AMERICAN SURGICAL ASSOCIATION

Program of the 139th Annual Meeting

Fairmont Dallas
Dallas, Texas

Thursday, April 11th  Friday, April 12th
Saturday, April 13th  2019
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* These sections available on-site to professional attendees, or by logging into americansurgical.org/MembersOnly.cgi.
AMERICAN SURGICAL ASSOCIATION

Program of the 139th Annual Meeting

Fairmont Dallas
Dallas, Texas

Thursday, April 11th
Friday, April 12th
Saturday, April 13th
2019
THE AMERICAN SURGICAL ASSOCIATION

2018-2019

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American Surgical Association
Administrative Offices
500 Cummings Center, Suite 4400
Beverly, MA 01915
Phone: (978) 927-8330 Fax: (978) 524-0498
Email: admin@americansurgical.org
Or visit: americansurgical.org
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139th Annual Meeting
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(2018–2019)

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Douglas S. Tyler

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Lisa R. David
Linda G. Phillips

CLINICAL TRANSPLANTATION
Andrew M. Cameron
Susan L. Orloff
Debra L. Sudan

CLINICAL TRAUMA, BURN, ACUTE CARE
Amy J. Goldberg
Mark R. Hemmila
Rosemary A. Kozar
PROGRAM SUBCOMMITTEES (continued)  
(2018–2019)

EDUCATION AND SOCIAL ISSUES

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Carla M. Pugh  
Julie Ann Sosa

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Justin B. Dimick  
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Bernard M. Jaffe  
Emad Kandil  
Gordon L. Kauffman, Jr.

George V. Mazariegos  
Nipun B. Merchant  
Patricia J. Numann  
Dmitry Oleynikov  
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Bruce D. Schirmer .................................................................2014–2020

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AMERICAN COLLEGE OF SURGEONS,
SURGICAL RESEARCH COMMITTEE
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COUNCIL OF FACULTY AND ACADEMIC SOCIETIES
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Ajit K. Sachdeva .................................................................2013–2019

NATIONAL ASSOCIATION FOR BIOMEDICAL RESEARCH
Joren C. Madsen .................................................................2017–2019

SURGICAL COUNCIL ON RESIDENT EDUCATION
Rosemary A. Kozar .................................................................2017–2020
FUTURE MEETINGS OF THE AMERICAN SURGICAL ASSOCIATION

April 16–18, 2020
Grand Hyatt Washington
Washington, DC

April 22–24, 2021
Hyatt Regency Seattle
Seattle, Washington

April 7–9, 2022
Chicago Marriott Downtown Magnificent Mile
Chicago, Illinois
GENERAL INFORMATION

The Fairmont Dallas, Texas, is the headquarters of the American Surgical Association for the 139th Annual Meeting, April 11–13, 2019.

REGISTRATION: The Registration Desk for the 139th Annual Meeting is located in the Regency Ballroom Foyer during the following hours:

<table>
<thead>
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<tr>
<td>Wednesday, April 10th</td>
<td>2:00 p.m.–6:00 p.m.</td>
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<tr>
<td>Thursday, April 11th</td>
<td>7:00 a.m.–5:15 p.m.</td>
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<tr>
<td>Friday, April 12th</td>
<td>7:30 a.m.–5:00 p.m.</td>
</tr>
<tr>
<td>Saturday, April 13th</td>
<td>7:30 a.m.–11:00 a.m.</td>
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Fellows and guests who have pre-registered are required to sign the registration book and pick up registration materials at the ASA Registration Desk. Registration is also available on-site.

SPEAKERS AND DISCUSSANTS: All manuscripts presented at the Scientific Sessions of the Annual Meeting must be submitted electronically to The Annals of Surgery at www.editorialmanager.com/annsurg prior to the presentation of the paper. The time allowed for each presentation is ten minutes. Following the presentation, the Primary Discussant will be allotted three minutes for discussion. All additional discussants will be allotted two minutes; in addition, each follow-up discussant should verbally disclose financial relationships with any commercial interest that are relevant to the paper about to be discussed. The total amount of time provided for discussion is fifteen minutes. Please note the use of slides will NOT be permitted for discussants.

SPEAKER READY ROOM: The Speaker Ready Room is located in the Royal Room. Authors are requested to submit their 16:9 Widescreen formatted PowerPoint presentations on either USB memory drive or CD-ROM the day prior to their session. Speaker Ready Room hours are:

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EMBARGO POLICY: The embargo on studies and their associated abstracts (including those posted online prior to the conference) scheduled for presentation at the American Surgical Association’s 139th Annual Meeting, April 11–13, 2019, Dallas, Texas, is the date and time of each individual scientific presentation (not the beginning of the overall session in which it has been scheduled). News media activities are restricted until the embargo lifts. Any news media activity about a study and its associated abstract must include the following: “The complete manuscript of this study and its presentation at the American Surgical Association’s 139th Annual Meeting, April 11–13, 2019, Dallas, Texas, is anticipated to be published in the Annals of Surgery pending editorial review.”

BANQUET: The Annual Reception and Banquet is open to Fellows of the Association and their registered spouses/partners, as well as Invited Guest Physicians and Residents and their registered spouses/partners. The Reception and Banquet is scheduled for Friday, April 12th, with the reception taking place in the Regency Ballroom Foyer and dinner in the Regency Ballroom (black tie/evening dress preferred, but dark suits are acceptable). Table sign-ups are available at the registration desk.

SPECIAL EVENTS:
Address by the President: Thursday, April 11th 10:50 a.m.
“Time and Change: The Importance of Innovation and Leadership to the Future of Surgery”
Forum Discussion Friday, April 12th 10:30 a.m.
“Challenges to Surgical Innovation”
Executive Session (Fellows Only) Friday, April 12th 4:00 p.m.
Reception & Banquet Friday, April 12th 7:00 p.m.

SPOUSE/GUEST HOSPITALITY: The Spouse/Guest Hospitality Suite is located in the Pyramid Private Dining Room from 7:00 a.m. to 10:30 a.m., Thursday, April 11th, through Saturday, April 13th. The Local Arrangements Committee will have information on activities of interest and maps available in the room.
REGISTRANT BADGES: Badges are required for admittance to the ASA Scientific Sessions. Badge colors represent the following designations:

- Blue — Member/Fellow
- Cream — Honorary Fellow
- Green — Guest Physician
- White — Spouse/Guest

CME MISSION/PURPOSE AND CONTENT

The Continuing Medical Education (CME) mission of the American Surgical Association is to provide a national forum for presenting the developing state-of-the-art and science of general and sub-specialty surgery and the elevation of the standards of the medical/surgical profession. This mission is accomplished primarily by conducting an annual scientific meeting consisting of selected presentations containing the most current information available on clinical and research topics related to surgery or surgical specialties, including studies on outcomes, practice and science of surgery and ethical and other issues that affect its practice. In addition, the meeting features special invited speakers who address a variety of topics directly or indirectly related to the practice of surgery. The meeting is presented for the benefit of those physicians, surgeons and researchers involved in the study, treatment and cure of diseases associated with the entire spectrum of human disease. The meeting provides for a free exchange of information and serves the professional needs of the membership and invited guests. The Association’s mission is augmented by the publication of the scientific papers presented at the annual meeting in the *Annals of Surgery*, a monthly scientific publication distributed to subscribers throughout the world and by the publication of the Proceedings of the Annual Meeting and the scientific papers in the *Transactions of the American Surgical Association*, an annual publication distributed to the membership.

LEARNING OBJECTIVES

The Annual Meeting of the American Surgical Association is designed to provide two and one half days of comprehensive educational experiences in the fields of clinical surgery, experimental surgery and related sciences, surgical education and the socioeconomic aspects of surgical care. It is the Association’s intent to bring together at this meeting the leading surgeons and scientists from North America and other continents to freely and openly discuss their latest clinical and research findings.
LEARNING OUTCOMES

At the conclusion of the Annual Meeting, participants should have an enhanced understanding of the latest techniques and current research specifically related to the fields of clinical surgery, experimental surgery and related sciences, surgical education and the socioeconomic aspects of surgical care. Through the open discussion periods and the Forum Discussion, participants will have the opportunity to hear the pros and cons of each paper presented to gain an overall perspective of their current practices and to utilize results presented in order to select appropriate surgical procedures and interventions for their own patients and to integrate state-of-the-art knowledge into their current practice and/or research.

EDUCATIONAL METHODS

Authored papers supported by audio/visual presentations, panel discussion, and open group discussion.

CONTINUING MEDICAL EDUCATION CREDIT INFORMATION

Accreditation
This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the American College of Surgeons and American Surgical Association. The American College of Surgeons is accredited by the ACCME to provide continuing medical education for physicians.

AMA PRA Category 1 Credits™
The American College of Surgeons designates this live activity for a maximum of 16.25 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Of the AMA PRA Category 1 Credits™ listed above, a maximum of 13.50 credits meet the requirements for Self-Assessment.
FACULTY DISCLOSURE INFORMATION

In compliance with ACCME Accreditation Criteria, the American College of Surgeons, as the accredited provider of this activity, must ensure that anyone in a position to control the content of the educational activity has disclosed all relevant financial relationships with any commercial interest. All reported conflicts are managed by a designated official to ensure a bias-free presentation.

In accordance with the ACCME Accreditation Criteria, the American College of Surgeons, as the accredited provider of this activity, must ensure that anyone in a position to control the content of the educational activity has disclosed all relevant financial relationships with any commercial interest. Therefore, it is mandatory that both the program planning committee and speakers complete disclosure forms. Members of the program committee were required to disclose all financial relationships and speakers were required to disclose any financial relationship as it pertains to the content of the presentations. The ACCME defines a ‘commercial interest’ as “any entity producing, marketing, re-selling, or distributing health care goods or services consumed by, or used on, patients”. It does not consider providers of clinical service directly to patients to be commercial interests. The ACCME considers “relevant” financial relationships as financial transactions (in any amount) that may create a conflict of interest and occur within the 12 months preceding the time that the individual is being asked to assume a role controlling content of the educational activity.

ACS is also required, through our joint providership partners, to manage any reported conflict and eliminate the potential for bias during the activity. All program committee members and speakers were contacted and the conflicts listed below have been managed to our satisfaction. However, if you perceive a bias during a session, please report the circumstances on the session evaluation form.

Please note we have advised the speakers that it is their responsibility to disclose at the start of their presentation if they will be describing the use of a device, product, or drug that is not FDA approved or the off-label use of an approved device, product, or drug or unapproved usage.

The requirement for disclosure is not intended to imply any impropriety of such relationships, but simply to identify such relationships through full disclosure and to allow the audience to form its own judgments regarding the presentation.
Dr. Andrew Graham Hill is a Professor of Surgery and Head of the South Auckland Clinical Campus of the University of Auckland and a consultant General and Colorectal Surgeon at the Middlemore Hospital. He is the Assistant Dean of the Faculty of Medical and Health Sciences at the University of Auckland. He has made enormous contributions to the science of perioperative care, colorectal surgery, and surgical education.

He received his Doctor of Medicine and Doctor of Education from the University of Auckland and his Graduate Certificate in Clinical Education from the University of New South Wales. He is a fellow of the American College of Surgeons and a fellow of the Royal Australasian College of Surgeons.

He has wide interests in surgical sciences but is most noted for cost containment in surgery and enhanced recovery after surgery. In these areas, he has made seminal contributions. He has also written extensively and thoughtfully about factors that drive career decision making among medical students.

His many honors include the Gluckman Medal from the University of Auckland, the Maori Health Medal from the Royal Australasian College of Surgeons, the University of Auckland Teaching Excellence Award for Excellence in Postgraduate Research Supervision, and the Butland Award for Excellence in Medical Education Leadership from the University of Auckland.

He is a sought-after speaker and has lectured widely in many international forums. He has published 3 Books and over 250 Peer-Reviewed Articles.

When he is not advancing the science and practice of surgery, he is fly fishing or gardening.

For his contributions to treatment of colorectal cancer, to surgical sciences, to international collaboration, and to surgical education, we welcome him to the American Surgical Association.
Jamal Jawad Hoballah, M.D.

Professor Jamal Jawad Hoballah obtained a Bachelor’s of Science in Biochemistry in 1976, and subsequently a Medical Degree in 1981 from the American University of Beirut in Lebanon. After two years of training in general surgery in Beirut, he transfer to New York, and completed a General Surgery Residency at New York University Medical Center. This was followed by a Fellowship in Vascular Surgery at the University of Iowa, completed in 1991. Over the following years, he obtained further endovascular training in New York, Michigan and Germany. In 1992, he joined the faculty of the Department of Surgery at the University of Iowa as an Assistant Professor and rapidly progressed through the ranks becoming a full Professor of Vascular Surgery. In 2001 he completed an Executive MBA. In 2008, he moved back to the American University of Beirut as Professor and Chair of the Department of Surgery.

Professor Hoballah has lectured extensively in the United States and Middle East. He has published around 100 scientific articles in peer review journals, 11 books, and 48 book chapters.

Professor Hoballah is a member of the most prestigious surgical organizations including the Society of Vascular Surgery, the Society for Clinical Vascular Surgery, and the International Society of Cardiovascular Surgery. In addition, he is a Fellow of the American College of Surgeons where he has been the Chair of the International Relations Committee and the International Governors Workgroup.
Masaki Mori, M.D., Ph.D.

Masaki Mori was born in Kagoshima, Japan in 1956. He is currently Chairman of the Department of Surgery and Science, Kyushu University in Fukuoka, Japan. It is the 4th oldest university in Japan and one of the former Imperial Universities. It is considered as one of the most prestigious research-oriented universities in Japan. Professor Mori is an active surgeon and a cancer researcher. He has had an illustrious 35 year career in clinical cancer surgery and research.

Dr. Mori received his MD from Kyusyu University School of Medicine in 1980, and his PhD in Medical Science, also from Kyusyu University School of Medicine, in 1986. He then completed his general surgery residency at Kyusyu University Hospital and National Beppu Hospital, both in Japan. In 1986, he began his professional career as an Assistant Professor in the Department of Pathology at Kyushu University, becoming a Surgeon and Assistant Professor in the Department of Surgery II the following year. He studied human surgical pathology for 4 years at Kyusyu University and in 1991 molecular biology for 1.5 years at New England Deaconess Hospital and Dana-Farber Cancer Institute in Boston with his mentor, Professor Glenn D Steele Jr. and Professor Ian Bo Chen. In 1998 he assumed the role of Chairman and Professor of Surgery in the Medical Institute of Bioregulation at Kyushu University, and in 2008, he became the Professor and Chairman of Surgery of the Graduate School of Medicine at Osaka University a position he held until assuming the role of Chairman of the Department of Surgery and Science, Kyushu University.

Dr. Mori has contributed extensively to our understanding of cancer biology and surgical treatment of cancer. His work has resulted in many advances in solid organ cancer therapy including breast, colorectal, and pancreatic cancers. His work has also included basic science discoveries in the area of gene regulation in cancer, driver mutations influencing the growth and metastasis of cancer cells and the role of cancer stem cells in gastrointestinal malignancies. He has published a staggering 1250+ articles, in journals as varied as Cancer Cell, Genomics, Cancer, American Journal of Gastroenterology, Annals of Surgical Oncology, Surgery, and Diseases of the Colon and Rectum.
He became a chairman of organizing committee of the 47th International Symposium of the Princess Takamatsu Cancer Research Fund, of which title was “Current status of perspective of cancer stem cell research” and was held in November 2016 in Tokyo. This symposium is one of the most prestigious cancer symposiums in Japan. For his achievements in cancer and surgical research, he has received the Medical Award of the Japan Medical Association, Princess Takamatsu Cancer Research Fund Prizes, and Special Awards from Kobayashi Foundation for Cancer Research and the SGH Foundation.

He is the past President of the Japan Surgical Society (2017–) and served as the Vice-President of the Japanese Cancer Association (2016–). He was the congress chairman of the 77th annual meeting of the Japanese Cancer Association in 2018. In addition, he served as the Vice-President of the Japanese Association of Medical Sciences (2017) and the President of the Japanese Society of Gastroenterological Surgery (2011–2015). He is also a member of the Science Council of Japan (2014–), and a member of scientific committees of Ministry of Education, and Ministry of Health, Labor and Welfare (2016–).
Selman Uranues, M.D., Dr. h.c.

Dr. Selman Uranues is Professor of Surgery at the Medical University of Graz in Austria, where he has held the positions of Head of the Section for Surgical Research of the Division of General Surgery since 1996 and Head of the Center for Minimally Invasive Surgery since 2010. Dr. Uranues is recognized as an outstanding and innovative minimally invasive surgeon who has adapted MIS techniques to the field of trauma.

Having spent time in multiple U.S. institutions, he is a keen translator of U.S. concepts and processes to the European reality. For his contributions in Europe he has been honored by being the inaugural President of the European Society for Trauma and Emergency Surgery (ESTES). He subsequently became the President of the International Association for Trauma Surgery and Intensive Care (IATSIC). He is also a member of the Board of Directors of World Coalition for Trauma Care.

Dr. Uranues has an unwavering commitment to educating the new generation of trauma and emergency surgeons. Over the last 20 years he has developed a number of outstanding courses in trauma surgery and laparoscopic techniques using innovative training simulation modules to teach the appropriate technical competencies. Dr. Uranues has established criteria for trauma training in Europe, helped develop a European Board to examine trainees and award a certificate, and is currently working to design a European trauma center verification similar to ours.

Professor Uranues’ professional accomplishments are based on outstanding personal characteristics: he is committed, dedicated, professional, loyal and kind. He shares knowledge, embraces humility and embodies a collaborative spirit. Inherently polite and ready to offer credit always to others, he is revered by his faculty and residents and respected by the surgical community worldwide.
Forum Discussion Faculty

Peter Angelos, M.D., Ph.D, F.A.C.S.

Peter Angelos, MD, PhD, FACS is the Linda Kohler Anderson Professor of Surgery and Surgical Ethics, Chief of Endocrine Surgery, and Associate Director of the MacLean Center for Clinical Medical Ethics at the University of Chicago. A native of Plattsburgh, NY, where his father was a general surgeon, Dr. Angelos completed his undergraduate degree, medical school, and a Ph.D. in Philosophy at Boston University. He completed his residency in General Surgery at Northwestern University and went on to complete fellowships in Clinical Medical Ethics at the University of Chicago and in Endocrine Surgery at the University of Michigan. Dr. Angelos is a busy endocrine surgeon who has written widely on improving outcomes of thyroid and parathyroid surgery, minimally invasive endocrine surgery, and ethical aspects in the care of surgical patients. He is co-editor of the ACS text, Ethical Issues in Surgical Care. Dr. Angelos is was a regular contributor to the ACS Surgery News where he wrote a column on surgical ethics entitled, “The Right Choice?” He is a past president of the American Association of Endocrine Surgeons.
Michael Harrison, M.D.

Dr. Michael Harrison is Professor of Surgery, Pediatrics, and Obstetrics, Gynecology and Reproductive Sciences, Emeritus UCSF. He graduated cum laude Yale University and magna cum laude Harvard Medical School. He completed general surgery Mass General (MGH) and Pediatric surgery LA Childrens and Rikshospital Oslo Norway. Known around the world as the “Father of Fetal Surgery,” He was the founder/director of the UCSF Fetal Treatment Center as well as the International Fetal Medicine and Surgery Society, He is now Director of the UCSF Pediatric Device Consortium supported by grants from the FDA. He has authored more than 400 hundred peer-reviewed articles and several textbooks including three editions of “The Unborn Patient: The Art and Science of Fetal Therapy”. He received the American College of Surgeons Jacobson Innovation Award, served as President of the American Pediatric Surgery Association, and was elected to the Institute of Medicine (now National Academy of Medicine).
Thomas M. Krummel, M.D.

Over 35-years, Dr. Krummel has served roles as a surgeon, innovator, leader in many surgical societies, and mentor to countless trainees.

He has co-directed the Stanford Byers Center for Biodesign for 15 years, designed to teach medtech innovation to teams of docs, engineers and business types. There are now 18 similar programs on 3 continents. More than 1.5 million patients have been treated with tools and technologies originating in this program.

Dr. Krummel is Chair of the Board at Fogarty Institute, a NFP medtech educational incubator. He has served on SABs and BODs of more than 20 successful medical device start-ups.
Mary H. McGrath, M.D., M.P.H., F.A.C.S.

Dr. Mary H. McGrath is Professor of Surgery in the Division of Plastic and Reconstructive Surgery and Director of Resident and Fellow Affairs in the UCSF Office of Graduate Medical Education at the University of California San Francisco. She is in practice at the UCSF Medical Center, San Francisco Veterans Administration Medical Center, and Zuckerberg San Francisco Hospital with a focus on aesthetic and reconstructive surgery of the face and trunk. Her special interests include resident education, bioethics, and quality improvement efforts in clinical care. She is editor-in-chief of *Ethical Issues in Clinical Surgery*, two volumes published in by the American College of Surgeons as course material for examining ethical issues in surgical practice.
Jeffrey L. Ponsky, M.D.

Dr. Ponsky is Professor of Surgery and the Lynda and Marlin Younker Chair in Developmental Endoscopy at CRWU School of Medicine and Cleveland Clinic. He served as Chair of Surgery at CRWU School of Medicine from 2005–2014.

Dr. Ponsky has served as President of the American Society Gastrointestinal Endoscopy (ASAGE) and the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES). He has served as the Chair of the American Board of Surgery and has been Vice President of the ASA and the SSAT.

He has authored over 300 original articles and is an originator of the Percutaneous Endoscopic Gastrostomy Procedure.
SCHEDULE-AT-A-GLANCE

THURSDAY, APRIL 11th

8:15 AM  Opening Session  Regency Ballroom

President’s Opening Remarks

Secretary’s Welcome and Introduction of New Fellows Elected in 2018

President’s Introduction of Honorary Fellows

Presentation of the Medallion for Scientific Achievement

Presentation of the Medallion for the Advancement of Surgical Care

Past President Eulogies

Report of the Committee on Arrangements

9:10 AM  Scientific Session I  Regency Ballroom

Moderator: E. Christopher Ellison, M.D.

10:50 AM  Presidential Address  Regency Ballroom

“Time and Change: The Importance of Innovation and Leadership to the Future of Surgery”

Introduction:  Ernest E. Moore, Jr., M.D.

Address:  E. Christopher Ellison, M.D.

1:30 PM  Scientific Session II  Regency Ballroom

Moderator: Robin S. McLeod, M.D.
FRIDAY, APRIL 12th

6:30 AM  **ASA Women in Surgery Breakfast**  Parisian Room
“Effective Mentoring in the Post #MeToo Era”

8:00 AM  **Scientific Session III**  Regency Ballroom
 Moderator: E. Christopher Ellison, M.D.

10:30 AM  **Forum Discussion:**  Regency Ballroom
“Challenges to Surgical Innovation”
 Moderator: E. Christopher Ellison, M.D.

1:30 PM  **Scientific Session IV**  Regency Ballroom
 Moderator: Ernest E. Moore, Jr., M.D.

4:00 PM  **Executive Session**  Regency Ballroom
*(Fellows Only)*
Presentation of the Flance-Karl Award

7:00 PM  **Annual Reception**  Regency Ballroom Foyer
*(Black tie/evening dress preferred, but dark suits are acceptable.)*

8:00 PM  **Annual Banquet**  Regency Ballroom
*(Black tie/evening dress preferred, but dark suits are acceptable.)*

SATURDAY, APRIL 13th

8:00 AM  **Scientific Session V**  Regency Ballroom
 Moderator: New President-Elect

11:00 AM  **Adjourn**
AMERICAN SURGICAL ASSOCIATION
139th Annual Meeting ‖ April 11–13, 2019
Fairmont Dallas ‖ Dallas, Texas

PROGRAM OUTLINE

THURSDAY, APRIL 11, 2019

8:15 AM – 9:10 AM
OPENING SESSION
Regency Ballroom

President’s Opening Remarks

Secretary’s Welcome & Introduction of New Fellows Elected in 2018

President’s Introduction of Honorary Fellows

Presentation of the Medallion for Scientific Achievement

Presentation of the Medallion for the Advancement of Surgical Care

Past President Eulogies

Report of the Committee on Arrangements
9:10 AM – 11:00 AM

SCIENTIFIC SESSION I
Regency Ballroom
Moderator: E. Christopher Ellison, M.D.

9:10 AM – 9:35 AM

1. Survival Outcomes Associated with Clinical and Pathological Response Following Neoadjuvant FOLFIRINOX or Gemcitabine/Nab-paclitaxel Chemotherapy in Resected Pancreatic Cancer
1University of Miami Health System, Miami, FL; 2Emory University, Atlanta, GA; 3Washington University, St. Louis, MO; 4UNC Chapel Hill, Chapel Hill, NC; 5University of Cincinnati, Cincinnati, OH; 6University of Wisconsin, Madison, WI; 7University of Louisville, Louisville, KY; 8University of Louisville, Louisville, KY

9:35 AM – 10:00 AM

Daniel A. Hashimoto*, Guy Rosman*, Elan R. Witkowski*, David W. Rattner1, Keith D. Lillemoe1, Daniela L. Rus*, Ozanan R. Meireles*
1Massachusetts General Hospital, Boston, MA; 2Massachusetts Institute of Technology, Cambridge, MA

*By invitation
10:00 AM – 10:25 AM

3. A Novel Validated Recurrence Risk Score to Guide a Pragmatic Surveillance Strategy After Resection of Pancreatic Neuroendocrine Tumors: An International Study of 1006 Patients
Mohammad Y. Zaidi*¹, Alexandra G. Lopez-Aguiar*¹, Valentina Andreasì*², Stefano Partelli*², George A. Poultsides*³, Mary Dillhoff*⁴, Flavio H. Rocha*⁵, Kamran Idrees*⁶, Clifford S. Cho*⁷, Sharon M. Weber*⁸, Ryan C. Fields*⁹, Charles A. Staley, III¹, Massimo Falconi*², Shishir K. Maithel*¹
¹Emory University, Atlanta, GA; ²San Raffaele Scientific Institute, Milan, Italy; ³Stanford University, Stanford, CA; ⁴The Ohio State University, Columbus, OH; ⁵Virginia Mason Medical Center, Seattle, WA; ⁶Vanderbilt University, Nashville, TN; ⁷University of Michigan, Ann Arbor, MI; ⁸University of Wisconsin, Madison, WI; ⁹Washington University School of Medicine, St Louis, MO

10:25 AM – 10:50 AM

4. The Hidden Burden of Mental Health Outcomes Following Firearm-Related Injuries
Bellal Joseph*¹, Kamil Hanna*¹, Rachael A. Calcutt*², Jamie J. Coleman*³, Joseph V. Sakran*⁴, Leigh A. Neumayer¹
¹The University of Arizona, Tucson, AZ; ²University of California San Francisco, San Francisco, CA; ³Denver Health, Denver, CO; ⁴The Johns Hopkins Hospital, Baltimore, MD

*By invitation
10:50 AM – 12:00 PM
PRESIDENTIAL ADDRESS
Regency Ballroom

10:50 AM – 11:00 AM
  Introduction of the President
  Ernest E. Moore, Jr., M.D.

11:00 AM – 12:00 PM
  Address by the President
  “Time and Change: The Importance of Innovation and Leadership to the Future of Surgery”
  E. Christopher Ellison, M.D.
1:30 PM – 5:15 PM

SCIENTIFIC SESSION II
Regency Ballroom

*Moderator: Robin S. McLeod, M.D.*

1:30 PM – 1:55 PM

5. **Trends in Treatment of T1N0 Esophageal Cancer**
   *Washington University in St. Louis, St. Louis, MO*

1:55 PM – 2:20 PM

6. **Adult Living Donor Versus Deceased Donor Liver Transplant (LDLT Versus DDLT) at a Single Center – Time to Change our Paradigm for Liver Transplant**
   Abhinav Humar, Dana Jorgensen*, Swaytha Ganesh*, Amit Tevar*, Michele Molinari*, Christopher Hughes*
   *University of Pittsburgh, Pittsburgh, PA*

2:20 PM – 2:45 PM

7. **Description and Impact of a Comprehensive Multi-Specialty Multi-Disciplinary Intervention to Decrease Opioid Prescribing in Surgery**
   *Massachusetts General Hospital & Harvard Medical School, Boston, MA*

*By invitation*
2:45 PM – 3:10 PM

8. Is Disruptive Behavior Inherent to the Surgeon or the Environment? Analysis of 314 Events at a Single Academic Medical Center
Martin J. Heslin, Brandon Singletary*, Kaitlin Benos*, Laura Read Lee*, Charles Fry*, Brenessa Lindeman*
The University of Alabama at Birmingham, Birmingham, AL

3:10 PM – 3:35 PM

Ryan J. Ellis*¹, D. Brock Hewitt*¹, Yue-Yung Hu*¹, Shelby Parilla*¹, Julie Johnson*¹, Ryan P. Merkow*¹, Anthony D. Yang*¹, David B. Hoyt², Jo Buyske³, Karl Y. Bilimoria¹
¹Northwestern University, Chicago, IL; ²American College of Surgeons, Chicago, IL; ³American Board of Surgery, Philadelphia, PA

3:35 PM – 4:00 PM

10. Long Term Patient Reported Outcomes Following Post-Mastectomy Breast Reconstruction: An 8-Year Examination of 3268 Patients
Jonas Nelson*¹, Thais Polanco*¹, Meghana Shamsunder*¹, Aadit Patel*¹, Nikhil Sobi*¹, Colleen McCarthy*¹, Evan Matros*¹, Joseph Dayan*¹, Joseph Disa¹, Peter Cordeiro*¹, Andrea Pusic*², Babak Mehrara¹, Robert Allen, Jr.*¹
¹Memorial Sloan Kettering, New York, NY; ²Brigham and Women’s Hospital, Boston, MA

*By invitation
4:00 PM – 4:25 PM

11. Hereditary Susceptibility for Triple Negative Breast Cancer Associated with Western Sub-Saharan African Ancestry: Results from an International Surgical Breast Cancer Collaborative
Lisa A. Newman¹, Joseph K. Oppong*², Aisha S. Jibrij*³, Jessica M. Bensenhaver*⁴, Baffour Awuah*², Mahteme Bekele*³, Engida Abebe*³, Ishmael Kyeji*², Frances Aitpillar², S. David Nathanson*⁴, Britanny Jenkins*¹, Lindsay F. Petersen*⁴, Erica Proctor*⁴, Kofi K. Gyan*¹, Rick Kittles*⁵, Melissa B. Davis*¹
¹Weill Cornell Medicine, New York, NY; ²Komfo Anokye Teaching Hospital, Kumasi, Ghana; ³Millenium Medical College St. Paul’s Hospital, Addis Ababa, Ethiopia; ⁴Henry Ford Cancer Institute, Detroit, MI; ⁵City of Hope Comprehensive Cancer Center, Los Angeles, CA

4:25 PM – 4:50 PM

12. Improved Disease-Free Survival After Prehabilitation for Colorectal Cancer Surgery
McGill University Health Center, Montreal, QC, Canada

4:50 PM – 5:15 PM

13. Long-Term Outcomes After Sepsis in Critically Ill Surgical Patients: Discordance Between Inpatient Mortality and 1-Year Outcomes
University of Florida, Gainesville, FL

*By invitation
FRIDAY, APRIL 12, 2019

6:30 AM – 8:00 AM
ASA WOMEN IN SURGERY BREAKFAST
Parisian Room
Effective Mentoring in the Post #MeToo Era

8:00 AM – 10:30 AM
SCIENTIFIC SESSION III
Regency Ballroom
Moderator: E. Christopher Ellison, M.D.

8:00 AM – 8:25 AM

14. Metabolic Surgery Reduces the Risk of Progression from Chronic Kidney Disease to Kidney Failure
*Cleveland Clinic Florida, Weston, FL

8:25 AM – 8:50 AM

15. Gallstone Pancreatitis: Admission Versus Normal Cholecystectomy – A Randomized Trial (Gallstone PANC Trial)
*UTHSC Houston, Houston, TX

*By invitation
8:50 AM – 9:15 AM

16. Opportunity to Mitigate Trauma-Induced Coagulopathy in Children: Fibrinolysis Shutdown Is Not Prevalent Until 1 Hour Post-Injury
Christine M. Leeper*, Stephen Strotmeyer*, Matthew D. Neal*, Barbara A. Gaines
*University of Pittsburgh Medical Center, Pittsburgh, PA

9:15 AM – 9:40 AM

17. Utilizing Precision Medicine to Estimate Timing for Surgical Closure of Traumatic Extremity Wounds
Felipe A. Lisboa*1, Christopher J. Dente*2, Seth Schobel-Mchugh*1, Vivek Khatri*1, Benjamin K. Potter*1, Allan Kirk3, Eric A. Elster1
1USUHS, Bethesda, MD; 2Emory University, Atlanta, GA; 3Duke University, Durham, NC

9:40 AM – 10:05 AM

18. Can We Predict Incisional Hernia? – Development of a Surgery-Specific Decision-Support Interface
Hospital of the University of Pennsylvania, Philadelphia, PA

*By invitation
10:05 AM – 10:30 AM

19. Telemedicine Based Remote Home Monitoring After Liver Transplantation: Results of a Randomized Prospective Trial
University of Cincinnati, Cincinnati, OH

10:30 AM – 12:00 PM

FORUM DISCUSSION

Challenges to Surgical Innovation
Moderator: E. Christopher Ellison, M.D.
Faculty: Innovation Is Fun: Fetal Surgery to Magnets
Michael Harrison, M.D.
University of California, San Francisco, San Francisco, CA

The Surgeon, the Patient and the Unsolved Problem: the March of Innovation
Thomas M. Krummel, M.D.
Stanford University School Medical Center, Stanford, CA

Ethics of Innovative Surgical Practice: The Human Dimensions
Mary H. McGrath, M.D., M.P.H.
University of California, San Francisco, San Francisco, CA

The Surgical Innovator and the Health System: Consideration of the Ethical Challenges
Peter Angelos, M.D., Ph.D.
University of Chicago, Chicago, IL

Surgical Endoscopic Innovation
Jeffrey L. Ponsky, M.D.
Cleveland Clinic, Cleveland, OH

*By invitation
1:30 PM – 4:00 PM
SCIENTIFIC SESSION IV
Regency Ballroom
Moderator: Ernest E. Moore, Jr., M.D.

1:30 PM – 1:55 PM

20. Effect of Postoperative Permissive Anemia and Cardiovascular Risk Status on Outcomes After Major General and Vascular Surgery Operative Interventions
Panos Kougias*, Sherene Sharath*, Zhibao Mi*, Kousick Biswas*, Joseph L. Mills
1Baylor College of Medicine, Houston, TX; 2Cooperative Studies Program, Perry Point Coordinating Center, Perry Point, MD

1:55 PM – 2:20 PM

21. A Surgical Endovascular Trauma Service Increases Case Volume and Decreases Time to Hemostasis
R. Adams Cowley Shock Trauma Center, Baltimore, MD

2:20 PM – 2:45 PM

22. Association of Overlapping, Non-Concurrent, Surgery with Patient Outcomes at a Large Academic Medical Center: A Coarsened Exact Matching Study
1University of Pennsylvania, Philadelphia, PA; 2West Chester University, West Chester, PA

*By invitation
2:45 PM – 3:10 PM

23. Gender Disparity in Outcomes of Ruptured Abdominal Aortic Aneurysm Repair Driven by In-Hospital Treatment Delays
Linda J. Wang*, Satinderjit Locham*, Hanaa Dakour-Aridi*, Keith D. Lillemoe1, Bryan Clary3, Mahmoud B. Malas*
1Massachusetts General Hospital, Boston, MA; 2Johns Hopkins University School of Medicine, Baltimore, MD; 3University of California San Diego, San Diego, CA

3:10 PM – 3:35 PM

University of Alabama at Birmingham, Birmingham, AL

3:35 PM – 4:00 PM

The Ohio State University, Columbus, OH

*By invitation
4:00 PM – 5:00 PM

EXECUTIVE SESSION  Regency Ballroom
ASA Fellows Only

Presentation of the Flance-Karl Award

7:00 PM

ANNUAL RECEPTION  Regency Ballroom Foyer
(Black tie/evening dress preferred, but dark suits are acceptable.)

8:00 PM

ANNUAL BANQUET  Regency Ballroom
(Black tie/evening dress preferred, but dark suits are acceptable.)

BANQUET SPEAKER
The Power of a Pet: What Physicians and Surgeons Should Know
Rustin Moore, DVM, PhD, Diplomate ACVS
The Ohio State University, Columbus, OH
SATURDAY, APRIL 13, 2019

8:00 AM – 11:00 AM

SCIENTIFIC SESSION V
Regency Ballroom
Moderator: New President-Elect

8:00 AM – 8:25 AM

26. Impact of Medicaid Expansion (ME) of the Affordable Care Act on the Outcomes of Lower Extremity Bypass for Patients with Peripheral Artery Disease in the Vascular Quality Initiative (VQI) Database
Mohammad H. Eslami*1, Hanaa Darkour Aridi*2, Efthymios D. Avgerinos*1, Michel S. Makaroun1, Mahmoud Malas*2
1University of Pittsburgh Medical School, Pittsburgh, PA; 2University of California, San Diego, CA

8:25 AM – 8:50 AM

27. Surgical Management of Five Hundred Patients with Chronic Gut Failure at a Single Center: Autologous Reconstruction Versus Transplantation
Cleveland Clinic, Cleveland, OH

8:50 AM – 9:15 AM

28. Hepatic Ablation Promotes Colon Cancer Metastasis in an Immunocompetent Murine Model
Edward L. Jones*1, Alison Halpern*1, Heather Carmichael*1, Thomas Robinson*1, Carlton C. Barnett, Jr.*2
1VAMC/University of Colorado at Denver, Aurora, CO; 2VAMC/University of Colorado at Denver, Denver, CO

*By invitation
9:15 AM – 9:40 AM

29. Assessing the Effect of Market Competition on Hospital Costs and Outcomes Among Privately Insured Recipients of Immediate Breast Reconstruction
Marcelo Cerullo*1, Clifford C. Shekter2, Joseph K. Canner*3, Selwyn O. Rogers4, Anaeze C. Offodile*5

1Duke University Medical Center, Durham, NC; 2Stanford University, Palo Alto, CA; 3Johns Hopkins School of Medicine, Baltimore, MD; 4University of Chicago, Chicago, IL; 5University of Texas MD Anderson Cancer Center, Houston, TX

9:40 AM – 10:05 AM

Mustafa Raoof*1, Sidra Haye*2, Philip H.G. Ituarte*1, Yuman Fong1

1City of Hope Cancer Center, Duarte, CA; 2University of California Irvine, Irvine, CA

10:05 AM – 10:30 AM

31. Leveraging a Novel Comprehensive Program to Implement a Surgical Site Infection Reduction Bundle in a Statewide Quality Improvement Collaborative

Illinois Surgical Quality Improvement Collaborative (ISQIC) and Surgical Outcomes and Quality Improvement Center (SOQIC), Department of Surgery, Northwestern Medicine, Chicago, IL

*By invitation
10:30 AM – 10:55 AM

32. Junction Plakoglobin Facilitates Angiogenesis in Melanoma
Katie M. Leick*, Robin Lindsay*, Mahmut Parlak*,
University of Virginia, Charlottesville, VA

11:00 AM ADJOURN

*By invitation
PROGRAM DETAIL AND ABSTRACTS

THURSDAY MORNING, APRIL 11th

8:15 AM – 9:10 AM

OPENING SESSION

Regency Ballroom

President’s Opening Remarks

Secretary’s Welcome & Introduction of New Fellows Elected in 2018

President’s Introduction of Honorary Fellows

Presentation of the Medallion for Scientific Achievement

Presentation of the Medallion for the Advancement of Surgical Care

Past President Eulogies

Report of the Committee on Arrangements
THURSDAY MORNING, APRIL 11th, CONTINUED

9:10 AM – 11:00 AM

Regency Ballroom

SCIENTIFIC SESSION I

Moderator: E. Christopher Ellison, M.D.

1. Survival Outcomes Associated with Clinical and Pathological Response Following Neoadjuvant FOLFIRINOX or Gemcitabine/Nab-paclitaxel Chemotherapy in Resected Pancreatic Cancer


University of Miami Health System, Miami, FL; Emory University, Atlanta, GA; Washington University, St. Louis, MO; UNC Chapel Hill, Chapel Hill, NC; University of Cincinnati, Cincinnati, OH; University of Wisconsin, Madison, WI; University of Louisville, Louisville, KY

OBJECTIVE: Newer neoadjuvant chemotherapy (NAC) regimens have resulted in improved clinical and pathological responses in pancreatic cancer (PC), however the effects of these responses on survival outcomes remain unknown.

*By invitation
METHODS: Patients receiving NAC with FOLFIRINOX (FLX) or gemcitabine/nab-paclitaxel (GNP) ± radiation (NRT) followed by curative-intent pancreatectomy from January 2010 to December 2016 at 7 academic medical centers were analyzed. Primary outcome was overall survival (OS), local (L-RFS) and distant recurrence-free survival (D-RFS) associated with biochemical (CA 19-9) and pathological response (complete, pCR, near-complete, nCR or limited, LR) following NAC.

RESULTS: Of 360 included patients, 49.4% were borderline resectable and 78.9% had pancreatic head tumors. Vein resection was performed in 38.6% and 30-day mortality was 3.1%. R0 and pCR rates were 84.9% and 4.7%. Median OS and RFS were 26 and 18.1 months. OS, L-RFS and D-RFS were superior in patients with marked biochemical response (CA 19–9 decrease >50% vs. <50%: OS—37.5 vs. 23.1 months, p = 0.026; L-RFS—19 months, p < 0.001; D-RFS—33.6 vs. 21.3 months, p = 0.017) and pathological response (pCR vs. nCR vs. LR: OS-NR vs. 53.6 vs. 22.7 months, p < 0.001; L-RFS-NR vs. 57 vs. 28 months, p = 0.043; D-RFS-NR vs. 27 vs. 20.7 months, p = 0.015). There was no difference in L-RFS (57 vs. 46 months, p = 0.710), D-RFS (25.8 vs. 33.6 months, p = 0.423) or OS (26.8 vs. 26.7 months, p = 0.863) between FLX or GNP. Despite no OS benefit (24.1 vs. 26 months), NRT was associated with decreased LN positivity (11.2% vs. 40.3%, p < 0.001). On multivariate analysis, pCR, nCR, CA19-9 response, N0 status and R0 resection were independent predictors for improved OS.

CONCLUSIONS: This large, multicenter study shows that improved biochemical, pathological and clinical responses to NAC with FLX or GNP, result in improved OS and decreased local and distant recurrence in PC.
2.

**Computer Vision Analysis of Intraoperative Video: Automated Recognition of Operative Steps in Laparoscopic Sleeve Gastrectomy**

Daniel A. Hashimoto*, Guy Rosman*, Elan R. Witkowski*, David W. Rattner1, Keith D. Lillemoe1, Daniela L. Rus*2, Ozanan R. Meireles*1

1*Massachusetts General Hospital, Boston, MA; 2Massachusetts Institute of Technology, Cambridge, MA

**OBJECTIVE:** Computer vision, a form of artificial intelligence (AI), allows for quantitative analysis of video by computers for identification of objects and patterns, such as in autonomous driving. This study developed and assessed AI algorithms to identify operative steps in laparoscopic surgery.

**METHODS:** Intraoperative video from laparoscopic sleeve gastrectomy (LSG) from an academic institution were annotated by two fellowship-trained, board-certified bariatric surgeons. Videos were segmented into the following steps: 1) port placement, 2) liver biopsy, 3) gastrocolic dissection, 4) stapling, 5) bagging. Analysis was focused on steps 2–4 as key visual identifiers of LSG. Deep neural networks (NN) were used to analyze visual data from videos; hidden Markov modeling (hMM) was used to analyze temporal data from videos. Accuracy of operative step identification by the AI was determined by comparing to surgeon annotations.

**RESULTS:** 37 cases of LSG were analyzed to generate 168 video clip segments of operative steps. A random 70% sample of these clips were used to train the AI, and 30% were used to test the AI’s performance. Accuracy of the AI in identifying operative steps using visual data only was 72%; use of hMM added a minimum of 2% to identification accuracy. Mean concordance correlation coefficient for human annotators was 0.862, suggesting excellent agreement.

**CONCLUSIONS:** AI can extract quantitative surgical data from video with minimum of 72% accuracy. This suggests operative video could be used as a quantitative data source for research in intraoperative clinical decision support, risk prediction, or outcomes studies.

*By invitation*
3. A Novel Validated Recurrence Risk Score to Guide a Pragmatic Surveillance Strategy After Resection of Pancreatic Neuroendocrine Tumors: An International Study of 1006 Patients
Mohammad Y. Zaidi*1, Alexandra G. Lopez-Aguiar*1, Valentina Andreas*2, Stefano Partelli*2, George A. Poultsides*3, Mary Dillhoff*4, Flavio H. Rocha*5, Kamran Idrees*6, Clifford S. Cho7, Sharon M. Weber8, Ryan C. Fields9, Charles A. Staley, III1, Massimo Falconi*2, Shishir K. Maithel*1

1Emory University, Atlanta, GA; 2San Raffaele Scientific Institute, Milan, Italy; 3Stanford University, Stanford, CA; 4The Ohio State University, Columbus, OH; 5Virginia Mason Medical Center, Seattle, WA; 6Vanderbilt University, Nashville, TN; 7University of Michigan, Ann Arbor, MI; 8University of Wisconsin, Madison, WI; 9Washington University School of Medicine, St Louis, MO

OBJECTIVE: Despite heterogeneous biology, similar surveillance schemas are utilized after resection of all pancreatic neuroendocrine tumors (PanNETs). Given concerns regarding excess radiation exposure and financial burden, our aim was to develop a prognostic score for disease-recurrence to guide individually-tailored surveillance strategies.

METHODS: All patients with primary nonfunctioning, non-metastatic well/moderately-differentiated PanNETs who underwent curative-intent resection at 9-institutions from 2000–2016 were included (n = 1006). A Recurrence Risk Score (RRS) was developed from a randomly-selected derivation-cohort comprised of 67% of patients and verified on the validation-cohort comprised of the remaining 33%.

RESULTS: On multivariable analysis, patients within the derivation-cohort (n = 681) with symptomatic tumors (jaundice, pain, bleeding), tumors >2 cm, Ki67 >3%, and LN (+) disease had increased recurrence. Each factor was assigned a score based on their weighted odds-ratio that formed a RRS of 0–10: symptomatic = 1, tumor >2 cm = 2, Ki67 3–20% = 1, Ki67 >20% = 6, LN (+) = 1. Patients were grouped into Low (RRS = 0–2; n = 247), Intermediate (RRS = 3–5; n = 204), or High (RRS = 6–10; n = 9) risk groups. At 24 mos, 33% of High RRS recurred, while only 2% of Low and 14% of Intermediate RRS recurred (Figure 1A). This persisted in the validation-cohort (n = 325; Figure 1B).

*By invitation
**CONCLUSION:** This international, novel, internally-validated recurrence risk score accurately stratifies recurrence-free survival for patients with resected pancreatic neuroendocrine tumors. Given their unique recurrence patterns, surveillance intervals of 12-, 6-, and 3-months are proposed for Low, Intermediate, and High RRS patients, respectively, in order to minimize radiation exposure and optimize cost/resource utilization.
4. The Hidden Burden of Mental Health Outcomes Following Firearm-Related Injuries
Bellal Joseph*, Kamil Hanna*, Rachael A. Calcutt*,
Jamie J. Coleman*, Joseph V. Sakran*, Leigh A. Neumayer*
*The University of Arizona, Tucson, AZ; **University of California San Francisco, San Francisco, CA; ***Denver Health, Denver, CO; ****The Johns Hopkins Hospital, Baltimore, MD

OBJECTIVE(S): The weapons used in a firearm-related events are essential for firearm policy development. The aim of our study was to examine the effect of different types of firearms on readmission due to acute stress disorder (ASD) and/or post-traumatic stress disorder (PTSD).

METHODS: We performed a 4-year (2011–2014) analysis of the National Readmission Database. All adult patients who were readmitted secondary to firearm-related ASD/PTSD were stratified into 3 groups by firearm type: handgun, shotgun, and semi-automatic gun. Regression analysis was used to identify predictors of readmission due to ASD/PTSD.

RESULTS: A total of 100,704 victims of firearm-related injuries were identified, of which 13.3% (n = 13,393) were readmitted within 6 months of index-hospitalization, 6.7% (n = 8,970) of these due to ASD/PTSD. Mean age was 34 ± 14 y, 88% were male. Of those readmitted due to ASD/PTSD, 24% (n = 2,153) sustained a handgun related injury on index-hospitalization, 12% (n = 1,076) shotgun, and 64% (n = 5,741) semi-automatic gun (p = 0.039). On regression analysis, semi-automatic gun and shotgun victims had higher odds of developing ASD/PTSD upon readmission (OR: 2.05 [1.10–4.12] and OR:1.41 [1.08–2.11]) compared to handgun. Female gender (OR: 1.79 [1.05–3.05]) and younger age representing those <25 y (OR: 4.66 [1.12–6.74]) were also independently associated with higher odds of ASD/PTSD.

CONCLUSIONS: Apart from the lives lost, survivors of semi-automatic gun- and shotgun-related injuries suffer long-term mental health sequelae. These secondary and debilitating mental health outcomes are important considerations for capturing the overall burden of disease secondary to firearm injury.

*By invitation
THURSDAY MORNING, APRIL 11th, CONTINUED

10:50 AM – 12:00 PM
Regency Ballroom

PRESIDENTIAL ADDRESS

Introduction of the President
Ernest E. Moore, Jr., M.D.

Address by the President
“Time and Change: The Importance of Innovation and Leadership to the Future of Surgery”
E. Christopher Ellison, M.D.
THURSDAY AFTERNOON, APRIL 11th

1:30 PM – 5:15 PM

SCIENTIFIC SESSION II
Regency Ballroom

Moderator: Robin S. McLeod, M.D.

5. Trends in Treatment of T1N0 Esophageal Cancer

Washington University in St. Louis, St. Louis, MO

OBJECTIVE(S): Endoscopic treatment has become an accepted option for early stage esophageal cancer. The purpose of this study was to explore nationwide trends in treatment and outcomes of T1 esophageal cancer.

METHODS: T1N0 esophageal cancers were identified in the National Cancer Database from 2004–2014. We assessed trends in treatment; compared endoscopic therapy, esophagectomy, chemoradiation, and no treatment; and performed a subgroup analysis of T1a and T1b patients from 2010–2014 (AJCC 7).

RESULTS: 12,383 patients with clinical T1N0 esophageal cancer were analyzed. Over a decade, use of endoscopic therapy increased from 12.7% to 33.6%, while chemoradiation and esophagectomy decreased (Figure, p < 0.01). The rise in endoscopic treatment of T1a disease from 42.7% to 50.6% was accompanied by a decrease in esophagectomies from 21.7% to 12.8% (p < 0.01). For T1b disease, the rise in endoscopic treatment from 16.9% to 25.1% (p = 0.03) was accompanied by decreases in no treatment and chemoradiation, while the rate of esophagectomies remained 50%. Risk-adjusted Cox modeling showed esophagectomy was associated with improved survival (HR: 0.85), and chemoradiation (HR: 1.79) and no treatment (HR: 3.57) with decreased survival, compared to endoscopic therapy (p < 0.01).

*By invitation
CONCLUSIONS: Use of endoscopic therapy for T1 esophageal cancer has increased significantly: for T1a, as an alternative to esophagectomy; and for T1b, as an alternative to no treatment or chemoradiation. Despite upfront risks, long-term survival is highest for patients that can undergo esophagectomy.
6. 
**Adult Living Donor Versus Deceased Donor Liver Transplant (LDLT Versus DDLT) at a Single Center – Time to Change our Paradigm for Liver Transplant**
Abhinav Humar, Dana Jorgensen*, Swaytha Ganesh*, Amit Tevar*, Michele Molinari*, Christopher Hughes*  

University of Pittsburgh, Pittsburgh, PA

**OBJECTIVE(S):** LDLT remains underutilized in the US. We compared outcomes between LDLT and DDLT at our center.  

**METHODS:** Retrospective review of 226 adult LDLTs vs 632 DDLTs performed 2009–present.  

**RESULTS:** LDLT vs DDLT recipients were similar age (55.8 vs 55.8, p = 0.99), race, and BMI (28.5 vs 29.5, p = 0.12), but differed in donor age (36.6 vs 43.5, p < 0.01), c-MELD at transplant (23.3 vs 27.5, p < 0.01) and median waiting time (104 vs 146 days). DDLT patients had 2.7 admissions/yr to hospital while on waiting list. Survival outcomes were superior in LDLT recipients (3-year 86% vs 79%, p = 0.04). Other outcomes demonstrated shorter length of hospital stay (11 vs 14 days, p = 0.02), less likelihood of intraoperative blood transfusion (52% vs 78%, p < 0.01), and less likelihood of posttransplant dialysis. Early reoperation and biliary/vascular complication rates were similar. Hospital costs related to the transplant were 30.8% lower for LDLT (p < 0.01). Complications in living donors were acceptable with no early or late deaths, 3-month reoperation rate 3.1%, overall reoperation rate 5.7%, and overall complication rate 20.3%. Given advantages, we have expanded LDLT – in 2017, LDLT comprised 53.6% of our transplants (national average 4.5%), and our transplant rate increased from 44.8 in 2015 to 71.3 in 2017.

*By invitation*
CONCLUSIONS: LDLT offers advantages over DDLT including superior outcomes and less resource utilization. Time to change the paradigm of how LDLT is utilized in this country.
7.
Description and Impact of a Comprehensive Multi-Specialty Multi-Disciplinary Intervention to Decrease Opioid Prescribing in Surgery
Massachusetts General Hospital & Harvard Medical School, Boston, MA

OBJECTIVE: Diversion of excess prescription opioids contributes to the opioid epidemic. We sought to describe and study the impact of a comprehensive departmental intervention to decrease opioid prescribing in surgery.

METHODS: A multi-specialty multidisciplinary intervention was designed to change the culture of postoperative opioid prescribing, including: 1) consensus-built opioid guidelines for 42 procedures from 11 specialties, 2) provider-focused posters displayed in all surgical units, 3) patient opioid/pain brochures setting expectations, and 4) educational seminars to residents, advanced practice providers, and nurses. Pre- (April 2016–March 2017) vs. post-intervention (April 2017–May 2018) analyses of opioid prescribing at discharge [median oral morphine equivalent (OME)] were performed at the specialty, prescriber, patient and procedure levels. Refill prescriptions within 3 months were also studied.

RESULTS: A total of 23,298 patients were included (11,983 pre-; 11,315 post-intervention). Post-intervention, the median OME significantly decreased for 10 specialties (Figure 1, all p-values <0.001), the percentage of patients discharged without opioids increased from 35.7% to 52.5% (p < 0.001), and there was no change in opioids refills (0.07% vs 0.08%, p = 0.9). Similar significant decreases in OME were observed when the analyses were performed at the provider and individual procedure levels. Patient-level analyses showed that the pre-intervention race/gender disparities in opioid prescribing disappeared post-intervention.

*By invitation
CONCLUSIONS: We thus describe a comprehensive multi-specialty intervention that successfully reduced prescribed opioids without increase in refills and decreased gender/race prescription disparities.
8. Is Disruptive Behavior Inherent to the Surgeon or the Environment? Analysis of 314 Events at a Single Academic Medical Center
Martin J. Heslin, Brandon Singletary*, Kaitlin Benos*, Laura Read Lee*, Charles Fry*, Brenessa Lindeman*

*By invitation

The University of Alabama at Birmingham, Birmingham, AL

OBJECTIVE: In 2008 the Joint Commission mandated a process to manage disruptive behavior, as evidence suggests it undermines a culture of safety. This process often reviews only the reporter’s side of the story as the truth. In this study, we compared both reporter account (RA) and involved party (IP) responses to determine if disruptive behavior was inherent to the surgeon or the hospital environment and its relationship to patient safety.

METHODS: From 1/1/2015 through 12/31/2017, we prospectively recorded the RA and the IP response. This resulted in 314 reports involving 227 IPs. Four reviewers scored issues, interactions, modifiable stressors and patient safety. Logistic regression determined factors associated with patient harm. Significance defined as p < 0.05.

RESULTS: Surgical, medical, and other specialties were IPs 48%, 25% and 27%, respectively; 76% had only one event. High intensity environments (OR, ICU, etc.) made up 56% of the total. Perceived unprofessional or lack of communication was present in 70% and 44% of events. A significant direct relationship existed between the stress of the clinical situation and the egregiousness of the behavior (p < 0.0001). Logistic regression revealed that unclear hospital policies, the IP being a surgeon, and urgent competing responsibilities were associated with potential patient harm (p < 0.05).

CONCLUSIONS: Unclear policies and urgent competing responsibilities in the surgical environment create stress, leading to conflict. Most IPs had a singular event suggesting the environment as the primary contributor. Tactics to improve stressful environments and clearly communicated policies may be more effective and sustainable than individually targeted interventions in enhancing patient safety.
Ryan J. Ellis*1, D. Brock Hewitt*1, Yue-Yung Hu*1, Shelby Parilla*1, Julie Johnson*1, Ryan P. Merkow*1, Anthony D. Yang*1, David B. Hoyt2, Jo Buyske3, Karl Y. Bilimoria1

1Northwestern University, Chicago, IL; 2American College of Surgeons, Chicago, IL; 3American Board of Surgery, Philadelphia, PA

OBJECTIVE(S): Concerns persist about the impact of resident wellbeing (burnout, duty hour violations) and mistreatment (harassment, verbal abuse) on residency culture and the learning environment. However, empirical data have not been available to examine and compare national program-level differences in residency culture. Our objectives were 1) to empirically compare program-level surgical residency culture and 2) to assess program characteristics associated with poor program culture.

METHODS: Following the 2018 American Board of Surgery In-Training Examination, a cross-sectional national survey was administered to all U.S. general surgery residents. Program-level culture was analyzed using principal component analysis which allowed a combined assessment of duty hour violations, burnout, thoughts of attrition, sexual harassment, and verbal abuse.

RESULTS: Surveys were completed by 7,391 residents at 260 training programs (99.3% response rate). Twenty-five programs (9.6%) were identified by principal component analysis as having poor culture. These programs had significantly higher rates of duty hour violations (24.6% vs 11.9%), burnout (20.2% vs 12.1%), thoughts of attrition (20.7% vs 12.0%), sexual harassment (34.2% vs 18.2%), and verbal abuse (43.0% vs 27.5%; all P < 0.001). Poor culture was not associated with program type (academic vs non-academic, P = 0.317), size (P = 0.389), location (P = 0.234), program director demographics (P = 0.632), department chair demographics (P = 0.340), or faculty demographic composition (P = 0.179).

CONCLUSIONS: Poor culture was characterized by resident mistreatment, duty hour violations, and poor resident wellness/burnout. However, poor culture was not associated with program characteristics. Poor environments are likely driven by local culture, and targeted interventions, as planned in the upcoming SECOND Trial, may improve trainee wellness.

*By invitation
10. Long Term Patient Reported Outcomes Following Post-Mastectomy Breast Reconstruction: An 8-Year Examination of 3268 Patients
Jonas Nelson*1, Thais Polanco*1, Meghana Shamsunder*1, Aadit Patel*1, Nikhil Soboti*1, Colleen McCarthy*1, Evan Matros*1, Joseph Dayan*1, Joseph Disa1, Peter Cordeiro*1, Andrea Pusic*2, Babak Mehrara1, Robert Allen, Jr.*1
1Memorial Sloan Kettering, New York, NY; 2Brigham and Women’s Hospital, Boston, MA

OBJECTIVE(S): This study aims to better understand the long-term satisfaction and quality of life impact of post-mastectomy breast reconstruction and to compare implant-based (IBR) and autologous breast (ABR) reconstruction using the BREAST-Q.

METHODS: BREAST-Q scores in women undergoing IBR or ABR at a tertiary center were prospectively collected from 2009–2017. Mean scores and standard deviations (SD) were calculated for satisfaction with breast, satisfaction with outcome, psychosocial well-being, physical well-being of the chest, and sexual well-being. Reconstructive modalities were compared using regression models to control for differences in scores at postoperative years 1, 3, 5, and 7.

RESULTS: Overall, 3,268 patients were included with 336 undergoing ABR and 2,932 undergoing IBR. The average preoperative breast satisfaction score was 61.47 (22.42), and was significantly lower in ABR patients compared to IBR patients (Figure 1). Overall breast satisfaction slightly increased 1 year postoperatively and remained stable across time-points postoperatively. HRQOL domains were stable postoperatively. ABR patients had greater satisfaction scores than IBR patients at postoperative years 3, 5, and 7 (p < 0.001). IBR scores remained stable over time.

*By invitation
CONCLUSIONS: This study demonstrates long term stable satisfaction and HRQOL following post mastectomy breast reconstruction through 8 years. While ABR may afford higher satisfaction with breasts, although IBR remains stable over time. This contradicts the notion that IBR satisfaction scores decrease over time.
11. Hereditary Susceptibility for Triple Negative Breast Cancer Associated with Western Sub-Saharan African Ancestry: Results from an International Surgical Breast Cancer Collaborative

Lisa A. Newman¹, Joseph K. Oppong*², Aisha S. Jibril*³, Jessica M. Bensenhaver*⁴, Baffour Awuah*², Mahteme Bekele*³, Engida Abebe*³, Ishmael Kyei*², Frances Aitpillah*², S. David Nathanson*⁴, Brittany Jenkins*¹, Lindsay F. Petersen*⁴, Erica Proctor*⁴, Kofi K. Gyan*¹, Rick Kittles*⁵, Melissa B. Davis*¹

¹Weill Cornell Medicine, New York, NY; ²Komfo Anokye Teaching Hospital, Kumasi, Ghana; ³Millennium Medical College St. Paul’s Hospital, Addis Ababa, Ethiopia; ⁴Henry Ford Cancer Institute, Detroit, MI; ⁵City of Hope Comprehensive Cancer Center, Los Angeles, CA

**OBJECTIVE(S):** Breast cancer mortality is higher in African American (AA) compared to White American (WA) women, and this disparity is partly-explained by a two-fold higher incidence of triple negative breast cancer (TNBC). The role of germline genetic factors in these differences is unclear.

**METHODS:** Database of 1024 breast cancers analyzed (233 AA; 433 WA; 263 West African/Ghanaian; 95 East African/Ethiopian); including 20% with matched saliva/DNA specimens and controls. All assembled through a surgically-maintained international biorepository. Genotyping was performed to quantify West African versus European ancestry and we also tested for associations between risk variants and tumor phenotype.

**RESULTS:** TNBC frequency was highest in Ghanaian and AA cases (51% and 33% respectively; p < 0.02) and lowest in Ethiopian and WA cases (14% and 16% respectively; p < 0.02). TNBC cases had significantly higher West African ancestry than non-TNBC (p < 0.0001). Frequency of the Duffy-null allele (rs2814778; an African ancestral genotype adopted under selective pressure as protection against malaria pathogens in West Africa) was strongly associated with cases (p = 0.014), quantified West African Ancestry (p < 0.0001) and was more common in AA, Ghanaians, and TNBC cases. Additionally, rs4849887 (a genetic variant associated with breast cancer risk) was significantly associated with Ghanaian cases (p = 0.0248) compared to controls.

*By invitation
CONCLUSIONS: West African ancestry is strongly correlated with TNBC status, as well as germline variants related to breast cancer risk and metastatic virulence. Specifically, the Duffy-null allele (previously shown to be associated with pro-inflammatory chemokines implicated in tumor pathogenesis) accounted for TNBC risk in our cohort.
12. Improved Disease-Free Survival After Prehabilitation for Colorectal Cancer Surgery
McGill University Health Center, Montreal, QC, Canada

OBJECTIVE: Preoperative multimodal exercise and nutritional programs (prehabilitation) improve functional capacity and recovery following colorectal surgery. Exercise may also affect cancer outcomes by mediating the systemic inflammatory response. The effect of prehabilitation on cancer outcomes is unknown. The objective of this study was to investigate the effect of prehabilitation on survival after colorectal cancer surgery.

METHODS: Pooled data from three prehabilitation trials (2 RCTs, 1 cohort) in patients undergoing elective, biopsy-proven, primary non-metastatic colorectal cancer surgery from 2009–2014 within an enhanced recovery program were analyzed. Patients were grouped into +prehab or −prehab. The primary outcomes were 5-year disease-free (DFS) and overall survival (OS). DFS and OS were analyzed using Kaplan-Meier curves and multiple Cox regression.

RESULTS: A total of 202 patients were included (+prehab 104, −prehab 98). Median prehabilitation duration was 29 days (IQR20–40). Patient and tumor characteristics were well-balanced (33% stage III). Postoperative complications and time to adjuvant chemotherapy were similar. Mean duration of follow-up was 60.3 months (SD26.2). DFS was similar for the combined group of stage I-III patients (p = 0.244). For stage III patients (Figure), prehabilitation was associated with improved DFS (73.4% vs. 50.9%, p = 0.044). There were no differences in OS (p = 0.226). Prehabilitation independently predicted improved DFS (HR0.45, 95% CI:0.21–0.93), adjusting for stage and other confounders. Prehabilitation did not independently predict OS.

*By invitation
CONCLUSION: In this report, prehabilitation is associated with improved 5-year DFS in stage III colorectal cancer. These important findings should be confirmed in future trials.
13. Long-Term Outcomes After Sepsis in Critically Ill Surgical Patients: Discordance Between Inpatient Mortality and 1-Year Outcomes
University of Florida, Gainesville, FL

OBJECTIVE(S): With early detection and treatment, inpatient sepsis mortality has decreased substantially. However, an increasing number of early sepsis survivors now progress into chronic critical illness (CCI; an ICU LOS $\geq$ 14 days with persistent organ dysfunction) and their post-discharge outcomes are poorly documented. We sought to determine the long-term functional outcomes and mortality of CCI patients after surgical sepsis.

METHODS: We performed a prospective, longitudinal (1-year) cohort study of critically ill surgical patients with sepsis.

RESULTS: We enrolled 287 consecutive surgical patients with sepsis. Only 13 (5%) of the patients died within 14 days, while 97 (34%) developed CCI and the remaining 177 (62%) exhibited a rapid recovery (RAP). CCI compared to RAP patients were older, had greater comorbidity burden, more severe organ dysfunction and higher incidence of secondary infections (all $p < 0.001$). Of note, 85 (87%) CCI patients survived hospitalization, but nearly all (88%) had a “poor” discharge disposition (i.e. LTAC, SNF, hospice). Physical performance (measured by the Short Physical Performance Battery) was much worse in CCI patients at 3, 6 and 12 months (all $p < 0.01$), functional status was poor (Figure 1A) and mortality was 41% at 12 months (Figure 1B).

*ABy invitation*
CONCLUSIONS: Inpatient survival after surgical sepsis is not concordant with long-term outcomes, especially amongst patients that develop CCI. This is vital information when discussing expected outcomes of surgical patients who experience a complicated clinical course.
FRIDAY MORNING, APRIL 12th

6:30 AM – 8:00 AM

ASA WOMEN IN SURGERY BREAKFAST
Parisian Room
Effective Mentoring in the Post #MeToo Era
14. Metabolic Surgery Reduces the Risk of Progression from Chronic Kidney Disease to Kidney Failure


*Cleveland Clinic Florida, Weston, FL

**INTRODUCTION:** According to the Chronic Kidney Disease prognosis consortium (CKD-PC), 1 in 4 patients ≥65 years-of-age, have some form of chronic kidney disease (CKD) and, 3 in 100 progress to kidney failure. The aim of this study is to demonstrate the effect of bariatric surgery in the progression of CKD to kidney failure.

**METHODS:** Patients who underwent bariatric surgery in the last 6 years were retrospectively reviewed. Kidney function and injury were assessed using estimated glomerular filtration rate (eGFR) and Urinary albumin-to-creatinine ratio (uACR) average value, at a 3-month-interval pre-operatively and at 12 months follow-up. The risk of progression from CKD to kidney failure was assessed using the CKD-PC equation.

**RESULTS:** Of the 2,924 patients reviewed, 2.35% (n = 69) had the required variables to assess kidney injury and risk of progression to kidney failure. The greatest improvement in kidney injury was observed in the most advanced stages of CKD, evidenced by a 70.3% decrease in uACR at 12 months follow-up (121 mg/g, p = 0.0154). These results correspond to a Relative Risk Reduction of 70.03% and 60.49% at 2 years and 5 years respectively, in the progression to kidney failure in CKD patients (p = 0.001, p = 0.001).

*By invitation*
Table 1. Risk reduction of progression to kidney failure in CKD patients

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<th>Pre-operative risk</th>
<th>Post-operative risk</th>
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<td>CKD stage ≥3</td>
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<td>28.99%, n=20</td>
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<td>3.17</td>
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<td>A3 &gt;300mg/g</td>
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<td>14.49%, n=10</td>
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<td><strong>5-year risk</strong></td>
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<td>28.99%, n=20</td>
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CKD >Stage 3, Chronic Kidney Disease Stage 3 or greater; A3, severely increased albuminuria (>300mg/g); ARR, Absolute Risk Reduction; RRR, Relative Risk Reduction; n, Number.

*Calculated through Paired T-Test (significance <0.05), comparing pre-operative vs. post-operative.

**CONCLUSIONS:** Bariatric surgery improves kidney injury in the most severe stages of CKD. This represents a remarkable risk reduction in the progression from CKD to kidney failure at 2 and 5 years.
15.
Gallstone Pancreatitis: Admission Versus Normal Cholecystectomy – A Randomized Trial (Gallstone PANC Trial)
UTHSC Houston, Houston, TX

INTRODUCTION: Early cholecystectomy for mild gallstone pancreatitis (MGP) shortly after admission has been proposed based on observational data. We hypothesized that cholecystectomy within 24 hours of admission versus after clinical resolution of MGP results in decreased length-of-stay (LOS) without an increase in complications.

METHODS: Adults with MGP were randomized to cholecystectomy with cholangiogram within 24 hours of presentation (early group) versus after clinical resolution (late group). Primary outcome was 30-day LOS including any readmissions. Secondary outcomes were time to surgery, endoscopic retrograde cholangiopancreatography (ERCP) rates, and post-operative complications. Frequentist and Bayesian intention-to-treat analyses were performed.

RESULTS: Baseline characteristics were similar in the early (n = 49) and late (n = 48) groups. Early group had fewer ERCPs (15% vs 29%, p = 0.038), faster time to surgery (16 hours vs 43 hours, p < 0.005), and shorter 30-day LOS (50 hours vs 77 hours, p < 0.005). There was no significant difference in complications (6% early vs 2% late, p = 0.613) which included recurrence/progression of pancreatitis (2 early, 1 late) and a cystic stump leak (early). On Bayesian analysis, early cholecystectomy has a 99% probability of reducing 30-day LOS, 93% probability of decreasing ERCP use, and 72% probability of increasing complications.

CONCLUSIONS: In patients with MGP, cholecystectomy within 24 hours of admission significantly reduced rate of ERCPs, time to surgery, and 30-day length-of-stay. Complications may be increased but the study is underpowered to detect a difference. Identification of patients with MGP in whom early cholecystectomy is safe warrants further investigation.

*By invitation
16. 
Opportunity to Mitigate Trauma-Induced Coagulopathy in Children: Fibrinolysis Shutdown Is Not Prevalent Until 1 Hour Post-Injury 
Christine M. Leeper*, Stephen Strotmeyer*, Matthew D. Neal*, Barbara A. Gaines

*University of Pittsburgh Medical Center, Pittsburgh, PA

BACKGROUND: Trauma-induced coagulopathy (TIC) portends poor outcome in severely-injured children. The kinetics of coagulation dysregulation after injury have not been delineated. Transfer to pediatric trauma centers is common; time from injury to laboratory testing is therefore highly variable.

METHODS: Severely injured children age <18 with rapid thromboelastography on arrival and documented time of injury were evaluated. Standard definitions of hyperfibrinolysis (HF; LY30 ≥ 3), fibrinolysis shutdown (SD; LY30 ≤ 0.8), and physiologic (LY30 = 0.9–2.9) were applied. AIS score ≥3 defined severe traumatic brain injury (TBI). Variables of interest included demographics, injury mechanism, medications, mortality and functional disability.

RESULTS: 285 patients were included: median (IQR) age = 11 (6–15), injury severity score = 17 (10–25), 75% blunt mechanism, 32% severe TBI, 11% mortality, 28% disability. None received antifibrinolytics or blood products prior to arrival. Physiologic phenotype was predominant within 1 hour of injury (51%); beyond 1 hour, SD was most frequent (1–3 hours = 46%, >3 hours = 59%) (Figure 1). Patients with TBI had significant increase in incidence of SD beyond 1 hour after injury as compared to non-TBI patients. Physiologic fibrinolysis was associated with survival at all timepoints (p = 0.005).

*By invitation
CONCLUSIONS: Fibrinolysis shutdown is a reactive response to injury associated with poor outcome. Our data suggests that there is an early and brief opportunity to mitigate the progression to TIC. Further studies should focus on understanding the dynamic events occurring immediately after injury to identify specific targets for intervention.
17. Utilizing Precision Medicine to Estimate Timing for Surgical Closure of Traumatic Extremity Wounds
Felipe A. Lisboa*1, Christopher J. Dente*2, Seth Schobel-Mchugh*1, Vivek Khatri*1, Benjamin K. Potter*1, Allan Kirk3, Eric A. Elster1
1USUHS, Bethesda, MD; 2Emory University, Atlanta, GA; 3Duke University, Durham, NC

OBJECTIVE(S): Both the frequency and high complication rates associated with extremity wounds in recent military conflicts have highlighted the need for clinical decision support tools (CDST) to decrease time to wound closure and wound failure rates.

METHODS: Machine learning was used to estimate both successful wound closure (based on penultimate debridement biomarker data) and the necessary number of surgical debridements (based on presentation biomarkers) in 73 service members treated accordingly to military guidelines based on clinical data and the local/systemic level of 32 cytokines. Models were trained to estimate successful closure including additional 8 of 81 civilian patients with similar injury patterns. Previous analysis has demonstrated the potential to reduce the number of operative debridements by 2, with resulting decreases in ICU and hospital LOS, while decreasing the rate of wound failure.

RESULTS: Analysis showed similar cytokine responses when civilians followed a military-like treatment schedule with surgical debridements every 24 to 72 hours. A model estimating successful closure had AUC of 0.89. Model performance in civilians degraded when these had a debride ment interval >72 hrs (73 of the 81 civilians). A separate model estimating the number of debridements required to achieve successful closure had a multi-class AUC of 0.81.

CONCLUSIONS: CDSTs can be developed using biologically compatible civilian and military populations as cytokine response is highly influenced by surgical treatment. Our CDSTs may help identify who may require serial debridements versus early closure, and precisely when traumatic wounds should optimally be closed.

*By invitation
18. Can We Predict Incisional Hernia? – Development of a Surgery-Specific Decision-Support Interface
Hospital of the University of Pennsylvania, Philadelphia, PA

OBJECTIVE(S): Incisional hernia (IH) is a common and morbid complication after abdominal surgery (AS). However, there is a paucity of readily available, surgeon-facing tools capable of predicting IH occurrence. We aim to identify procedure-specific risk factors independently associated with IH and build a decision-support interface surgeons can utilized at the point-of-care.

METHODS: Patients (N = 29,739) undergoing AS from 2005–2016 were retrospectively identified within inpatient and ambulatory databases at our institution. Surgically-treated IH, complications, and costs were assessed. Procedure-specific predictive models were generated using regression analysis and corroborated using a validation group.

RESULTS: Operative IH occurred in 3.8% (N = 1,127) of patients at an average follow-up of 57.9 months. Combined cost of care for patients experiencing IH was $62 million. All variables were weighted according to β-coefficients generating 8 surgery-specific predictive models for IH occurrence, all of which demonstrated excellent risk discrimination (C-statistic = 0.76–0.89). IH occurred most frequently after colorectal (7.7%) and vascular (5.2%) surgery and the most common occurring risk factors increasing the likelihood of developing IH were history of AS and smoking. An integrated, surgeon-facing risk prediction instrument was created in an App for pre-operative estimation of hernia after AS.
CONCLUSIONS: Using a bioinformatics approach, we identified risk factors predictive of IH and created eight unique surgery-specific models. The models have led to a fully designed and unifying point-of-care risk calculator App generated from a multi-year, longitudinal, multi-hospital dataset.
19.
**Telemedicine Based Remote Home Monitoring After Liver Transplantation: Results of a Randomized Prospective Trial**

**University of Cincinnati, Cincinnati, OH**

**OBJECTIVE(S):** We aimed to optimize postoperative care of patients after orthotopic liver transplantation (OLT) with the use of information technology. To quantify the impact of this practice change, we conducted the first randomized controlled trial (RCT) of telemedicine with continuous, dynamic, remote home monitoring compared to the current standard of care (SOC).

**METHODS:** 106 consecutive OLT recipients were randomized (1:1) to one of two post-transplant care strategies: traditional (SOC) or telemedicine. Telemedicine remote home monitoring used an electronic tablet and bluetooth devices to support daily text messages, education videos, and video FaceTime® capability; data was cyber-delivered into our electronic medical record daily. Endpoints were participation and adherence, 90-day readmission rate, and perception of QOL.

**RESULTS:** 100 patients completed the study with 50 in each arm. Participation and adherence with telemedicine was 86% for basic health sessions (vital sign recording) but only 45% for using messaging or FaceTime. There was a profound reduction in 90-day readmission rates with telemedicine compared to SOC (28% vs 58%; p = 0.004). The biggest impact occurred between days 31–90 with only 4% readmissions with telemedicine compared to 22% with SOC. The telemedicine cohort also showed improved QOL in regards to physical function (p = 0.02) and general health (p = 0.05) at 90 days.

**CONCLUSIONS:** To our knowledge, this is the first RCT demonstrating the impact of telemedicine based remote home monitoring after major surgery. The magnitude of effect on OLT outcomes, readmissions, QOL and health care utilization suggests that the adoption of telemedicine has great potential for other major operations.
FRIDAY MORNING, APRIL 12th, CONTINUED

10:30 AM – 12:00 PM

FORUM DISCUSSION
Regency Ballroom

Challenges to Surgical Innovation
Moderator: E. Christopher Ellison, M.D.

Faculty: Innovation Is Fun: Fetal Surgery to Magnets
Michael Harrison, M.D.
University of California, San Francisco,
San Francisco, CA

The Surgeon, the Patient and the Unsolved Problem: the March of Innovation
Thomas M. Krummel, M.D.
Stanford University School Medical Center,
Stanford, CA

Ethics of Innovative Surgical Practice:
The Human Dimensions
Mary H. McGrath, M.D., M.P.H.
University of California, San Francisco,
San Francisco, CA

The Surgical Innovator and the Health System:
Consideration of the Ethical Challenges
Peter Angelos, M.D., Ph.D.
University of Chicago, Chicago, IL

Surgical Endoscopic Innovation
Jeffrey L. Ponsky, M.D.
Cleveland Clinic, Cleveland, OH
FRIDAY AFTERNOON, APRIL 12th

1:30 PM – 4:00 PM

SCIENTIFIC SESSION IV
Regency Ballroom

Moderator: Ernest E. Moore, Jr., M.D.

20. Effect of Postoperative Permissive Anemia and Cardiovascular Risk Status on Outcomes After Major General and Vascular Surgery Operative Interventions
Panos Kougias*1, Sherene Sharath*1, Zhibao Mi*2, Kousick Biswas*2, Joseph L. Mills1
1Baylor College of Medicine, Houston, TX; 2Cooperative Studies Program, Perry Point Coordinating Center, Perry Point, MD

OBJECTIVES: To determine the effect of postoperative permissive anemia and high cardiovascular risk (HCVR) on postoperative outcomes.

METHODS: The Veterans Affairs Surgical Quality Improvement Program and Corporate Data Warehouse databases were queried for patients who underwent major vascular or general surgery operations. Patients were classified as HCVR if they had history of Ischemic Heart Disease, Peripheral Arterial Disease (PAD) or stroke; or underwent a PAD-related operation. Primary endpoint was a composite of mortality, myocardial infarction, acute renal failure, coronary revascularization, or stroke within 90 days postoperatively.

RESULTS: We analyzed 142,510 procedures performed from 2000–2015. Postoperative anemia was the strongest independent predictor of the primary endpoint whose odds increased by 47% for every gm/dl drop in postoperative nadir Hemoglobin (95% CI: 45%, 49%). HCVR also independently predicted the primary endpoint (Figure 1), with an additive effect particularly evident at postoperative nadir Hemoglobin values below 10 gm/dl (Figure 2). Postoperative anemia, after age, was the second strongest independent predictor of long-term (12 years) mortality (HR: 1.18, 95% CI: 1.17, 1.19).

*By invitation
CONCLUSIONS: Postoperative anemia is strongly associated with postoperative ischemic events, 90-day mortality and long-term mortality. Restrictive transfusion should be used cautiously after major general and vascular operations, particularly in patients at HCVR.
21. A Surgical Endovascular Trauma Service Increases Case Volume and Decreases Time to Hemostasis

R. Adams Cowley Shock Trauma Center, Baltimore, MD

OBJECTIVE(S): Endovascular techniques are vital for trauma care, but timely access can be a challenge. In 2015, we developed a surgeon staffed endovascular trauma service (ETS) to complement the existing interventional radiology (IR) service. We evaluated the impact of the ETS on case volume and time to hemostasis.

METHODS: The electronic medical record of trauma patients undergoing endovascular procedures between 2013 and 2018 were queried for provider type (IR or ETS). Case volume and rates were expressed per 100 monthly admissions, normalizing for seasonal variation. Interrupted time series analysis was used to model the case rate pre- and post-introduction of the ETS. Admission-to-procedure-time data was collected for pelvic angiembolization as a marker of patients requiring emergency hemostasis.

RESULTS: Over 6 years, 1390 patients underwent endovascular procedures. Overall case volume increased from 3.84–4.78 at a rate 0.1 (p = 0.002) after introduction of the ETS. IR case volume decreased from 3.84–2.19 at a rate of 0.03 (p = 0.063). ETS case volume increased at a rate 0.72 (p = 0.002), which was significantly different from the IR trend (p < 0.001). Median [IQR] time-to-procedure (hours) was significantly shorter for pelvic angiembolization (3.2 [6.5] vs. 6.5 [3.4]: p < 0.001), when ETS was compared to IR.

*By invitation
CONCLUSIONS: A surgical ETS increases case volume and decreases time to hemostasis for trauma patients requiring time sensitive interventions. Further work is required to assess patient outcome following this change.
22. Association of Overlapping, Non-Concurrent, Surgery with Patient Outcomes at a Large Academic Medical Center: A Coarsened Exact Matching Study
Gregory Glauser*1, Benjamin Osiemo*2, Stephen Goodrich*2, Scott D. McClintock*2, Charles Vollmer1, Ronald DeMatteo1, Neil R. Malhotra*1

1University of Pennsylvania, Philadelphia, PA; 2West Chester University, West Chester, PA

OBJECTIVE(S): Contribute to the limited existing data on the safety of overlapping surgery.

METHODS: Coarsened exact matching was used to assess the impact of overlap on outcomes amongst all surgical interventions (n = 61,524) over one-year (2014) at one health system. Overlap was categorized as any-overlap, beginning-overlap or end-overlap. Study subjects were matched on Charlson comorbidity score, duration of surgery, surgical costs, BMI, LOS, payer, and race amongst others. Serious unanticipated events were studied including unplanned return to OR, readmission, or mortality.

RESULTS: 8391 patients had any-overlap and were matched (n = 16,782, a 91.4% match rate). For beginning/end overlap matched groups were created (n = 4534/3616 patients respectively, match rate was 96.3/94.5% respectively). Amongst matched patients, any-overlap did not predict unanticipated return to surgery (9.8% any-overlap vs 10.1% no overlap; p = 0.4481). Further, any-overlap predicted neither re-operation, re-admission, or ER visits at 30 or 90 days (30D readmission 9.9% vs 10.2%; p = 0.4535, 90D readmissions 6.9% vs 7.0%; p = 0.9004), (30D re-operation 3.6% vs 3.7%; p = 0.8303, 90D re-operation 3.8% vs 3.9%; p = 0.8377), (30D ER 5.4% vs 5.6%; p = 0.6039, 90D ER 4.8% vs 4.7%; p = 0.7073). Beginning/end-overlap had a similar lack of association with serious unanticipated events (Figure). However, end-overlap was associated with a reduced 30-day ER visit rate (4.4% vs 6.0%; p = 0.0309).

*By invitation
CONCLUSIONS: Non-concurrent overlapping surgery is not associated with adverse outcomes in a large, matched population across one academic health system.
23. Gender Disparity in Outcomes of Ruptured Abdominal Aortic Aneurysm Repair Driven by In-Hospital Treatment Delays
Linda J. Wang*1, Satinderjit Lo cham*2, Hanaa Dakour-Aridi*2, Keith D. Lillemoe1, Bryan Clary3, Mahmoud B. Malas*3

1Massachusetts General Hospital, Boston, MA; 2Johns Hopkins University School of Medicine, Baltimore, MD; 3University of California San Diego, San Diego, CA

OBJECTIVE: A door-to-intervention time of <90 minutes is recommended for patients with ruptured abdominal aortic aneurysm (rAAA). We investigated whether sex-related differences in timely repair was associated with excess risk of early mortality in women.

METHODS: All rAAA repairs in the Vascular Quality Initiative from 2003–2017 were reviewed. Patients were stratified by gender and time-delay cohorts. Univariate and multivariate analysis were performed.

RESULTS: There were 3,719 rAAA repairs: 2,922 men (79%) and 797 women (21%). Gender did not affect repair type: open vs endovascular (21% females, each). Despite similar presentation delays (median 6 hrs [IQR 3,16]), admission-to-intervention time was longer for women than men (median 1.5 hrs [IQR 1,4] vs 1.2 hrs [IQR 1,3], p = .047). Overall, 45% of patients had a >90 minute delay from admission to repair, with more women than men experiencing this delay (49% vs 44%, p = .01). Neither was more likely to undergo transfer for treatment. After risk adjustment, female sex was associated with a 43% increase in 30-day mortality. Sex differences in mortality were no longer observed in patients with intervention delays of <90 minutes. In patients with >90 minute delays, a 71% increase in 30-day mortality of women over men was noted. Table.

*By invitation
CONCLUSIONS: Nearly half of rAAA patients have a door-to-intervention time longer than recommended societal guidelines. Sex differences in mortality following rAAA repair appear to be driven by in-hospital treatment delays.
24.
Mitigating Racial and Gender Disparities in Access to Living Donor Kidney Transplantation: Impact of the Nation’s Longest Single-Center Kidney Chain

University of Alabama at Birmingham, Birmingham, AL

**OBJECTIVE:** Disparities in access to living donor kidney transplantation (LDKT) exist among minorities and women and may be partially explained by antigen sensitization secondary to prior pregnancies, transplants or blood transfusions, creating difficulty finding compatible matches. To address these obstacles, an incompatible LDKT program, incorporating desensitization and kidney paired donation, was created at our institution.

**METHODS:** A retrospective cohort study was performed among our kidney transplant waitlist candidates (n = 8895). Multivariable Cox regression was utilized, comparing likelihood of LDKT before (Era 1: 01/2007–01/2013) and after (Era 2: 01/2013–11/2018) implementation of the incompatible program. Candidates were stratified by race (white vs. minority (non-white)), gender, and breadth of sensitization.

**RESULTS:** Patient characteristics are shown in Table 1. Program implementation resulted in the nation’s longest single-center kidney chain, and likelihood of LDKT increased by 70% for whites (aHR 1.70; 95% CI: 1.46–1.99) and more than 200% for minorities (aHR 2.05; 95% CI: 1.60–2.62). Improvement in access to LDKT was greatest among sensitized minority women (Figure).

**CONCLUSIONS:** Implementation of an incompatible program, and the resulting nation’s longest single-center kidney chain, mitigated disparities in access to LDKT among minorities, specifically sensitized women. Extrapolation of this success on a national level may further serve these vulnerable populations.

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*By invitation*
Table 1. Cohort demographics among candidates on the kidney transplant waitlist at our institution from 1/1/07-11/2/18, by race (n=8895)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>White Candidates</th>
<th>Minority Candidates</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at Listing (years) Median (IQR)</td>
<td>52 (42-60)</td>
<td>48 (39-57)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Female Gender % (N)</td>
<td>39.7 (1389)</td>
<td>44.4 (2395)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Body Mass Index at Listing (kg/m²)</td>
<td>28.32 (24.49-32.76)</td>
<td>29.21 (25.00-33.86)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>History of Diabetes % (N)</td>
<td>40.9 (1428)</td>
<td>45.6 (2462)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Blood Type % (N)</td>
<td></td>
<td></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>A</td>
<td>38.5 (1344)</td>
<td>23.6 (1273)</td>
<td></td>
</tr>
<tr>
<td>AB</td>
<td>3.3 (115)</td>
<td>3.9 (210)</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>9.5 (332)</td>
<td>21.6 (1166)</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>48.8 (1704)</td>
<td>50.9 (2751)</td>
<td></td>
</tr>
<tr>
<td>Calculated Panel Reactive Antibody</td>
<td></td>
<td></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>% (N)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-10</td>
<td>80.2 (2739)</td>
<td>74.3 (4004)</td>
<td></td>
</tr>
<tr>
<td>10-49</td>
<td>7.8 (265)</td>
<td>8.8 (476)</td>
<td></td>
</tr>
<tr>
<td>50-100</td>
<td>12.1 (413)</td>
<td>16.9 (908)</td>
<td></td>
</tr>
<tr>
<td>Active Status at Listing (%)</td>
<td></td>
<td></td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

**Adjusted Hazard Ratios for LDKT by Gender, Race and cPRA**

*Comparing likelihood of LDKT in Era 2 vs. Era 1, adjusting for history of diabetes, age at listing, active status on the waitlist, and blood type

Figure 1. Adjusted Hazard Ratios for LDKT in Era 2 vs. Era 1: by gender, race, and calculated panel reactive antibody (cPRA)
25.
Characterizing and Assessing the Effect of Surgery on Pre-Operative Super Utilizers: A Study of Medicare Expenditure

*The Ohio State University, Columbus, OH

OBJECTIVE(S): Rising health care costs are increasingly burdensome for Medicare partly due to super-utilizers who consume a disproportionate amount of health care services. We sought to characterize pre-operative super-utilizers and examine the effect of surgery on service utilization among patients undergoing major elective surgery.

METHODS: Patients aged >65 years who underwent abdominal aortic aneurysm repair (AAA), coronary artery bypass grafting (CABG), colectomy, or total hip replacement between 2013–2015 were identified using 100% Medicare Inpatient and Outpatient Standard Analytic Files (SAFs). Total Medicare inpatient and outpatient expenditures the year before surgery, during the surgical episode, and the year following surgery were analyzed using repeated measures, mixed-effects gamma regression.

RESULTS: Among 603,105 patients identified, hip replacement was the most common surgery (43.7%) followed by colectomy (24.5%), CABG (23.7%), and AAA (8.3%). Super-utilizers accounted for 39.6% ($1.7 billion) of all annual preoperative Medicare expenditures despite representing only 5.3% of the total cohort. Median annual preoperative expenditure was 5-times higher among super-utilizers ($43,800) compared with low-utilizers ($8,000) (p < 0.05). In the year following surgery, median Medicare expenditure per beneficiary was nearly 10-times greater among super – ($11,600) versus low – ($1,200) utilizers (p < 0.05) (Figure). Among super-utilizers, there was an approximately 75% reduction in total Medicare expenditure following surgery – a savings of approximately $15,000–30,000/year per beneficiary.

*By invitation
CONCLUSIONS: Among super-utilizers, surgical intervention significantly reduced annual Medicare expenditure by 75%, saving up to $30,000 per patient on average. Earlier surgical intervention may lead to greater healthcare cost savings.
FRIDAY AFTERNOON, APRIL 12th, CONTINUED

4:00 PM – 5:00 PM

EXECUTIVE SESSION
Regency Ballroom
ASA Fellows Only

Presentation of the Flance-Karl Award
FRIDAY EVENING, APRIL 12\textsuperscript{th}

7:00 PM

ANNUAL RECEPTION
Regency Ballroom Foyer

(Black tie/evening dress preferred, but dark suits are acceptable.)

8:00 PM

ANNUAL BANQUET
Regency Ballroom

(Black tie/evening dress preferred, but dark suits are acceptable.)

BANQUET SPEAKER
The Power of a Pet:
What Physicians and Surgeons Should Know

Rustin Moore, DVM, PhD, Diplomate ACVS
The Ohio State University, Columbus, OH
26. Impact of Medicaid Expansion (ME) of the Affordable Care Act on the Outcomes of Lower Extremity Bypass for Patients with Peripheral Artery Disease in the Vascular Quality Initiative (VQI) Database
Mohammad H. Eslami*1, Hanaa Darkour Aridi*2, Efthymios D. Averinos*1, Michel S. Makaroun1, Mahmoud Malas*2

1University of Pittsburgh Medical School, Pittsburgh, PA; 2University of California, San Diego, CA

OBJECTIVES: We aim to evaluate changes in the utilization of care and outcomes of lower extremity bypass (LEB) after Medicaid Expansion (ME).

METHODS: We used interrupted time-series analysis (ITS) to compare utilization and outcomes, between ME-adopter states ME [MES] vs. non-adopters [NMES] using VQI LEB database (2010–2017). Primary outcomes included post-operative mortality (POD) and major adverse limb events (MALE) at 1-year of follow-up.

RESULTS: Of 26,446 cases, 13,955 (52.8%) were performed in MES and 12491 (47.2%) in NMES. The indications for bypass were tissue loss (38.8%), claudication (25.3%), rest pain (22.8%), and acute ischemia (13.2%). There was an annual decrease in LEB for acute ischemia [annual change in post vs. pre-ME period (95% CI): −4.3% (−7.5%, −1.0%), p = 0.02] and an increase for claudication [3.7% (1.7%, 5.6%), p = 0.01]. Elective procedures increased in MES [3.9% (0.1%, 7.7%), p = 0.05] along with a significant annual decrease in POD in the post-ME vs. pre-ME period. There

*By invitation
was also a significant decrease in MALE \([-9.0\% (-20.3\%, 2.3\%, P = 0.09)\). Compared to the annual trend changes in NMES, MES showed a significant increase in the utilization of LEB for claudicants and elective cases, and a decrease in POD and MALE at 1-year of follow-up (Figure).

**CONCLUSIONS:** The adoption of ME was associated with significant increase in the use of LEB for non-severe and elective cases, along with improved POD and MALE at 1-year.
27. Surgical Management of Five Hundred Patients with Chronic Gut Failure at a Single Center: Autologous Reconstruction Versus Transplantation
Kareem M. Abu-Elmagd, Sherif R. Armanyous*,
Masato Fujiki*, Neha R. Parekh*, Mohammed Osman*,
Raffaele Girlanda*, Koji Hashimoto*, Ajai Khanna*,
Guilherme Costa*

Cleveland Clinic, Cleveland, OH

OBJECTIVE(S): To define the evolving role of autologous gut reconstruction (AGR) in the management of total parenteral nutrition (TPN)-dependent-chronic gut failure (CGF) patients with special reference to transplantation.

METHODS: A total of 500 CGF-patients with TPN-associated complications were referred for possible gut transplantation versus AGR and were prospectively studied. At a mean age of 47 ± 18 years (range: 1.2–88), 80 (16%) patients required transplantation and 420 (84%) were deemed suitable candidates for AGR. Structure of residual gut, primary cause of gastrointestinal failure, and functional status of the different splanchnic organs guided the decision making process. Transplant recipients received a total of 87 allografts; 64 (74%) liver-free and 23 (26%) liver-contained with 9% retransplantation rate. AGR patients underwent 650 total procedures; 220 (34%) foregut and 430 (66%) mid-hindgut. Enhancement of gut physiology and absorption was achieved with jejunal/colonic interposition autografts (n = 18), intestinal lengthening (n = 45) and enterocyte growth factors (n = 16).

RESULTS: The overall 5-year cumulative patient survival was 80% with re-establishment of nutritional autonomy in 83% of 361 current survivors. AGR was associated with better (p = 0.04) survival and transplantation achieved a higher (p = 0.07) rate of nutritional autonomy. Both modalities were cost effective and improved quality of life with better results among the AGR population. An outcome predictive model was developed and validated utilizing the initial TPN-total calorie requirements, cause of gut failure and structural status of remaining splanchnic/visceral organs.

CONCLUSIONS: Autologous gut reconstruction along with transplantation are effective therapeutic modalities for CGF-patients. Further improvement in management strategy is foreseen with the reported herein novel predictive model.

*By invitation
28. Hepatic Ablation Promotes Colon Cancer Metastasis in an Immunocompetent Murine Model
Edward L. Jones*†, Alison Halpem*†, Heather Carmichael*†, Thomas Robinson*†, Carlton C. Barnett, Jr.‡

*†VAMC/University of Colorado at Denver, Aurora, CO; ‡VAMC/University of Colorado at Denver, Denver, CO

OBJECTIVE(S): Hepatic Ablation with microwave (MW) or radiofrequency (RF) energy causes prolonged heating of surrounding tissue. In contrast, direct heat application (cautery) vaporizes tissue with minimal surrounding effect. We hypothesize that prolonged heating creates a pro-metastatic environment due to a zone of subacute injury. To test this hypothesis we applied MW, RF and cautery to normal liver with a concomitant metastatic challenge.

METHODS: C57/Bl6 mice received intra-splenic injection of 50K MC38 colon cancer cells and hepatic injury with MW, RF or cautery creating a visible 3 mm lesion. Thermal imaging recorded tissue temperature during ablation and for 10 seconds after energy cessation. Presence and volume of hepatic metastasis was determined at day 7.

RESULTS: Cautery demonstrated the highest maximum tissue temperature (129°C) with rapid return to baseline compared to MW or RF. All mice had metastasis at the ablation site. Mean tumor volume was significantly greater in MW (95.3 mm³; p = 0.007) and RF (55.7 mm³; p = 0.015) than cautery (7.13 mm³). There was no difference in tumor volume between MW and RF (p = 0.2).

CONCLUSIONS: Hepatic ablation promotes colon cancer metastasis at the ablation site. Ablation with microwave and radiofrequency energy is more detrimental than cautery. These data suggest prolonged heat injury creates a favorable metastatic environment.

*By invitation
29. 
Assessing the Effect of Market Competition on Hospital Costs and Outcomes Among Privately Insured Recipients of Immediate Breast Reconstruction
Marcelo Cerullo*1, Clifford C. Sheckter2, Joseph K. Canner*3, Selwyn O. Rogers4, Anaee C. Offodile*5
1Duke University Medical Center, Durham, NC; 2Stanford University, Palo Alto, CA; 3Johns Hopkins School of Medicine, Baltimore, MD; 4University of Chicago, Chicago, IL; 5University of Texas MD Anderson Cancer Center, Houston, TX

OBJECTIVES: To examine the relationship between hospital market competition and inpatient costs, procedural markup, complications, and length of stay (LOS) among privately insured patients undergoing immediate reconstruction after mastectomy.

METHODS: A retrospective cross-sectional analysis of privately-insured female patients undergoing immediate breast reconstruction in the 2009–2011 Nationwide Inpatient Sample was performed. The Herfindahl-Hirschman index (HHI) was used to describe hospital market competition and associations with outcomes explored via hierarchical models adjusting for patient, hospital, and market characteristics.

RESULTS: A weighted total of 42,411 patients were identified; 5,920 (14.0%) underwent free flap reconstruction. In uncompetitive markets, 6.8% (n = 857) underwent free flap reconstruction, compared with 13.6% (n = 2,773) in highly competitive markets and 24.6% (n = 2,290) in moderately competitive markets. For every five additional hospitals in a market, adjusted costs were 6.6% higher (95% CI: 2.8%–10.6%), for free flap reconstruction, and 5.1% higher (95% CI: 2.0%–8.4%) for non-free flap reconstruction. Similarly, higher procedural markup was associated with increased hospital market competition both for non-free flap reconstruction (5.5% increase, 95% CI: 1.1%–10.1%) and for free flap reconstruction (8.2% increase, 95% CI: 1.8%–15.0%). Notably, there was no association between incidence of complications or extended LOS and hospital market competition among either free flap or non-free flap reconstruction patients.

CONCLUSION: Decreasing market competition was associated with lower inpatient costs and equivocal clinical outcomes. This suggests that some of the economies of scale, access to capital and care delivery efficiencies gained from increased market power following hospital mergers are passed onto payers and consumers as lower costs.

*By invitation
Mustafa Raooof*, Sidra Haye*, Philip H.G. Ituarte*, Yuman Fong*

1City of Hope Cancer Center, Duarte, CA; 2University of California Irvine, Irvine, CA

OBJECTIVE: A randomized trial to prove that liver resection improves survival of colorectal cancer liver metastases (CRLM) patients is neither feasible nor ethical. The objective of this study is to test this assertion using a quasi-randomized instrumental-variable approach.

METHODS: We abstracted data on patients with synchronous CRLM using California Cancer Registry from 2000–2012 and linked the records to the Office of Statewide Health Planning Inpatient Database. Resection rates in a patient’s neighborhood (within 50-mile radius) was defined as the instrumental variable and IV analyses were performed using 2SRI method.

RESULTS: A total of 22,870 patients were diagnosed with stage-IV colorectal cancer of which 16,382 (72%) had synchronous CRLM. Liver resection was performed in 1,635/16,382 (9.8%) patients. Resection-rate across the neighborhoods ranged from 7.9% in the lowest-quintile to 11.2% in the highest-quintile (Figure 1). However patient-demographics, disease burden, clinicopathologic and other treatment characteristics were similar. IV analysis revealed that for patients whose treatment choices were influenced by the rates of resection in their neighborhood (marginal patients), liver resection resulted in a significant increase in overall survival (HR 0.59, 95% CI 0.50–0.69, p < 0.001) after accounting for measured and unmeasured confounders.

*By invitation
CONCLUSIONS: These findings suggest a causal effect of liver resection on survival of patients with CRLM at the population-level. Our results directly apply to patients in whom treatment choices are influenced by physician beliefs, practice patterns and surgical capability.
31. Leveraging a Novel Comprehensive Program to Implement a Surgical Site Infection Reduction Bundle in a Statewide Quality Improvement Collaborative


Illinois Surgical Quality Improvement Collaborative (ISQIC) and Surgical Outcomes and Quality Improvement Center (SOQIC), Department of Surgery, Northwestern Medicine, Chicago, IL

OBJECTIVES: Bundled perioperative interventions reduce colorectal surgical site infection (SSI) rates when enacted at individual hospitals, but how to implement a comprehensive SSI bundle across a large, diverse population of hospitals is unknown. Our objective was to examine the implementation and outcomes of a comprehensive SSI reduction bundle in a large statewide surgical quality improvement collaborative.

METHODS: A multifaceted bundle of 18 colorectal SSI reduction components was developed and implemented in a 55-hospital statewide surgical quality improvement collaborative utilizing a novel implementation program: guided implementation, data feedback, mentorship, process improvement training/coaching, and targeted-implementation toolkits. Bundle adherence and ACS-NSQIP outcomes were examined pre-implementation vs. post-implementation.

RESULTS: Among 35 hospitals, there was a 70% relative increase in the proportion of patients completing at least 12 bundle elements (pre-implementation = 40.3% vs. post-implementation = 69.0%, p = 0.006). Largest adherence gains were seen in wound closure re-gowning/re-gloving (24% vs. 62%, p < 0.001), use of clean closing instruments (32% vs. 66%, p = 0.005), and pre-operative chlorhexidine bathing (46% vs. 77%, p < 0.001). The superficial SSI rate improved from pre-implementation to post-implementation (3.9% to 2.4%, p = 0.028). As the adherence in the number of bundle components increased, there was a significant decrease in overall SSI rates (12.9% vs. 4.79%, p = 0.008) and superficial SSI rates (5.56% vs. 1.10%, p = 0.009).

CONCLUSIONS: A comprehensive SSI reduction bundle can be implemented throughout a large quality improvement learning collaborative when coordinated quality improvement activities are leveraged. Lower SSI rates are associated with number of adherent bundle elements, rendering considerable benefits to institutions capable of implementing more components of the bundle.

*By invitation
32.  
Junction Plakoglobin Facilitates Angiogenesis in Melanoma  
Katie M. Leick*, Robin Lindsay*, Mahmut Parlak*,  
University of Virginia, Charlottesville, VA  

OBJECTIVES: We have previously reported that overexpression junction plakoglobin (JUP) is associated with poor survival and decreased immune infiltration in human melanoma and that selective overexpression in B16 melanoma enhances tumor growth. We hypothesized that the tumor-promoting effect of JUP was due either to suppression of immune function or more direct enhancement of tumor growth. To explore possible mediators of immune function and angiogenesis, we evaluated the effect of JUP overexpression on these mediators in the B16 melanoma microenvironment.  

METHODS: JUP overexpression was induced by lentiviral transduction of murine B16-AAD melanoma cells, which were implanted intraperitoneally along with untransfected control tumors, then harvested at day 14, and cell lysis and protein estimation were performed. Concentrations of 27 cytokines chemokines were measured with the Meso Scale Discovery Assay. Correcting for multiple comparisons, p values of less than 0.005 were considered significant.  

RESULTS: Overexpression of JUP in murine B16-AAD melanoma resulted in no significant changes in most of the tested cytokines and chemokines. However, the analyses revealed significantly higher concentrations of VEGF (p = 0.0026) and lower levels of IL-33 (p < 0.0001) compared to control.  

CONCLUSIONS: JUP overexpression is associated with high VEGF and low IL-33 in melanoma in vivo, raising the possibility of enhanced angiogenesis. Therefore, identification of regulatory targets of JUP may enable intervention on its expression to confer clinical benefit.

*By invitation
IN MEMORIAM

J. Wesley Alexander, M.D., Crescent Springs, KY
Hendrick B. Barner, M.D., St. Louis, MO
James E. Bennett, M.D., Monrovia, IN
William F. Bernhard, M.D., Framingham, MA
E. Thomas Boles, Jr., M.D., Columbus, OH
Gerald D. Buckberg, M.D., Los Angeles, CA
Martin L. Dalton, Jr., M.D., Macon, GA
Milton Edgerton, M.D., Charlottesville, VA
J. Alex Haller, Jr., M.D., Baltimore, MD
Thomas P.J. Hennessy, M.D., Dublin, Ireland
Frank E. Johnson, M.D., St. Louis, MO
Arlie R. Mansberger, Jr., M.D., Augusta, GA
Donald G. Mulder, M.D., Pacific Palisades, CA
John L. Ochsner, M.D., New Orleans, LA
Marshall J. Orloff, M.D., San Diego, CA
John B. Price, Jr., M.D., Sleepy Hollow, NY
Basil A. Pruitt, Jr., M.D., San Antonio, TX
Stuart H.Q. Quan, M.D., New York, NY
Paul R. Schloerb, M.D., Leawood, KS
Frank C. Spencer, M.D., New York, NY
David J. Sugarbaker, M.D., Houston, TX
Albert E. Yellin, M.D., Haleiwa, HI
AMERICAN SURGICAL ASSOCIATION

MEDALLION FOR SCIENTIFIC ACHIEVEMENT

1970  LESTER R. DRAGSTEDT, M.D.
Gainesville, Florida

1973  ROBERT E. GROSS, M.D.
Boston, Massachusetts

1976  OWEN H. WANGENSTEEN, M.D.
Minneapolis, Minnesota

1977  ROBERT M. ZOLLINGER, SR., M.D.
Columbus, Ohio

1978  FRANCIS D. MOORE, SR., M.D.
Boston, Massachusetts

1979  JONATHAN E. RHOADS, M.D.
Philadelphia, Pennsylvania

1981  MICHAEL E. DEBAKEY, M.D.
Houston, Texas

1987  RICHARD L. VARCO, M.D.
Minneapolis, Minnesota

1990  THOMAS E. STARZL, M.D.
Pittsburgh, Pennsylvania

1991  JOSEPH E. MURRAY, M.D.
Boston, Massachusetts

1992  NORMAN E. SHUMWAY, M.D.
Stanford, California

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David Rabkin, M.D. 2011–2013
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<td>Trepanier Maude</td>
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### SCHEDULE-AT-A-GLANCE

**THURSDAY, APRIL 11th**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
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<tbody>
<tr>
<td>8:15 AM</td>
<td>Opening Session</td>
<td>Regency Ballroom</td>
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<tr>
<td></td>
<td>President’s Opening Remarks</td>
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<tr>
<td></td>
<td>Secretary’s Welcome and Introduction of New Fellows Elected in 2018</td>
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<tr>
<td></td>
<td>President’s Introduction of Honorary Fellows</td>
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<tr>
<td></td>
<td>Presentation of the Medallion for Scientific Achievement</td>
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<tr>
<td></td>
<td>Presentation of the Medallion for the Advancement of Surgical Care</td>
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<tr>
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<td>Past President Eulogies</td>
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<tr>
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<td>Report of the Committee on Arrangements</td>
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<tr>
<td>9:10 AM</td>
<td>Scientific Session I</td>
<td>Regency Ballroom</td>
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<tr>
<td></td>
<td>Moderator: E. Christopher Ellison, M.D.</td>
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<tr>
<td>10:50 AM</td>
<td>Presidential Address</td>
<td>Regency Ballroom</td>
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<tr>
<td></td>
<td>Introduction: Ernest E. Moore, Jr., M.D.</td>
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<td>Address: E. Christopher Ellison, M.D.</td>
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<tr>
<td>1:30 PM</td>
<td>Scientific Session II</td>
<td>Regency Ballroom</td>
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<td>Moderator: Robin S. McLeod, M.D.</td>
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**FRIDAY, APRIL 12th**

<table>
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<th>Time</th>
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<tbody>
<tr>
<td>6:30 AM</td>
<td>ASA Women in Surgery Breakfast</td>
<td>Parisian Room</td>
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<td></td>
<td>“Effective Mentoring in the Post #MeToo Era”</td>
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<td>8:00 AM</td>
<td>Scientific Session III</td>
<td>Regency Ballroom</td>
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<tr>
<td></td>
<td>Moderator: E. Christopher Ellison, M.D.</td>
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<tr>
<td>10:30 AM</td>
<td>Forum Discussion:</td>
<td>Regency Ballroom</td>
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<tr>
<td></td>
<td>“Challenges to Surgical Innovation”</td>
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<td>Moderator: E. Christopher Ellison, M.D.</td>
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<tr>
<td>1:30 PM</td>
<td>Scientific Session IV</td>
<td>Regency Ballroom</td>
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<td></td>
<td>Moderator: Ernest E. Moore, Jr., M.D.</td>
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<tr>
<td>4:00 PM</td>
<td>Executive Session <em>(Fellows Only)</em></td>
<td>Regency Ballroom</td>
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<tr>
<td></td>
<td>Presentation of the Flance-Karl Award</td>
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<tr>
<td>7:00 PM</td>
<td>Annual Reception</td>
<td>Regency Ballroom Foyer</td>
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<tr>
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<td><em>(Black tie/evening dress preferred, but dark suits are acceptable.)</em></td>
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<tr>
<td>8:00 PM</td>
<td>Annual Banquet</td>
<td>Regency Ballroom</td>
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<td><em>(Black tie/evening dress preferred, but dark suits are acceptable.)</em></td>
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**SATURDAY, APRIL 13th**

<table>
<thead>
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<tbody>
<tr>
<td>8:00 AM</td>
<td>Scientific Session V</td>
<td>Regency Ballroom</td>
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<td>Moderator: New President-Elect</td>
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<tr>
<td>11:00 AM</td>
<td>Adjourn</td>
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