees, on average, she says.

“When we took data about their pain scores in their neck and upper back and lower back and arms, prior to surgery and after surgery, we found that the most common place for increasing pain was in their neck,” Hallbeck reports. “Fifty-two percent of surgeons in our study had increased pain after surgery in their neck; 45% had it in the lower back, and 43% had pain in the upper back.”

Ergonomic solutions in the OR are different from solutions in other industries because there is less flexibility in adjusting the work environment. “In a car repair shop, you can position the car to allow

easier access by the person working on the car,” Hallbeck explains. “With patients, we can’t position the patient differently because of all the issues of having a human being on a table and having to keep their heads from being too low.”

Solutions can focus on the surgeons’ actions. For example, surgeons who take microbreaks to stretch every 45 minutes to an hour can help prevent neck pain, Hallbeck says. An alarm can remind surgeons to take these breaks. Researchers found almost everyone who tried this approach liked it, and taking the microbreaks did not affect overall surgery time.

“One big pushback was the idea it would extend surgery duration, and we found it did not,” Hallbeck says. “It increased people’s physical performance and mental focus, and it decreased mental fatigue.”

After trying the microbreak exercise intervention, some surgeons gave positive feedback: “I got a fist bump from one surgeon who had been in the military,” Hallbeck says. “He said he wasn’t crawling out of the OR in pain at the end of the day.”

Technological advancements also could provide solutions to surgeons’ neck and back pain. For example, they could wear an exoskeleton during surgery. This would support their torso, and would be especially useful in supporting a surgeon’s arm, Hallbeck says.

“Some surgeons keep a posture for a long period of time, with their arm outstretched and away from their body,” she adds. “We’re working with companies to bring the exoskeleton into the operating room to test it out.” The prototypes can fit outside the scrub, but under the gown and

EXECUTIVE SUMMARY

Healthcare systems engineering professionals are designing ways to help surgeons reduce their neck, shoulder, and back pain.

- One method is for surgeons to take short breaks for every 45 minutes to one hour of surgery.
- Another technique, under development now, is for surgeons to wear an exoskeleton, which would support their torso and arm during surgical procedures.
- A third potential option would be a shirt that places sensors on the surgeon and creates a personal report about his or her posture. The system includes a device that fits into the pocket of a compression shirt that is worn underneath scrubs.

pass infection control standards. One version supports front and back weight by pushing on the front of the thigh, and another supports the arm as it is raised parallel to the floor, Hallbeck explains. “There is a spring system that allows you to rest your arm, like resting on a table, and it reduces the weight of your arm as its held up away from your body,” she says.

Some versions of exoskeletons are commercially available, and investigators will study them to see which works best. Another potential is a combination shirt and sensors. While wearing this special shirt and sensors, the solution monitors movement and generates a personal report about posture, neck flexion, and torso and arm angles. “We’re working with a company to make sensors that go into the pocket of a compression shirt that is worn underneath scrubs,” Hallbeck says.

Surgeons can use these daily reports to train themselves to

maintain a better posture. The sensors also can vibrate to alert surgeons to problems that could lead to pain. This type of technology could be used during resident training, helping young surgeons develop productive habits, Hallbeck offers.

Technological improvements make it possible to provide effective body movement instruction and correction without the inconvenience of previous methods. “There have been studies that looked at the postures of surgeons. [Researchers] put tape on the gown and watched [surgeons]. That’s very difficult because the gowns don’t move with the person as well as the sensors that are attached to surgeons’ bodies,” Hallbeck observes.

Also, modern surgeries and procedures exact a greater toll on surgeons’ bodies. “What surgeons are doing now is cutting-edge, and each year that edge gets further involved,” Hallbeck says. “Think about elite athletes, which is what OR doctors are, and most athletes do not have

a career after age 40. We’re asking surgeons, who don’t get to be an attending until [age] 35, to start a career then ... there is some evidence that their longevity is not as long as it used to be.”

Technology and other methods to reduce surgeons’ pain in the OR could help preserve surgeons and prevent shortages.

“We need more surgeons than we have. When people retire early from doing surgery, it changes their own quality of life and also is bad for surgical access for patients,” Hallbeck says. “If someone wants to retire at [age] 50 because they’re done, that’s different from having to leave the OR ... before they’re ready.” ■

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Conversion from Hip Arthroscopy to Total Hip Is High for Certain Patients

A study of Medicare data collected between 2005 and 2016 revealed hip arthroscopy patients with osteoarthritis recorded a 68.4% two-year conversion rate to total hip replacement.¹

A surgery that results in another surgery within two years is a low-value procedure, says **Alexander McLawhorn**, MD, MBA, a study co-author and assistant attending at the Hospital for Special Surgery in New York City.

“We only looked at what happens if patients had hip arthroscopy in the setting of hip arthritis,” says McLawhorn, an assistant professor of orthopedic surgery at Weill Cornell

Medical College. “We focused on an older population of people [older] than 65 years of age to see if this [surgery] is a good idea or not a good idea.”

The average time for hip arthroscopy patients with osteoarthritis before they underwent hip replacement surgery was 1.12 years, McLawhorn says. Previous research has focused

EXECUTIVE SUMMARY

Hip arthroscopy patients with osteoarthritis are at higher risk of a two-year conversion to total hip replacement, according to the authors of a study.

- The average time for hip arthroscopy patients until they underwent total hip arthroplasty was 1.12 years.
- The study’s findings are similar to what researchers observed with procedures like knee arthroscopy on patients with knee arthritis.
- Researchers recommend more research on the cost effectiveness of various types of procedures, including hip arthroscopy.

on procedures like knee arthroscopy on patients with knee arthritis. Those investigators found those procedures are ill-advised, too. “We were curious to see if a similar [conclusion] held true for hip procedures,” McLawhorn says.

McLawhorn’s previous research revealed patient-reported outcomes for hip replacement after hip arthroscopy were not as positive as the patient-reported outcomes among people who underwent hip replacement without hip arthroscopy.² “Hip arthroscopy is an evolving field,” McLawhorn acknowledges. “There are some conditions where hip arthroscopy is the most appropriate treatment.”

Research has not yet defined which patients benefit from hip arthroscopy, but McLawhorn believes it is an area worth exploring further.

“I don’t want to say that everyone who has underlying arthritis shouldn’t have that procedure, but it certainly begs further research and caution by surgeons,” he adds. “Surgeons need clear indications for who is going to get significant benefit from that procedure and whether it is a durable benefit from that procedure. I don’t think that has been figured out yet.”

When surgeons counsel patients about hip surgery, they come up with a cost-risk-benefit analysis. They also can discuss how hip replacement materials are durable, and the longevity of hip replacement has greatly improved when compared

with 15 to 20 years ago, McLawhorn says.

“About 2005 is when most surgeons made the switch to the more durable plastic for hip replacement,” he explains. “Over the next five to 10 years, it became clear that plastic was going to be very durable and wearing at a very slow rate.” This improvement changes the cost-risk-benefit calculation for total hip replacement. It also draws some attention to whether hip arthroscopy is as beneficial in cases when patients will have to undergo total hip arthroplasty a short time later.

“If you do a hip preservation type of procedure for a patient who has arthritis, it needs to buy them quite a bit of runway,” McLawhorn says. “Make sure the outcomes of that procedure will give you 10 years or so of benefit before the patient needs hip replacement.”

There should be more research on the cost-effectiveness of various types of procedures.

“How many years of good outcomes does a non-arthroplasty procedure need to give a patient to make delaying hip replacement worthwhile?” McLawhorn asks. “Certainly, we can complete a computer model to answer that question.”

In their investigation, McLawhorn and colleagues concluded arthroscopic hip surgery should be limited to conditions that would not require total hip replacement surgery. People

with osteoarthritis and who underwent a hip arthroscopy procedure followed by total hip replacement experienced worse overall outcomes after hip replacement surgery.¹

For example, they were at a significantly higher risk for a repeat hip replacement and hip dislocation.

“They had a greater risk of the implant in the bone not incorporating. We saw they had a significantly increased risk of infection of their joint replacement,” McLawhorn says. “All of those are possible complications after hip replacement. Both groups of patients had those complications, but the percentage of patients who had arthroscopy were higher, and the odds of having those complications were higher.”

It is speculation to assign a cause, but McLawhorn and colleagues’ observational study showed associations between poor outcomes and undergoing a hip arthroscopy procedure when the patient had hip osteoarthritis.

“When you see these associations, you can speculate that when patients undergo multiple procedures that traumatize soft tissue around the hip joint, it can lead to issues with dislocation and infection,” McLawhorn says. “From our prior results in patient-reported outcomes research, anyone would agree that having two operations for the same problem is not going to result in high patient satisfaction rates.” Some



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patients handled both procedures well. The study's findings highlight the need for physicians to inform patients of the risks, especially if they are uncertain of the procedure's outcome.

"Surgeons who are doing arthroscopy need to better define the patient population and characteristics of patients who are going to do well with hip arthroscopy in the setting of arthritis vs. those who will not do well, and will need to go on to hip replacement," McLawhorn says. "We need carefully tailored treatments to specific conditions and patient characteristics."

Leaders in the field of hip arthroscopy should help surgeons define the patient population that

will benefit from this procedure, he adds.

"There are some patients out there who really want to do whatever they can to save their own joint, and I very much understand that," McLawhorn explains. "They might seek out hip arthroscopy to swing for the fences."

Surgeons need to understand what patients are after. They can empathize with patients' goals, but it also is important to clearly define the risks, especially the possibility of following one procedure with another in a short period. Often, surgeons will speak to a procedure's benefits, but not underscore potential risks or downsides. "We all need to be better at doing this. Hopefully, this

study will help surgeons speak to the potential downsides and risks of this operation," McLawhorn says. ■

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Affordable Care Act's Changes Reduced Surgery Costs for Low-Income Patients

As the healthcare policy debate includes a conversation about rising out-of-pocket costs for families, investigators recently found that the Affordable Care Act (ACA) has lowered out-of-pocket expenses for low-income surgery patients. However, the same benefit was not observed for middle-income patients.

Obtaining insurance through the ACA was associated with better financial protection among low-income surgical patients eligible for both cost-sharing and premium subsidies, but not for middle-income patients eligible for only premium subsidies.¹

"Surgery can be a uniquely expensive [experience], and sometimes can be unexpected," says **Charles Liu**, MD, MS, a study co-author and general surgery resident at Stanford Hospital in Palo Alto, CA. "For the low-income group, [costs] went down by one-third, but it still was unexpectedly high. For the middle-income

group, we did not find any significant change in their out-of-pocket spending or their risk of catastrophic health expenditures."

Liu and colleagues studied data on patients across the United States. "Using a national database, we looked at folks who got subsidies to buy ACA

insurance through marketplaces, and looked at whether they had better financial protection if they had surgery," explains Liu, a fellow with the National Clinician Scholars Program at the University of California, Los Angeles. "We looked at adults who had any kind of surgical procedure,

EXECUTIVE SUMMARY

The Affordable Care Act (ACA) has lowered out-of-pocket expenses for low-income surgery patients, but has not lowered costs for middle-income surgery patients, according to new research.

- After assessing the rates of catastrophic spending both before and after the ACA was implemented, low-income surgery patients saw their costs decline by one-third, but middle-income patients did not see any significant changes in their out-of-pocket costs.
- One theory about why some patients paid catastrophic costs is not every patient took advantage of the marketplace subsidy, even if they were eligible.
- Researchers defined catastrophic spending as the money surgery patients spent on premiums and out-of-pocket costs that are 20% or more of their household income.

and we looked at people who had surgical procedures at inpatient hospitals and also outpatient surgeries.”

Investigators assessed rates of catastrophic spending both before and after the ACA was implemented, and they controlled for other potential reasons that could explain spending and policy.

“We found that for low-income people, those who made 130 to 250% of the federal poverty level, who would be eligible to get premium subsidies through Obamacare exchanges — they were significantly more protected from catastrophic expenses from surgery after the ACA,” Liu says.

The study also revealed that despite receiving some help from the ACA in reducing out-of-pocket surgery costs, many patients in the United States experience catastrophic health expenditures after surgery, Liu says.

“About one in six low-income adults still have catastrophic spending after they have surgery,” he says. “One in 10 middle-income patients continue to have catastrophic spending after surgery.”

Low-income, using federal poverty definitions, is defined as individuals earning less than \$30,150 per year and families of four earning less than \$61,500 per year. The middle-income range is \$48,240 to \$98,400.

The study authors defined catastrophic health spending as expenditures on both premiums and out-of-

pocket costs, amounting to at least 20% of the family income for the year. Catastrophic spending decreased by more than one-third among low-income patients from families earning between \$30,000 and \$62,000 a year, Liu says.

The study’s findings suggest surgeons should be aware of this problem and how it could affect their patients, Liu says. “As a physician, most of the time we’re not aware of the patient’s financial burden because we have no way of knowing exactly what a patient’s insurance status is and what their burden ends up being,” he explains. “This is a problem for a sizable number of Americans who have surgery.”

When surgeons counsel patients on the timing of a procedure, surgeons should keep in mind the ways they might be unintentionally harming patients economically, Liu adds.

“Obviously, if a hospital or group has the resources to charge people on a sliding scale or have a payment plan, then that’s wonderful,” Liu says.

Researchers did not study data related to Medicaid expansion in some states, and state demographic data was not available to them, Liu notes.

“Subsidies are the same in California and South Carolina, which is why we chose to study those folks in those income ranges,” Liu says. “This is not looking at the effect of Medicaid.” The study included surgery cases from all states,

making it a nationally representative population. There are several theories about why some patients experienced catastrophic costs from surgery. One idea is that not every patient took advantage of the marketplace subsidy, even if they were eligible, Liu explains.

“Some people are eligible, but did not go on HealthCare.gov and didn’t find a plan,” he says. “One thing we were interested in understanding is just how effective these subsidies are. Maybe the subsidies are too small.”

Investigators researched real experience in paying out-of-pocket expenses and what role policy played. Liu and colleagues saw significant improvement when the ACA marketplaces were rolled out in 2014, but concluded work remains when it comes to making surgery more affordable for low- and middle-income patients. “A lot of folks in the United States end up experiencing a catastrophic effect,” Liu says.

The authors did not investigate specific details, but the results suggest surgery centers, hospitals, local governments, and others should invest more in helping people take advantage of the health insurance benefits available to them, Liu offers.

“Good, solid insurance coverage is good for everyone; it protects patients, and is good for providers,” he adds. “If you’re a small surgical center, it’s difficult to sustainably take care of uninsured or Medicaid patients and still make ends meet.” ■

CME/CE OBJECTIVES

After reading *Same-Day Surgery*, the participant will be able to:

- identify clinical, managerial, regulatory, or social issues relating to ambulatory surgery care;
- identify how current issues in ambulatory surgery affect clinical and management practices;
- incorporate practical solutions to ambulatory surgery issues and concerns into daily practices.

REFERENCE

1. Liu C, Maggard-Gibbons M, Weiser TG, et al. Impact of the Affordable Care Act insurance marketplaces on out-of-pocket spending among surgical patients. *Ann Surg* 2020; Mar 26. doi: 10.1097/SLA.0000000000003823. [Online ahead of print].

Frequently Asked Questions

By Stephen W. Earnhart, RN, CRNA, MA
CEO, Earnhart & Associates, Austin, TX

One thing I love is the feedback I receive from readers each month. On average, since February, I have received about 120 messages per month. I respond to every one of them. I never divulge the sender information, as I respect your privacy. Here is a sample of the questions I have received in months:

Question: “In light of COVID-19, do you anticipate changes in regulations and/or new policies and procedures for surgery centers and hospitals?”

Answer: There are new regulations and changes to every facility’s policies and procedures already drafted, and many more to come. Check with the Centers for Medicare & Medicaid Services (CMS) and your accreditation organization to make sure you are up to date. Some of these changes are sweeping, and others are anticipated occurring regardless of the virus.

Question: “Is this a good time to build my own surgery center? I do surgery at a center now, but I have been on the fence about doing my own.”

Answer: We receive many calls about this, and each situation is unique. It is anticipated that CMS is going to push more procedures over to ambulatory surgery centers next year.

Also, many hospitals have seen the light and are developing more joint ventures with surgeons on surgery centers rather than their typical hospital outpatient departments’ model for elective cases.

Question: “Now that we have opened up for procedures again,

our surgeon owners are pushing the envelope on reducing staffing to make up for losses they had when we were closed. We are state-licensed and Medicare-approved, but they want to use one circulator for two rooms that are operating at the same time. I told them they must have a RN [registered nurse] in each room as a circulator. They argue that the CRNA [certified registered nurse anesthetist] doing anesthesia in the room is a nurse; therefore, they are compliant. Any thoughts on how to deal with this?”

Answer: Due to the gravity of the question, I called this person and explained you cannot have a nurse in the room providing more than one job (i.e., someone providing anesthesia services cannot also be the circulator). As always, go to your state website and check their regulations. Also, you can always call your accreditation organization or CMS directly with any questions.

Question: “When we were forced to shut down our center during COVID, we laid off all our staff, including the RNs. No one knew how long this was going to last, and our docs just couldn’t afford to keep everyone on. We understood that, sort of, but now that we’ve reopened our surgery center, we are having a hard time hiring staff back.

“You would think that everyone would want to get back to work, but we were surprised that much of our pre-virus staff, especially the nurses, had taken other jobs, retired, or were resentful of being laid off. Is it just us, or are other centers experiencing the same thing?”

Answer: Most of us work for a reason. When you lay off employees, for whatever the reason, they still have expenses they need to pay and a job to provide that income. Even now, none of us knows if we are going to be shut down again if the virus resurfaces.

I do know of many surgery center nurses who have taken other jobs in the industry because they need the security of income. It think it is going to become increasingly difficult to find staff for surgery centers in the years to come, certainly in the short term.

Not all surgery centers laid off their staff. Many realized the need to protect and maintain their valuable employees and found reasons to keep them employed during the shutdown, even if that meant running at a loss.

These continue to be daunting times. I encourage everyone to share your experience with other facilities and network as much as possible. Become involved with your state organizations and other groups that cater to surgery centers.

There are many resources out there to provide advice and comfort. Seek them out. Stay safe. ■

(Earnhart & Associates is a consulting firm specializing in all aspects of outpatient surgery development and management. Address: 5114 Balcones Woods Drive, Suite 307-203, Austin, TX 78759. Phone: (512) 297-7575. Fax: (512) 233-2979. Email: searnhart@earnhart.com. Web: www.earnhart.com. Instagram: Earnhart.Associates.)



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CME/CE QUESTIONS

1. **An international observational study revealed patients who tested positive for SARS-CoV-2 either before or after surgery had an overall 30-day-post-surgery percent mortality rate of:**
 - a. 14.5%
 - b. 18.2%
 - c. 23.8%
 - d. 31.1%
2. **What is one way to help surgeons reduce neck, back, and shoulder pain during surgery?**
 - a. Surgeons could take 10-minute breaks for every hour of surgery.
 - b. Surgeons could wear back braces.
 - c. Surgeons could wear a sensor shirt that creates a personal report about their body posture.
 - d. Surgeons could take acetaminophen combined with ibuprofen.
3. **A large study of Medicare data collected between 2005 and 2016 revealed hip arthroscopy patients with osteoarthritis recorded a two-year conversion rate to total hip replacement of:**
 - a. 68.4%
 - b. 43.1%
 - c. 22.2%
 - d. 15.9%
4. **A recent study about the impact of the Affordable Care Act on lowering out-of-pocket expenses for surgery showed costs declined by one-third for:**
 - a. high-income surgery patients.
 - b. middle-income surgery patients.
 - c. older Medicare surgery patients.
 - d. low-income surgery patients.

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