



**AMERICAN
SURGICAL
ASSOCIATION**

Program
of the
136th Annual Meeting

**Swissôtel Chicago
Chicago, Illinois**

Thursday, April 14th Friday, April 15th
Saturday, April 16th
2016

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* These sections available on-site to professional attendees,
or by logging into americansurgical.info/membersOnly.cgi.

AMERICAN SURGICAL ASSOCIATION

Program
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136th Annual Meeting

**Swissôtel Chicago
Chicago, Illinois**

Thursday, April 14th Friday, April 15th
Saturday, April 16th
2016

THE AMERICAN SURGICAL ASSOCIATION**2015-2016****OFFICERS**

President
James S. Economou

President-Elect
Keith D. Lillemoe

Vice-President
Mark A. Malangoni

Secretary
Ronald J. Weigel

Treasurer
B. Mark Evers

Recorder
Steven C. Stain

COUNCIL

L.D. Britt2013–2016
 Anna M. Ledgerwood2015–2018
 Layton F. Ridders2014–2017

American Surgical Association
 Administrative Offices
 500 Cummings Center, Suite 4550
 Beverly, MA 01915
 Phone: (978) 927-8330 Fax: (978) 524-0498
 Email: admin@americansurgical.org
 Or visit: americansurgical.org

ADVISORY MEMBERSHIP COMMITTEE

Robin S. McLeod, *Chair*2005–2016
 William C. Chapman, *Vice Chair*2012–2017
 Edward E. Cornwell, III2014–2019
 Diana L. Farmer2012–2017
 David R. Flum2014–2019
 H. Leon Pachter2013–2018
 Alec Patterson2011–2016
 Grace S. Rozycki2009–2016
 Michael G. Sarr2011–2016
 Kenneth W. Sharp2013–2018
 Craig R. Smith2012–2017
 David A. Spain2015–2020
 Mark A. Talamini2013–2018
 Douglas S. Tyler2015–2020
 Michael T. Watkins2013–2018
 Sharon M. Weber2014–2019

ARRANGEMENTS COMMITTEE

136th Annual Meeting
 Nathaniel J. Soper, *Chair*

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David W. McFadden, *Chair*2014–2016
 Daniel G. Coit2016–2018
 Karen E. Deveney2015–2017

ETHICS AND PROFESSIONALISM COMMITTEE

Layton F. Rikkers, <i>Chair</i>	2014–2016
James S. Economou	2014–2018
Anna M. Ledgerwood	2014–2017
Keith D. Lillemoe	2015–2019
Mary H. McGrath.....	2014–2016
George C. Velmahos	2014–2017

HONORARY FELLOWSHIPS COMMITTEE

Jay L. Grosfeld, <i>Chair</i>	2007–2019
Yuman Fong.....	2013–2019
Keith D. Lillemoe	2014–2020
Marco G. Patti.....	2015–2021
Courtney M. Townsend, Jr.	2011–2016
Donald D. Trunkey.....	2011–2016

FLANCE-KARL AWARD COMMITTEE

Thomas F. Tracy, Jr., <i>Chair</i>	2011–2016
Timothy R. Billiar.....	2013–2018
Jeffrey A. Drebin.....	2014–2019
Douglas B. Evans.....	2015–2020
Ronald J. Weigel	2012–2017

**MEDALLION FOR THE ADVANCEMENT OF
SURGICAL CARE AWARD COMMITTEE**

Keith D. Lillemoe, <i>Chair</i>	2015–2018
James S. Economou	2014–2017
Anna M. Ledgerwood	2013–2016
Steven C. Stain.....	2012–2016
Donald D. Trunkey.....	2013–2016
Ronald J. Weigel	2012–2016

NOMINATING COMMITTEE

L.D. Britt, <i>Chair</i>	2013–2018
Kirby I. Bland	2011–2016
Timothy J. Eberlein.....	2012–2017
Anna M. Ledgerwood	2015–2020
Layton F. Rikkers.....	2014–2019

PROGRAM COMMITTEE

Valerie W. Rusch, <i>Chair</i>	2010–2016
Herbert Chen.....	2014–2019
Lawrence N. Diebel	2015–2020
Jeffrey A. Drebin.....	2012–2017
Roger R. Perry	2013–2018

President, President-Elect, Secretary, and Recorder, ex officio with vote

**TRUSTEES OF THE
AMERICAN SURGICAL ASSOCIATION
FOUNDATION****Chair**

Donald D. Trunkey

Vice Chair

Kirby I. Bland

Secretary

Ronald J. Weigel

Treasurer

B. Mark Evers

Trustees

L.D. Britt
Timothy J. Eberlein
Layton F. Rikkers

Ex-Officio

James S. Economou

REPRESENTATIVES**AMERICAN BOARD OF SURGERY**

Karen J. Brasel.....	2012–2018
William C. Chapman.....	2013–2019
Mary T. Hawn.....	2015–2021
K. Craig Kent.....	2013–2019

AMERICAN BOARD OF THORACIC SURGERY

Robert S. Higgins.....	2011–2017
Michael J. Mack.....	2015–2021

**AMERICAN COLLEGE OF SURGEONS,
BOARD OF GOVERNORS**

Russell J. Nauta.....	2013–2016
Bruce D. Schirmer.....	2014–2017

**AMERICAN COLLEGE OF SURGEONS,
ADVISORY COUNCIL FOR GENERAL SURGERY**

Celia M. Divino.....	2015–2018
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**AMERICAN COLLEGE OF SURGEONS,
SURGICAL RESEARCH COMMITTEE**

Jeffrey B. Matthews.....	2013–2016
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**ASSOCIATION OF AMERICAN MEDICAL COLLEGES,
COUNCIL OF FACULTY AND ACADEMIC SOCIETIES**

Susan Galandiuk.....	2013–2016
Ajit K. Sachdeva.....	2013–2016

NATIONAL ASSOCIATION FOR BIOMEDICAL RESEARCH

Carlos O. Esquivel.....	2015–2016
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SURGICAL COUNCIL ON RESIDENT EDUCATION

Jon B. Morris.....	2015–2016
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**FUTURE MEETINGS OF THE
AMERICAN SURGICAL ASSOCIATION**

April 20–22, 2017
Philadelphia Marriott Downtown
Philadelphia, Pennsylvania

April 19–21, 2018
J.W. Marriott Hotel
Phoenix, Arizona

GENERAL INFORMATION

The Swissôtel Chicago, Illinois, is the headquarters of the American Surgical Association for the 136th Annual Meeting, April 14–16, 2016.

REGISTRATION: The Registration Desk for the 136th Annual Meeting is located outside the Zurich Ballroom during the following hours:

Wednesday, April 13 th	2:00 p.m.–6:00 p.m.
Thursday, April 14 th	7:00 a.m.–5:15 p.m.
Friday, April 15 th	7:30 a.m.–5:00 p.m.
Saturday, April 16 th	7:30 a.m.–11:00 a.m.

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 Zurich Registration Office. Authors are requested to submit their PowerPoint presentations on USB memory drive or CD-ROM the day *prior* to their session to the technician in the Speaker Ready Room. Speaker Ready Room hours are:

Wednesday, April 13 th	2:00 p.m.–6:00 p.m.
Thursday, April 14 th	7:00 a.m.–5:15 p.m.
Friday, April 15 th	7:30 a.m.–5:00 p.m.
Saturday, April 16 th	7:30 a.m.–11:00 a.m.

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 136th Annual Meeting, April 14–16, 2016, Chicago, Illinois, 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 136th Annual Meeting, April 14–16, 2016, Chicago, Illinois, 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 15th, with the reception taking place in the Zurich Ballroom Foyer and dinner in the Zurich Ballroom A-D (*black tie preferred, but dark suits are acceptable*).

SPECIAL EVENTS:

Address by the President:	Thursday, April 14 th	10:50 a.m.
“Engines of Discovery and Innovation”		
Forum Discussion	Friday, April 15 th	10:30 a.m.
“Cancer Research in the 21st Century”		
Executive Session (Fellows Only)	Friday, April 15 th	4:00 p.m.
Reception & Banquet	Friday, April 15 th	7:00 p.m.

SPOUSE/GUEST HOSPITALITY: The Spouse/Guest Hospitality Suite is located in the Monte Rosa Room from 7:00 a.m. to 10:30 a.m., Thursday, April 14th, through Saturday, April 16th. 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 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 the 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 **16.00 AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.



AMERICAN COLLEGE OF SURGEONS
Inspiring Quality.
Highest Standards. Better Outcomes.™



AMERICAN COLLEGE OF SURGEONS
DIVISION OF EDUCATION
Accredited with Commendation by the
Accreditation Council for Continuing Medical Education

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.

New Honorary Fellows Introductions

Pierre-Alain Clavien, M.D., Ph.D.



Pierre Clavien is Professor and Chairman of the Department of Surgery in Zurich, Switzerland. After surgical training in Basel and Geneva he received a PhD from the University of Toronto and completed a clinical fellowship in HPB surgery and liver transplantation. He joined the faculty of the Department of Surgery, Duke University School of Medicine in 1994 where he initially led the liver transplantation and HPB programs and subsequently the Division of Transplantation. He became Professor in 1999. Professor Clavien has devoted his career to surgical science, transplantation and HPB surgery. His research laboratory has been funded by the NIH, Swiss National Grants, private and non-private sources. His areas of investigation include, organ preservation, liver ischemia-reperfusion injury, liver regeneration, pathogenesis of cancer and outcomes research. His work has been published in many prestigious journals, including *Science*, *PNAS*, *Gastroenterology*, *NEJM* and *Annals of Surgery* among others. He and his colleagues reported that serotonin is a key mediator of liver regeneration (*Science*) and have reported a continue to refine a scoring system to evaluate post-operative complications. He received one of the most prestigious prizes for scientific research in Switzerland, the Otto Naegeli Award as well as the European Union of Gastroenterology award for his work on partial liver transplantation. He is on many editorial boards and is Associate Editor of *Annals of Surgery* among others. Professor Clavien was appointed "Professeur Associé" at Hôpital Paul Brousse Université Paris Sud and has served as President of the European Surgical Association, European Hepatobiliary Association and the Swiss Transplantation Society.

Juan Hepp, M.D.



Dr. Hepp graduated from the University of Chile Medical School in 1972. He trained in general Surgery at the University of Chile, Hospital Salvador from 1973–1977. He then spent two years as a DAAD Fellow in Surgery in Germany. He returned to Chile in 1982 working at the Chilean Military Hospital as head of teaching and research. Dr. Hepp implemented and developed Liver transplantation in Chile in 1985 and started laparoscopic surgery in the country in 1990. He took part in organizing and developing a new medical school at the Clinica Alemana Santiago-University of Desarrollo where he is currently Professor and Director of Surgery, Head of the post-graduate training program and Head of the Liver transplantation team. He has focused his career on abdominal and digestive surgery, liver transplantation and hepato-biliary and pancreatic surgery.

Professor Hepp has been quite productive and published four textbooks, 27 book chapters and 170 scientific articles and is a valued surgical reviewer for a number of journals. He has been an invited guest speaker in numerous Latin American countries, the US and Europe. He has played a leading role in promoting and teaching laparoscopic surgery and surgical management of liver disorders in South America. Dr. Hepp was instrumental in the passage of national laws concerning organ procurement and transplantation ethics in Chile. He has received numerous awards for his clinical work in Transplantation and HPB surgery including a special award from the National Health System of Chile. He was elected President of the Chilean Surgical Society and President of the Chilean Chapter of the American College of Surgeons. Dr. Hepp has been elected to membership in the International Surgical Society, American Hepato-pancreato and Biliary Association, International Liver Transplantation Society, International Hepato-pancreato and Biliary Association, an Honorary member of the European Surgical Association and member of the Ecuadorean and Peruvian Surgical Societies.

Professor Juan Hepp is clearly a talented, highly accomplished and respected surgical leader in his country and throughout Latin America. It is with great pleasure that we welcome him to the American Surgical Association as an Honorary member.

Bruce Edward Keogh, M.D.



Bruce Edward Keogh was born in Southern Rhodesia (now Zimbabwe). His initial years of education were in Rhodesia before completing his undergraduate education at the University of London. He did his general surgical training in London and Sheffield and his training in Cardiothoracic surgery at the Hammersmith, St. George's and Harefield Hospitals. He held consultation appointments at the Hammersmith Hospital in London and the Queen Elizabeth and University Hospital in Birmingham before assuming his final academic position was Professor of

Cardiac Surgery at the University College, London and Director of Surgery at the Heart Hospital. In 2007, he became the Medical Director of the National Health Service in England and is responsible for promoting clinical leadership, quality, and innovation across the entire National Health Service.

Sir Bruce has had a distinguished career as an academic Cardiothoracic surgeon with over 100 publications, many of which are of significant impact in the field of cardiac surgery. He is best known for publishing a series of National Adult Cardiac Surgical database reports representing the clinical outcomes for cardiac surgery across the entire United Kingdom. In 2013, 2014 and 2015, Sir Bruce was ranked by the Health Service Journal as the most influential clinician in the English NHS. In 2014, he was listed as one of Britain's 500 most influential people.

Sir Bruce has served as the Secretary and President of the Society of Cardiothoracic Surgery in Great Britain and Ireland, Secretary-General of the European Association for Cardiothoracic Surgery, International Director of the U.S. Society of Thoracic Surgeons, and President of the Cardiothoracic Section of the Royal Society of Medicine. He has also served as a Commissioner on the Commission for Health Improvement and the Healthcare Commission. He has received multiple honorary degrees in both the United States and the United Kingdom and has given many endowed and prestigious lectureships throughout the world. In 2003, he was appointed an Honorary Knight Commander of the Order of the British Empire for his services to medicine. Sir Bruce and his wife, Ann, live in Birmingham and have 4 sons.

Simon Ying Kit Law, M.D.



Simon Law is currently the Cheung Kung-Hai Professor in Gastrointestinal Surgery, and Chief of the Division of Esophageal and Upper Gastrointestinal Surgery at The University of Hong Kong.

Professor Law graduated from the University of Cambridge in England in 1987 with First Class Honors and completed his clinical curriculum at the same university. He received his post-graduate training at the Department of Surgery at The University of Hong Kong under the mentorship of Professor John

Wong. He also completed a fellowship in foregut surgery with Professor Thomas DeMeester at the University of Southern California.

In 2005 he was appointed Clinical Professor. Professor Law has held many leadership positions. He is a council member of the College of Surgeons of Hong Kong. He served as the Chairman of the General Surgery Board and the Chief Examiner of the Joint Fellowship Examination of the Royal College of Surgeons of Edinburgh and The College of Surgeons of Hong Kong. He was also member of the Training Accreditation Committee of China Programs, responsible for accreditation for surgical training programs in China for the two Colleges. He is past president of the Hong Kong Society of Upper Gastrointestinal Surgeons and is the current Secretary of the Hong Kong China Chapter of the American College of Surgeons. He is a member of the Education and Accreditation Committee of the Medical Council of Hong Kong. He plays an active role in many international societies including serving as the Executive Council Member of the International Society of Digestive Surgery (ISDS) and is the Asia Representative of the Member Services Committee of the Society for Surgeons of the Alimentary Tract (SSAT). In recognition of his expertise he has been appointed the associate editor of the *Diseases of the Esophagus*, and is a member of the editorial board of 15 other journals, including *Annals of Surgery*, *JAMA Surgery*, *Surgery*, *Annals of Surgical Oncology*, and *World Journal of Surgery*.

Professor Law is widely published in upper gastrointestinal tract disorders, with an emphasis on esophageal and gastric cancers, motility disorders and gastro-esophageal reflux disease in Asia. He has published 243 articles and delivered 240 international lectures. He also has contributed 225 conference papers, and 30 book chapters.

For his contributions to the treatment of benign and malignant diseases of the esophagus and stomach, to the surgical sciences and education and to international collaboration, we welcome him to the American Surgical Association.

Jacques Marescaux, M.D.



Jacques Marescaux trained at the University Hospital of Strasbourg where he later served as the Head of Digestive and Endocrine Surgery from 1989–2013. He is Professor of Surgery, Chairman of the Institute of Image-Guided Surgery (IHU Strasbourg) and President and Founder of IRACAD (Research Institute Against Digestive Cancer, 1994) and the EITS (European Institute of Telesurgery, 1994). Over the last 20 years this center has gained international acclaim by training more than 40,000 surgeons from 124 countries and IRCAD Institutes have been established in Taiwan and Brazil.

In 2000, the Institute began a virtual online university, WeBSurg, resulting from the need to maintain the link between the training center and the surgeons. WeBSurg includes high-quality technology with high-speed multimedia communication systems to broadcast pre-recorded surgical procedures. The website is available in 6 languages, French, English, Spanish, Portuguese, Japanese and Chinese.

In 2001, Professor Marescaux performed the first transcontinental laparoscopic procedure in Strasbourg France while he was in New York City; this is known as “Operation Lindbergh”. In 2007, he is the first surgeon to perform a surgical operation without leaving a cutaneous scar.

Prof. Marescaux and his team have published over 3,500 articles and communications in *Nature*, *The New England Journal of Medicine*, *JAMA*, *Annals of Surgery* and *Archives of Surgery* among many. He is a member of many editorial boards. He was made Chevalier of the Legion of Honor (1999), Officer of the Order of Merit (2007) and Officer of the Legion of Honor (2012). In addition, he has been awarded the George Berci Lifetime Achievement Award of SAGES (2010) and the Computer World Smithsonian Award, twice (1999, 2002).

Nopadol Wora-Urai, M.D.



Nopadol Wora-Urai was born in Bangkok December 23, 1946. He attended Medical School at the Faculty of Medicine, Mahido University in Bangkok from 1966–1970. After an internship in Thailand, he trained in General Surgery at the Columbus Hospital, Chicago under the direction of Professor Paul Nora from 1972–1977. He obtained postgraduate training in a Hand Surgery Fellowship and Urology at the Cook County Hospital and became a Diplomate of the American Board of Surgery.

In 1980, Professor Wora-Urai returned to Thailand as member of the surgical faculty at Phramongkuthloo (PMK), College of Medicine and Hospital in Bangkok. He rose quickly through the ranks and was appointed Residency Training Program Director in 1985. He served in the Thai Royal Army and was the Chair of Surgery, Director of the Trauma and Transplant Centers, and Deputy Director of the PMK Military Hospital eventually achieving the rank of Lt. General. In the mid-1990's he returned to the civilian sector as Chair of Surgery at PMK Hospital. He currently is Professor of Surgery, Emeritus at PMK College of Medicine and since 2012, has served as the Dean of new Mae Fah Luang Chi School of Medicine in Chiang Rai, Thailand.

He has had a very productive career and numerous leadership roles in his home country, throughout Asia and Internationally. He is a Fellow of the American College of Surgeons and served as the President of the ACS-Thai Chapter and represented the country as a Governor. He is a Fellow of the Royal College of Surgeons of Thailand and served as President of the Royal College 2011–13. In addition, he was President of the Association of General Surgeons of Thailand as well as the Hand and Vascular Societies. He was elected Vice-President of the Asian Surgical Association and President of the Thai Chapter of the International Association of Surgeons, Gastroenterologists, and Oncologists and International College of Surgeons. Professor Wora-Urai was elected to Honorary Fellowship in the College of Surgeons of Sri Lank and the Royal Australasian College of Surgeons. He is a member of the Society for Hand Surgery, Society for Reconstructive Microsurgery, Transplantation Society and is a Fellow of the Royal College of Surgeons of England (Edin), and the Academy of Medicine of Singapore. From 2013–2015, Professor Wora-Urai was President of the International Surgical

Society and currently is President of the Society's Foundation. He has hosted many International meetings in Thailand, most recently the 46th World Surgical Congress in Bangkok in 2015.

He has served as the Editor-in-Chief of the Thai Journal of Surgery, and is on the editorial Board of the Journal of the Royal Thai Army and the Thai Medical Journal. He has participated for many years as a dedicated examiner of the Thai Board of Surgery. Education has remained an area of extreme interest. Professor Wora-Urai is a very accomplished surgical leader who has made many contributions to the field of surgery. It is an honor and pleasure to welcome him to Honorary membership in the Association.

Han-Kwang Yang, M.D.



Han Kwang Yang is a Professor of Surgery, the Director of the Gastric Cancer Center, and the Chief of Gastrointestinal Surgery at Seoul National University (SNU) College of Medicine in Seoul, South Korea. He is quite simply – one of a very small handful of leaders in gastric cancer surgery in Asia today. Dr. Yang received all his education, including an MD, PhD and MS from SNU. He did a three year research fellowship at the NCI in the early 90's, then returned for another year at the NIH in the Laboratory of Cell Regulation and Carcinogenesis in the late 90's. Dr.

Yang returned to Korea, where he established himself in less than a decade as the pre-eminent gastric cancer surgeon and researcher in a country where gastric cancer is extraordinarily common. In is not unusual for him to perform 9–10 gastrectomies weekly for gastric cancer of all stages. Dr. Yang's contributions to clinical research include the organization of several multinational randomized trials (KLASS and CLASSIC) and several pan-Asia conferences on gastric cancer. His well-funded cancer biology lab has contributed to an understanding of events and markers associated with gastric cancer progression, responsiveness to targeted agents, and promotion of metastasis. He has been an innovator in the laparoscopic approach to gastric cancer, tailoring the MIS procedure to the tumor stage, preserving function in patients with early cancer, and obtaining the optimal and most thorough cancer resection and D2 lymphadenectomy for patients with locally advanced cancer. Dr. Yang is a consummate educator. His lectures are clear and thoughtful. His intraoperative teaching draws surgeons from all over the world into his operating room to observe and learn his techniques. Dr. Yang sits on 4 editorial boards, has authored 155 articles in Lancet, Gastroenterology, Annals and many other high impact journals. He is a most sought after speaker at international surgical conferences worldwide. Dr. Yang is married to Jee-Yong Kim, and has two daughters, 15 and 20. He loves travelling, photography, and sharing stories with surgeons from around the world.

SCHEDULE-AT-A-GLANCE

THURSDAY, APRIL 14th

8:15 AM **Opening Session** Zurich ABCD

President's Opening Remarks

Secretary's Welcome & Introduction of
New Fellows Elected In 2015

President's Introduction of Honorary Fellows

Presentation of the Medallion for Scientific Achievement

Presentation of the Medallion for the Advancement of
Surgical Care

Report of the Committee on Arrangements

9:10 AM **Scientific Session I** Zurich ABCD
Moderator: James S. Economou, M.D., Ph.D.

10:50 AM **Presidential Address** Zurich ABCD
"Engines of Discovery and Innovation"
Introduction: Mark A. Malangoni, M.D.
Address: James S. Economou, M.D., Ph.D.

1:30 PM **Scientific Session II** Zurich ABCD
Moderator: Keith D. Lillemoe, M.D.

FRIDAY, APRIL 15th

7:00 AM **ASA Women in Surgery Breakfast** Zurich E

8:00 AM **Scientific Session III** Zurich ABCD
Moderator: James S. Economou, M.D., Ph.D.

10:30 AM **Forum Discussion:** Zurich ABCD
"Cancer Research in the 21st Century"
Moderator: James S. Economou, M.D., Ph.D.

1:30 PM **Scientific Session IV** Zurich ABCD
Moderator: Mark A. Malangoni, M.D.

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

7:00 PM **Annual Reception** Zurich Pre-Function
(Black tie preferred, but dark suits are acceptable.)

8:00 PM **Annual Banquet** Zurich ABCD
(Black tie preferred, but dark suits are acceptable.)

SATURDAY, APRIL 16th

8:00 AM **Scientific Session V** Zurich ABCD
Moderator: New President-Elect

11:00 AM **Adjourn**

AMERICAN SURGICAL ASSOCIATION
136th Annual Meeting | April 14–16, 2016
Swissôtel Chicago | Chicago, Illinois

PROGRAM OUTLINE

THURSDAY, APRIL 14, 2016

8:15 AM – 9:10 AM
OPENING SESSION
Zurich ABCD

President's Opening Remarks

Secretary's Welcome & Introduction of New Fellows
Elected In 2015

President's Introduction of Honorary Fellows

Presentation of the Medallion for Scientific Achievement

Presentation of the Medallion for the Advancement of
Surgical Care

Report of the Committee on Arrangements

9:10 AM – 11:00 AM
SCIENTIFIC SESSION I
Zurich ABCD

Moderator: James S. Economou, M.D., Ph.D.

9:10 AM – 9:35 AM

1

Locoregional Recurrence After Sentinel Lymph Node Dissection with or without Axillary Dissection in Patients with Sentinel Lymph Node Metastases: Long-Term Follow-Up from the American College of Surgeons Oncology Group (Alliance) Z0011 Randomized Trial
Armando E. Giuliano¹, *Linda McCall², *Peter Beitsch³, *Pat W. Whitworth⁴, *Peter Blumencranz⁵, *A. Marilyn Leitch⁶, *Sukamal Saha⁷, Kelly K. Hunt⁸, Monica Morrow⁹, *Karla Ballman¹⁰

¹*Cedars Sinai Medical Center, Los Angeles, CA;* ²*Alliance for Clinical Trials in Oncology, Durham, NC;* ³*Dallas Surgical Group, Dallas, TX;* ⁴*Nashville Breast Center, Nashville, TN;* ⁵*Morton Plant Hospital, Clear Water, FL;* ⁶*University of Texas Southwestern Medical Center Surgery, Dallas, TX;* ⁷*McLaren Regional Medical Center, Michigan State University, Flint, MI;* ⁸*MD Anderson Cancer Center, Houston, TX;* ⁹*Memorial Sloan-Kettering Cancer Center, New York, NY;* ¹⁰*Alliance for Clinical Trials in Oncology, New York, NY*

9:35 AM – 10:00 AM

2

Reversal of Growth Arrest with the Combined Administration of Oxandrolone and Propranolol in Severely Burned Children
David N. Herndon, Charles Voigt*, Karel Capek*, Paul Wurzer*, Ashley Guillory*, Andrea Kline*, Clark Andersen*, Linda Sousse*, Oscar E. Suman*, Celeste C. Finnerty*
University of Texas Medical Branch, Galveston, TX

*By invitation

10:00 AM – 10:25 AM**3****Chemoprevention of Colorectal Cancer: The Potential Role for and Function of Indole-3-Carbinol**

Gregory D. Kennedy*, Carol Diaz-Diaz*,
Sean Ronnekleiv-Kelly*, Manabu Nukaya*,
Bruce A. Harms

University of Wisconsin, Madison, WI

10:25 AM – 10:50 AM**4****Time for Change: Patients with Adhesive Small Bowel Obstruction Should Be Managed by a Primary Surgical Team**

Christopher T. Aquina*, Christian P. Probst*, Adan Z. Becerra*,
Bradley J. Hensley*, Zhaomin Xu*, James C. Iannuzzi*,
Katia Noyes*, John R.T. Monson, **Fergal J. Fleming***

University of Rochester Medical Center, Rochester, NY

10:50 AM – 12:00 PM**PRESIDENTIAL ADDRESS**

Zurich ABCD

“Engines of Discovery and Innovation”**10:50 AM – 11:00 AM****Introduction of the President**

Mark A. Malangoni, M.D.

11:00 AM – 12:00 PM**Address by the President**

James S. Economou, M.D., Ph.D.

*By invitation

1:30 PM – 5:15 PM**SCIENTIFIC SESSION II****Zurich ABCD**

Moderator: Keith D. Lillemoe, M.D.

1:30 PM – 1:55 PM**5****Leaning to the Left – Increasing the Donor Pool by Using the Left Lobe, Outcomes of the Largest Single Center Western Experience of Left Lobe Adult Living Donor Liver Transplantation (LDLT)**

Karim J. Halazun*¹, Benjamin Samstein*¹,
Fabrizio Michelassi¹, Eric M. Przybyszewski*²,
David Cherqui *¹, Adam D. Griesemer*²,
James V. Guarerra*², Tomoaki Kato²,
Robert S. Brown, Jr.*¹, Jean C. Emond²

¹*Weill Cornell Medical College, New York, NY;*

²*Columbia University Medical Center, New York, NY*

1:55 PM – 2:20 PM**6****Locally Advanced Pancreatic Cancer: Neoadjuvant Therapy with Folfirinox Results in Resectability in 2/3 of the Patients**

Thilo Hackert*, Milena Sachsenmaier*, Ulf Hinz*,
Schneider Lutz*, Christoph Michalski*, Christoph Springfeld*,
Oliver Strobel*, Dirk Jäger*, Alexis Ulrich*, Markus W. Buechler

University Hospital Heidelberg, Heidelberg, Germany

*By invitation

2:20 PM – 2:45 PM**7****First Report from the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP): Surgical Techniques and Outcomes of 191,909 Laparoscopic Sleeve Gastrectomies****Elizabeth R. Berger***¹, Ronald H. Clements*², John M. Morton*³, Kristopher Huffman*⁴, Bruce M. Wolfe⁵, Ninh T. Nguyen⁶, Clifford Y. Ko⁷, Matthew M. Hutter*⁸¹Loyola University Chicago Stritch School of Medicine, Chicago, IL; ²Vanderbilt University Medical Center, Nashville, TN; ³Stanford University Medical Center, Stanford, CA;⁴American College of Surgeons, Chicago, IL; ⁵Oregon Health and Science University, Portland, OR; ⁶University of California, Irvine School of Medicine, Irvine, CA; ⁷University of California Los Angeles David Geffen School of Medicine, Los Angeles, CA; ⁸Massachusetts General Hospital, Boston, MA**2:45 PM – 3:10 PM****8****CT Utilization for the Diagnosis of Pediatric Acute Appendicitis Decreases with a Diagnostic Algorithm****Sohail R. Shah***¹, Kelly Sinclair*², Stephanie B. Theut*², Kathy M. Johnson*², George W. Holcomb, III², Shawn D. St. Peter²¹Baylor College of Medicine/Texas Children's Hospital, Houston, TX; ²Children's Mercy Hospital, Kansas City, MO

*By invitation

3:10 PM – 3:35 PM**9****Should Elective Resection Follow Nonoperative Management of First Episode of Acute Diverticulitis of the Colon with Abscess/Extraluminal Air? An RCT****Ryan Bendl***, Karen You*, Simona Giuratrabocchetta*, Ryan Sullivan*, Paula I. Denoya*, Marlene Zawin, John Ferretti, Asher Baer, William Wertheim, Roberto Bergamaschi

State University of New York, Stony Brook, Stony Brook, NY

3:35 PM – 4:00 PM**10****Grading of Surgeon Technical Performance Predicts Post-Operative Pancreatic Fistula for the Pancreaticoduodenectomy Independent of Patient Related Variables****Melissa E. Hogg***¹, Mazen Zenati*¹, Stephanie Novak*¹, Yong Chen*², Yan Jun*³, Jennifer Steve*¹, Stacy Kowalsky*¹, David L. Bartlett¹, Amer Zureikat*¹, Herbert Zeh, III¹¹UPMC, Pittsburgh, PA; ²The First Affiliated Hospital, Chongqing Medical University, Chongqing, China; ³Shanghai Jiao Tong University Affiliated Sixth People's Hospital, Shanghai, China

*By invitation

4:00 PM – 4:25 PM**11****Defining Benchmarks for Major Liver Surgery – A Multicenter Analysis of 5202 Living Liver Donors**

Fabian Rössler*¹, Gonzalo Sapisochin*², GiWon Song*³, Yu-Hung Lin*⁴, Mary Anne Simpson*⁵, Kiyoshi Hasegawa*⁶, Andrea Laurenzi*⁷, Santiago Sanchez Cabús*⁸, Milton Inostroza Nunez*⁹, Andrea Gatti*¹⁰, Magali Chahdi Beltrame*¹¹, Ksenija Slankamenac*¹, Paul Greig*², Sung-Gyu Lee*³, Chao-Long Chen*⁴, David Grant², Elisabeth A. Pomfret*⁵, Norihiro Kokudo*⁶, Daniel Cherqui⁷, Kim Olthoff¹², Avi Shaked*¹², Juan Carlos García-Valdecasas*⁸, Jan Lerut*⁹, Roberto Troisi*¹⁰, Martin De Santibanes*¹¹, Milo Puhan*¹³, Henrik Petrowsky*¹, **Pierre-Alain Clavien*¹**

¹Swiss HPB Center Zurich, Department of Surgery, University Hospital Zurich, Zurich, Switzerland; ²Department of Surgery, Toronto General Hospital, Toronto, ON, Canada; ³Department of Surgery, University of Ulsan College of Medicine, Seoul, Korea, Republic of; ⁴Department of Surgery, Chang Gung Memorial Hospital, Kaohsiung Medical Center, Kaohsiung, Taiwan; ⁵Department of Transplantation, Lahey Hospital and Medical Center, Burlington, MA; ⁶Artificial Organ and Transplantation Division and Hepato-Biliary-Pancreatic Surgery, University of Tokyo, Tokyo, Japan; ⁷The Hepatobiliary Center, Department of Surgery, Paul Brousse Hospital, University Paris Sud, Villejuif, France; ⁸Department of Surgery, Hospital Clínic de Barcelona, Barcelona, Spain; ⁹Department of Abdominal and Transplantation Surgery, University Hospitals Saint Luc, Brussels, Belgium; ¹⁰Department of General Hepatobiliary and Liver Transplantation Surgery, Ghent University Hospital and Medical School, Ghent, Belgium; ¹¹Department of Surgery, Division of HPB Surgery, Liver Transplant Unit, Italian Hospital Buenos Aires, Buenos Aires, Argentina; ¹²Department of Liver Transplant and Hepatobiliary Surgery, University of Pennsylvania Health System, Philadelphia, PA; ¹³Department of Epidemiology, Institute for Social and Preventive Medicine, University of Zurich, Zurich, Switzerland

*By invitation

4:25 PM – 4:50 PM**12****Professionalism Among Surgical Residents: Documenting the Advantages of a Professionalism Curriculum**

Mark S. Hochberg*, Russell S. Berman*, Adina Kalet*, Sandra R. Zabar*, H. Leon Pachter
New York University Medical Center, New York, NY

4:50 PM – 5:15 PM**13****Per-Oral Esophageal Myotomy (POEM) After the Learning Curve: Durable Results and a Low Complication Rate**

Eric S. Hungness*, Joel M. Sternbach*, Ezra N. Teitelbaum*, Rym El Khoury*, Peter J. Kahrilas*, John E. Pandolfino*, Nathaniel J. Soper
Northwestern University, Feinberg School of Medicine, Chicago, IL

*By invitation

FRIDAY, APRIL 15, 2016

7:00 AM – 8:00 AM

ASA WOMEN IN SURGERY BREAKFAST
Zurich E

8:00 AM – 10:30 AM

SCIENTIFIC SESSION III
Zurich ABCD

Moderator: James S. Economou, M.D., Ph.D.

8:00 AM – 8:25 AM

14

Glucose Control in Severely Burned Patients Using Metformin – An Interim Safety and Efficacy Analysis of a Phase II RCT

Marc G. Jeschke, Marjorie Burnett*, Abdikarim Abdullahi*, Sarah Rehou*, Mile Stanojcic*

University of Toronto, Toronto, ON, Canada

8:25 AM – 8:50 AM

15

No Need for Routine Drainage After Pancreatoduodenectomy: The Dual Center Randomized Controlled PANDRA-Trial (ISRCTN04937707)

Helmut Witzigmann*¹, Markus K. Diener*², Stefan Kissenkötter*¹, Inga Rossion*³, Thomas Bruckner*⁴, Bärbel Werner*¹, Olaf Pridöhl*¹, Olga Radulova-Mauersberger*¹, Phillip Knebel*², Oliver Strobel*², Thilo Hackert*², **Markus W. Buechler**²

¹Department of General-, Visceral- and Thoracic Surgery, Städtisches Krankenhaus Dresden-Friedrichstadt, Dresden, Germany; ²Department of General-, Visceral- and Transplantation Surgery, University of Heidelberg, Heidelberg, Germany; ³Study Center of the German Surgical Society (SDGC), University of Heidelberg, Heidelberg, Germany; ⁴Institute of Medical Biometry and Informatics, University of Heidelberg, Heidelberg, Germany

*By invitation

8:50 AM – 9:15 AM

16

Regionalization of Emergent Vascular Surgery for Patients with Ruptured AAA Improves Outcomes

Courtney J. Warner*¹, Sean P. Roddy*¹, Benjamin B. Chang*¹, Paul B. Kreienberg*¹, Yaron Sternbach*¹, John B. Taggart*¹, Kathleen J. Ozsvath*¹, Chin-Chin Yeh*¹, Steven C. Stain², R. Clement Darling¹

¹The Vascular Group, Albany, NY; ²Albany Medical Center, Albany, NY

9:15 AM – 9:40 AM

17

Time of Surgical Repair Impacts 30-days Postoperative Complications But Not Long Term Outcomes After Bile Duct Injury: Lessons from 600 cases

Ismael Dominguez-Rosado*¹, Miguel Angel Mercado², William G. Hawkins¹

¹Washington University in St. Louis, St. Louis, MO; ²Instituto Nacional de Ciencias Medicas y Nutricion Salvador Zubiran, Mexico, Mexico

9:40 AM – 10:05 AM

18

Is the Publicly Available ProPublica Surgeon Scorecard Valid? An Empirical Evaluation of Their Outcome Measure and Methods

Kristen A. Ban*¹, Mark E. Cohen*¹, Clifford Y. Ko², Mark W. Friedberg*³, Lynn Zhou*¹, Bruce L. Hall⁴, David B. Hoyt¹, Karl Y. Bilimoria*⁵

¹American College of Surgeons, Chicago, IL; ²University of California Los Angeles, Los Angeles, CA; ³RAND Corporation, Santa Monica, CA; ⁴Washington University in St. Louis, St. Louis, MO; ⁵Northwestern University, Chicago, IL

*By invitation

10:05 AM – 10:30 AM**19****A Highly Predictive Model for Diagnosis of Colorectal Neoplasms Using Plasma MicroRNA: Improving Specificity and Sensitivity****Jane V. Carter***¹, Jonathan Rice*¹, Henry Roberts*¹, Shesh N. Rai*¹, Ziad Kanaan*², Susan Galandiuk¹¹University of Louisville, Louisville, KY; ²Wayne State University, Detroit, MI**10:30 AM – 12:00 PM****FORUM DISCUSSION**

Zurich ABCD

“Cancer Research in the 21st Century”*Moderator: James S. Economou, M.D., Ph.D.***“Molecular Diversity of Cancer: Biologic and Therapeutic Implications”**Dennis J. Slamon, M.D., Ph.D.
*UCLA, Los Angeles, CA***“Treating Cancer with the Immune System”**Antoni Ribas, M.D., Ph.D.
*UCLA, Los Angeles, CA***“Molecular Imaging with PET in Drug Discovery and Development”**Michael E. Phelps, Ph.D.
UCLA, Los Angeles, CA

*By invitation

1:30 PM – 4:00 PM**SCIENTIFIC SESSION IV
Zurich ABCD***Moderator: Mark A. Malangoni, M.D.***1:30 PM – 1:55 PM****20****Is Non-Operative Management Warranted in Comorbid Patients with Ventral Hernias? A Prospective, Patient-Centered Study****Julie L. Holihan***, Blake E. Henchcliffe*, Jiandi Mo*, Juan R. Flores-Gonzalez*, Tien C. Ko*, Lillian S. Kao, Mike K. Liang**University of Texas Health Science Center at Houston, Houston, TX***1:55 PM – 2:20 PM****21****Randomized Controlled Trial of Liberal Versus Restricted Fluid Management in Patients Undergoing Pancreatectomy**Florence Grant*, **Murray F. Brennan**, Mithat Gonen*, Mary Fischer*, Ronald DeMatteo, Peter Kingham, Michael D’Angelica, Peter Allen, William Jarnagin*Memorial Sloan-Kettering Cancer Center, New York, NY***2:20 PM – 2:45 PM****22****The Role of Radio Frequency Identification Embedded Surgical Sponges in Preventing Retained Foreign Bodies: A Prospective Evaluation in Patients Undergoing Emergency Surgery****Kenji Inaba**, Obi Okoye*, Hande Aksoy*, Dimitra Skiada*, Glenn Ault*, Lydia Lam*, Elizabeth Benjamin*, Demetrios Demetriades*LAC+USC Medical Center, Los Angeles, CA*

*By invitation

2:45 PM – 3:10 PM

23

Troponin Elevation After Colorectal Surgery: Significance and Management

Billy Y. Lan*, H. Hande Aydinli*, Grant W. Reed*, Venu Menon*, Daniel I. Sessler*, Feza H. Remzi, Luca Stocchi*, Emre Gorgun*
Cleveland Clinic, Cleveland, OH

3:10 PM – 3:35 PM

24

Pure Laparoscopic Hepatectomy Versus Open Hepatectomy for Hepatocellular Carcinoma in 110 Patients with Liver Cirrhosis – A Propensity Analysis in a Single Center

Tan To Cheung*, Chung Mau Lo, Dai Wing Chiu*, Simon Tsang*, Albert Chan*, Siu Ho Chok*, See Ching Chan*, Chung Mau Lo*
Queen Mary Hospital, the University of Hong Kong, Hong Kong

3:35 PM – 4:00 PM

25

Post-Operative 30-Day Readmission: Time to Focus on What Happens Outside the Hospital

Melanie S. Morris*¹, Laura Graham*¹, Joshua Richman*¹, Kamal M.F. Itani², Amy Rosen*², Hillary Mull*², Sara Knight*¹, Mary T. Hawn³

¹*University of Alabama at Birmingham, Birmingham, AL*; ²*Boston University, Boston, MA*; ³*Stanford University, Palo Alto, CA*

4:00 PM – 5:00 PM**EXECUTIVE SESSION**

Zurich ABCD

*ASA Fellows Only***Presentation of the Flance-Karl Award****7:00 PM ANNUAL RECEPTION**

Zurich Pre-Function

*Black tie is preferred, but dark suits are acceptable.***8:00 PM ANNUAL BANQUET**

Zurich ABCD

Black tie is preferred, but dark suits are acceptable.

*By invitation

SATURDAY, APRIL 16, 2016**8:00 AM – 11:00 AM****SCIENTIFIC SESSION V
Zurich ABCD***Moderator: New President- Elect***8:00 AM – 8:25 AM**

26

Timing of Chemical Thromboprophylaxis and Deep Vein Thrombosis in Major Colorectal Surgery – A Randomized Clinical Trial

Karen Zaghayan*, Harry Sax*, Emily Miraflor*, David Cossman*, Willis Wagner*, Bruce Gewertz, Phillip Fleshner*

*Cedars Sinai Medical Center, Los Angeles, CA***8:25 AM – 8:50 AM**

27

A Multi-Institutional Comparison of Perioperative Outcomes of Robotic and Open Pancreaticoduodenectomy

David A. Kooby*¹, Lauren M. Postlewait*¹, Yuan Liu*², Theresa W. Gillespie*¹, Sharon M. Weber³, Daniel E. Abbott*⁴, Shishir K. Maithe¹, Melissa E. Hogg*⁵, Mazen Zenati*⁵, Clifford S. Cho*³, Ahmed Salem*³, Brent Xia*⁴, Jennifer Steve*⁵, Herbert J. Zeh, III⁵, **Amer H. Zureikat***⁵

¹*Winship Cancer Institute, Emory University, Atlanta, GA*; ²*Rollins School of Public Health, Emory University, Atlanta, GA*; ³*University of Wisconsin School of Medicine and Public Health, Madison, WI*; ⁴*University of Cincinnati Cancer Institute, Cincinnati, OH*; ⁵*University of Pittsburgh Medical Center, Pittsburgh, PA*

*By invitation

8:50 AM – 9:15 AM**28****Liver Resection Versus Transplantation for Patients with Hepatocellular Carcinoma Beyond Milan Criteria**

Victor M. Zaydfudim*¹, Neeta Vachharajani*², Goran B. Klintmalm³, William R. Jarnagin⁴, Alan W. Hemming⁵, Maria B. Majella Doyle*², Keith M. Cavaness*³, William C. Chapman², David M. Nagorney⁶

¹University of Virginia, Charlottesville, VA; ²Washington University School of Medicine, St. Louis, MO; ³Baylor University Medical Center, Dallas, TX; ⁴Memorial Sloan-Kettering Cancer Center, New York, NY; ⁵University of California San Diego, San Diego, CA; ⁶Mayo Clinic, Rochester, MN

9:15 AM – 9:40 AM**29****Systemic Biomarkers Predict Cognitive Decline Following Carotid Revascularization – A Prospective Study**

Thuy Tran*¹, Gayatri Raghuraman*², Mary Zuniga*³, Elizabeth Hitchner*³, Allyson Rosen*², **Wei Zhou**¹

¹Stanford University, Palo Alto, CA; ²VA Palo Alto Health Care System, Palo Alto, CA; ³VA Palo Alto Health Care System, Palo Alto, CA

9:40 AM – 10:05 AM**30****Effect of Hospital Case Mix on the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Star Scores: Are All Stars the Same?**

Cornelius A. Thiels*, Kristine T. Hanson*, Kathleen J. Yost*, Martin D. Zielinski*, Elizabeth B. Habermann*, Robert R. Cima

Mayo Clinic, Rochester, MN

*By invitation

10:05 AM – 10:30 AM**31****Can Sleeve Gastrectomy “Cure” Diabetes? Long Term Metabolic Effects of Sleeve Gastrectomy in Patients with Type 2 Diabetes**

Ali Aminian*, Stacy A. Brethauer*, Amin Andalib*, Suriya Panchai*, Jennifer Mackey*, John Rodriguez*, Tomasz Rogula*, Matthew Kroh*, Philip R. Schauer
Cleveland Clinic, Cleveland, OH

10:30 AM – 10:55 AM**32****Are Patient-Reported Outcomes Correlated with Clinical Outcomes Following Surgery? A Population-Based Study**

Jennifer F. Waljee*, Amir Ghaferi*, Jonathan Finks*, Ruth Cassidy*, Oliver Varban*, Noelle Carlozzi*, Justin Dimick*

University of Michigan, Ann Arbor, MI

11:00 AM ADJOURN

*By invitation

PROGRAM DETAIL AND ABSTRACTS**THURSDAY MORNING, APRIL 14th**

**8:15 AM – 9:10 AM
OPENING SESSION
Zurich ABCD**

President's Opening Remarks

Secretary's Welcome & Introduction of New
Fellows Elected In 2015

President's Introduction of Honorary Fellows

Presentation of the Medallion for Scientific
Achievement

Presentation of the Medallion for the Advancement
of Surgical Care

Report of the Committee on Arrangements

THURSDAY MORNING, APRIL 14th, CONTINUED

**9:10 AM – 11:00 AM
Zurich ABCD**

SCIENTIFIC SESSION I

Moderator: James S. Economou, M.D., Ph.D.

1

**Locoregional Recurrence After Sentinel Lymph Node
Dissection with or without Axillary Dissection in Patients
with Sentinel Lymph Node Metastases: Long-Term
Follow-Up from the American College of Surgeons Oncology
Group (Alliance) Z0011 Randomized Trial**

Armando E. Giuliano¹, *Linda McCall², *Peter Beitsch³,
*Pat W. Whitworth⁴, *Peter Blumencranz⁵, *A. Marilyn Leitch⁶,
*Sukamal Saha⁷, Kelly K. Hunt⁸, Monica Morrow⁹,
*Karla Ballman¹⁰

¹*Cedars Sinai Medical Center, Los Angeles, CA;* ²*Alliance for
Clinical Trials in Oncology, Durham, NC;* ³*Dallas Surgical
Group, Dallas, TX;* ⁴*Nashville Breast Center, Nashville, TN;*
⁵*Morton Plant Hospital, Clear Water, FL;* ⁶*University of Texas
Southwestern Medical Center Surgery, Dallas, TX;* ⁷*McLaren
Regional Medical Center, Michigan State University, Flint, MI;*
⁸*MD Anderson Cancer Center, Houston, TX;* ⁹*Memorial
Sloan-Kettering Cancer Center, New York, NY;* ¹⁰*Alliance for
Clinical Trials in Oncology, New York, NY*

BACKGROUND AND OBJECTIVE: The American College of Surgeons Oncology Group (ACOSOG) Z0011 trial demonstrated no difference in locoregional recurrence for patients with positive sentinel nodes (SLN) randomized either to axillary lymph node dissection (ALND) or SLN dissection (SLND) alone. We now report long-term locoregional recurrence results of the trial.

*By invitation

METHODS: ACOSOG Z0011 prospectively examined overall survival of patients with SLN metastases undergoing breast conserving therapy randomized to undergo ALND after SLND or no further axillary specific treatment. Locoregional recurrence was evaluated and compared.

RESULTS: Four hundred forty six patients were randomized to SLND alone and 445 to completion ALND. The two groups were similar with respect to age, Bloom-Richardson score, ER status, adjuvant systemic therapy, histology, and tumor size. Patients randomized to ALND had a median of 17 axillary nodes removed compared to a median of only 2 SLNs removed with SLND alone ($P < 0.001$). ALND also removed more positive lymph nodes ($P < 0.001$). At a median follow-up of 9.25 years, there was no statistically significant difference in locoregional recurrence ($P = 0.13$). There were only two nodal recurrences in the ALND arm (0.5%) and only five in the SLND alone arm ($P = 0.27$). Ten year local and regional recurrence free survival was 93.2% for the ALND arm and 94.1% for the SLND alone arm ($P = 0.36$).

CONCLUSION: Despite the potential for residual axillary disease after SLND, SLND without ALND offers excellent regional control for selected patients with early metastatic breast cancer treated with breast-conserving therapy and adjuvant systemic therapy.

2

Reversal of Growth Arrest with the Combined Administration of Oxandrolone and Propranolol in Severely Burned Children

David N. Herndon, Charles Voigt*, Karel Capek*, Paul Wurzer*, Ashley Guillory*, Andrea Kline*, Clark Andersen*, Linda Sousse*, Oscar E. Suman*, Celeste C. Finnerty*

University of Texas Medical Branch, Galveston, TX

OBJECTIVE(S): In children with massive burn injuries, the hypercatabolic response is mediated by increased production of catecholamines and corticosteroids, coupled with decreased production of testosterone, resulting in decreased strength and growth arrest for up to two years post injury. We previously showed that administration of the β_1 , β_2 adrenoreceptor blocking agent propranolol (4 mg/kg/day for one year) decreased cardiac work and resting energy expenditure while increasing peripheral lean mass, and that the testosterone analog oxandrolone (0.1 mg/kg/day for one year) improved lean body mass accretion and bone mineral content. Here we determine whether the combined administration of oxandrolone and propranolol have added benefit.

METHODS: In this prospective, randomized, placebo-controlled study of 452 burned children with burns over $53 \pm 15\%$ of total body surface area, we compared the single use of these drugs to the combined use of oxandrolone and propranolol at the same doses for one year post burn.

RESULTS: The combined use of oxandrolone and propranolol conferred an additional benefit on growth; the combined treatment shortened the period of growth arrest by 69 days compared to control ($p = 0.03$), and increased the rate of stature increase when growth resumed by 1.3 cm/yr compared to controls ($p = 0.002$).

Growth Arrest and Growth Rate by Treatment Group

Treatment Group	Days of Growth Arrest	Growth Rate (cm/year)
Control	284 \pm 17	6.3 \pm 0.2
Oxandrolone	199 \pm 31	6.1 \pm 0.4
Propranolol	254 \pm 16	6.9 \pm 0.2
Oxandrolone + Propranolol	215 \pm 22*	7.6 \pm 0.3**

Tukey Adjusted p-value, Compared to Control: * $p = 0.03$; ** $p = 0.002$

CONCLUSIONS: These studies demonstrate that the combined use of oxandrolone and propranolol can attenuate burn induced growth arrest.

*By invitation

3

Chemoprevention of Colorectal Cancer: The Potential Role for and Function of Indole-3-Carbinol

Gregory D. Kennedy*, Carol Diaz-Diaz*,
Sean Ronnekleiv-Kelly*, Manabu Nukaya*,
Bruce A. Harms

University of Wisconsin, Madison, WI

OBJECTIVES: Exposure to polycyclic aromatic hydrocarbons (PAHs), such as benzo(a)pyrene (BZ), increases the risk for the development of colorectal cancer (CRC). We hypothesized that the receptor for BZ, the aryl hydrocarbon receptor (AHR), would function as an oncogene in the colon.

METHODS: Wild-type C57BL/6J (B16, N = 36) or B16 mice congenic for deletion of the AHR locus (AHR^{-/-}, N = 20) were maintained on chow or chow supplemented with Indole-3-carbinol (I3C) and exposed to a two-stage model of CRC. Tumor incidence, number and location were visually counted. Statistical analysis was performed using GraphPad Prism software (version 5, LaJolla, CA).

RESULTS: We found colorectal tumors in 100% of AHR^{-/-} and 68% of wild-type mice ($P < 0.05$). Mean tumor number was also significantly increased in AHR^{-/-} ($6 \text{ v } 3$, $P < 0.05$) while tumor distribution was similar in all mice. Figure 1 shows that 8% of mice treated with I3C supplemented diet had tumors present at the time of sacrifice compared to 83% of mice on regular chow diet ($P < 0.05$).

CONCLUSIONS: Our findings are consistent with the conclusion that AHR is a tumor suppressor gene in the large intestine. In support of this, we found the AHR agonist I3C prevents the development of colon tumors in an AHR-dependent fashion. This work supports the application of I3C as a chemopreventive agent for CRC in humans.

*By invitation

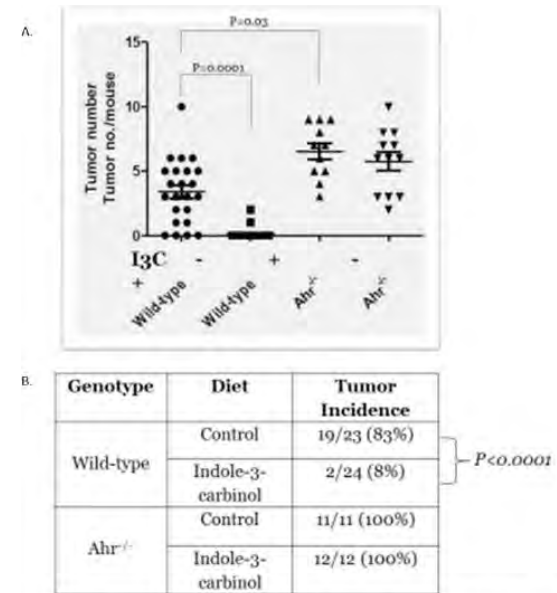


Figure 1. (A) Wild-type mice treated with I3C had significantly fewer colon tumors at the time of sacrifice which was dependent upon the presence of the AHR, significant reduction in the incidence of colon tumors.

4

Time for Change: Patients with Adhesive Small Bowel Obstruction Should Be Managed by a Primary Surgical Team

Christopher T. Aquina*, Christian P. Probst*, Adan Z. Becerra*, Bradley J. Hensley*, Zhaomin Xu*, James C. Iannuzzi*, Katia Noyes*, John R.T. Monson, **Fergal J. Fleming***

University of Rochester Medical Center, Rochester, NY

OBJECTIVE(S): Adhesive-small bowel obstruction (SBO) is associated with high healthcare utilization. Many patients are admitted to hospital-ists perhaps because most patients are managed non-operatively. However, outcome comparisons between primary medical and surgical services have been limited to single-institution studies. This study evaluates the impact of admission to primary medical versus surgical services on healthcare utilization and outcomes for adhesive-SBO using a population-based dataset.

METHODS: New York's Statewide Planning and Research Cooperative System was queried for unscheduled adhesive-SBO admissions from 2002–2013. Propensity-adjusted mixed-effects analyses assessed the association between primary service and healthcare utilization and outcomes for adhesive-SBO admissions.

RESULTS: Among 107,603 admissions (78% non-operative, 22% operative), 43% were admitted to medical services and 57% were admitted to surgical services. After controlling for patient, physician, and hospital-level factors, primary management by medical services was independently associated with a delay in time to surgical intervention, longer length of stay, greater inpatient costs, and higher 30-day mortality and readmission rates (Table). Using adjusted population attributable risk estimates, 1.3 million inpatient days and \$2.2 billion could be saved and 2,500 deaths and 30,000 readmissions avoided in the U.S. annually if all adhesive-SBO patients were admitted to surgical services.

*By invitation

Association Between Primary Service and Healthcare Utilization and Perioperative Outcomes for Adhesive Small Bowel Obstruction

Non-Operative Management					
	Length of Stay (IRR)	Total Cost (IRR)	30-Day Readmission (OR)		
Primary Service	Reference	Reference	Reference		
Surgical	1.39 (1.24, 1.56)	1.38 (1.21, 1.57)	1.39 (1.29, 1.50)		
Medical					
Operative Management					
	Days from Admission to Surgery (IRR)	Length of Stay (IRR)	Total Cost (IRR)	30-Day Mortality (OR)	30-Day Readmission (OR)
Primary Service	Reference	Reference	Reference	Reference	Reference
Surgical	1.84 (1.69, 2.01)	1.36 (1.25, 1.49)	1.38 (1.11, 1.71)	1.92 (1.50, 2.47)	1.13 (0.97, 1.32)
Medical					

IRR=incidence rate ratio, OR=odds ratio

CONCLUSIONS: Admission of patients with adhesive-SBO to medical teams is associated with higher healthcare costs and worse outcomes. Policies favoring primary admission to surgical services may greatly reduce costs and improve outcomes.

THURSDAY MORNING, APRIL 14th, CONTINUED

10:50 AM – 12:00 PM
Zurich ABCD

PRESIDENTIAL ADDRESS
“Engines of Discovery and Innovation”

Introduction of the President

Mark A. Malangoni, M.D.

Address by the President

James S. Economou, M.D., Ph.D.

THURSDAY AFTERNOON, APRIL 14th

1:30 PM – 5:15 PM
Zurich ABCD

SCIENTIFIC SESSION II

Moderator: Keith D. Lillemoe, M.D.

5

Leaning to the Left – Increasing the Donor Pool by Using the Left Lobe, Outcomes of the Largest Single Center Western Experience of Left Lobe Adult Living Donor Liver Transplantation (LDLT)

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¹*Weill Cornell Medical College, New York, NY;*

²*Columbia University Medical Center, New York, NY*

OBJECTIVE: Centers offering adult-LDLT mostly use right lobe grafts (RLG) due to fears of providing recipients with insufficient hepatic volume, and the technical challenges presented by using left lobe grafts (LLG). LLGs therefore represent <5% of adult-LDLTs performed in the US. Here we present the largest western experience with the use of LLG for adult-LDLT.

METHODS: Analysis of a single center prospective database of LDLTs performed from 1998–2015.

RESULTS: 214 adult-LDLTs were performed during the study period. 56 patients (26%) received LLG. Table 1 compares the outcomes of LLG versus RLG recipients. LLG recipients were more likely to be women, had significantly lower BMI, graft-weight and graft-weight-recipient-weight

*By invitation

ratios. There were no significant differences in vascular or biliary complications, or in patient or graft survival at 1, 3 and 5-years ($p = 0.747$ and $p = 0.398$ respectively). The significantly increased risk of small-for-size-syndrome observed in LLG recipients did not increase the risk of re-transplant within 90-days or perioperative mortality in LLG recipients ($p = 0.308$ & $p = 0.932$ respectively). Graft type did not predict patient or graft outcomes on regression analysis ($p = 0.857$ & 0.399 respectively).

Table 1: Comparison of Demographics & Outcomes Between LLG & RLG Recipients

	Left Lobe Graft (LLG) 26% (n = 56)	Right Lobe Graft (RLG) 74% (n = 158)	p-Value
Demographics			
Mean Age	50.4 ± 16.2 yrs	52.3 ± 10.3 yrs	0.859
Gender (% Male)	42.9% (n = 24)	59.5% (n = 94)	0.031*
Median BMI (IQR)	23 (IQR 21–27)	27 (IQR 24–30)	0.002*
Median MELD (IQR)	13 (IQR 10–17)	15 (IQR 12–20)	0.09
Diagnosis of HCV	44.6% (n = 25)	50.6% (n = 80)	0.467
Graft Characteristics			
Median Graft Weight (IQR)	484 g (438–550)	805 g (702–950)	<0.001*
Median GWRW ratio (IQR)	0.79 (0.63–0.93)	1.03 (0.88–1.21)	<0.001*
Complications			
Hepatic Artery Thrombosis	5.4% (n = 3)	2.4% (n = 4)	0.307
Portal Vein Thrombosis	3.6% (n = 2)	3.8% (n = 6)	0.939
Bile Leak	33.9% (n = 19)	29.7% (n = 47)	0.560
Biliary Stricture	32.1% (n = 18)	35.4% (n = 56)	0.655
Small for Size Syndrome	5.4% (n = 3)	0% (n = 0)	0.003*
Re-Transplant within 90 days	7.1% (n = 4)	3.8% (n = 6)	0.308

	Left Lobe Graft (LLG) 26% (n = 56)	Right Lobe Graft (RLG) 74% (n = 158)	p-Value
Survival			
90 Day Mortality	5.4% (n = 3)	5.1% (n = 8)	0.932
Patient Survival at 1,3,5 years	89%, 79%, 76%	89%, 84%, 78%	0.747
Graft Survival at 1,3,5 years	82%, 72%, 72%	85%, 81%, 73%	0.398

Abbreviations: BMI: Body Mass Index, IQR: Interquartile Range, MELD: Model of End Stage Liver Disease GWRW ratio: Graft-Weight-Recipient-Weight Ratio

CONCLUSIONS: Despite smaller graft sizes, outcomes of adult-LDLT using LLG are comparable to RLG transplants. Achieving comparable outcomes with a lesser donor hepatectomy may increase the acceptance of LDLT in North America and Europe, and greatly increase the donor pool in an era of severe organ shortages.

6

Locally Advanced Pancreatic Cancer: Neoadjuvant Therapy with Folfirinox Results in Resectability in 2/3 of the Patients

Thilo Hackert*, Milena Sachsenmaier*, Ulf Hinz*,
Schneider Lutz*, Christoph Michalski*, Christoph Springfield*,
Oliver Strobel*, Dirk Jäger*, Alexis Ulrich*, Markus W. Buechler
University Hospital Heidelberg, Heidelberg, Germany

OBJECTIVE: For patients with locally advanced and unresectable pancreatic cancer, neoadjuvant treatment and consecutive surgical exploration has been studied during the last decade. To date a wide variety of neoadjuvant therapies including chemotherapy and combinations with radiation are used. Aim of the study was the evaluation of neoadjuvant therapy with a focus on FOLFIRINOX.

METHODS: In a prospective study, all consecutive patients undergoing surgery for pancreatic cancer after neoadjuvant treatment were analysed including clinico-pathological characteristics, secondary resections rates and outcome. Patients receiving FOLFIRINOX were compared to other treatment regimens.

RESULTS: Between 12/2001 and 06/2015, 582 patients with locally advanced pancreatic cancer received neoadjuvant treatment and were scheduled for resection after re-staging. A successful resection was achieved in 291 patients (50%). Resection rates following FOLFIRINOX were 63.3% (74/117 pat.) and 46.7% (217/465 pat.) after other treatments. Median overall survival was 16.5 m after resection vs. 8.9 m after exploration alone ($p < 0.0001$). Patients resected after FOLFIRINOX had a better long-term outcome than those receiving other regimens (median survival of 24.7 m vs. 16.5 m and 42.5% vs. 23.0% 3-year survival ($p = 0.628$)).

CONCLUSIONS: FOLFIRINOX is a valuable treatment option in the neoadjuvant therapy of pancreatic cancer. From the present data, which represent the largest available study population to date, FOLFIRINOX seems to be the most effective protocol resulting in a significantly higher secondary resection rate than other treatments and a better long-term survival. It should be considered in all patients fit for this regimen and consecutive surgical exploration.

*By invitation

7

First Report from the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP): Surgical Techniques and Outcomes of 191,909 Laparoscopic Sleeve Gastrectomies

Elizabeth R. Berger*¹, Ronald H. Clements*², John M. Morton*³,
Kristopher Huffman*⁴, Bruce M. Wolfe⁵, Ninh T. Nguyen⁶,
Clifford Y. Ko⁷, Matthew M. Hutter*⁸

¹Loyola University Chicago Stritch School of Medicine, Chicago, IL; ²Vanderbilt University Medical Center, Nashville, TN; ³Stanford University Medical Center, Stanford, CA; ⁴American College of Surgeons, Chicago, IL; ⁵Oregon Health and Science University, Portland, OR; ⁶University of California, Irvine School of Medicine, Irvine, CA; ⁷University of California Los Angeles David Geffen School of Medicine, Los Angeles, CA; ⁸Massachusetts General Hospital, Boston, MA

OBJECTIVE(S): Laparoscopic sleeve gastrectomy (LSG) is the most commonly performed bariatric procedure. The MBSAQIP collects clinically-rich, bariatric-specific data nationwide. Starting in 2011, variables were added to assess procedural-specific technical variation in LSG including the use of staple line reinforcement (SLR) vs. oversewing vs. stapling alone, bougie size (BS), and stapling distance from the pylorus (DP). This is the first report from the MBSAQIP and the first study comparing surgical techniques with outcomes for LSG using nationwide, bariatric-specific data.

METHODS: Univariate analyses and hierarchical logistical regression models were developed to analyze outcomes for techniques of LSG performed at MBSAQIP accredited centers.

RESULTS: There were 191,909 LSG operations performed at 721 centers from 2011–2014. Bleed rates were significantly lower with SLR ± oversewing compared to stapling alone or oversewing. However, leak rates were significantly higher with SLR ± oversewing. Compared to patients who developed bleeding, patients who developed a leak had 57% higher risk of 30-day readmission ($p < 0.001$) and 31% higher risk of 30-day reoperation ($p < 0.001$). BS had no impact on bleed rates but a BS 34–38 French had significantly higher leak rates. DP had no significant associations with outcomes.

*By invitation

Laparoscopic Sleeve Gastrectomy Surgical Techniques

Surgical Technique	Outcomes						
	Complications 30-day		Leak 30-day		Bleed 30-day		
	Rate	Odds Ratio	Rate	Odds Ratio	Rate	Odds Ratio	
Staple-Line Reinforcement							
Neither	22%	4.50%	1.0 (ref)	0.66%	1.0 (ref)	1.00%	1.0 (ref)
Reinforcement	48%	4.34%	1.02 (0.96-1.08)	0.97%	1.50 (1.31-1.72)	0.76%	0.76 (0.69-0.88)
Oversew	11%	4.66%	1.02 (0.95-1.10)	0.58%	0.86 (0.69-1.06)	0.98%	0.92 (0.83-1.16)
Both	19%	4.07%	1.00 (0.93-1.07)	1.22%	1.77 (1.52-2.06)	0.68%	0.68 (0.58-0.70)
	n=191,909	4.36%		0.91%		0.82%	
Bougie Size (French)							
32-33	11%	4.14%	0.88 (0.81-0.96)	0.50% (0.42-0.66)	0.53 (0.42-0.66)	0.79%	0.99 (0.82-1.20)
34-35	26%	4.25%	1.0 (ref)	1.00%	1.0 (ref)	0.82%	1.0 (ref)
36-37	25%	4.47%	1.06 (0.99-1.13)	1.14%	1.17 (1.03-1.33)	0.89%	1.07 (0.93-1.23)
38-39	13%	4.41%	0.97 (0.89-1.04)	0.80%	0.81 (0.68-0.96)	0.78%	0.98 (0.82-1.17)
40-41	21%	4.36%	0.96 (0.90-1.03)	0.84%	0.84 (0.73-0.98)	0.76%	0.96 (0.82-1.12)
>=42	4%	4.24%	0.85 (0.75-0.97)	0.56%	0.49 (0.37-0.69)	0.75%	0.87 (0.64-1.19)
	n=177,194	4.34%		0.90%		0.90%	
Distance from the Pylorus (cm)							
<4	11%	4.71%	1.0 (ref)	1.00%	1.0 (ref)	0.78%	1.0 (ref)
4-5	25%	4.89%	1.05 (0.97-1.14)	0.89%	0.92 (0.75-1.04)	0.91%	1.21 (0.99-1.46)
5-6	35%	4.51%	0.96 (0.89-1.03)	0.88%	0.88 (0.75-1.04)	0.71%	0.93 (0.77-1.12)
>=6	29%	4.72%	0.99 (0.91-1.07)	0.83%	0.82 (0.69-1.01)	0.84%	1.10 (0.91-1.33)
	n=174,726	4.69%		0.88%		0.80%	

**With adjustment for Center Volume

CONCLUSIONS: LSG is a safe procedure with postoperative leaks being significantly more morbid than bleeding. Higher leak rates are associated with SLR ± oversewing and a BS 34-38 French. National surgical registries can be powerful tools to assess process measures and the safety and effectiveness of surgical techniques.

8

CT Utilization for the Diagnosis of Pediatric Acute Appendicitis Decreases with a Diagnostic Algorithm

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OBJECTIVE(S): The primary objective of this study was to decrease CT utilization for the diagnosis of appendicitis in an academic children's hospital emergency department (ED) through a multidisciplinary quality improvement initiative.

METHODS: A retrospective review was conducted of patients diagnosed with appendicitis in our ED from 1/1/2011–2/28/2014 to establish a baseline cohort. From 8/1/2014–7/31/2015 a newly designed diagnostic algorithm was used in our ED and patients were prospectively followed. Any patient discharged from the ED received a follow-up phone call. Patients treated for appendicitis before and after pathway implementation were compared. Additionally, any patient evaluated for appendicitis after implementation was analyzed based on algorithm adherence. Group differences were analyzed using ANOVA, Wilcoxon Rank Sum, Chi-square, and Fisher's Exact tests.

RESULTS: Of 840 patients seen after implementation of the diagnostic algorithm, 267 were diagnosed with appendicitis. After implementation CT utilization decreased from 75.4% to 24.2% ($p < 0.0001$) in patients with appendicitis (Table 1). CT utilization was 27.3% after implementation, regardless of ultimate diagnosis or algorithm adherence (Table 2). The diagnostic pathway had a sensitivity of 98.6% and specificity of 94.4%.

CONCLUSIONS: Implementation of a diagnostic algorithm for pediatric appendicitis significantly decreases CT utilization, while maintaining a high sensitivity and specificity.

*By invitation

Table 1: Comparison of Patients with Appendicitis Before and After Diagnostic Algorithm Implementation

	Prior to Diagnostic Algorithm (N = 557)	After Diagnostic Algorithm (N = 267)	p Value
Age (years)	10.4	10.2	0.41
Gender (% female)	40.2%	37.5%	0.45
BMI	20.1	20.0	0.90
CT ordered (%)	75.4%	24.2%	<0.0001
Ultrasound prior to CT order (%)	24.4%	95.3%	<0.0001
Surgical consult prior to CT order (%)	14.7%	76.1%	<0.0001
Operative intervention without imaging (%)	1.8%	9.9%	<0.0001
Negative appendectomy rate (%)	5.6%	8.7%	0.09
Time spent in ED (hours)	6.2	5.8	0.06

Table 2: Comparison of All Patients Evaluated for Appendicitis Based on Diagnostic Algorithm Adherence

	Patients in Whom the Diagnostic Algorithm Was Followed (N = 421)	Patients Not on the Diagnostic Algorithm or Had Significant Variation from the Algorithm (N = 419)	All Patients Evaluated for Appendicitis After Implementation of the Diagnostic Algorithm (N = 840)	P Value
Age (years)	10.1	9.6	9.8	0.06
Gender (% female)	54.9%	51.8%	53.3%	0.37
BMI	20.3	19.8	20.0	0.49

(continued)

	Patients in Whom the Diagnostic Algorithm Was Followed (N = 421)	Patients Not on the Diagnostic Algorithm or Had Significant Variation from the Algorithm (N = 419)	All Patients Evaluated for Appendicitis After Implementation of the Diagnostic Algorithm (N = 840)	P Value
Ultrasound ordered (%)	85.5%	96.4%	91.0%	<0.0001
CT ordered (%)	28.4%	26.3%	27.3%	0.51
Ultrasound prior to CT order (%)	97.4%	90.1%	93.9%	0.02
Operative intervention without any imaging (%)	15.9%	1.8%	9.9%	0.0001
Missed appen- dicitis rate (%)	1.1%	3.9%	2.6%	0.11
Time spent in ED (hours)	5.9	5.9	5.9	1

9

Should Elective Resection Follow Nonoperative Management of First Episode of Acute Diverticulitis of the Colon with Abscess/Extraluminal Air? An RCT

Ryan Bendl*, Karen You*, Simona Giuratrabocchetta*, Ryan Sullivan*, Paula I. Denoya*, Marlene Zawin, John Ferretti, Asher Baer, William Wertheim, Roberto Bergamaschi

State University of New York, Stony Brook, Stony Brook, NY

OBJECTIVE(S): An RCT was conducted to test the null hypothesis that there is no difference between observation and elective resection following nonoperative management of first episode of acute diverticulitis of the colon with extraluminal air/abscess for recurrence rates at follow-up.

METHODS: This was a single-center RCT registered at clinicaltrials.gov: NCT1986686. Eligible patients were randomized to observation or resection following nonoperative management, defined as NPO, IV antibiotics, drainage, and total parenteral nutrition followed by colonoscopy. Randomization was carried out according to the CONSORT guidelines. The primary endpoint was recurrent diverticulitis defined as an acute episode confirmed at CT, requiring hospitalization with IV antibiotics. Patients with immunosuppression, peritonitis, or history of prior diverticulitis of the colon were not included. A sample of 75 patients with an intended 2:1 ratio was required assuming a 5% alpha level, 80% power, and a 20% estimated loss to follow-up.

RESULTS: Of 137 screened, 126 eligible patients underwent the allocated intervention after nonoperative management. 8% of patients were lost to a follow-up of 16 (12–48) months. 77 observation patients were comparable to 39 resected patients for age, gender, BMI, CR-POSSUM, and comorbidities. Recurrence rates after observation and resection differed; 29.8% vs. 10%, $p = 0.03$; Kaplan-Meier log rank $p = 0.07$. Diverticulitis recurred in 27 patients with no instance of peritonitis.

CONCLUSIONS: Observation following nonoperative management was associated with increased recurrence rates at follow-up as compared to elective resection.

*By invitation

10**Grading of Surgeon Technical Performance Predicts Post-Operative Pancreatic Fistula for the Pancreaticoduodenectomy Independent of Patient Related Variables**

Melissa E. Hogg^{*1}, Mazen Zenati^{*1}, Stephanie Novak^{*1}, Yong Chen^{*2}, Yan Jun^{*3}, Jennifer Steve^{*1}, Stacy Kowalsky^{*1}, David L. Bartlett¹, Amer Zureikat^{*1}, Herbert Zeh, III¹

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BACKGROUND: Pancreatic fistula (POPF) majorly contributes to pancreaticoduodenectomy morbidity. Braga and Callery scores, derived from patient variables, are validated for predicting POPF. Birkmeyer showed assessment of surgical proficiency is an important component of outcomes. We hypothesized that video grading of surgical performance would contribute to estimating risk of POPF following pancreaticoduodenectomy.

METHODS: POPF were diagnosed using ISGPF. Technical performance of robotic pancreaticojejunostomy (Blumgart duct-to-mucosa) video was graded by two blinded surgeons using: 1) subjective prediction of POPF, 2) pancreaticojejunostomy step-by-step variables (PJV; max = 115), and 3) scoring used by Birkmeyer (OSATS).

RESULTS: 133 pancreaticojejunostomies were analyzed (139.5 video hours). POPF was 18%. Higher Braga (p = 0.041) and Callery (p = 0.011) scores predicted POPF. Graders' subjective prediction did not correlate with Braga/Callery scores. PJV and OSATS scores highly correlated (p < 0.0001). Grader 1 scores (p = 0.043), but not grader 2 (p = 0.44), predicted POPF. PJV scores >105 were predictive of POPF (p = 0.039). Scoring only PJV duct-to-mucosa stitches (max = 50) was highly predictive of POPF (p = 0.0053). Higher OSATS scores were associated with decreased rate of POPF (p = 0.022). On multivariate analysis, adding technical scoring to significant patient variables (BMI, texture, and duct size) improves the model and can independently predict POPF. The strongest predictive model for POPF consisted of soft gland (Odds = 18.28 [95% = 2.19–152.57]) and low OSATS (Odds = 0.82 [95% = 0.70–0.96]). OSATS, modeled with Braga or Callery scores, independently predicted PF.

CONCLUSION: This is the first study to demonstrate that technical scoring of a surgeon's performance independently predicts patient outcomes in pancreatic surgery. Future studies should consider how to incorporate this metric.

*By invitation

11**Defining Benchmarks for Major Liver Surgery – A Multicenter Analysis of 5202 Living Liver Donors**

Fabian Rössler^{*1}, Gonzalo Sapisochin^{*2}, GiWon Song^{*3}, Yu-Hung Lin^{*4}, Mary Anne Simpson^{*5}, Kiyoshi Hasegawa^{*6}, Andrea Laurenzi^{*7}, Santiago Sanchez Cabús^{*8}, Milton Inostroza Nunez^{*9}, Andrea Gatti^{*10}, Magali Chahdi Beltrame^{*11}, Ksenija Slankamenac^{*1}, Paul Greig^{*2}, Sung-Gyu Lee^{*3}, Chao-Long Chen^{*4}, David Grant², Elisabeth A. Pomfret^{*5}, Norihiro Kokudo^{*6}, Daniel Cherqui⁷, Kim Olthoff^{*2}, Avi Shaked^{*12}, Juan Carlos García-Valdecasas^{*8}, Jan Lerut^{*9}, Roberto Troisi^{*10}, Martin De Santibanes^{*11}, Milo Puhan^{*13}, Henrik Petrowsky^{*1}, Pierre-Alain Clavien^{*1}

¹Swiss HPB Center Zurich, Department of Surgery, University Hospital Zurich, Zurich, Switzerland; ²Department of Surgery, Toronto General Hospital, Toronto, ON, Canada; ³Department of Surgery, University of Ulsan College of Medicine, Seoul, Korea, Republic of; ⁴Department of Surgery, Chang Gung Memorial Hospital, Kaohsiung Medical Center, Kaohsiung, Taiwan; ⁵Department of Transplantation, Lahey Hospital and Medical Center, Burlington, MA; ⁶Artificial Organ and Transplantation Division and Hepato-Biliary-Pancreatic Surgery, University of Tokyo, Tokyo, Japan; ⁷The Hepatobiliary Center, Department of Surgery, Paul Brousse Hospital, University Paris Sud, Villejuif, France; ⁸Department of Surgery, Hospital Clinic de Barcelona, Barcelona, Spain; ⁹Department of Abdominal and Transplantation Surgery, University Hospitals Saint Luc, Brussels, Belgium; ¹⁰Department of General Hepatobiliary and Liver Transplantation Surgery, Ghent University Hospital and Medical School, Ghent, Belgium; ¹¹Department of Surgery, Division of HPB Surgery, Liver Transplant Unit, Italian Hospital Buenos Aires, Buenos Aires, Argentina; ¹²Department of Liver Transplant and Hepatobiliary Surgery, University of Pennsylvania Health System, Philadelphia, PA; ¹³Department of Epidemiology, Institute for Social and Preventive Medicine, University of Zurich, Zurich, Switzerland

OBJECTIVE(S): To measure and define best achievable outcome following major hepatectomy.

*By invitation

BACKGROUND: Analysis in living liver donors, in whom minimizing complications has highest priority, offers the opportunity to define outcome benchmarks as the best possible results.

METHODS: Outcome analyses of 5202 consecutive anatomic right (n = 4206) and left (n = 996) hemihepatectomies from 12 high-volume centers worldwide were performed over a 10-year period. Endpoints included intra and up to 6 m postoperative parameters including Clavien-Dindo classification and the comprehensive complication index (CCI) measuring the overall morbidity from zero (uneventful) to 100 (death).

RESULTS: Patients were young (34 ± 9 yrs), preferentially male (65%) and healthy. Surgery lasted 7 ± 2 hr, 2% needed blood transfusion. ICU was offered to 28% of patients. Mean hospital stay was 11.7 ± 5 days with a readmission rate of 2.5%. 10% of patients developed at least one complication, of which 3% were major events (grade 3–5 including one death), mostly related to biliary/bleeding events. Meta-analysis from the 12 centers showed a homogeneous CCI of 22 (95% CI: 20–24) in patients developing at least one complication and 28 (27–30) in those developing at least one grade II complication. Minor adverse events were comparable between right and left hemihepatectomies, but major (\geq grade 3) complications were twice as high in the right hepatectomy group.

CONCLUSIONS: The thorough outcome analysis including CCIs of healthy living donor may serve as reference for evaluating surgical results in patients with benign and malignant liver tumors. This allows for Benchmarking the performance across centers and different patient populations.

12

Professionalism Among Surgical Residents: Documenting the Advantages of a Professionalism Curriculum

Mark S. Hochberg*, Russell S. Berman*, Adina Kalet*, Sandra R. Zabar*, H. Leon Pachter

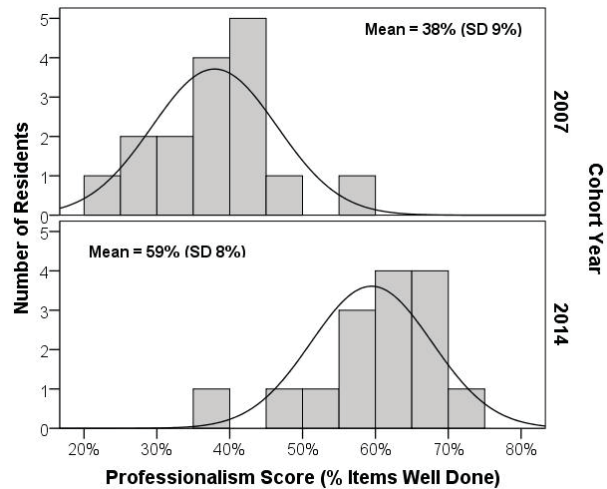
New York University Medical Center, New York, NY

OBJECTIVES: Professionalism education is a vital component of surgical training. This research attempts to determine if an annual, yearlong professionalism curriculum in a large surgical residency can effectively change professionalism attitudes.

METHODS: A six station Objective Structured Clinical Examination (OSCE) was developed focusing on specific resident professionalism challenges: delivering news of an unexpected death, explaining a health proxy, explaining a medical error, effective patient handoff, identifying an impaired colleague, and correct use of an interpreter. Identical OSCE scenarios were administered to two cohorts of surgical residents: in 2007 (prior to instituting the professionalism curriculum in 2008) and again in 2014. Surgical residents were rated by standardized patients according to a strict professionalism criteria checklist.

RESULTS: An ANOVA was conducted with overall professionalism score (% well done) as the dependent variable for the two resident cohorts (2007 vs. 2014). The cohort main effect was significant ($F = 49.01$, $p < .001$) with the 2007 residents receiving a mean score of 38% of professionalism items “well done” (SD 9%) and 2014 residents receiving a mean 59% “well done” (SD 8%).

*By invitation



CONCLUSIONS: Professionalism education has improved surgical resident understanding, awareness and practice of professionalism in a statistically significant manner from 2007 to 2014. This documented improvement in OSCE performance reflects the value of a professionalism curriculum and the heightened understanding of these skills for the patients we seek to serve.

13

Per-Oral Esophageal Myotomy (POEM) After the Learning Curve: Durable Results and a Low Complication Rate

Eric S. Hungness*, Joel M. Sternbach*, Ezra N. Teitelbaum*, Rym El Khoury*, Peter J. Kahrilas*, John E. Pandolfino*, Nathaniel J. Soper

Northwestern University, Feinberg School of Medicine, Chicago, IL

OBJECTIVE(S): POEM has become an established, natural-orifice approach for treating esophageal motility disorders (EMDs). To date, published outcomes and comparative-effectiveness studies have included patients from the early POEM experience. We aimed to report long-term outcomes after the learning curve.

METHODS: Patients undergoing POEM after the initial 15 cases and a minimum of one-year post-op were included. Treatment success was defined as an Eckardt score ≤ 3 and freedom from reintervention. Positive pH-testing or reflux esophagitis > LA grade A constituted objective evidence of gastro-esophageal reflux (GER).

RESULTS: Between January 2012 and November 2014, 95 patients underwent POEM at a single, high-volume center. Operative time was significantly shorter after the learning curve (102 vs 123 minutes, $p = 0.02$). Length of stay was one day for 89/95 patients. One patient underwent repeat endoscopy to rule out submucosal hematoma. Three patients were readmitted for spastic or reflux-associated chest pain and one for non-POEM related sigmoid volvulus. At an average of 2.5 years post-POEM (range 12–47 months), the overall success rate was 92%. Objective evidence of GER was present in 37% of patients, with pre-operative hiatal hernia the only significant predictor.

*By invitation

POEM Outcomes After the Learning Curve

*p < 0.001 vs pre-POEM	Type I (n = 23)	Type II (n = 47)	Spastic/ Contractile (n = 25)	Total (n = 95)
Mean Age (years), Male (#)	49.1, 14 (61%)	50.5, 32 (68%)	60.2, 10 (40%)	52.7, 56 (59%)
Symptom Duration (years), Prior Treatment (#)	5.3, 9 (39%)	2.8, 9 (19%)	3.2, 11 (44%)	3.5, 29 (31%)
Mean Eckardt Score (Pre/Post-POEM)	7.5/1.2*	6.9/0.8*	5.7/1.4*	6.8/1.1*
Symptomatic Relief	95% (21/22)	96% (44/46)	84% (21/25)	92% (86/93)
Pre-POEM Integrated Relaxation Pressure (mmHg)	27.4	34.0	28.5	30.9
Post-POEM Integrated Relaxation Pressure (mmHg)	11.8* (n = 12)	12.1* (n = 26)	13.5* (n = 14)	12.4*
Pre-POEM 5 min TBE height (cm)	10.6	14.0	11.5	12.6
Post-POEM 5 min TBE height (cm)	6.3 (n = 11)	3.3* (n = 25)	3.2* (n = 14)	3.9*
Objective Evidence of Reflux	36% (5/14)	36% (9/25)	40% (6/15)	37% (20/54)

CONCLUSIONS: After the learning curve, POEM provided durable symptomatic relief in 95% of patients with non-spastic and 84% of patients with spastic/contractile EMDs, with a low rate of complications. Slightly more than one-third of patients had objective evidence of GER.

FRIDAY MORNING, APRIL 15th

7:00 AM – 8:00 AM

**ASA WOMEN IN SURGERY BREAKFAST
Zurich E**

**8:00 AM – 10:30 AM
Zurich ABCD**

SCIENTIFIC SESSION III

Moderator: James S. Economou, M.D., Ph.D.

14

Glucose Control in Severely Burned Patients Using Metformin – An Interim Safety and Efficacy Analysis of a Phase II RCT

Marc G. Jeschke, Marjorie Burnett*, Abdikarim Abdullahi*, Sarah Rehou*, Mile Stanojovic*

University of Toronto, Toronto, ON, Canada

OBJECTIVE: Insulin administration improves clinical outcomes after burn, but also causes a 4-5 fold increase in hypoglycemia, which is associated with a 9-fold increase in mortality. We hypothesized that metformin can achieve glucose control no worse than insulin (non-inferiority) without the danger of hypoglycemia (superiority), plus has effects on lipolysis and inflammation that will enhance burn recovery (superiority).

METHODS: Burned adult patients with burns over 20% TBSA burn were prospectively randomized in this Phase II clinical trial to either metformin or insulin (standard of care) treatment. Primary outcome was glucose levels and incidence of hypoglycemia. Secondary outcomes included glucose and fat metabolism, and clinical outcomes.

*By invitation

RESULTS: Thirty-one patients were enrolled in this trial, 14 metformin and 17 insulin patients. Demographics, injury characteristics, and mortality were comparable between both groups. Metformin controlled blood glucose as equally as insulin with no difference between the two treatment groups, $P > 0.05$. While there was a 16% incidence of hypoglycemia in the insulin group, there was only one hypoglycemic episode (2%) in the metformin group, $P < 0.05$. Oral glucose tolerance tests at discharge revealed that metformin significantly improved insulin sensitivity, $P < 0.05$. Metformin furthermore had a strong anti-inflammatory and anti-lipolytic effect after burn injury when compared to insulin, $P < 0.05$ associated with significantly reduced hypermetabolism, $P < 0.05$.

CONCLUSIONS: Metformin decreases glucose as equally effective as insulin without causing hypoglycemia, while metformin further improves insulin resistance when compared to insulin. These results strongly support the use of metformin in severely burned patients for post-burn control of hyperglycemia and insulin resistance.

15

No Need for Routine Drainage After Pancreatoduodenectomy: The Dual Center Randomized Controlled PANDRA-Trial (ISRCTN04937707)

Helmut Witzigmann*¹, Markus K. Diener*², Stefan Kissenkötter*¹, Inga Rossion*³, Thomas Bruckner*⁴, Bärbel Werner*¹, Olaf Priddöhl*¹, Olga Radulova-Mauersberger*¹, Phillip Knebel*², Oliver Strobel*², Thilo Hackert*², **Markus W. Buechler**²

¹Department of General-, Visceral- and Thoracic Surgery, Städtisches Krankenhaus Dresden-Friedrichstadt, Dresden, Germany; ²Department of General-, Visceral- and Transplantation Surgery, University of Heidelberg, Heidelberg, Germany; ³Study Center of the German Surgical Society (SDGC), University of Heidelberg, Heidelberg, Germany; ⁴Institute of Medical Biometry and Informatics, University of Heidelberg, Heidelberg, Germany

OBJECTIVE: There is considerable uncertainty regarding intraabdominal drainage after pancreatoduodenectomy (Conlon 2001, VanBuren 2014). This randomized controlled, dual center (Heidelberg and Dresden), non-inferiority trial aimed to proof that omission of drains does not increase reintervention rate after pancreatic head resection.

METHODS: Patients with pancreatic head tumors were randomized to intraabdominal drainage versus no-drain. Primary endpoint was overall reintervention rate (relaparotomy or radiologic intervention). Secondary endpoints were clinically relevant pancreatic fistulas (grade B/C), mortality, morbidity (bile leaks, delayed gastric emptying, wound infection, etc.) and hospital stay. Planned sample size was 188 patients per group, (assumed reintervention rate 12.5%; non-inferiority margin 8.5%). Analyses were done by intention to treat.

RESULTS: 438 patients were randomized and 42 patients (9.6%) were excluded as no pancreatic head resection was performed. 396 patients (205 drain, 191 no-drain) were analyzed. Overall in-hospital mortality (2.8%) was equal in both groups (drain 2.4%, no drain 3.1%; $p = 0.67$). Re-Intervention rates were significantly higher in the drainage group (drain 21.6%, no-drain 16.2%; $p < 0.01$). Overall surgical morbidity (41.7%) was comparable ($p = 0.75$). Pancreatic fistula rate (grade B/C only) was significantly reduced in the no-drain group (drain 11.9%, no-drain 5.8%; $p = 0.03$). Operation time ($p = 0.09$), postoperative bleeding ($p = 0.18$), intra-abdominal abscess formation ($p = 0.22$), burst abdomen ($p = 0.47$), wound infection ($p = 0.71$) and hospital stay ($p = 0.54$) did not show significant differences.

*By invitation

CONCLUSIONS: Omission of drains was superior in terms of post-operative reintervention and clinically relevant pancreatic fistula rates. Prophylactic drains cannot be recommended during routine pancreatic head resections.

16

Regionalization of Emergent Vascular Surgery for Patients with Ruptured AAA Improves Outcomes

Courtney J. Warner^{*1}, Sean P. Roddy^{*1}, Benjamin B. Chang^{*1}, Paul B. Kreienberg^{*1}, Yaron Sternbach^{*1}, John B. Taggart^{*1}, Kathleen J. Ozsvath^{*1}, Chin-Chin Yeh^{*1}, Steven C. Stain², R. Clement Darling¹

¹The Vascular Group, Albany, NY; ²Albany Medical Center, Albany, NY

OBJECTIVE: Safe and efficient EVAR for ruptured AAA (r-AAA) requires advanced infrastructure and surgical expertise not available at all US hospitals. The objective was to assess the impact of regionalizing r-AAA care to centers equipped for both open surgical repair (r-OSR) and EVAR (r-EVAR) by vascular surgeons.

METHODS: A retrospective review of all patients with r-AAA undergoing open or endovascular repair in a 12-hospital region. Patient demographics, transfer status, type of repair, and intraoperative variables were recorded. Outcomes included perioperative morbidity and mortality.

RESULTS: 451 patients with r-AAA were treated from 2002–2015. 321 (71%) presented initially to community hospitals (CH) and 130 (29%) presented to the tertiary medical center (MC). Of the 321 patients presenting to CH, 133 (41%) were treated locally (131 OSR; 2 EVAR) and 188 (59%) were transferred to the MC. In total 318 patients were treated at the MC (122 OSR; 196 EVAR). At the MC, r-EVAR was associated with a lower mortality rate compared to r-OSR (20% vs. 38%, $p = 0.001$). Transfer did not influence r-EVAR mortality (20% in r-EVAR presenting to MC vs. 20.1% in r-EVAR transferred, $p > 0.2$). Overall r-AAA mortality at the MC was 20% lower than CH (26% vs. 46%, $p < 0.001$).

CONCLUSIONS: Regionalization of r-AAA repair to centers equipped for both r-EVAR and r-OSR decreased mortality by 20%. Transfer did not impact the mortality of r-EVAR at the tertiary center. Care of r-AAA in the US should be centralized to centers equipped with available technology and vascular surgeons.

*By invitation

17

Time of Surgical Repair Impacts 30-days Postoperative Complications But Not Long Term Outcomes After Bile Duct Injury: Lessons from 600 cases

Ismael Dominguez-Rosado*¹, Miguel Angel Mercado², William G. Hawkins¹

¹Washington University in St. Louis, St. Louis, MO; ²Instituto Nacional de Ciencias Medicas y Nutricion Salvador Zubiran, Mexico, Mexico

OBJECTIVE: The impact of timing of repair on postoperative morbidity and long term outcomes after bile duct injury is unclear. We sought to determine the appropriate time for repair in order to minimize postoperative complications and long term anastomotic failures.

METHOD: A single institution prospective database was queried for all Strasberg E1 to E4 injuries during 1989–2014 using a standardized tabular reporting format. Repairs were stratified into three groups [immediate (<7 days), early (7 days until 6 weeks), and late (>6 weeks) after injury]. Basic NSQIP/procedure specific 30-days postoperative complications, and anastomotic failures were considered endpoint variables. Multivariate logistic stepwise regression was used for comparisons.

RESULTS: Mean age of the 614 included patients was 41; 77% female; and mean follow up of 40.5 months. Side to side hepatojejunostomy was performed in 90% of cases. Early repair was associated with a higher risk of 30-days postoperative complications after adjusting for ASA, previous repair attempts and preoperative sepsis [HR = 1.6, 95% CI (1.1–2.4), p = 0.02].

NSQIP-procedure specific 30-days postoperative complications and postoperative biliary stents are independent predictors of anastomotic failure after controlling for previous repair attempt, as shown in Table 1.

*By invitation

Table 1. Prognostic Variables of Long Term Anastomotic Failure Stratified by Previous Bile Duct Repair Attempt.

	No Previous Repair ^a (N=122)(%)	Anastomotic Failures (%)	Univariate p	Multivariate HR(95%CI)	p	Previous Repair ^a (N=238)(%)	Anastomotic Failures (%)	Univariate p	Multivariate HR(95%CI)	p
Postoperative Stents ^b										
Yes	62(16.9)	22(35.5)	0.004	3.3(1.9-5.6)	0.005	57(22.1)	28(49)	0.0001	4.2(2.0-7.6)	0.0002
No	260(79.3)	46(17.7)				260(72.5)	36(18)			
Hepatectomy ^c										
Yes	7(2.2)	4(57.1)	0.019	5.8(1.1-31)	0.039	7(2.8)	5(71.4)	0.009	NS	NS
No	307(97.8)	53(20.5)				246(97.2)	50(24)			
Repair										
Early (immediate/Late)	131(39.9)	36(19.8)	0.7	NS	NS	218(1)	5(73.8)	0.9	NS	NS
Cholecystectomy ^d	107(60.1)	42(21.3)				237(91.9)	50(24.9)			
Open	196(59.8)	35(17.9)	0.03	NS	NS	144(55.8)	18(26.4)	0.8	NS	NS
Lap	110(33.5)	24(21.8)				101(39.1)	24(23.6)			
Preoperative cholangitis ^e										
Yes	188(57.6)	42(27.2)	0.6	NS	NS	196(75.6)	49(25)	0.8	NS	NS
No	139(42.1)	26(18.6)				63(24.4)	13(23.6)			
Preoperative sepsis										
Yes	46(14)	16(34.8)	0.01	NS	NS	40(11.6)	6(20)	0.3	NS	NS
No	282(86)	52(18.4)				229(88.4)	50(25.4)			
ASA ^f										
I	93(29.5)	21(22.6)	0.06	NS	NS	64(25.4)	20(31.3)	0.001	NS	NS
II	160(51)	21(13.6)				138(54.8)	23(15.9)			
III	59(18.8)	18(30.5)				50(19.8)	20(40)			
IV	2(0.6)	1(50)				0	0			
NSQIP 30 days complications										
Yes	103(31.4)	34(33)	0.0001	3.0(1.6-5.5)	0.001	78(30)	26(33.3)	0.017	1.9(1.0-3.6)	0.017
No	225(68.6)	44(13)				180(69.8)	38(21.1)			
Strasberg										
E 1-2	238(71)	45(19.3)	0.3	NS	NS	187(72.5)	40(26.2)	0.8	NS	NS
E 3-4	69(29)	23(24.2)				71(27.5)	13(21)			

Missing values: ^a28; ^b7; ^c19; ^d20; ^e35; ^f1

CONCLUSIONS: Time of repair between 7 days and 6 weeks is associated with 30-days NSQIP/procedure specific postoperative complications but not long term anastomotic failures. Repair of injuries presenting in this time period should be delayed if feasible.

18

Is the Publicly Available ProPublica Surgeon Scorecard Valid? An Empirical Evaluation of Their Outcome Measure and Methods

Kristen A. Ban*¹, Mark E. Cohen*¹, Clifford Y. Ko², Mark W. Friedberg*³, Lynn Zhou*¹, Bruce L. Hall⁴, David B. Hoyt¹, Karl Y. Bilimoria*⁵

¹American College of Surgeons, Chicago, IL; ²University of California Los Angeles, Los Angeles, CA; ³RAND Corporation, Santa Monica, CA; ⁴Washington University in St Louis, St. Louis, MO; ⁵Northwestern University, Chicago, IL

OBJECTIVE(S): The ProPublica Surgeon Scorecard is the first nationwide, multispecialty public reporting of individual surgeon outcomes. However, many question ProPublica's previously undescribed outcome measure (composite of in-hospital Mortality and 30-Day Readmission) which excludes all inpatient complications. Our objective was to examine the validity of ProPublica's measure by (1) comparing performance on ProPublica's outcome measure to well-established postoperative outcome measures and (2) assessing the proportion of complications missed by ProPublica's exclusion of inpatient complications.

METHODS: Using ACS-NSQIP data (2011–2014) for ProPublica operations and all general surgery cases, risk-adjusted performance on the ProPublica measure was compared to established outcome measure performance (e.g., Death/Serious Morbidity, Mortality) using hierarchical regression models. In addition, the proportion of 30-day complications missed by ProPublica's measure was assessed by determining the proportion of complications which occur as an inpatient versus after discharge.

RESULTS: For all general surgery cases, the ProPublica adjusted complication measure correlated poorly with Death/Serious Morbidity (Pearson $r = 0.324$, $p < 0.001$), Mortality ($r = 0.163$, $p < 0.001$), Serious Morbidity ($r = 0.182$, $p < 0.001$), and SSI ($r = 0.210$, $p < 0.001$). ProPublica's complication measure correlated strongly with the Readmission measure ($r = 0.978$, $p < 0.001$). Results were similar when examining individual operations separately (laparoscopic cholecystectomy, prostatectomy, knee replacement). For all eight ProPublica operations, the ProPublica outcome measure missed, on average, the 87% of complications occurring during inpatient hospitalization (range: 57% missed for TURP to 90% missed for knee replacement).

CONCLUSIONS: As ProPublica's new complication measure correlates poorly with well-established postoperative outcomes and misses nearly 90% of postoperative complications, the validity of the ProPublica Surgeon Scorecard is suspect.

*By invitation

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A Highly Predictive Model for Diagnosis of Colorectal Neoplasms Using Plasma MicroRNA: Improving Specificity and Sensitivity

Jane V. Carter*¹, Jonathan Rice*¹, Henry Roberts*¹, Shesh N. Rai*¹, Ziad Kanaan*², Susan Galandiuk¹

¹University of Louisville, Louisville, KY; ²Wayne State University, Detroit, MI

OBJECTIVE(S): Develop a plasma-based microRNA (miRNA) diagnostic assay specific for colorectal neoplasms, building upon prior work (ASA–2012).

Colorectal neoplasms (colorectal cancer [CRC] and advanced adenoma [CAA]) frequently develop in individuals at ages when other common cancers also occur. Current screening methods lack sensitivity, specificity, and have poor patient compliance.

METHODS: Plasma was screened for 380 miRNAs using microfluidic array technology from a “training” cohort of 60 patients, (10 each) control, CRC, CAA, breast (BC), pancreatic (PC) and lung (LC) cancer (Table). We identified uniquely dysregulated miRNAs specific for colorectal neoplasia ($p < 0.05$, false discovery rate: 5%, adjusted $\alpha = 0.0038$). These miRNA were evaluated using single assays in a “test” cohort of 120 patients. A mathematical model was then developed to predict sample identity in a 150 patient blinded “validation” cohort using repeat-sub-sampling validation of the testing dataset with 1000 iterations each to assess model detection accuracy.

RESULTS: Seven miRNAs (miR-21, miR-29c, miR-122, miR-192, miR-346, miR-372, miR-374) were selected based upon p-value, AUC, fold-change, and biological plausibility. AUC for test cohort comparisons were 0.91, 0.79 and 0.98, respectively (Table). Our mathematical model predicted blinded sample identity with 69–77% accuracy in comparison #1, 66–74% accuracy in comparison #2, and 86–90% accuracy in comparison #3 (Table).

CONCLUSIONS: Our plasma miRNA assay and prediction model differentiates colorectal neoplasia from patients with other neoplasms and from controls with high sensitivity and specificity compared to current clinical standards. This appears promising for colorectal neoplasia identification.

*By invitation

Study Design and Accuracy of Diagnostic Model

Study Design	Test Cohort Comparison (n = 120)	Area Under the Curve (AUC) (95% CI) for Selected miRNAs in Test Cohort	Validation Cohort Comparison (n = 150)	Accuracy of Model to Predict Blinded Sample Identity in Validation Cohort
Training Cohort 380 miRNA assessed using microfluidic arrays n = 60 10 each Control, CRC, CAA, BC, PC, LC	#1: Any Neoplasia vs Control n = 100 vs 20	0.91 (0.85–0.96)	#1: Any Neoplasia vs Control n = 125 vs 25	69–77%
Test Cohort 7 miRNA dysregulated in CR neoplasia assessed using single miRNA assays n = 120 20 each Control, CRC, CAA, BC, PC, LC	#2: CRC Neoplasia vs Other Cancers n = 40 vs 60	0.79 (0.70–0.88)	#2: CRC Neoplasia vs Other Cancers n = 50 vs 75	66–74%
Validation Cohort 7 miRNA dysregulated in CR neoplasia assessed using single miRNA assays n = 150 25 each Control CRC, CAA, BC, PC, LC	#3: CRC vs CAA n = 20 vs 20	0.98 (0.96–1.0)	#3: CRC vs CAA n = 25 vs 25	86–90%

FRIDAY MORNING, APRIL 15th, CONTINUED

10:30 AM – 12:00 PM
Zurich ABCD

FORUM DISCUSSION

“Cancer Research in the 21st Century”

Moderator: James S. Economou, M.D., Ph.D.

“Molecular Diversity of Cancer: Biologic and
Therapeutic Implications”

Dennis J. Slamon, M.D., Ph.D.
UCLA, Los Angeles, CA

“Treating Cancer with the Immune System”

Antoni Ribas, M.D., Ph.D.
UCLA, Los Angeles, CA

“Molecular Imaging with PET in
Drug Discovery and Development”

Michael E. Phelps, Ph.D.
UCLA, Los Angeles, CA

FRIDAY AFTERNOON, APRIL 15th

1:30 PM – 4:00 PM
Zurich ABCD

SCIENTIFIC SESSION IV

Moderator: Mark A. Malangoni, M.D.

20

Is Non-Operative Management Warranted in Comorbid Patients with Ventral Hernias? A Prospective, Patient-Centered Study

Julie L. Holihan*, Blake E. Henchcliffe*, Jiandi Mo*, Juan R. Flores-Gonzalez*, Tien C. Ko*, Lillian S. Kao, Mike K. Liang*

University of Texas Health Science Center at Houston,
Houston, TX

OBJECTIVES: Non-operative management of ventral hernias (VHs) is often recommended for patients at increased risk of complications; however, the impact of this management strategy on outcome and quality of life (QoL) is unknown. We hypothesize that QoL is better among patients with VHs managed operatively.

METHODS: Patients with a VH from a single-center hernia clinic were prospectively enrolled between 6/2014 and 6/2015. Non-operative management was recommended if smoking, body mass index >33 kg/m², or poorly-controlled diabetes were present. Outcomes included surgical site infection (SSI), recurrence, and QoL measured using a validated, hernia-specific survey (modified Activities Assessment Scale) prior to surgeon consultation and at 6-months. Risk-adjusted outcomes between non-operative and operative groups were compared using: (1) paired t-test on a propensity score-matched subset and (2) multivariable analysis on the overall cohort.

RESULTS: 152 patients (non-operative = 97; operative = 55) were enrolled. In the propensity-matched cohort (n = 90), both groups had similar baseline QoL scores, but only repaired patients had improved scores on 6-month follow-up (Table). In the overall cohort, non-operative management was strongly associated with lower QoL scores (log odds ratio = -26.5; 95% CI = -35.0 to -18.0).

*By invitation

Table: Matched Cohort*

	Total (n = 90)	Surgery (n = 45)	Non-op (n = 45)	p-Value
Age	50.4 ± 11.3	48.9 ± 12.2	51.9 ± 10.3	0.20
Gender (male)	49 (54.4%)	23 (51.1%)	26 (57.8%)	0.67
BMI	31.6 ± 5.8	31.0 ± 5.2	32.1 ± 6.3	0.39
Smoker	13 (14.4%)	7 (15.6%)	6 (13.3%)	<0.01
ASA Score				
1	11 (12.2%)	5 (11.1%)	6 (13.3%)	0.52
2	51 (56.7%)	26 (57.8%)	25 (55.6%)	
3	26 (28.9%)	14 (31.1%)	12 (26.7%)	
4	2 (2.2%)	0	2 (4.4%)	
Diabetes	20 (22.2%)	10 (22.2%)	10 (22.2%)	>0.99
Area (cm²)	43.5 ± 91.6	52.9 ± 114.3	33.8 ± 60.1	0.33
Hernia type				
Primary	26 (28.9%)	16 (35.6%)	10 (22.2%)	0.24
Incisional	64 (71.1%)	29 (64.4%)	35 (77.8%)	
Ventral Hernia Working Group Grade				
I	15	6	9	0.35
II	64	31	33	
III	10	7	3	
IV	1	1	0	
SSI	–	2 (4.4%)	–	–
Recurrence	–	1 (2.2%)	–	–
Baseline QoL**	35.1 ± 24.3	34.7 ± 24.0	35.6 ± 24.9	0.86
Follow-up QoL**	46.8 ± 11.3	56.9 ± 12.2	36.6 ± 10.3	<0.01

* Cohorts matched on baseline pain scores, body mass index (BMI), smoking, prior ventral hernia repair, diabetes mellitus, and hernia size

** Based on the modified Activities Assessment Scale which is a validated, hernia-specific quality of life survey scored on 1–100 normalized points where 1 = poor quality of life and 100 = perfect quality of life

CONCLUSIONS: This is the first prospective study comparing management strategies in comorbid VH patients. Elective repair improves hernia-related QoL in low to moderate risk patients. Trade-offs of a conservative operative strategy need to be reevaluated in terms of estimating risk and incorporating patient-centered outcomes.

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Randomized Controlled Trial of Liberal Versus Restricted Fluid Management in Patients Undergoing Pancreatectomy

Florence Grant*, Murray F. Brennan, Mithat Gonen*, Mary Fischer*, Ronald DeMatteo, Peter Kingham, Michael D'Angelica, Peter Allen, William Jarnagin

Memorial Sloan-Kettering Cancer Center, New York, NY

OBJECTIVE(S): Randomized controlled trials in patients undergoing major intraabdominal surgery have challenged the historical use of liberal (LIB) fluid utilization, suggesting a more restrictive (RES) regimen is associated with fewer post operative complications. Given the significant morbidity associated with pancreatic resection, we completed a randomized trial comparing 2 fluid regimens.

METHODS: Patients scheduled to undergo pancreatic resection (proximal, +central, (PD) and distal (DP)) were consented for randomization to a LIB (n = 164) or RES (n = 166) fluid regimen perioperatively. Sample size was designed with 80% power to change grade 3 complications from 35% to 21%. Intraoperatively, LIB patients received 12 ML/KG/HR and RES patients 6 ML/KG/HR. Cumulative crystalloid given (median, range, ml) days 0 through 3 was LIB: 12252 (6600–21365), RES 7808 (2700–16274) p < .0001.

RESULTS: Between July 2009 and July 2015, we randomized 330 patients undergoing PD (n = 218) or DP (n = 112). Patients were equally distributed for all demographic and intraoperative characteristics. On day 0, 9.3% of LIB patients undergoing PD were transfused compared to 1.8% RES (p = 0.02). Thirty day mortality was 2/330 (0.6%). Median operative time for PD was 225mins (106–462) and DP 150 (44–324). Grade 3 or greater complications occurred in 29% of LIB and 35% of RES (p = 0.5). Median length of stay was PD, 7 and DP, 5 days in both arms.

CONCLUSIONS: In a high volume institution, major perioperative complications from pancreatic resection were not significantly influenced by fluid regimens that differed approximately 1.6 fold.

*By invitation

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The Role of Radio Frequency Identification Embedded Surgical Sponges in Preventing Retained Foreign Bodies: A Prospective Evaluation in Patients Undergoing Emergency Surgery

Kenji Inaba, Obi Okoye*, Hande Aksoy*, Dimitra Skiada*, Glenn Ault*, Lydia Lam*, Elizabeth Benjamin*, Demetrios Demetriades

LAC+USC Medical Center, Los Angeles, CA

OBJECTIVE(S): Emergency surgery patients are at high risk for retained foreign bodies (RFB). This study prospectively evaluated the ability of Radio-Frequency Identification (RFID) sponges to mitigate the occurrence of this “never event”.

METHODS: All emergent trauma and non-trauma cavitory operations (01/2010–12/2014) were prospectively enrolled. For damage control, only the definitive closure was included. RFID sponges were used exclusively throughout the study period. Prior to closure, the sponge/instrument count was followed by RFID scanning and x-ray evaluation for retained sponges. RFB and near-misses averted by using the RFID system were analyzed.

RESULTS: 2051 patients (mean [SD], 41.2 [16.3] years [range: 1–101], 72.2% male, 46.8% trauma) underwent 2148 operations (1921-laparotomy, 197-thoracotomy, 30-sternotomy). RFID detected retained sponges in 11 (0.5%) patients (81.8%-laparotomy, 18.2%-sternotomy). All post-closure x-rays were negative, no retained sponges were missed by RFID. Median BMI 28.9 (range: 23–42, 29.3 [5.9]), EBL 1.0L (5.6 [8.2]), OR time 160 mins (range: 71–869, 235 [221.9]). Closure occurred after hours (0600–1800) in 54.5%. In 36.4%, the sponge count was correct and in 45.5% not performed due to urgency of the case. The additional cost of using RFID embedded disposables was \$0.17 for a 4 × 18 laparotomy sponge and \$0.46 for 16 ply, 4 × 8.

CONCLUSIONS: Emergent surgical procedures are high-risk for retained sponges, even when sponge counts are performed. Implementation of a RFID system was effective in preventing this complication and should be considered for emergent operations in an effort to improve patient safety.

*By invitation

23

Troponin Elevation After Colorectal Surgery: Significance and Management

Billy Y. Lan*, H. Hande Aydinli*, Grant W. Reed*, Venu Menon*, Daniel I. Sessler*, Feza H. Remzi, Luca Stocchi*, Emre Gorgun*
Cleveland Clinic, Cleveland, OH

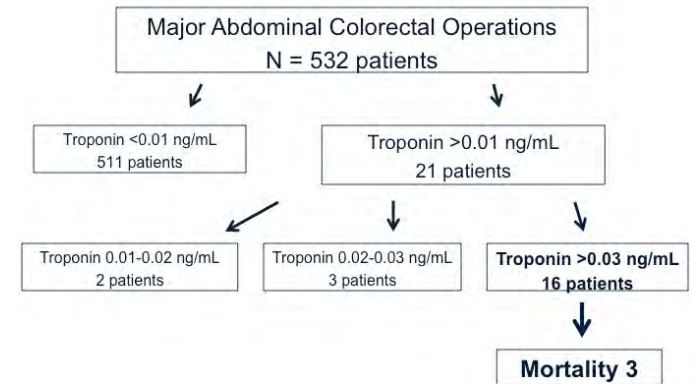
OBJECTIVE: Myocardial infarction is the leading cause of death after noncardiac surgery. Patients with asymptomatic troponin elevations have the same early mortality as symptomatic infarctions. The purpose of this study is to identify the association between early postoperative troponin elevations and outcomes after major colorectal surgery.

METHODS: All patients over age 45 undergoing colorectal surgery from March to August 2015 at a single, tertiary institution were identified. Data was collected through the institutional review board-approved Outcomes Research Database. Patients having general anesthesia for major abdominal colorectal operations were included. Plasma troponin T concentrations were prospectively collected within 24 and 48 hours after surgery. Management and outcomes of patients with elevated troponin concentrations were evaluated.

RESULTS: A total of 532 patients were screened with postoperative troponin concentrations (Figure 1). None of the 16 patients with troponin concentration >0.03 ng/mL exhibited typical symptoms of myocardial ischemia. Cardiology was consulted for 10 patients with troponin >0.03 ng/mL and medical therapy started. An echocardiogram was obtained in 8 of these patients. Three patients who died within the follow-up period had troponin concentrations greater than 0.03 ng/mL.

*By invitation

Figure 1: Outcomes after major colorectal operations in patients with elevated postoperative troponin levels



CONCLUSIONS: Most postoperative myocardial infarctions are asymptomatic and may only be detected by routine troponin screening. Patients with elevated troponin concentrations after colorectal surgery are at higher risk of morbidity and mortality. Routine screening of troponin levels may prompt testing and intervention in select patients.

24

Pure Laparoscopic Hepatectomy Versus Open Hepatectomy for Hepatocellular Carcinoma in 110 Patients with Liver Cirrhosis – A Propensity Analysis in a Single Center

Tan To Cheung*, Chung Mau Lo, Dai Wing Chiu*, Simon Tsang*, Albert Chan*, Siu Ho Chok*, See Ching Chan*, Chung Mau Lo*

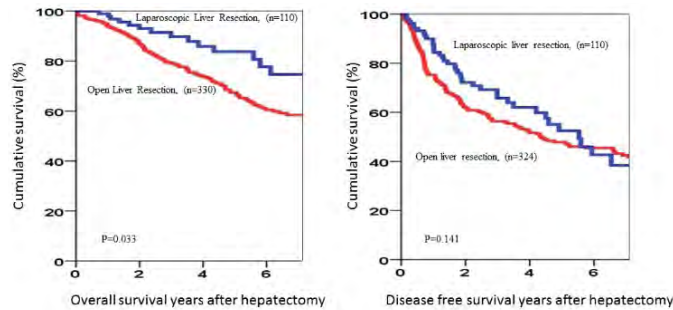
Queen Mary Hospital, the University of Hong Kong, Hong Kong

OBJECTIVE(S): Laparoscopic liver resection has been gaining popularity but it has not been widely accepted in many major centers because previous published data involves small case numbers. The worries of bleeding and survival outcome has hindered the development of this method particularly in patients with cirrhosis.

METHODS: 1358 patients underwent hepatectomy for HCC from 2006 to 2015. To avoid selection bias, propensity score matching in a ratio of 1:3 with open hepatectomy was performed.

RESULTS: 110 patients had pure laparoscopic liver resection. 330 patients were matched in the open liver resection group. Pure laparoscopic group has less median blood loss (150 ml vs 400 ml, $P < 0.01$), shorter operation time (285 minutes vs 255 minutes, $P < 0.001$) and shorter hospital stay (4 days vs 7 days, $p < 0.001$).

In pure laparoscopic group the 1 year, 3 year and 5 year overall survival vs open group was 98.9%, 89.8%, 83.7% vs 94%, 79.3% and 67.4% respectively $P = 0.033$. The disease free survival was 87.7%, 65.8%, 52.5% vs 75.2% 56.3% and 47.9% respectively.



CONCLUSIONS: Laparoscopic liver resection can be carried out safely with favorable short terms and long terms outcome even in patients with hepatectomy and cirrhosis in high volume center for liver cancer treatment.

*By invitation

25

Post-Operative 30-Day Readmission: Time to Focus on What Happens Outside the Hospital

Melanie S. Morris*¹, Laura Graham*¹, Joshua Richman*¹, Kamal M.F. Itani², Amy Rosen*², Hillary Mull*², Sara Knight*¹, Mary T. Hawn³

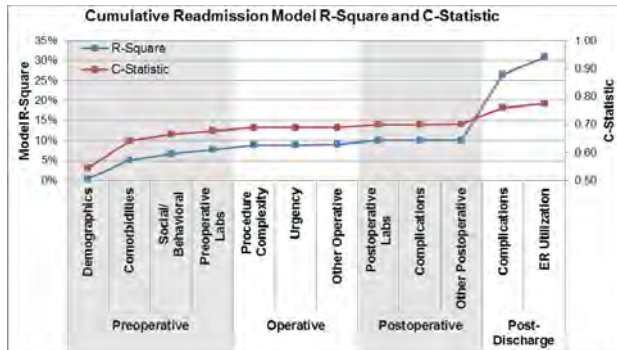
¹University of Alabama at Birmingham, Birmingham, AL; ²Boston University, Boston, MA; ³Stanford University, Palo Alto, CA

INTRODUCTION: Assuming post-operative readmissions are preventable suggests that they are linked to the quality of care during the index hospitalization. The aim of this study is to understand the relative contributions of patient factors, operative characteristics and post-operative hospital course on readmissions.

METHODS: VA NSQIP data on a cohort of inpatient general, vascular and orthopedic surgeries performed between 2008–14 were merged with clinical data including laboratory, vitals, prior healthcare utilization and post-operative complications. Variables were categorized into the following groups: (1) Preoperative, (2) Operative, (3) Postoperative/Pre-discharge, and (4) Post-discharge. Logistic models predicting 30-day readmission were constructed by sequentially adding groups into the model. We compared models using adjusted R^2 and C-statistics.

RESULTS: Our sample included 243,956 patients in 121 VA hospitals. Overall readmission rate was 12.4% (general: 13.9%, vascular: 17.9%, orthopedic: 8.4%). Figure 1 demonstrates the incremental contribution to the readmission model assessed by cumulative R^2 and C-statistic of each time-point. Overall, 7.7% of readmission occurrence was explained by preoperative and planned operative information (C-statistic = 0.68). This increased to 10.1% (C-statistic = 0.70) when index hospital intra-operative and post-operative data were added. Post-discharge complications markedly improved model R^2 to 26.5% (C-statistic = 0.76).

*By invitation



CONCLUSION: Information known prior to surgical admission is an important predictor of postoperative readmission, however, the hospital course had little incremental impact on explaining either post-discharge complications or readmission. Efforts should focus on enhanced post-discharge surveillance and early intervention.

FRIDAY AFTERNOON, APRIL 15th, CONTINUED

4:00 PM – 5:00 PM
Zurich ABCD

EXECUTIVE SESSION

ASA Fellows Only

Presentation of the Flance-Karl Award

FRIDAY EVENING, APRIL 15th

7:00 PM – 8:00 PM
Zurich Pre-Function

ANNUAL RECEPTION

Black tie is preferred, but dark suits are acceptable.

8:00 PM
Zurich ABCD

ANNUAL BANQUET

Black tie is preferred, but dark suits are acceptable.

SATURDAY MORNING, APRIL 16th

8:00 AM – 11:00 AM
Zurich ABCD

SCIENTIFIC SESSION V

Moderator: New President- Elect

26

Timing of Chemical Thromboprophylaxis and Deep Vein Thrombosis in Major Colorectal Surgery – A Randomized Clinical Trial

Karen Zaghiyan*, Harry Sax*, Emily Miraflor*, David Cossman*, Willis Wagner*, Bruce Gewertz, Phillip Fleshner*

Cedars Sinai Medical Center, Los Angeles, CA

OBJECTIVE(S): There is limited Level 1 data regarding the optimal timing of chemical thromboprophylaxis (CTP) for colorectal surgery. The incidence of occult preoperative deep vein thrombosis (DVT) also remains unclear. Both issues influence the occurrence of venous thromboembolism (VTE) and may jeopardize Medicare reimbursement due to penalties for hospital acquired conditions.

METHODS: Patients undergoing major colorectal surgery underwent lower extremity venous duplex immediately prior to surgery. Those without occult preoperative DVT were randomized to preoperative or postoperative CTP (5000 units subcutaneous heparin). Patients underwent venous duplex immediately postoperatively and on day 2. Subsequent duplex scans and other studies were dictated by clinical need. The primary outcome was VTE defined as pulmonary embolism (PE) or DVT within 48 hours of surgery. Secondary outcomes included VTE at 30-days and bleeding complications. Fisher's exact test was used to compare categorical variables with $p < 0.05$ considered statistically significant.

*By invitation

RESULTS: Eighteen patients (4.2%) had occult preoperative DVT and were excluded. The randomized group included 376 patients (51.6% female) with mean age of 52.7 ± 17.6 years. No PE were noted. There was no significant difference between preoperative and postoperative CTP patient groups in early postoperative DVT (3/184, 1.6% vs 5/192, 2.6%), DVT at 30 days (1.6% vs 3.6%) or bleeding complications requiring reoperation (0.5% vs 1.6%).

CONCLUSIONS: Preoperative and postoperative CTP are equally safe and effective. Since occult preoperative DVT is twice as common as postoperative DVT, lower extremity duplex scans should be performed prior to colorectal surgery and anticoagulation tailored to the result.

27

A Multi-Institutional Comparison of Perioperative Outcomes of Robotic and Open Pancreaticoduodenectomy

David A. Kooby^{*1}, Lauren M. Postlewait^{*1}, Yuan Liu^{*2}, Theresa W. Gillespie^{*1}, Sharon M. Weber³, Daniel E. Abbott^{*4}, Shishir K. Maithe^{1*}, Melissa E. Hogg^{*5}, Mazen Zenati^{*5}, Clifford S. Cho^{*3}, Ahmed Salem^{*3}, Brent Xia^{*4}, Jennifer Steve^{*5}, Herbert J. Zeh, III⁵, **Amer H. Zureikat^{*5}**

¹Winship Cancer Institute, Emory University, Atlanta, GA; ²Rollins School of Public Health, Emory University, Atlanta, GA; ³University of Wisconsin School of Medicine and Public Health, Madison, WI; ⁴University of Cincinnati Cancer Institute, Cincinnati, OH; ⁵University of Pittsburgh Medical Center, Pittsburgh, PA

OBJECTIVE(S): Limited data exist comparing robotic and open pancreaticoduodenectomy (PD). We performed a multicenter comparison of perioperative outcomes for these two approaches.

METHODS: Clinical data for patients undergoing post-learning curve open and robotic PD (n = 677) at 4 centers between 2011–2015 were assessed. Univariate and multivariate analyses were performed for associations between clinicopathologic and treatment factors with perioperative outcomes.

RESULTS: 166 (24%) underwent robotic (3 conversions) and 511 (76%) underwent open PD. Patients undergoing robotic procedures were older (65.41 ± 2.0 vs 63.1 ± 12.1 yrs; $p = 0.04$) and had lower incidence of ductal adenocarcinoma (37% vs 51%; $p = 0.002$) than those who had open procedures; however, BMI (27.8 ± 5.3 vs 26.6 ± 5.2 kg/m²) and Charlson Comorbidity Indices (2.6 ± 1.5 vs 2.5 ± 1.4) were similar between groups. On univariate analysis, operative blood loss (356 ± 473 vs 323 ± 320 mL), grade B/C fistula rates (9% vs 9%), Clavien grade ≥ 3 complications (23% vs 21%), and 90-day mortality (2% vs 3%) were similar between groups (all $p > 0.05$). Median length of stay, [8 (7–12 IQR) vs 8 (6–11) days, $p = 0.03$], 90-day readmission rates (31% vs 21%; $p = 0.01$) and operative time (393 ± 78 vs 287 ± 119 min; $p < 0.001$) were higher in the robotic group on univariate analysis. On multivariate analysis, only operative time was significantly different between open and robotic PD cohorts (88 minutes longer in robotic cohort – multivariate adjusted; $p < 0.001$).

CONCLUSIONS: This represents the first multicenter comparison of open and robotic pancreaticoduodenectomy, demonstrating that, with the exception of longer operative times in the robotic cohort, perioperative outcomes appear similar between groups. Further studies investigating center-effect, cost, quality of life, and oncologic outcomes are needed.

*By invitation

28

Liver Resection Versus Transplantation for Patients with Hepatocellular Carcinoma Beyond Milan Criteria

Victor M. Zaydfudim*¹, Neeta Vachharajani*², Goran B. Klintmalm³, William R. Jarnagin⁴, Alan W. Hemming⁵, Maria B. Majella Doyle*², Keith M. Cavaness*³, William C. Chapman², David M. Nagorney⁶

¹University of Virginia, Charlottesville, VA; ²Washington University School of Medicine, St. Louis, MO; ³Baylor University Medical Center, Dallas, TX; ⁴Memorial Sloan-Kettering Cancer Center, New York, NY; ⁵University of California San Diego, San Diego, CA; ⁶Mayo Clinic, Rochester, MN

OBJECTIVES: Both liver resection and transplantation remain controversial for patients with hepatocellular carcinoma (HCC) beyond Milan Criteria. Resections of advanced tumors and transplantation using extended-criteria are pursued at select high-volume center. This study compares survival between liver resection and transplantation for patients with HCC beyond Milan Criteria.

METHODS: Patients from 5 liver cancer centers in the United States who had liver resection or transplantation for HCC beyond Milan Criteria between 1990 and 2011 were included in the study. Propensity-matching and multivariable analyses estimated the effects of clinical factors and operative selection on survival.

RESULTS: Of 608 patients beyond Milan without vascular invasion, 480 (79%) underwent resection and 128 (21%) underwent transplantation. Hepatitis C and cirrhosis were more prevalent in transplantation group ($p < 0.001$). Resection patients had larger tumors (10 ± 4 versus 5 ± 2 cm, $p < 0.001$); transplant patients were more likely to have multiple tumors (78% versus 28%, $p < 0.001$). Overall (OS) and recurrence-free survival (RFS) were both better after transplantation than resection ($p < 0.001$). Both, patients treated with TACE prior to transplant (51%) and patients who were untreated or failed to downstage (49%) had better OS and RFS compared to resection (all $p \leq 0.024$). After adjustment for effects of age, tumor size and number, liver transplantation was associated with improved overall (HR = 0.48; 95% CI: 0.33–0.69, $p < 0.001$) and recurrence-free (HR = 0.31, 95% CI: 0.22–0.44, $p < 0.001$) survival.

CONCLUSIONS: Liver transplantation is associated with improved overall and recurrence-free survival in patients with HCC beyond Milan Criteria. Treatment strategies aimed at tumor downstaging and expansion of transplantation could improve outcomes in patients with advanced HCC.

*By invitation

29

Systemic Biomarkers Predict Cognitive Decline Following Carotid Revascularization – A Prospective Study

Thuy Tran*¹, Gayatri Raghuraman*², Mary Zuniga*³, Elizabeth Hitchner*³, Allyson Rosen*², **Wei Zhou**¹

¹Stanford University, Palo Alto, CA; ²VA Palo Alto Health Care System, Palo Alto, CA; ³VA Palo Alto Health Care System, Palo Alto, CA

OBJECTIVES: Cognitive impairment is common in elderly patients with carotid occlusive diseases. The objective of this study is to determine factors affecting cognition and identify predictors of long-term cognitive impairment.

METHODS: Patients undergoing carotid intervention for severe occlusive diseases were prospectively recruited. Patients received neuro-cognitive testing prior to, 1-, 6-, and 12- months after carotid interventions. Plasma samples were also collected within 48 hours after carotid intervention and inflammatory cytokines were analyzed. Univariate and multivariate logistic regressions were performed to identify risk factors associated with significant cognitive deterioration (>10% decline).

RESULTS: A total of 98 patients (48% symptomatic) were recruited. Mean age was 69 (range 54–91 years). Patients had overall improvement in cognitive measures one month after revascularization. When compared to carotid stenting ($n = 55$), endarterectomy patients ($n = 43$) demonstrated postoperative improvement in cognition at 1 month and 6 months compared to baseline. Carotid stenting (OR 6.49, $p = 0.020$) and age greater than 80 years (OR 12.6, $p = 0.023$) were associated with significant short and long-term cognitive impairment. Multiple inflammatory cytokines also showed significant changes after revascularization. On multivariate analysis after controlling for procedure and age, IL12P40 ($p = 0.041$) was associated with a higher risk of significant cognitive impairment at one month; SDF1a ($p = 0.004$) and TNFa ($p = 0.006$) were independent predictors of cognitive impairment, while IL6 ($p = 0.019$) demonstrated cognitive protective effects at 6 months after revascularization.

CONCLUSION: Carotid intervention affects cognitive function. Systemic biomarkers can be used to identify patients at risk of significant cognitive decline post-procedures that benefit from targeted cognitive training.

*By invitation

30

Effect of Hospital Case Mix on the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Star Scores: Are All Stars the Same?

Cornelius A. Thiels*, Kristine T. Hanson*, Kathleen J. Yost*, Martin D. Zielinski*, Elizabeth B. Habermann*, Robert R. Cima

Mayo Clinic, Rochester, MN

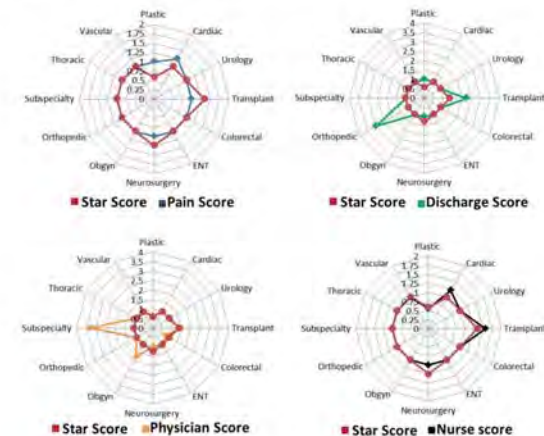
OBJECTIVE(S): HCAHPS is a publicly reported survey of patients' hospital experiences that directly influences Medicare reimbursement.

METHODS: All adult surgical inpatients meeting criteria for HCAHPS sampling from 2013 to 2014 at a single academic center were identified. HCAHPS measures were analyzed according to published HCAHPS top-box and Star rating methodologies and dichotomized ("high" vs "low"). Multivariable logistic regression was used to identify independent associations of high patient scores on various HCAHPS measures with specialty, DRG complexity, cancer diagnosis, sex, and emergency visit after adjusting for standard HCAHPS case-mix adjusters (education, overall health status, language, and age).

RESULTS: We identified 36,551 eligible patients, of which 29.6% (n = 10,822) completed HCAHPS. Women (OR 0.79, 95% CI 0.72–0.86, p < 0.001), complex cases (0.89, 0.81–0.98, p = 0.016), emergency visits (0.68, 0.56–0.84, p < 0.001), and non-cancer diagnosis (OR 0.87, 0.77–0.97, p = 0.013) had lesser Star scores on adjusted analysis. Using general surgery as the reference, the Star scores varied significantly across 12 specialties (range OR 0.59 for plastics to 1.35 for transplant surgery). Patient responses to individual HCAHPS composite scores (pain, discharge, physician, and nurse scores) also varied by specialty (Figure).

*By invitation

Figure. Adjusted odds ratio (AOR) of better patient experience, with AOR of greater than one indicating high, and less than one indicating low, patient experience (reference general surgery; AOR estimates with p>0.05 set to 1).



CONCLUSIONS: HCAHPS case-mix adjustment does not include adjustment for complexity, specialty, or diagnosis, which may result in artificially lower scores for centers that provide a high level of complex care. Further research is needed to ensure that the HCAHPS is an unbiased comparison tool.

**31
Can Sleeve Gastrectomy “Cure” Diabetes? Long Term Metabolic Effects of Sleeve Gastrectomy in Patients with Type 2 Diabetes**

Ali Aminian*, Stacy A. Brethauer*, Amin Andalib*, Suriya Punchai*, Jennifer Mackey*, John Rodriguez*, Tomasz Rogula*, Matthew Kroh*, Philip R. Schauer
Cleveland Clinic, Cleveland, OH

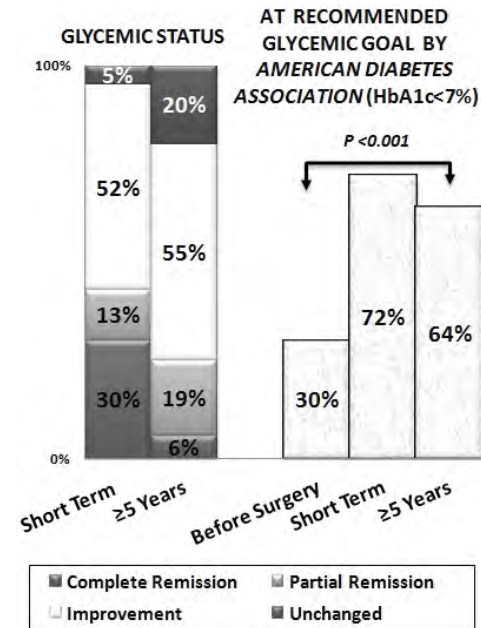
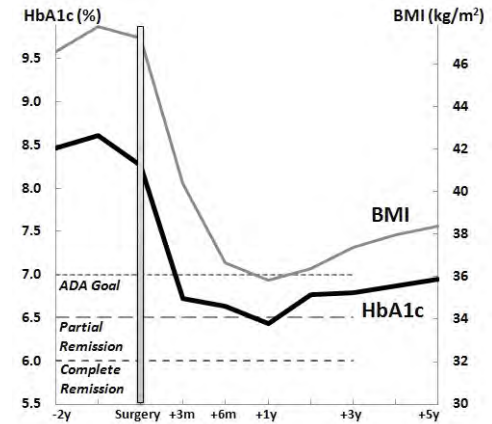
OBJECTIVE(S): Laparoscopic sleeve gastrectomy (LSG) is rapidly gaining popularity. However, its long-term metabolic effects in patients with type 2 diabetes mellitus (T2DM) are unknown.

METHODS: Outcomes of 125 obese patients with T2DM who underwent LSG at an academic center during 2005–2010 and had at least 5-year follow-up were assessed.

RESULTS: At a median postsurgical follow-up of 6 years (range: 5–10), a mean BMI change of -8.9 kg/m^2 was associated with a reduction in mean HbA1c (-1.3% , $p < 0.001$), fasting blood glucose (-41.1 mg/dL , $p < 0.001$) and median number of antidiabetic medications (-1 , $p < 0.001$). Long-term glycemic control (HbA1c $< 7\%$), diabetes remission (HbA1c $< 6.5\%$ off medications), complete remission (HbA1c $< 6\%$ off medications), and “cure” (complete remission for ≥ 5 years) achieved in 64%, 25%, 6%, and 3%, respectively. Long-term recurrence of T2DM after initial remission occurred in 44% and was associated with more baseline antidiabetic medications ($p = 0.02$). A significant improvement in triglycerides ($-66.3 \pm 115 \text{ mg/dL}$, $p < 0.001$), HDL ($8.2 \pm 12.7 \text{ mg/dL}$, $p < 0.001$), systolic ($-10 \pm 19.8 \text{ mmHg}$, $p < 0.001$), and diastolic blood pressure ($-2.6 \pm 13.1 \text{ mmHg}$, $p = 0.45$) was observed.

CONCLUSIONS: The findings of this study, which is the largest series with the longest follow-up time to date, indicate that LSG can significantly improve cardiometabolic risk factors including glycemic status in T2DM. However, unlike GI bypass procedures, long-term complete remission and “cure” of T2DM occur very infrequently.

*By invitation



32

Are Patient-Reported Outcomes Correlated with Clinical Outcomes Following Surgery? A Population-Based Study

Jennifer F. Waljee*, Amir Ghaferi*, Jonathan Finks*,
Ruth Cassidy*, Oliver Varban*, Noelle Carlozzi*,
Justin Dimick*

University of Michigan, Ann Arbor, MI

OBJECTIVES: Although surgical quality is typically measured by clinical outcomes, patient-reported outcomes could provide a unique perspective regarding performance, particularly for common, low-risk procedures. We sought to evaluate the extent to which patient-reported outcomes are distinct from clinical outcomes, and the correlation between clinical events and quality of life following bariatric surgery.

METHODS: We captured 30-day complication rates and 1-year outcomes (weight loss, comorbidity resolution), among 11,420 patients who underwent bariatric surgery between 2009 through 2013 from 39 hospitals participating in the Michigan Bariatric Surgery Collaborative. Quality of life was measured by the Health and Activities Limitations Index (HALex) and Bariatric Quality of Life index (BQL) preoperatively and at 1 year. We used linear regression to determine the association between quality of life, complications, comorbidity resolution, and weight loss, adjusting for patient factors and procedure.

RESULTS: Risk adjusted hospital rankings based on either HALex or BQL scores were not correlated with rankings based on complications. However, both HALex score ($R^2 = 0.24$, $p < 0.002$) and BQL score ($R^2 = 0.44$; $p < 0.001$) were correlated with hospital ranking by weight loss, and hospitals that achieved greater average weight loss also achieved higher rankings by these measures. BQL score was correlated with comorbidity resolution ($R^2 = 0.16$; $p < 0.01$). After accounting for clinical outcomes, between 14%–44% of the variation in patient-reported outcomes remained unexplained.

CONCLUSIONS: Patient-reported outcomes are not correlated with early perioperative events, but are correlated with clinical effectiveness following bariatric surgery. A comprehensive approach to capturing surgical quality should incorporate both clinical and patient-reported outcomes.

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THURSDAY, APRIL 14th

8:15 AM	Opening Session	<i>Zurich A-D</i>
	President's Opening Remarks	
	Secretary's Welcome and Introduction of New Fellows Elected in 2015	
	President's Introduction of Honorary Fellows	
	Presentation of the Medallion for Scientific Achievement	
	Presentation of the Medallion for the Advancement of Surgical Care	
	Report of the Committee on Arrangements	
9:10 AM	Scientific Session I	<i>Zurich A-D</i>
	Moderator: James S. Economou, M.D., Ph.D.	
10:50 AM	Presidential Address	<i>Zurich A-D</i>
	"Engines of Discovery and Innovation"	
	Introduction: Mark A. Malangoni, M.D.	
	Address: James S. Economou, M.D., Ph.D.	
1:30 PM	Scientific Session II	<i>Zurich A-D</i>
	Moderator: Keith D. Lillemoe, M.D.	

FRIDAY, APRIL 15th

7:00 AM	ASA Women in Surgery Breakfast	<i>Zurich E</i>
8:00 AM	Scientific Session III	<i>Zurich A-D</i>
	Moderator: James S. Economou, M.D., Ph.D.	
10:30 AM	Forum Discussion:	<i>Zurich A-D</i>
	"Cancer in the 21st Century"	
	Moderator: James S. Economou, M.D., Ph.D.	
1:30 PM	Scientific Session IV	<i>Zurich A-D</i>
	Moderator: Mark A. Malangoni, M.D.	
4:00 PM	Executive Session (Fellows Only)	<i>Zurich A-D</i>
	Presentation of the Flance-Karl Award	
7:00 PM	Annual Reception	<i>Zurich Pre-Function</i>
	<i>(Black tie preferred, but dark suits are acceptable.)</i>	
8:00 PM	Annual Banquet	<i>Zurich A-D</i>
	<i>(Black tie preferred, but dark suits are acceptable.)</i>	

SATURDAY, APRIL 16th

8:00 AM	Scientific Session V	<i>Zurich A-D</i>
	Moderator: New President-Elect	
11:00 AM	Adjourn	