

# New Data Largely Discount 'July Phenomenon'

*Analysis of the top 10 surgeries shows higher mortality in just 1.*

BY MARK S. LESNEY

FROM SURGERY

**"D**on't have surgery in July!" This is the folk wisdom regarding the purported "July Phenomenon" – the perception that it is more dangerous to have an operation in July than at any other time of year. July heralds the onslaught of new interns; July also means that current residents are given additional duties and responsibility. "Why risk an operation in a month when trainee inexperience must surely dilute the quality of patient care?" is the intuitive assumption.

A recent study, however, showed that this concern is unfounded. Multivariate analysis indicated that only 1 out of the 10 most common surgical procedures (lower extremity artery bypass grafting) showed a significant increase in mortality concurrent with the so-called July Phenomenon (odds ratio, 1.34;  $P = .034$ ). The researchers also found that there was no significant increase in serious adverse events (SAE) for any of the procedures (Surgery 2011;150:332-8).

The previous medical literature shows no consensus on the subject. The American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) suggested that greater rates of postsurgical problems were related to that time of year (Ann. Surg. 2007;246:456-62). In contrast, studies in obstetrics and neurology showed that no July Phenomenon existed, as did surgical studies in specialties including trauma, pediatric neurosurgery, and cardiac surgery, according to Dr. Bryan A. Ehlert and colleagues at East Carolina University, Greenville, N.C.

To investigate the issue in a broader surgical context,

Dr. Ehlert and his colleagues studied the ACS-NSQIP database records of 89,473 patients who had the 10 most common inpatient operative procedures in 2005-2007. They compared 26,287 patients who had surgery in the July 1–Sept. 30 quarter (called the "first academic quarter," or FAQ) with a control population of 63,186 patients who had equivalent surgery during the rest of the year (Oct. 1–June 30) for the following 10 procedures: appendectomy, (lower extremity) artery bypass graft, initial reducible ventral hernia repair, laparoscopic appendectomy, laparoscopic cholecystectomy, laparoscopic gastric bypass, partial colectomy, rechanneling of artery, repair of bowel opening, and small-bowel resection.

The two populations showed no significant differences in a wide variety of demographic characteristics including age (average, about 54 years); sex (about 45% male); and presence of coronary artery disease, renal disease, peripheral vascular disease (PVD/PAD), and diabetes. Slight but significant differences were found only in the presence of hypertension (50.0% in the FAQ group vs. 48.4% in controls, respectively) and history of smoking (24.0% vs. 23.4%). Especially important to the study, there was no significant difference in resident participation in patient care (72.7% vs. 73.0%) or the highest resident level in postgraduate year (2.6 years each).

"Although July might seem intuitively to be a precarious time to undergo an operation due to the influx of new interns and increased responsibilities of rising residents, our findings for the most part discount the

presence of a 'July Phenomenon' in surgical patients," the authors stated. Discrepancies between the previous ACS-NISQIP report and their findings were attributed to the much larger sample size in the current study (183 centers vs. 18).

## VITALS

**Major Finding:** Mortality was significantly increased (though less than 1%) in only 1 of the 10 most common operations – lower artery bypass grafting – at the beginning of the academic year as compared with any other quarter.

**Data Source:** A database analysis of 89,473 patients undergoing the 10 most common inpatient operative procedures from 2005 to 2007.

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They postulated that the lower extremity bypass graft FAQ group showed greater mortality than did the control group because the vascular subsets had a significantly greater modified Charlson comorbidity index, compared with the nonvascular subsets in the FAQ population (CCI, 3.72 vs. 1.56;  $P$  less than .001).

"New surgery interns may not be as adept at recognizing the needs of these patients who are often sicker. As a result, these patient populations may benefit from more senior residents and attending physician involvement as new interns learn how to manage patients with complex cardiovascular disease," they suggested.

A weakness of the study reported by the authors is the crude estimate of patient outcomes, which focuses only on morbidity and mortality and does not include data on duration of stay, medication errors, or cost-effectiveness – all of which could possibly be affected by new interns. For example, they noted that new interns may be more likely to order more unnecessary laboratory tests, or they may fail to remove invasive devices or monitoring devices that are no longer needed, which may in turn lead to increased infections.

In addition, they also stated that interns may have more difficulties when confronted with rarer operations than the 10 most common procedures that were evaluated. ■

## Three Factors Predict Readmission in Pediatric Heart Surgery

BY BRUCE JANCIN

EXPERT ANALYSIS FROM THE ANNUAL MEETING OF THE WESTERN THORACIC SURGICAL ASSOCIATION

COLORADO SPRINGS – Physicians at Emory University Hospital now have a firmer grip on what they're dealing with in reducing 30-day readmissions.

The knowledge that there are three major risk factors – preoperative failure to thrive, an initial length of stay greater than 10 days, and Hispanic ethnicity – for readmission following pediatric congenital heart disease surgery is a tool for improvement, said Dr. Brian E. Kogon of Emory University, Atlanta.

"These data are obviously our data and are very specific to our hospital, our location, and our patient population. I would think that it's going to be very different throughout the country based on whether you're at an academic center or private center, urban versus rural setting, and even in adult cardiac, general thoracic, and pediatric practices," Dr. Kogon said in presenting the study findings at the meeting.

Readmissions within 30 days are increasingly viewed by third-party payers as preventable complications warranting stiff payment penalties. The focus so far has been on adults, but at some point, children

also will come under scrutiny. This realization led Dr. Kogon and his colleagues to analyze their institutional experience via a retrospective cohort study.

During 2002-2009, the annual 30-day readmission rates following pediatric surgery for congenital heart disease were 5.9%-10.4% (median, 8.7%). Those rates are relatively low; other centers typically report readmission rates of 10%-20%, noted Dr. Kogon, director of the congenital cardiac surgery fellowship program at Emory.

In 2009, 685 patients were discharged after pediatric congenital heart disease surgery; 70 of them had 74 readmissions. Among the key findings: only 15% of readmissions were for cardiac reasons. Indeed, the top three reasons for readmission were pleural or pericardial effusions, accounting for 26% of all readmissions; gastrointestinal problems, 24%; and infection, 19%.

Readmissions were costly. A total of 69% of patients were readmitted to a ward, 31% to the ICU. Upon readmission these patients spent a total of 653 additional days – almost 22 months – in the hospital.

The investigators scrutinized numerous potential risk factors for readmission. Only three proved significant in a multivariate analysis: an initial length of stay

greater than 10 days was associated with a 4.4-fold increased risk of readmission; a preoperative diagnosis of failure to thrive was associated with a 2.7-fold risk; and Hispanic ethnicity was associated with a 1.87-fold increased risk.

These readmissions occurred despite an intense discharge process and close follow-up. All families at the pediatric heart surgery unit attend a discharge class and a CPR training class. A pharmacist is on hand at the discharge class to review medications. Shunt recipients and parents of newborns receive additional education. All case-management issues, such as formula supplies and home health equipment, are resolved before discharge. Patients meet with a cardiothoracic surgeon during their first week out of hospital, a cardiologist the second week, and thereafter with their primary care provider.

The median time to the first scheduled outpatient appointment was 4.5 days post discharge. The median time to readmission was 8 days. Thirty-one percent of patients were readmitted prior to their first clinic appointment, 10% directly from the clinic, and 50% after their first clinic visit. The rest were readmitted after being no-shows for their clinic visit.

Dr. Kogon said he suspects that His-

panics were at increased risk for readmission because of educational and language barriers. Although a Spanish-language interpreter is present at the discharge class as needed, Dr. Kogon and his colleagues have observed that many Hispanic families nonetheless return unclear about medication and feeding regimens.

Discussant Dr. David R. Clarke said it might be argued that if a hospital doesn't have a certain number of readmissions, then patients are being kept in the hospital too long. "On a practical level, how much do we spend during the initial admission to ensure no readmissions? Do we automatically keep patients identified as high risk, such as Hispanics, 2, 3, or 4 extra days to minimize their readmission rate? And even if we do that and other things, is it really possible to prevent readmissions?" asked Dr. Clarke of Children's Hospital Colorado, Denver.

Dr. Kogon replied that this is the key question his colleagues raised when he shared the study findings. The group has decided to modify the discharge process for their high-risk patients, keeping them in the hospital a day or so longer while continuing to collect data in order to see if this pays off in fewer readmissions.

Dr. Kogon declared having no financial conflicts. ■