### The Affordable Care Act: Its Impact on Emergency General Surgery and Hospital Use in Maryland

*Rogette Esteve, MD, Christian Damone Cain, MD, FRCS, Margaret H Lauerman, MD, FACS, Joseph Kufera, MA, Roumen Vesselinov, PhD, Jose Jesus Diaz, MD, FACS*
R Adams Cowley Shock Trauma Center, Baltimore, MD

**INTRODUCTION:** The Patient Protection and Affordable Care Act (ACA) was implemented in 2014. Little is known of its impact on emergency general surgery (EGS). Our aim is to determine the impact of the ACA on hospital use and EGS procedures (EGSP) performed in the State of Maryland.

**METHODS:** Retrospective study of the Maryland Health Services Cost Review CommISSion from 2009 to 2018. Referencing two separate time periods (2009-2013 and 2015-2018), patient encounters were included if they had a top EGSP: partial colectomy, small bowel resection, cholecystectomy, operative management of peptic ulcer disease, lysis of peritoneal adhesions, appendectomy, and laparotomy. Patient encounters were stratified by insurance status: government (G), commercial (C), and self-pay (SP). Data collected included demographics and hospital charges.

**RESULTS:** There were 5,777,487 total encounters of which 170,584 (3.0%) were EGSP. Their mean age was 53 $\pm$ 18 and males represented 38.5% of the EGSP. The median cost/encounter was $15,530 (IQR $9,642-$27,800). Comparing the two time periods, there was an increase in insurance coverage: G: 44.1%, C: 48.6%, SP: 6.9% (2009-2013) vs G: 56.3%, C: 40.6%, SP: 2.7% (2015-2018). During the study period, EGSP decreased: 3.5 % vs 2.1% (2009-2013 vs 2015-2018). While total charges decreased, a paradoxical increase in median charges was observed.

**CONCLUSION:** The introduction of ACA was associated with increasing insurance coverage and fewer encounters requiring emergency general surgery. As a result, there was a paradoxical increase in median charges while total charges decreased, further investigation is needed to explore this finding.

### The Value of Time: Analysis of Surgical Post-Discharge Virtual vs In-Person Visits

*Caroline Edwards Reinke, MD, FACS, Kristen Harkey, DNP, Nicole Kaiser, BS, Brent Duane Matthews, MD, FACS, Dr.Rachel Kelz, MD,FACS, Michael Inman, BS*
Carolinas Medical Center, Atrium Health, Charlotte, NC
University of Pennsylvania, Philadelphia, PA

**INTRODUCTION:** Increasingly patients are being offered virtual visits for post-discharge surgical follow-up. Understanding how time is spent during an in-person visit (IPV) vs a virtual visit (VV) is critical. As part of an ongoing randomized control non-inferiority trial we aimed to compare total visit time and time spent with a provider between IPV and VV patients.

**METHODS:** Patients undergoing laparoscopic appendectomy or cholecystectomy at two hospitals in an urban setting were randomized to VV or IPV (2:1). Data was prospectively collected on post-discharge visit time points (clinic check-in time, length of time with surgical team member, and clinic visit discharge time) for all patients. Drive time was calculated for in-person visits using ARCGIS.

**RESULTS:** Of 414 patients enrolled, 64% were randomized to VV (55 VV crossed over to IPV). Post-discharge visit was completed for 65% overall. Total clinic time was longer for IPVs (58 vs 19 min, $p = < 0.01$, Table 1), while provider time was similar (8.3 vs 8.2 min, $p = 0.91$). Including driving time for IPV, mean percent of IPV time with a provider was 8%, compared with 44% for VVS Satisfaction was similar between groups (94% vs 98%).

**CONCLUSION:** Total clinic time was 67% less for a virtual visit, but no difference in the amount of time spent with a provider or satisfaction with the visit. For patients who are hesitant about the value of a virtual visit, knowing they will get the same amount of time with a provider and satisfaction with the encounter may increase their interest.

### Using Artificial Intelligence to Identify Surgical Anatomy, Safe Zones of DISSection, and Dangerous Zones of DISSection during Laparoscopic Cholecystectomy

*Maria Altieri, MD, MS, Daniel Hashimoto, MD, Angela María Rivera, MD, Babak Namazi, MS, PhD, Adnan Alseidi, MD, EdM, FACS, Allan Okrainec, MD, FRCSC, FACS, Ganesh Sankaranarayanan, MS, PhD, L Michael Brunt, MD, FACS, Amin Madani, MD, PhD, FRCSC, DABS*
Baylor University Medical Center, Dallas, TX
East Carolina University Brody School of Medicine, Greenville, NC
Massachusetts General Hospital, Boston, MA
University Health Network, Toronto, ON
Virginia Mason Medical Center, Seattle, WA
Washington University School of Medicine, St Louis, MO

**INTRODUCTION:** Most bile duct injury during laparoscopic cholecystectomy (LC) occur due to errors in visual perception and judgment leading to misinterpretation of anatomy. The purpose of this study was to develop and evaluate the performance of an artificial intelligence (AI) model that can identify anatomical landmarks and safe and dangerous zones of dISSection during LC.

**METHODS:** LC videos were annotated by two high-volume surgeons and reviewed for accuracy by a hepatobiliary surgeon. Liver, gallbladder, hepatocystic triangle, and safe (GO) and dangerous (NO-GO) zones of dISSection were identified using free-hand annotations. An 85% random sample of annotated videos was used to train convolutional deep neural networks, and a 15% sample to test its performance. The model was evaluated against surgeon annotations using accuracy, sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV), $\pm$ standard deviation.