# Table of Contents

2  Letter from the President  
4  Officers, State Councilors & Representatives  
6  Past Presidents & Meeting Locations  
10  Educational Objectives  
12  General Information  
14  Presidential Address  
15  Guest Speakers  
21  Awards  
23  Special Sessions  
28  In Memoriam  
29  New Members  
31  Schedule at a Glance  
39  Scientific Program  
68  Scientific Paper Abstracts  
102  Quick Shot Abstracts  
162  Featured Posters  
168  Poster Abstracts  
230  Constitution  
234  Bylaws  
246  Notes  

*See inside back cover for future meetings.*
On behalf of the Southwestern Surgical Congress, it is my pleasure to welcome you to the 67th annual meeting at the Hyatt Regency in Monterey, California. The Program Committee, under the leadership of Dr. Brian Eastridge, has assembled an outstanding educational program. As many of you know, the Southwestern Surgical Congress has a long tradition of providing outstanding science in a collegial environment with family-oriented activities. The Hyatt Regency Monterey offers a stunning location with great services and family activities.

The meeting is organized to maximize the educational opportunities for attendees. We have an outstanding, free of charge, post-graduate course planned: “Toward the Safer Cholecystectomy: Innovations in Technology and Practice”. This course will be held on Sunday, April 26, 2015 from 8:00am – 12Noon. Shanu Kothari MD, from La Crosse, WI, will moderate the session. The faculty are an internationally respected group of surgeons who will highlight practical points along with new and evolving technology. I strongly encourage you to attend the Postgraduate Course.

Our meeting officially begins at noon, Sunday, April 26th, with our Women in Surgery luncheon moderated and led by: Barbara Pockaj MD, Anees Chagpar, Laura Moore, Megan Gilmore, Maria Linnaus and Cristine Velazco. The luncheon will be followed by the opening of the Plenary Session of the Scientific Program at 1:00 PM. As in years past, we will have morning Quick Shot sessions and the traditional outstanding competition for the Jack Barney Award for the best resident paper.

The popular SWSC debate covers the question, “Is There a Future for the Practice of General Surgery?” Brian Eastridge, MD will moderate the session with the Pro being led by John R. Potts III MD, and the Con being articulated by Dmitry Oleynikov MD. This is obviously a critical question for the future of American Surgery. Please make plans to attend.

The Graduate Medical Education Luncheon covers “Social Media – Positives and Pitfalls”. This is moderated and led by Daniel Vargo, Sean J. Langenfeld and Elisabeth Mitchell. Please encourage your residents to attend this session.

Our Partners in Practice/Advanced Practitioners Luncheon will have a very good lunch program this year moderated by Walter Biffl along with Alicia Conrad, Courtney Scaife and myself.
LETTER FROM THE PRESIDENT (continued)

The invited lectures feature three great surgeons: Dr. Raul Coimbra, Dr. Patrick Walker, and Dr. Roxie Albrecht.

As has become a tradition of sorts, the American College of Surgeons will present two panels on Monday morning. The first will be the annual update from the American College of Surgeons, “An Advocacy and Health Policy Update” and an overview of PQRS. The second panel will focus on the “Maintenance of Certification (MOC)” program. This will consist of an overview by Mark Weissler MD, Mark Malangoni addressing “Myth vs. Reality”, and Beth Sutton presenting “Perspectives of a Practicing Surgeon”. We are honored that Dr. David J. Cole, President of the Southeastern Surgical Congress, will be attending as a guest of the SWSC.

For families, the resort offers an outstanding program. We have a Spouse Hospitality Suite for gathering and meeting. On Monday, April 27th, the following activities are planned: Morning Yoga at 7:00 AM; the Annual Golf Tournament at 1:00 PM; and a Carmel Valley Wine Tour beginning at 1:00 PM. The Tennis Tournament has been cancelled, but courts are available at 1:00 PM for those wishing to play Tennis. On Tuesday there will be a Culinary Demonstration with the chef at 12:30 PM and the Annual SWSC Reception will be held at 7:00 PM.

I look forward to seeing all of you and hope you truly enjoy the program and social activities. I will be on site for the entire time, so please feel free to stop me and let me know how we can increase value to our membership.

Thank you,

Ronald M. Stewart, MD
President, Southwestern Surgical Congress
## OFFICERS, STATE COUNCILORS & REPRESENTATIVES

### EXECUTIVE OFFICERS

**PRESIDENT**  
Ronald Stewart  
*San Antonio, TX*

**PRESIDENT-ELECT**  
John Potts, III  
*Chicago, IL*

**VICE PRESIDENT**  
Clay Cothren Burlew  
*Denver, CO*

**SECRETARY-TREASURER**  
Shanu Kothari  
*La Crosse, WI*

**RECORDE**R  
Courtney Scaife  
*Salt Lake City, UT*

**EXECUTIVE DIRECTOR**  
James A. Edney  
*Omaha, NE*

### STATE COUNCILORS

**ARIZONA**  
Shawn Tsuda

**ARKANSAS**  
Anne Mancino

**CALIFORNIA**  
Daniel Margulies  
*(SOUTHERN)*

**CALIFORNIA**  
Christine Cocanour  
*(NORTHERN)*

**COLORADO**  
Walt Biffl

**HAWAII**  
Whitney Limm

**IDAHO**  
Marcus Torgeson

**KANSAS**

**MISSOURI**  
Richard Pennell

**MONTANA**  
Glenn Winslow

**NEBRASKA**  
Rudy Lackner

**NEVADA**

**NEW MEXICO**  
M. Timothy Nelson

**NORTH DAKOTA**  
Randolph Szlabick

**OKLAHOMA**  
Gary Dunn

**SOUTH DAKOTA**

**TEXAS (NORTHERN)**  
Michael Truitt

**TEXAS (SOUTHERN)**  
Ernie Gonzalez

**UTAH**  
Ute Gawlik

**WISCONSIN**  
Shanu Kothari

**WYOMING**  
Sara Smith
OFFICERS, STATE COUNCILORS & REPRESENTATIVES (continued)

COMMITTEES

CME CHAIR
Michael Truitt  
*Dallas, TX*

CONSTITUTION & BYLAWS CHAIR
Daniel Margulies  
*Los Angeles, CA*

GRADUATE MEDICAL EDUCATION
Daniel Vargo  
*Salt Lake City, UT*

HISTORIAN
William F. Sasser  
*St. Louis, MO*

MEMBERSHIP CHAIR
S. Rob Todd  
*Houston, TX*

NOMINATING CHAIR
David Antonenko  
*Grand Forks, ND*

PROGRAM COMMITTEE CHAIR
Brian Eastridge  
*San Antonio, TX*

PUBLICATIONS AND RESEARCH CHAIR
Courtney Scaife  
*Salt Lake City, UT*

CONGRESS REPRESENTATIVES

AMERICAN COLLEGE OF SURGEONS - BOARD OF GOVERNORS
S. Rob Todd  
*Houston, TX*

AMERICAN COLLEGE OF SURGEONS - ADVISORY COUNCIL FOR SURGERY
Kenric Murayama  
*Philadelphia, PA*

AMERICAN BOARD OF SURGERY REPRESENTATIVE
Roxie Albrecht  
*Oklahoma City, OK*
### Past Presidents & Meeting Locations

<table>
<thead>
<tr>
<th>Year</th>
<th>President</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1949</td>
<td>*Walter Stuck, MD</td>
<td>Shamrock Hotel, Houston, Texas</td>
</tr>
<tr>
<td>1950</td>
<td>*Thomas G. Orr, MD</td>
<td>Shirley Savoy, Denver, Colorado</td>
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<tr>
<td>1951</td>
<td>*Leo J. Starry, MD</td>
<td>Hotel Jefferson, St. Louis, Missouri</td>
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<tr>
<td>1952</td>
<td>*Michael E. DeBakey, MD</td>
<td>Baker Hotel, Dallas, Texas</td>
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<tr>
<td>1953</td>
<td>*Louis P. Good, MD</td>
<td>Hotel Utah, Salt Lake City, Utah</td>
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<tr>
<td>1954</td>
<td>*Philip B. Price, MD</td>
<td>Skirvin Hotels, Oklahoma City, Oklahoma</td>
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<tr>
<td>1955</td>
<td>*Lawrence P. Engel, MD</td>
<td>Hotel Muehlebach, Kansas City, Missouri</td>
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<tr>
<td>1956</td>
<td>*Charles R. Rountree, MD</td>
<td>Pioneer Hotel, Tucson, Arizona</td>
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<tr>
<td>1957</td>
<td>*John V. Goode, MD</td>
<td>Broadway Hotel, Wichita, Kansas</td>
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<tr>
<td>1958</td>
<td>*Kenneth C. Sawyer, MD</td>
<td>Shamrock Hotel, Houston, Texas</td>
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<td>1959</td>
<td>*Lewis M. Overton, MD</td>
<td>Brown Palace Hotel, Denver, Colorado</td>
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<tr>
<td>1960</td>
<td>*Fred H. Krock, MD</td>
<td>Riviera Hotel, Las Vegas, Nevada</td>
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<tr>
<td>1961</td>
<td>*Howard D. Cogswell, MD</td>
<td>Chase Park Plaza, St. Louis, Missouri</td>
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<tr>
<td>1962</td>
<td>*Charles M. O’Leary, MD</td>
<td>Western Skies Hotel, Albuquerque, New Mexico</td>
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<tr>
<td>1963</td>
<td>*Edgar J. Poth, MD</td>
<td>Maria Isable Hotel, Mexico City, Mexico</td>
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<tr>
<td>1964</td>
<td>*Eugene M. Bricker, MD</td>
<td>Granada Hotel, San Antonio, Texas</td>
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<tr>
<td>1965</td>
<td>*Wayne C. Bartlett, MD</td>
<td>Velda Rose Towers, Hot Springs, Arkansas</td>
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<td>1966</td>
<td>*O. Ernest Grua, MD</td>
<td>Flamingo Hotel, Las Vegas, Nevada</td>
</tr>
<tr>
<td>Year</td>
<td>President</td>
<td>Location</td>
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<tr>
<td>1967</td>
<td>*John A. Growdon, MD</td>
<td>Del Webb-Town House, Phoenix, Arizona</td>
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<td>1968</td>
<td>*Robert B. Howard, MD</td>
<td>Brown Palace Hotel, Denver, Colorado</td>
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<tr>
<td>1969</td>
<td>*John H. Clark, MD</td>
<td>Sahara Tahoe Hotel, Lake Tahoe, Nevada</td>
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<td>1970</td>
<td>*Jean C. Gladden, MD</td>
<td>Sheraton-Dallas Hotel, Dallas, Texas</td>
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<tr>
<td>1971</td>
<td>*J. Robert Spencer, MD</td>
<td>Caesar's Palace Hotel, Las Vegas, Nevada</td>
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<tr>
<td>1972</td>
<td>*John G. Shellito, MD</td>
<td>Hilton Inn, Albuquerque, New Mexico</td>
</tr>
<tr>
<td>1973</td>
<td>*James B. Growdon, MD</td>
<td>Mountain Shadows Hotel, Scottsdale, Arizona</td>
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<tr>
<td>1974</td>
<td>*Lawrence H. Wilkinson, MD</td>
<td>Del Monte Hyatt House, Monterey, California</td>
</tr>
<tr>
<td>1975</td>
<td>*George H. Mertz, MD</td>
<td>Caesars Palace Hotel, Las Vegas, Nevada</td>
</tr>
<tr>
<td>1976</td>
<td>*John B. Gramlich, MD</td>
<td>Hyatt Regency Hotel, Houston, Texas</td>
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<tr>
<td>1977</td>
<td>*Howard T. Robertson, MD</td>
<td>Princess Hotel, Acapulco, Mexico</td>
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<tr>
<td>1978</td>
<td>*Cyril Costello, MD</td>
<td>Riviera Hotel, Palm Springs, California</td>
</tr>
<tr>
<td>1979</td>
<td>*MacDonald Wood, MD</td>
<td>Caesars Palace Hotel, Las Vegas, Nevada</td>
</tr>
<tr>
<td>1980</td>
<td>Gilbert S. Campbell, MD</td>
<td>Broadmoor Hotel, Colorado Springs, Colorado</td>
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<tr>
<td>1981</td>
<td>*Wallace L. Chambers, MD</td>
<td>Hyatt del Monte, Monterey, California</td>
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<tr>
<td>1982</td>
<td>*Albert J. Kukral, MD</td>
<td>Hotel del Coronado, Coronado, California</td>
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<tr>
<td>1983</td>
<td>Livingston Parsons, Jr., MD</td>
<td>The Pointe Resort, Phoenix, Arizona</td>
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<tr>
<td>1984</td>
<td>*Raymond C. Read, MD</td>
<td>The Hyatt Regency, Honolulu &amp; Maui, Hawaii</td>
</tr>
</tbody>
</table>
PAST PRESIDENTS & MEETING LOCATIONS (continued)

1985
*Claude H. Organ, Jr., MD
Caesars Palace Hotel, Las Vegas, Nevada

1986
Ronald C. Elkins, MD
Hyatt Regency San Francisco, San Francisco, California

1987
*Joseph L. Kovarik, MD
Hotel del Coronado, Coronado, California

1988
Arlo S. Hermreck, MD
The Pointe at Squaw Peak, Phoenix, Arizona

1989
Frederic C. Chang, MD
Hyatt Regency Monterey, Monterey, California

1990
Kent C. Westbrook, MD
LaQuinta Golf & Tennis Resort, La Quinta, California

1991
William F. Sasser, MD
The Mirage, Las Vegas, Nevada

1992
David V. Feliciano, MD
Marriott's Camelback Inn Resort, Scottsdale, Arizona

1993
Dominic Albo, Jr., MD
Hyatt Regency Monterey, Monterey, California

1994
Ernest Poulos, MD
The Westin LaPaloma, Tucscon, Arizona

1995
Robert B. Sawyer, MD
Hyatt Regency Hill Country Resort, San Antonio, Texas

1996
Carey P. Page, MD
Marriott’s Camelback Inn Resort, Scottsdale, Arizona

1997
James H. Thomas, MD
Westin Mission Hills Resort, Rancho Mirage, California

1998
Charles H. McCollum, MD
Hyatt Regency Hill Country Resort, San Antonio, Texas

1999
Ernest E. Moore, Jr., MD
Loews Coronado Bay Resort, Coronado, California

2000
Victor J. Zannis, MD
The Broadmoor, Colorado Springs, Colorado
<table>
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<tr>
<th>Year</th>
<th>President, MD</th>
<th>Location</th>
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<tbody>
<tr>
<td>2001</td>
<td>Nicholas P. Lang, MD</td>
<td>Fiesta Americana Coral Beach Resort, Cancun, Mexico</td>
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<td>2002</td>
<td>James A. Edney, MD</td>
<td>Hotel del Coronado, Coronado, California</td>
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<td>2003</td>
<td>Russell G. Postier, MD</td>
<td>Loews Ventana Canyon Resort, Tucson, Arizona</td>
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<tr>
<td>2004</td>
<td>Jon S. Thompson, MD</td>
<td>Hyatt Regency Monterey, Monterey, California</td>
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<tr>
<td>2005</td>
<td>Jeffrey R. Saffle, MD</td>
<td>Westin La Cantera Resort, San Antonio, Texas</td>
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<td>2006</td>
<td>Ernest L. Dunn, MD</td>
<td>Kauai Marriott Resort and Beach Club, Kauai, Hawaii</td>
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<td>2007</td>
<td>Scott R. Petersen, MD</td>
<td>Rancho Las Palmas Resort and Spa, Rancho Mirage, California</td>
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<td>2008</td>
<td>Alan G. Thorson, MD</td>
<td>Fairmont Acapulco Princess, Acapulco, Mexico</td>
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<tr>
<td>2009</td>
<td>Maria D. Allo, MD</td>
<td>Hotel del Colorado, Coronado, California</td>
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<td>2010</td>
<td>Frederick A. Moore, MD</td>
<td>Loews Canyon Resort, Tucson, Arizona</td>
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<td>2011</td>
<td>Edward Nelson, MD</td>
<td>JW Marriott Ihilani, Oahu, Hawaii</td>
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<tr>
<td>2012</td>
<td>Robert C. McIntyre, Jr., MD</td>
<td>Terranea Resort, Rancho Palos Verdes, California</td>
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<tr>
<td>2013</td>
<td>David Antonenko, MD, PhD</td>
<td>Bacara Resort, Santa Barbara, California</td>
</tr>
<tr>
<td>2014</td>
<td>Kenric Murayama, MD</td>
<td>Westin Keirland Resort, Scottsdale, Arizona</td>
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*Deceased*
EDUCATIONAL OBJECTIVES

The scientific program of the Annual Meeting of the Southwestern Surgical Congress will provide up-to-date information for community surgeons, academic surgeons and the surgeon in training. Topics will cover a broad range of surgical practice interests including abdominal and gastrointestinal surgery, trauma and critical care surgery, surgical education, surgical oncology, and breast and endocrine surgery. The intent of the program is to improve the quality of patient care and improve patient safety. Audience participation and interaction will be encouraged. The content and format of the program have been determined based on evaluations and suggestions of attendees of previous programs.

At the end of this activity, attendees will:

• Develop an understanding of current issues relevant to the advancement of the art and practice of surgery, specifically in the evaluation and management of hernia, breast, endocrine, gastrointestinal, thoracic, vascular, trauma / critical care and emergency / acute care surgical disease.

• Discuss the highlighted translational data and evidence based practice with respect to the potential impact on the future of patient care and evolution of surgical best practice.

• Implement a strategy to establish new technologies within the context of the individual’s current surgical practice.

CME CERTIFICATES AND EVALUATION FORMS

Evaluation completion, CME and Self-Assessment credit will be completed online. You will receive emailed instructions on how to claim CME online immediately following the conference.

ACCREDITATION STATEMENT

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

ANNUAL MEETING:

*AMA PRA Category 1 Credits™*

The American College of Surgeons designates this live activity for a maximum of 21.25 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Of the *AMA PRA Category 1 Credits™* listed above, a maximum of 14.25 credits meet the requirements for Self-Assessment.

TOWARD THE SAFER CHOLECYSTECTOMY:

INNOVATIONS IN TECHNOLOGY AND PRACTICE - POSTGRADUATE COURSE:

*AMA PRA Category 1 Credits™*

The American College of Surgeons designates this live activity for a maximum of 4 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Of the *AMA PRA Category 1 Credits™* listed above, a maximum of 4 credits meet the requirements for Self-Assessment.
GENERAL INFORMATION

HOTEL
The Hyatt Regency Monterey Hotel
1 Old Golf Course Road
Monterey, CA 93940E

REGISTRATION
The registration desk hours are as follows:
Sunday 8:00am – 5:00pm
Monday 7:00am – Noon
Tuesday 7:00am – 5:00pm
Wednesday 7:00am – 11:00am

SPOUSE HOSPITALITY
A Spouse Breakfast & Hospitality Suite will be offered for all registered spouses and guests on Monday and Tuesday mornings from 8:00am – 10:00am in the President’s House. All individuals must be registered and wear their name badge in order to be admitted.

SPOUSE ACTIVITIES
Cooking Demonstration with the Chef at the Hyatt Regency Monterey
Tuesday, April 28th
12:30pm – 2:00pm
Regency Conference Center Kitchen
Cost: $25 per person

Enjoy various Tuscan Bruschetta and desserts with the hotel chef demonstrating these great options of appetizers and desserts you can make at home along with some take home recipes.
RECREATIONAL ACTIVITIES

Morning Yoga
Monday, April 27th
7:00am – 8:00am
Spyglass 1 & 2
Cost: $10 per person

Annual Golf Tournament
Monday, April 27th
1:00pm Shotgun Start
Del Monte Golf Course
Cost: $150 per person
NOTE: 5 minute walk from hotel; box lunches may be picked up from the Regency Conference Center entrance

Join us for an afternoon on the greens. Be sure to register in advance, as we typically have strong interest for golf. Fee includes greens fees, tournament coordination, box lunch and prizes.

Carmel Valley Wine Tour
Monday, April 27th
1:00pm – 5:00pm
Cost: $150 per person
NOTE: Transportation departs from Regency Conference Center entrance. Box lunch is included with event.

You will travel to the Monterey Wine Country and Carmel Valley for a tour and tasting at two of the best wineries in the region. You will have the opportunity to enjoy the contrast between a large commercial winery and a small family operated winery and vineyard. The first stop will be Chateau Julien. Chateau Julien is a full working commercial winery and vineyard. You will have the opportunity to tour Chateau Julien guidance of a winery attendant, while tasting several of the varietals produced. Following the winery and vineyard tour at Chateau Julien, you will journey deeper into the valley to Parsonage Village Winery overlooking the beautiful Carmel Valley. Here you will enjoy a barrel tasting of yet to be released Parsonage wines.

Tennis Tournament has been canceled
PRESIDENTIAL ADDRESS

PERSPECTIVES ON THE PROFESSION

SUNDAY, APRIL 26, 2015
4:30PM – 5:15PM
Regency Main Ballroom

Speaker:
Ronald M. Stewart, MD
San Antonio, TX

Ronald M. Stewart graduated from medical school and completed his surgical residency at the University of Texas Health Science Center at San Antonio. Following this he completed a Trauma and Surgical Critical Care Fellowship at the University of Tennessee Health Science Center in Memphis.

He returned to San Antonio in 1993 as the Director of the Trauma Service. Dr. Stewart has served as the Board Chair of the Southwest Texas Regional Advisory Council for Trauma since 1996. In 1999 he was awarded the Faculty Member of the Year Award from The University Health System. That same year he and the Shattered Dreams development team were awarded the Bronze Quill for writings on the award winning injury prevention program Shattered Dreams/D.E.A.D. (Drinking and Driving End All Dreams).

In May 2000, Governor George W. Bush appointed Dr. Stewart to the Governor’s Emergency Medical Services and Trauma Advisory Council where he served until 2014. He was the chair of the South Texas Chapter of the American College of Surgeons (ACS) Committee on Trauma for six years, and followed for another six years as the ACS COT Region VI Chief (Texas, New Mexico, Louisiana and Arkansas). He currently serves as the Chair of the ACS Committee on Trauma. Dr. Stewart was a founding member and the first Chair of the National Trauma Institute.

At the UT Health Science Center in San Antonio he is a tenured Professor of Surgery and Anesthesia, and since 2008, he has served as the Chair of the Department of Surgery, holding the Dr. Witten B. Russ Chair in Surgery. Dr. Stewart has received numerous awards for teaching and service. A partial listing of these includes the Presidential Award for Clinical Excellence (2004), the Distinguished Alumnus of the UTHSCSA School of Medicine (2005) and the Leonard Tow Humanism in Medicine Award (2007).

In 2013 he was the recipient of the National Safety Council Surgeons Award for Service to Safety and the American College of Surgeon’s Arthur Ellenberger Award for Excellence in State Advocacy.

He is a member of the American Surgical Association, the Southern Surgical Association, the Western Surgical Association, the President of the Southwestern Surgical Congress and the Secretary of the Texas Surgical Society.
Dr. Walker is Chief of Surgery at Houston County Medical Center in Crockett, Texas. He returned home to practice in Crockett - a town of 7000 after completing medical school and residency at the University of Texas Medical Branch – Galveston (UTMB). He has served as Chairman of the ACS Committee for Applicants – South Texas Chapter and President of the South Texas Chapter. He has also Chaired the Texas Medical Association Patient-Physician Advisory Committee and serves on the TEXPAC Executive Board. He is secretary of the Houston County Medical Society and a member of the UTMB Development Board. Dr. Walker has received numerous grants from the Texas Department of Health. He has served as Vice-president of the Texas Surgical Society and as their Council Chair. He is a Senior Director of the American Board of Surgery and served as Chair of the Maintenance of Certification Exam committee. He has a solo surgical practice in rural East Texas.
1975
George H. Mertz, MD

1976
Frank G. Moody, MD

1977
Claude H. Organ, Jr., MD

1978
Raymond C. Read, MD

1979
William W. Monafo, MD

1980
George C. Morris, MD

1981
Ronald C. Elkins, MD

1982
MacDonald Wood, MD

1983
J. Bradley Aust, MD

1984
Ernest E. Moore, Jr., MD

1985
Stephen L. Wangensteen, MD

1986
David V. Feliciano, MD

1987
David Roos, MD

1988
Kent C. Westbrook, MD

1989
Carey P. Page, MD

1990
James H. Tomas, MD

1991
Lawrence W. Way, MD

1992
Jon M. Burch, MD

1993
Jeffrey R. Saffle, MD

1994
G. Patrick Clagett, MD

1995
Jon S. Thompson, MD

1996
Wayne H. Schwesinger, MD

1997
Glenn C. Hunter, MD

1998
Courtney M. Townsend, Jr., MD

1999
James A. Edney, MD

2000
Robert J. Fitzgibbons, MD

2001
Gregorio A. Sicard, MD

2002
Layton F. Rikkers, MD

2003
Kenneth W. Sharp, MD

2004
B. Timothy Baxter, MD

2005
John F. Eidt, MD

2006
David Antonenko, MD, PhD

2007
Edward W. Nelson, MD

2008
Kenric Murayama, MD

2009
Karen R. Borman, MD

2010
Alden D. Harken, MD

2011
Anees Chagpar, MD

2012
Clay Cothren Burlew, MD

2013
R. Stephen Smith, MD

2014
Peter Angelos, MD, PhD
Dr. Raul Coimbra is the Surgeon in Chief of the UC San Diego Medical Center in Hillcrest, Executive Vice-Chairman of the Department of Surgery, Chief of the Division of Trauma, Surgical Critical Care and Burns, as well as the Director of the Level-1 Trauma Center at UC San Diego Health System.

Dr. Coimbra has played a significant role in building our region’s first Level-1 Trauma Center into one of the top programs in the nation, as well as a model for trauma centers around the world. He is President of the Board of Directors for the World Coalition for Trauma Care, as well as a member of the Global Alliance for the Care of the Injured with the Division of Trauma and Injury Prevention of the World Health Organization.

He is the Chairman of the Trauma Registry and Data Committee for the World Health Organization. In addition, Dr. Coimbra is an active member of the American College of Surgeons Committee on Trauma, as well as Chair of the Regional Committees of the American College of Surgeons Committee on Trauma. He has been appointed to a three-year term as Recorder and Scientific Chairman of the American Association for the Surgery of Trauma. He is also the Chairman of the San Diego County Trauma Medical Audit Committee, providing leadership to the Trauma System in research, education, clinical practice and quality improvement.

His vision and dedication have resulted in the opening of a new, state-of-the-art trauma resuscitation unit at UCSD’s Medical Center in Hillcrest, which has improved the efficiency for surgeons and addresses the continued growth of the trauma program and commitment of the community it serves in southwest San Diego.
### THOMAS G. ORR MEMORIAL LECTURESHIP

#### PAST PRESENTERS

<table>
<thead>
<tr>
<th>Year</th>
<th>Presenter</th>
<th>Year</th>
<th>Presenter</th>
<th>Year</th>
<th>Presenter</th>
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<tr>
<td>1966</td>
<td>Michael E. DeBakey, MD</td>
<td>1982</td>
<td>Arlo S. Hermreck, MD</td>
<td>1999</td>
<td>Frederick A. Moore, MD</td>
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<td>1967</td>
<td>Edgar J. Poth, MD</td>
<td>1983</td>
<td>G. Rainey Williams, MD</td>
<td>2000</td>
<td>H. Harlan Stone, MD</td>
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<td>1968</td>
<td>Stanley R. Friesen, MD</td>
<td>1984</td>
<td>Samuel A. Wells, Jr., MD</td>
<td>2001</td>
<td>Russell G. Postier, MD</td>
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<td>1969</td>
<td>Philip B. Price, MD</td>
<td>1985</td>
<td>Layton F. Rikkers, MD</td>
<td>2002</td>
<td>Richard J. Andrassy, MD</td>
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<td>1970</td>
<td>Kenneth C. Sawyer, MD</td>
<td>1986</td>
<td>Ronald C. Jones, MD</td>
<td>2003</td>
<td>Keith Lillemoe, MD</td>
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<td>1971</td>
<td>Merlin K. DuVal, MD</td>
<td>1987</td>
<td>W. Sterling Edwards, MD</td>
<td>2004</td>
<td>Alan Thorson, MD</td>
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<td>1972</td>
<td>C. Frederick Kittle, MD</td>
<td>1988</td>
<td>Laurence Y. Cheung, MD</td>
<td>2005</td>
<td>Nathaniel Soper, MD</td>
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<td>1973</td>
<td>Erie E. Peacock, MD</td>
<td>1989</td>
<td>Tom R. DeMeester, MD</td>
<td>2006</td>
<td>Thomas Weber, MD</td>
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<td>1974</td>
<td>Eugene M. Brickner, MD</td>
<td>1990</td>
<td>Charles M. Balch, MD</td>
<td>2007</td>
<td>Byers W. Shaw, MD</td>
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<td>1975</td>
<td>William R. Waddell, MD</td>
<td>1991</td>
<td>Alex G. Little, MD</td>
<td>2008</td>
<td>Shuvo Roy, PhD</td>
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<td>1976</td>
<td>Denton A. Cooley, MD</td>
<td>1992</td>
<td>Donald E. Fry, MD</td>
<td>2009</td>
<td>Mark A. Talamini, MD</td>
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<td>1977</td>
<td>Gilbert S. Campbell, MD</td>
<td>1993</td>
<td>Keith Reemtsma, MD</td>
<td>2010</td>
<td>Barbara Lee Bass, MD</td>
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<td>1978</td>
<td>Howard T. Robertson, MD</td>
<td>1994</td>
<td>C. James Carrico, MD</td>
<td>2011</td>
<td>John Potts, III, MD</td>
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<td>1979</td>
<td>Norman M. Rich, MD</td>
<td>1995</td>
<td>Frederick L. Grover, MD</td>
<td>2012</td>
<td>David Mercer, MD</td>
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<td>1980</td>
<td>W. Gerald Rainer, MD</td>
<td>1996</td>
<td>Ernest E. Moore, Jr., MD</td>
<td>2013</td>
<td>Alicia Mangram, MD</td>
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<td>1981</td>
<td>Arthur C. Beall, Jr., MD</td>
<td>1997</td>
<td>Nicholas P. Lang, MD</td>
<td>2014</td>
<td>Daniel R. Margulies, MD</td>
</tr>
</tbody>
</table>
CLAUDE H. ORGAN, J R. MEMORIAL LECTURESHP 
PLAYING IT SAFE: WHEN, WHAT, WHO

WEDNESDAY, APRIL 29, 2015
8:15AM – 9:00AM
Regency Main Ballroom

Speaker:
Roxie M. Albrecht, MD
Oklahoma City, OK

Roxie M. Albrecht, MD, FACS, is Professor and Vice Chair of the Department of Surgery at the University of Oklahoma. She is a graduate of the University of Iowa Undergraduate and Medical School, completed a General Surgery residency at the Michigan State University – Butterworth Hospital and a Surgical Critical Care fellowship at the University of Miami. During her academic career she has received medical student, resident and faculty teaching awards, including the Society of Critical Care Medicine’s Shubin/Weil Prize for Excellence in Bedside Teaching.

Dr. Albrecht joined the faculty at the University of Oklahoma in 2001 as the Director of Trauma and Surgical Critical Care. She has been active in the development of the OU Medical Center Level 1 Trauma Center and the trauma system in the State of Oklahoma. She is active in state, regional and national ACS Committee on Trauma activities and in advocacy for trauma and injury prevention legislation. For her work in patient and system advocacy, she has received the HCA Frist Humanitarian Award from OU Medical Center and the Rhinehart Medical Service award from the Oklahoma County Medical Society.

Dr. Albrecht is a member of numerous surgical and trauma societies and has been in leadership positions in the Society of Critical Care Medicine – Surgical Section, the Midwest Surgical Association, Western Trauma Association and the Southwestern Surgical Congress. She currently serves as the Southwestern Surgical Congress representative to the American Board of Surgery, a position that she is extremely honored to have received.

Dr. Albrecht has recently taken the position of Adult Safety Medical Director for the OU Physician’s medical group. She has a long history of interest in performance improvement, patient safety and quality and in this position can further her work in these endeavors at the University of Oklahoma.
GUEST SPEAKERS (continued)

CLAUDE H. ORGAN, JR. MEMORIAL LECTURESHIP
PAST PRESENTERS

1996
V. Suzanne Klimberg, MD

1997
LaSalle D. Leffall, Jr., MD

1998
Samuel A. Wells, Jr., MD

1999
Hiram C. Polk, Jr., MD

2000
F. Charles Brunicardi, MD

2001
John B. Cone, MD

2002
Douglas S. Reintgen, MD

2003
Frank Lewis, MD

2004
Philip Schauer, MD

2005
Sean J. Mulvihill, MD

2006
John Hanks, MD

2007
Glen D. Warden, MD

2008
Dmitry Oleynikov, MD

2009
Mary L. Brandt, MD

2010
Ernest E. Moore, MD

2011
Ronald M. Stewart, MD

2012
Eugene Foley, MD

2013
Kelly McMasters, MD

2014
Shanu N. Kothari, MD
JACK A. BARNEY RESIDENT'S AWARD

Dr. Jack A. Barney received his medical degree in 1956 from the University of Oklahoma. He completed his surgical residency training at St. Anthony Hospital and the University of Oklahoma Health Science Center before entering private practice in Oklahoma City. Dr. Barney continued in private practice in Oklahoma City and Clinical Assistant Professor of Surgery at the University of Oklahoma.

This award was established in 1986 to recognize the dedicated service of Dr. Barney, who served as Secretary-Treasurer of the Southwestern Surgical Congress from 1966 to 1986. It is awarded to the best paper presented by a resident. The first Jack A. Barney award was presented at the 1987 Annual Meeting.

1987
Ronald M. Stewart, MD

1988
T.L. Demmy, MD

1989
Ronald M. Stewart, MD

1990
George Orloff, MD

1991
L. Lee Nelson, MD

1992
Phillip M. Brown, MD

1993
Timothy C. Hollingsed, MD

1994
Walter L. Biffl, MD

1995
Daniel R. Meldrum, MD

1996
David A. Partrick, MD

1997
Evan R. Kokoska, MD

1998
Tari King, MD

1999
David G. Affleck, MD

2000
Philip A. Woodworth, MD

2001
Elizabeth K. Paulsen, MD

2002
Sandra Wong, MD

2003
Ketan Desai, MD

2004
Joseph A. Davis, MD

2005
Elizabeth Fitzsullivan, MD

2006
Hyong Kim, MD

2007
Marcene McVay, MD

2008
Jodi Gerdes, MD

2009
Jennifer Keller, MD

2010
Brenda Kopriva, MD

2011
Stephanie Cohen, MD, MS

2012
Paul Bjordahl, MD

2013
Irminne Van Dyken, MD

2014
Katie Wiggins-Dohlvik, MD
## AWARDS

### BEST POSTER AWARD

This award is presented to the highest ranked poster presented at the Southwestern Surgical Congress Annual Meeting.

<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
<th>Specialty</th>
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<tbody>
<tr>
<td>1996</td>
<td>Abdelkrim Touijer, MD</td>
<td>MD</td>
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<td>1997</td>
<td>Joseph Huh, MD</td>
<td>MD</td>
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<td>1998</td>
<td>Hedieh Stefanacci, MD</td>
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<td>1999</td>
<td>Stacy L. Stratmann, MD</td>
<td>MD</td>
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<tr>
<td>2000</td>
<td>Archana Ganaraj, MD</td>
<td>MD</td>
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<tr>
<td>2001</td>
<td>Erik B. Wilson, MD</td>
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<td>2002</td>
<td>Danny Little, MD</td>
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<tr>
<td>2003</td>
<td>Anees Chagpar, MD</td>
<td>MD</td>
</tr>
<tr>
<td>2004</td>
<td>Shawn St. Peter, MD</td>
<td>MD</td>
</tr>
<tr>
<td>2007</td>
<td>Shanu Kothari, MD</td>
<td>MD</td>
</tr>
<tr>
<td>2008</td>
<td>Candy Arentz, MD</td>
<td>MD</td>
</tr>
<tr>
<td>2009</td>
<td>Christian Jones, MD</td>
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<tr>
<td>2010</td>
<td>Shuan Brown, MD</td>
<td>MD</td>
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<td>2011</td>
<td>Amani Jambhekar, BA, BS</td>
<td>MD</td>
</tr>
<tr>
<td>2012</td>
<td>Gaurav Kaushik, PhD</td>
<td>MD</td>
</tr>
<tr>
<td>2013</td>
<td>Anne Doughtie, MD</td>
<td>MD</td>
</tr>
<tr>
<td>2014</td>
<td>Timothy Feldmann, MD</td>
<td>MD</td>
</tr>
</tbody>
</table>
SPECIAL SESSIONS

POSTGRADUATE COURSE
Toward the Safer Cholecystectomy
Innovations in Technology and Practice

SUNDAY, APRIL 26, 2015
8:00am – 12Noon
Regency Main Ballroom

Moderator:  Shanu N. Kothari, MD - La Crosse, WI

Faculty:
Fernando Dip, MD – Buenos Aires, Argentina
Richard Frazee, MD – Temple, TX
Megan Gilmore, MD – Mankato, MN
Brandon Grover, DO – La Crosse, WI
Corrigan McBride, MD – Omaha, NE
Shawn Tsuda, MD – Las Vegas, NV

8:00am – 8:30am  **Difficult Gallbladder**
Richard Frazee MD, *Temple, TX*

8:30am – 9:00am  **Complications of Laparoscopic Cholecystectomy**
Corrigan McBride MD, *Omaha, NE*

9:00am – 9:30am  **Conventional Methods to Optimize Safety of Laparoscopic Cholecystectomy**
Megan Gilmore MD, *Mankato, MN*

9:30am – 9:45am  Break

9:45am – 10:30am  **Debate: Routine Cholangiography**
**Pro:** Shawn Tsuda MD, *Las Vegas, NV*
**Con:** Brandon Grover DO, *La Crosse, WI*

10:30am – 12Noon  **Keynote Speaker: The New Surgical Revolution: NIR Guided Surgery**
Fernando Dip MD, *Buenos Aires, Argentina*
WOMEN IN SURGERY LUNCHEON
Town Hall – Issues for Women in Surgery in 2015

SUNDAY, APRIL 26, 2015
12:Noon – 1:00pm
Regency 4

Moderator: Barbara Pockaj, MD, Phoenix, AZ

Panelists: Anees Chagpar, MD – New Haven, CT
          Laura Moore, MD – Houston, TX
          Megan Gilmore, MD – Mankato, MN
          Maria Linnaus, MD – Rochester, MN
          Christine Velazco, MD – Phoenix, AZ
SPECIAL SESSIONS (continued)

AMERICAN COLLEGE OF SURGEONS PRESENTATION
Monday, April 27, 2015
8:00am – 11:30am
Regency Main Ballroom

8:00am – 9:30am  Session I: ACS Update
Moderator: David B. Hoyt MD, FACS, Chicago, IL

  8:00am – 8:20am  Overview
  David B. Hoyt MD, FACS, Chicago, IL

  8:20am – 8:40am  Advocacy and Health Policy
  Christian Shalgian, Washington, DC

  8:40am – 9:00am  PQRS
  Robert Jasak JD, Washington, DC

  9:00am – 9:30am  Discussion

9:30am – 10:00am  Break

10:00am – 11:30am  Session II: Update on Maintenance of Certification (MOC)
Moderator: Mark Weissler MD, FACS, Chapel Hill, NC

  10:00am – 10:20am  Overview of the MOC Program
  Mark Weissler MD, FACS, Chapel Hill, NC

  10:20am – 10:40am  ABS MOC: Myth vs. Reality
  Mark Malangoni MD, FACS, Philadelphia, PA

  10:40am – 11:00am  Perspectives of a Practicing Surgeons
  Beth Sutton MD, FACS, Wichita Falls, TX

  11:00am – 11:30am  Discussion/Question and Answers
SPECIAL SESSIONS (continued)

DEBATE PRESENTATION

SWSC Debate: Is There a Future for the Practice of General Surgery?

TUESDAY, APRIL 28, 2015
7:30am – 8:30am
Regency Main Ballroom

Moderator: Brian Eastridge, MD – San Antonio, TX
Pro: John R. Potts, III, MD – Chicago, IL
Con: Dmitry Oleynikov, MD – Omaha, NE

GRADUATE MEDICAL EDUCATION LUNCHEON

Social Media – Positives and Pitfalls
Tuesday, April 28, 2015
12:15pm – 1:30pm
Regency 4
Registration Fee: $25 per person

Moderator: Daniel Vargo, MD – Salt Lake City, UT

12:15pm – 12:25pm Introduction
Daniel Vargo MD, Salt Lake City, UT

12:25pm – 12:50pm Social Media and Professionalism
Sean J. Langenfeld MD, Omaha, NE

12:50pm – 1:15pm Social Media and How to Use Responsibly
Elisabeth Mitchell, Salt Lake City, UT

1:15pm – 1:30pm Question and Answer
SPECIAL SESSIONS  (continued)

ADVANCED PRACTITIONERS IN SURGERY LUNCHEON
SWSC as an Organization for Advanced Practice Providers

TUESDAY, APRIL 28, 2015
12:15pm – 1:30pm
Regency 5
Registration Fee: $25 per person

Moderator: Walter Biffl, MD – Denver, CO

Panelists: Alicia Conrad – Denver, CO
Courtney Scaife, MD – Salt Lake City, UT
Ronald Stewart, MD – San Antonio, TX
IN MEMORIAM

DEATHS REPORTED 2014 - 2015
As of March, 2015

Raymond C. Read, MD – Rockville, MD
*1984 SWSC President

Craig Fischer, MD – Houston, TX

Please report any known member deaths to the Southwestern Surgical Congress:

Southwestern Surgical Congress
14005 Nicklaus Drive
Overland Park, KS 66223

Phone: 913-402-7102
Fax: 913-273-1140
Email: events@lp-etc.com
Web: www.swscongress.org
## 2014-2015 NEW MEMBERS

### NEW ACTIVE FELLOWS

<table>
<thead>
<tr>
<th>Name</th>
<th>City, State</th>
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<tbody>
<tr>
<td>Mary Oline Aaland, MD</td>
<td>Fargo, ND</td>
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<tr>
<td>Paul Michael Bjordahl, MD</td>
<td>Sioux Falls, SD</td>
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<tr>
<td>Victor Petrovich Bochkarev, MD</td>
<td>Hilo, HI</td>
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<td>Janina Budura Bonwich, MD</td>
<td>Little Rock, AR</td>
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<td>Rondi Beth Gelbard, MD</td>
<td>Atlanta, GA</td>
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<td>Stephanie Dawn Gordy, MD</td>
<td>Houston, TX</td>
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<td>Kevin Lawrence Grimes, MD</td>
<td>Tokyo, Japan</td>
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<td>Brandon Thomas Grover, DO</td>
<td>La Crosse, WI</td>
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<td>Wesley Branch Jones, MD</td>
<td>Greenville, SC</td>
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<td>Emmett Ridley Mackan, MD</td>
<td>Beaumont, TX</td>
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<td>Justin Lee Regner, MD</td>
<td>Temple, TX</td>
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<td>Michel Khamis Stephan, MD</td>
<td>Mesquite, TX</td>
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<td>Robert Thomas Stovall, MD</td>
<td>Denver, CO</td>
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### NEW ASSOCIATE FELLOWS

<table>
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<tr>
<td>Stacy D. Dougherty, MD</td>
<td>Atlanta, GA</td>
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<tr>
<td>Nicolas Melo, MD</td>
<td>Los Angeles, CA</td>
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<tr>
<td>Mario Rueda, MD</td>
<td>Little Rock, AR</td>
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<td>Robert Chandler Wrona, MD</td>
<td>Durango, CO</td>
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April 26 – 29, 2015 | Hyatt Regency Monterey, Monterey, CA
SCHEDULE
AT A GLANCE
### Schedule at a Glance

**Saturday, April 25, 2015**

<table>
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<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tr>
<td>1:00pm – 2:00pm</td>
<td>Executive Committee Meeting</td>
<td>Oaktree 1-3</td>
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<tr>
<td>2:00pm – 5:00pm</td>
<td>Council Meeting</td>
<td>Oaktree 1-3</td>
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<tr>
<td>7:00pm – 8:30pm</td>
<td>President’s &amp; Resident Reception</td>
<td>President’s House&lt;br&gt;<em>(by invitation)</em></td>
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# Schedule at a Glance (continued)

## Sunday, April 26, 2015

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<th>Location</th>
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<tr>
<td>8:00am – 5:00pm</td>
<td>Registration</td>
<td>Regency Foyer</td>
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<tr>
<td>8:00am – 12Noon</td>
<td>Postgraduate Course: Toward the Safer Cholecystectomy: Innovations in Technology and Practice</td>
<td>Regency Main Ballroom</td>
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<tr>
<td>12Noon – 1:00pm</td>
<td>Women in Surgery Luncheon</td>
<td>Regency 4</td>
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<td><strong>No Fee</strong></td>
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<tr>
<td>1:00pm – 2:30pm</td>
<td>Opening Scientific Session I: Abdominal &amp; GI</td>
<td>Regency Main Ballroom</td>
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<tr>
<td>2:30pm – 2:45pm</td>
<td>Introduction of New Members</td>
<td>Regency Main Ballroom</td>
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<td>2:45pm – 3:15pm</td>
<td>Beverage Break / Exhibits &amp; ePosters</td>
<td>Regency 1-3</td>
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<td>3:15pm – 4:30pm</td>
<td>Scientific Session II: Other</td>
<td>Regency Main Ballroom</td>
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<td>4:30pm – 5:15pm</td>
<td>Presidential Address: Perspectives on the Profession</td>
<td>Ronald M. Stewart, MD – San Antonio, TX</td>
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<td>Regency Main Ballroom</td>
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<tr>
<td>5:15pm – 6:15pm</td>
<td>Featured ePoster Presentations</td>
<td>Regency 1-3</td>
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<tr>
<td>5:30pm – 7:00pm</td>
<td>Welcome &amp; Exhibitor Reception</td>
<td>Regency 1-3</td>
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</table>
MONDAY, APRIL 27, 2015

7:00am – 8:00am  Morning Yoga
Spyglass 1 & 2
Registration Fee: $10 per person

7:00am – 8:30am  Continental Breakfast
Regency 1-3

7:00am – 12Noon  Registration
Regency Foyer

7:00am – 8:00am  Quick Shot Presentations
Gastrointestinal  Regency 4
Cardiothoracic / Vascular  Regency 5
Trauma  Regency Main Ballroom

8:00am – 11:30am  American College of Surgeons Presentation
Regency Main Ballroom

8:00am – 10:00am  Spouse Hospitality
President’s House

9:30am – 10:00am  Beverage Break / Exhibits & ePosters
Regency 1-3

1:00pm – 6:00pm  Golf Tournament and Carmel Valley Wine Tour
Pre-Registration Required
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
</table>
| 6:30am – 7:30am | Quick Shot Presentations  
Potpourri  
Breast / Endocrine  
Acute Care Surgery | Regency 4  
Regency 5  
Regency Main Ballroom |
| 7:00am – 5:00pm | Registration  
Regency Foyer | -  |
| 7:00am – 9:00am | Continental Breakfast  
Regency 1-3 | -  |
| 7:30am – 8:30am | Debate Presentation  
Is There a Future for the Practice of General Surgery?  
Regency Main Ballroom | -  |
| 8:00am – 10:00am | Spouse Hospitality  
President’s House | -  |
| 8:30am – 10:00am | Scientific Session III: Trauma  
Regency Main Ballroom | -  |
| 10:00am – 10:45am | Edgar J. Poth Memorial Lectureship  
History of the American Board of Surgery: Vignettes from the Certifying Exam  
J. Patrick Walker, MD – Crockett, TX  
Regency Main Ballroom | -  |
| 10:45am – 11:15am | Beverage Break / Exhibits & ePosters  
Regency 1-3 | -  |
| 11:15am – 12:15pm | Scientific Session IV: Vascular & CT  
Regency Main Ballroom | -  |
| 12:15pm – 1:30pm | Graduate Medical Education Luncheon  
Social Media: Positives & Pitfalls  
Regency 4  
*Registration Fee: $25 per person* | -  |
**TUESDAY, APRIL 28, 2015 CONTINUED**

12:15pm – 1:30pm  
**Advanced Practitioners in Surgery Luncheon**  
**SWSC as an Organization for Advanced Practice Providers**  
Regency 5  
*Registration Fee: $25 per person*

12:30pm – 2:00pm  
**Spouse Activity: Cooking Demonstration with the Chef**  
Regency Conference Center Kitchen  
*Registration Fee: $25*

1:30pm – 2:30pm  
**Scientific Session V: Acute Care Surgery**  
Regency Main Ballroom

2:30pm – 2:45pm  
**Beverage Break / Exhibits & ePosters**  
Regency 1-3

2:45pm – 3:30pm  
**Thomas G. Orr Memorial Lectureship**  
**The Brain-Gut-Lung Axis: Uncovering Multiple Organ Failure after Injury**  
Raul Coimbra, MD, PhD – San Diego, CA  
Regency Main Ballroom

3:30pm – 4:30pm  
**Scientific Session VI: Breast and Endocrine**  
Regency Main Ballroom

4:30pm – 5:15pm  
**SWSC Annual Business Meeting**  
Regency Main Ballroom  
*(Members Only)*

7:00pm – 10:00pm  
**SWSC Reception**  
Beach Grove (Weather Backup: Regency 4-6)
SCHEDULE AT A GLANCE (continued)

WEDNESDAY, APRIL 29, 2015

7:00am – 8:00am  Quick Shot Presentations
                 Oncology  Regency 4
                 Critical Care  Regency 5
                 Trauma  Regency Main Ballroom

7:00am – 9:00am  Continental Breakfast
                 Regency Foyer

7:00am – 11:00am Registration
                 Regency Foyer

8:15am – 9:00am  Claude H. Organ, Jr. Memorial Lectureship
                 Playing It Safe: When, What, Who
                 Roxie Albrecht, MD – Oklahoma City, OK
                 Regency Main Ballroom

9:00am – 9:30am  Beverage Break
                 Regency Foyer

9:30am – 10:30am Scientific Session VII: Surgical Oncology
                 Regency Main Ballroom

10:30am  Award Presentations & Closing Session
          Regency Main Ballroom
SCIENTIFIC PROGRAM
SCIENTIFIC PROGRAM

*SIndicates resident paper competing for Jack A. Barney Award.

SUNDAY, APRIL 26, 2015

8:00am – 5:00pm
Registration

8:00am – 12Noon
Postgraduate Course
Toward the Safer Cholecystectomy: Innovations in Technology and Practice
Moderator: Shanu Kothari MD, La Crosse, WI

8:00am – 8:30am
Difficult Gallbladder
Richard Frazee MD, Temple, TX

8:30am – 9:00am
Complications of Laparoscopic Cholecystectomy
Corrigan McBride MD, Omaha, NE

9:00am – 9:30am
Conventional Methods to Optimize Safety of Laparoscopic Cholecystectomy
Megan Gilmore MD, Rochester, MN

9:30am – 9:45am
Break

9:45am – 10:30am
Debate: Routine Cholangiography
Pro: Shawn Tsuda MD, Las Vegas, NV
Con: Brandon Grover DO, La Crosse, WI

10:30am – 12Noon
Keynote Speaker
The New Surgical Revolution: NIR Guided Surgery
Fernando Dip MD, Buenos Aires, Argentina

12Noon – 1:00pm
Women in Surgery Luncheon
Town Hall – Issues for Women in Surgery in 2015
Moderator: Barbara Pockaj MD, Phoenix, AZ
Panelists: Anees Chagpar, MD – New Haven, CT
Laura Moore, MD – Houston, TX
Megan Gilmore, MD – Mankato, MN
Maria Linnaus, MD – Rochester, MN
Cristine Velazco, MD – Phoenix, AZ
Open Scientific Session I: Abdominal & GI

Moderators: Daniel Vargo MD, Salt Lake City, UT; Lillian Liao MD MPH, San Antonio, TX

1:00pm – 1:15pm

1. POSTOPERATIVE ANTIBIOTICS ARE NOT ASSOCIATED WITH DECREASED WOUND COMPLICATIONS AMONG PATIENTS UNDERGOING APPENDECTOMY FOR COMPLICATED APPENDICITIS

Presenter: Dennis Kim MD, Torrance, CA

Discussant: Jeffrey Lee MD, Houston, TX

1:15pm – 1:30pm

*2. LONG-TERM OUTCOMES OF AN INTEGRATED TRANSFUSION REDUCTION INITIATIVE IN PATIENTS UNDERGOING RESECTION FOR COLORECTAL CANCER

Presenter: Andrew Van Osdol MD, La Crosse, WI

Discussant: Sean Langenfeld MD, Omaha, NE

1:30pm – 1:45pm

*3. ROUTINE ENDOSCOPIC SURVEILLANCE FOR LOCAL RECURRENCE OF RECTAL CANCER IS FUTILE

Presenter: Luke Martin MD, Salt Lake City, UT

Discussant: Terry Lairmore MD, Temple, TX

1:45pm – 2:00pm

4. OUTCOMES OF CHRONIC STEROID USE IN COLORECTAL SURGERY

Presenter: Zhobin Moghadamyeghan MD, Orange, CA

Discussant: Gary Dunn MD, Oklahoma City, OK

2:00pm – 2:15pm

5. MANAGEMENT OF BILIARY SYMPTOMS FOLLOWING BARIATRIC SYMPTOMS FOLLOWING BARIATRIC SURGERY

Presenter: Joel Brockmeyer MD, La Crosse, WI

Discussant: Megan Gilmore MD, Mankato, MN

2:15pm – 2:30pm

6. A COMPARISON OF THE ENDOSCOPIC AND LAPAROSCOPIC VIEW OF THE GASTROESOPHAGEAL JUNCTION IN THE USE OF TRANSORAL FUNDOPICATION

Presenter: Glenn Ihde MD, Red Oak, TX

Discussant: Shawn Tsuda MD, Las Vegas, NV
2:30pm – 2:45pm
**Introduction of New Members**
Membership Chair: S. Rob Todd MD, Houston, TX

2:45pm – 3:15pm
**Beverage Break/Exhibit & ePoster Displays**

3:15pm – 4:30pm
**Scientific Session II: Other**
**Moderators:** John Moore MD, Denver, CO; Emmett Mackan MD, Beaumont, TX

3:15pm – 3:30pm
7. TAILORING SURGICAL APPROACH FOR ELECTIVE VENTRAL HERNIA REPAIR BASED ON OBESITY AND NSQIP OUTCOMES
**Presenter:** Mary Mrdurt MD, Temple, TX
**Discussant:** Mark Savarise MD, Salt Lake City, UT

3:30pm – 3:45pm
*8. SPONTANEOUS PNEUMOMEDIASTINUM IN THE PEDIATRIC PATIENT*
**Presenter:** Paulette Abbas MD, Houston, TX
**Discussant:** John C. Baldwin MD, Lubbock, TX

3:45pm – 4:00pm
*9. TRANSITION FROM GRANT FUNDING TO A SELF-SUPPORTING BURN TELEMEDICINE PROGRAM IN THE WESTERN UNITED STATES*
**Presenter:** Katie Russell MD, Salt Lake City, UT
**Discussant:** Lillian Liao MD MPH, San Antonio, TX

4:00pm – 4:15pm
*10. THE EFFECT OF SUPPLEMENTAL PARENTERAL NUTRITION ON OUTCOMES OF NECROTIZING ENTEROCOLITIS IN PREMATURE, LOW BIRTH WEIGHT NEONATES.*
**Presenter:** Adesola Akinkuotu MD, Houston, TX
**Discussant:** Daniel Margulies MD, Los Angeles, CA

4:15pm – 4:30pm
*11. IMPLEMENTATION OF THE WHO CHECKLIST AND DEBRIEFING IMPROVES ACCURACY OF SURGICAL WOUND CLASS DOCUMENTATION*
**Presenter:** Deidre Wyrick MD, Little Rock, AR
**Discussant:** David Partrick MD, Aurora, CO
SCIENTIFIC PROGRAM (continued)

4:30pm – 5:15pm
SWSC 2015 Presidential Address:
Perspectives on the Profession
Ronald Stewart, MD
San Antonio, TX

5:15pm – 6:15pm
Featured ePoster Presentations
KIOSK #1
TOP 5 FEATURED POSTERS
2. CORRELATING FINE NEEDLE THYROID NODULE BIOPSY RESULTS WITH PRE-OPERATIVE ULTRASOUND TO GUIDE SURGICAL DECISION MAKING IN THYROIDECTOMY
Presenter: Caitlin Gade MD, Denver, CO

3. ELDERLY TRAUMA PATIENTS: WHERE YOU GO DETERMINES WHERE YOU GO
Presenter: Walter Biffl MD, Denver, CO

4. TEACHING IN THE OPERATING ROOM: HOW TO ENGAGE A LEARNER
Presenter: Peter Tsai MD, Houston, TX

5. THE AILING SURGEON: PERCEPTION VERSUS FACT? A SYSTEMATIC REVIEW OF SURGEON SYMPTOMS AND CORRESPONDING EXERTION AS MEASURED BY ELECTROMYOGRAPHY.
Presenter: Chee-Chee Stucky MD, Houston, TX

7. THE EFFECT OF ALCOHOL INTOXICATION ON PHYSICAL EXAM AFTER BLUNT HOLLOW VISCUS INJURY
Presenter: Brian Nguyen MD, Torrance, CA

5:30pm – 7:00pm
Welcome & Exhibitor Reception
MONDAY, APRIL 27, 2015

7:00am – 8:30am
Continental Breakfast

7:00am – 12Noon
Registration

7:00am – 8:00am
Quick Shot – Gastrointestinal
Moderators: Anne Mancino MD, Little Rock, AK; Mark Savarise MD, Salt Lake, UT

7:00am – 7:08am
QS 1. ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY PERFORATIONS: OUTCOMES IN MANAGEMENT
Presenter: Mallory Bray MD, La Crosse, WI

7:08am – 7:16am
QS 2. LAPAROSCOPIC NISSEN FUNDOPPLICATION USING A LEFT POSTERIOR APPROACH MINIMIZES ESOPHAGEAL INJURY: OUR EXPERIENCE
Presenter: Alicia Mangram MD, Phoenix, AZ

7:16am – 7:24am
QS 3. FORMATION OF HIATAL HERNIA IS ASSOCIATED WITH OTHER ABDOMINAL WALL HERNIAS: A LARGE DATABASE ANALYSIS
Presenter: Dmitry Oleynikov MD, Omaha, NE

7:24am – 7:32am
QS 4. IMPACT OF MINIMALLY INVASIVE SURGERY ON HEALTHCARE UTILIZATION, COST AND WORKPLACE ABSENTEEISM IN PATIENTS WITH INCISIONAL/VENTRAL HERNIA (IVH)
Presenter: Dean Mikami MD, Columbus, OH

7:32am – 7:40am
QS 5. RISK FACTORS FOR CONVERSION TO AN OPEN CHOLECYSTECTOMY
Presenter: Andrew Nguyen MD, Torrance, CA
7:40am – 7:48am  
**QS 6.** GLYCEMIC CONTROL IMMEDIATELY FOLLOWING BARIATRIC SURGERY: ROUX-EN-Y GASTRIC BYPASS VERSUS SLEEVE GASTRECTOMY  
**Presenter:** Joel Brockmeyer MD, *La Crosse, WI*

7:48am – 7:56am  
**QS 7.** A RETROSPECTIVE CHART REVIEW COMPARING TRANSABDOMINAL VERSUS TRANSORAL REMNANT EXTRACTION IN LAPAROSCOPIC SLEEVE GASTRECTOMY  
**Presenter:** Scott Golembeski MD, *Denver, CO*

7:00am – 8:00am  
**Quick Shot – Trauma**  
**Moderators:** Christine Cocanour MD, *Sacramento, CA*; Narong Kulvatunyou MD, *Tucson, AZ*

7:00am – 7:08am  
**QS 8.** DOES AN IN-HOUSE TRAUMA ATTENDING REALLY MAKE A DIFFERENCE  
**Presenter:** P.J. Stiles MD, *Wichita, KS*

7:08am – 7:16am  
**QS 9.** CONTROL THE DAMAGE: MORBIDITY AND MORTALITY AFTER EMERGENT TRAUMA LAPAROTOMY  
**Presenter:** John Harvin MD, *Houston, TX*

7:16am – 7:24am  
**QS 10.** COMPUTED TOMOGRAPHY SCAN OF CHEST IN TRAUMA PATIENTS: AN ESSENTIAL OR AN OVER UTILIZED TOOL?  
**Presenter:** Ansab Haider MD, *Tucson, AZ*

7:24am – 7:32am  
**QS 11.** ISOLATED TRAUMATIC BRAIN INJURY IN PATIENTS WITH CIRRHOSIS: DO DIFFERENT TREATMENT PARADIGMS RESULT IN INCREASED MORTALITY?  
**Presenter:** Simone Langness MD, *San Diego, CA*

7:32am – 7:40am  
**QS 12.** PLEURAL EFFUSION FOLLOWING RIB FRACTURES IN THE ELDERLY: ARE WE BEING AGGRESSIVE ENOUGH?  
**Presenter:** Nicolas Zhou MS, *Glendale, AZ*
7:48am – 7:56am
**QS 14.** HOW HAS OIL DRILLING ACTIVITY AffEctED TRAUMA IN NORTHWESTERN NORTH DAKOTA
**Presenter:** Stefan Johnson MD, *Grand Forks, ND*

7:00am – 8:00am
**Quick Shot – Cardiothoracic/Vascular**
**Moderators:** Laura Moore MD, *Houston, TX*; David Cole MD, *Charleston, SC*

7:00am – 7:08am
**QS 15.** ARTERIAL REVASCULARIZATION WITH THE RADIAL ARTERY IS SAFE AND EFFECTIVE IN PATIENTS UNDERGOING BYPASS GRAFTING: A CONSECUTIVE SERIES OF 1946 PATIENTS
**Presenter:** Eric Anderson MD, *Grand Forks, ND*

7:08am – 7:16am
**QS 16.** IMMEDIATE POST-TRAUMATIC PULMONARY EMBOLISM IS NOT ASSOCIATED WITH RIGHT VENTRICULAR DYSFUNCTION
**Presenter:** Rondi Gelbard MD, *Atlanta, GA*

7:16am – 7:24am
**QS 17.** THE DARK SIDE OF THE SPLEEN; COMPLICATIONS OF ANGIOEMBOLIZATION
**Presenter:** Amy Kwok MD, *Fresno, CA*

7:24am – 7:32am
**QS 18.** TRENDS IN THE MANAGEMENT OF MAJOR ABDOMINAL VASCULAR INJURIES: 2000-2014
**Presenter:** Dennis Kim MD, *Torrance, CA*

7:32am – 7:40am
**QS 19.** IDENTIFYING THE BROKEN HEART: PREDICTORS OF MORTALITY IN BLUNT CARDIAC INJURY
**Presenter:** Tahereh Orouji MD, *Tucson, AZ*

7:40am – 7:48am
**QS 20.** FACTORS AFFECTING MORTALITY AFTER PENETRATING CARDIAC INJURIES: 10 YEAR EXPERIENCE AT URBAN LEVEL I TRAUMA CENTER
**Presenter:** Rondi Gelbard MD, *Atlanta, GA*
7:48am – 7:56am
**Presenter:** Miriam Neufeld MD, *Indianapolis, IN*

8:00am – 11:30am
**American College of Surgeons Presentation**

8:00am – 9:30am
**Session I: ACS Update**
Moderator: David B. Hoyt MD, FACS, Chicago, IL

8:00am – 8:20am
**Overview**
David B. Hoyt MD, FACS, Chicago, IL

8:20am – 8:40am
**Advocacy and Health Policy**
Christian Shalgian, Washington, DC

8:40am – 9:00am
**PQRS**
Robert Jasak JD, Washington, DC

9:00am – 9:30am
**Discussion**

9:30am – 10:00am
**Break**

10:00am – 11:30am
**Session II: Update on Maintenance of Certification (MOC)**
Moderator: Mark Weissler MD, FACS, Chapel Hill, NC

10:00am – 10:20am
**Overview of the MOC Program**
Mark Weissler MD, FACS, Chapel Hill, NC
10:20am – 10:40am
ABS MOC: Myth vs. Reality
Mark Malangoni MD, FACS, Philadelphia, PA

10:40am – 11:00am
Perspectives of a Practicing Surgeons
Beth Sutton MD, FACS, Wichita Falls, TX

11:00am – 11:30am
Discussion/Question and Answers

8:00am – 10:00am
Spouse Hospitality

9:30am – 10:00am
Beverage Break/Exhibit & ePoster Displays

1:00pm – 6:00pm
Afternoon Golf and Optional Activities
SCIENTIFIC PROGRAM (continued)

TUESDAY, APRIL 28, 2015

6:30am – 7:30am
Quick Shot – Potpourri
Moderators: Brian Eastridge MD, San Antonio, TX; Robert McIntyre MD, Aurora, CO

6:30am – 6:38am
QS 22. ANTI-TEXTING CAMPAIGNS DO NOTHING TO AFFECT DISTRACTED DRIVING CRASHES AND DEATHS IN TEXAS
Presenter: Rhett Long MD, Austin, TX

6:38am – 6:46am
QS 23. SUBCELLULAR METABOLIC DERANGEMENT POTENTIATES ACIDOSIS AND NITROGEN IMBALANCE IMMEDIATELY FOLLOWING HEMORRHAGIC SHOCK
Presenter: Annie Slaughter MD, Aurora, CO

6:46am – 6:54am
QS 24. CHARACTERIZING FLOW DISRUPTIONS DURING TRAUMA SIMULATIONS
Presenter: Rex Chung MD, Los Angeles, CA

6:54am – 7:02am
QS 25. OVERUTILIZATION OF BIOHAZARD RED BAGS
Presenter: Mary Aaland MD, Grand Forks, ND

7:02am – 7:10am
QS 26. IMPROVING OR EFFICIENCY: CONVERSION FROM A FIRST-COME OR SCHEDULING SYSTEM TO A BLOCKED TIME OR SCHEDULING SYSTEM
Presenter: Charles Baldwin MD, Cooperstown, NY

7:10am – 7:18am
QS 27. PREHOSPITAL FAST: WHAT IS THE POTENTIAL IMPACT IN A LARGE URBAN SETTING
Presenter: Ronald Sing DO, Charlotte, NC
7:18am – 7:26am
**QS 28.** PEDIATRIC APPENDICITIS AND NEED FOR ANTIBIOTICS AT TIME OF DISCHARGE: DOES ROUTE OF ADMINISTRATION MATTER?
*Presenter:* Shannon Acker MD, *Aurora, CO*

6:30am – 7:30am
**Quick Shot – Acute Care Surgery**
*Moderators:* Randolph E. Szlabick MD, *Grand Forks, ND*; Karin Trujillo MD, *Omaha, NE*

6:30am – 6:38am
**QS 29.** PATIENT SATISFACTION AFTER OUTPATIENT APPENDECTOMY
*Presenter:* Katherine Anderson MD, *Temple, TX*

6:38am – 6:46am
**QS 30.** PREDICTORS OF THE PRESENCE OF STRANGULATED BOWEL IN PATIENTS WITH HERNIAS
*Presenter:* Jessica Keeley MD, *Torrance, CA*

6:46am – 6:54am
**QS 31.** DETERMINATION OF INDEPENDENT CLINICAL FACTORS FOR ANASTOMOTIC LEAK IN ACUTE CARE SURGERY
*Presenter:* Bryan Morse MD MS, *Atlanta, GA*

6:54am – 7:02am
**QS 32.** FACTORS THAT INFLUENCE SURGICAL MANAGEMENT OF LARGE BOWEL OBSTRUCTION
*Presenter:* Brian MacLaughlin MD, *Torrance, CA*

7:02am – 7:10am
**QS 33.** RISK FACTORS AND INFLUENCE OF SYSTEM TIME ON INCIDENCE OF ACUTE APPENDICITIS PERFORATION GIVEN THAT PATIENT’S TIME DELAY IS NOT A FACTOR
*Presenter:* Narong Kulvatunyou MD, *Tucson, AZ*

7:10am – 7:18am
**QS 34.** ROUTINE CULTURES IN APPENDICITIS: ARE THEY REALLY WORTH THE COST?
*Presenter:* Priscilla Thomas MD, *Grand Forks, ND*

7:18am – 7:26am
**QS 35.** CAN ORAL CONTRAST COMPUTED TOMOGRAPHY SCAN AFFECT THE CLINICAL COURSE OF ADHESIVE SMALL BOWEL OBSTRUCTION?
*Presenter:* Narong Kulvatunyou MD, *Tucson, AZ*
6:30am

**Quick Shot – Breast/Endocrine**

**Moderators:** Mark Cohen MD, *Ann Arbor, MI*; John C. Russell MD, Albuquerque, NM

6:30am – 6:38am

**QS 36.** IS THE ACS NSQIP® SURGICAL RISK CALCULATOR APPLICABLE FOR BREAST CANCER PATIENTS UNDERGOING BREAST CONSERVING SURGERY?

**Presenter:** Brian Lyle MD, *La Crosse, WI*

6:38am – 6:46am

**QS 37.** BEFORE AND AFTER Z0011 – EFFECT ON EARLY BREAST CANCER TREATMENT

**Presenter:** Wen-yu Haines MD, *Grand Forks, ND*

6:46am – 6:54am

**QS 38.** POSITION STATEMENT ON BREAST CANCER LUMPECTOMY MARGINS: IMPACT ON MARGIN REVISION PRACTICE

**Presenter:** Bryce Stash BA, *Amarillo, TX*

7:02am – 7:10am

**QS 40.** CENTRAL VENOUS PARATHYROID HORMONE MONITORING DURING MINIMALLY INVASIVE PARATHYROIDECTOMY: DESCRIPTION OF A NOVEL, SIMPLIFIED TECHNIQUE FOR SAMPLING THROUGH THE NECK INCISION WITH VALIDATION OF RESULTS

**Presenter:** Jessica Folek MD, *Temple, TX*

7:10am – 7:18am

**QS 41.** OUTCOMES AFTER PANCREATECTOMY WITH SURGICAL RESIDENT INVOLVEMENT: A NSQIP ANALYSIS

**Presenter:** Alex Cardenas MD MS, *Tucson, AZ*

7:18am – 7:26am

**QS 42.** THE EFFECT ON LENGTH OF STAY USING AN ENHANCED RECOVERY AFTER SURGERY SYSTEM

**Presenter:** John Ashcraft DO, *Kansas City, KS*

7:00am – 9:00am

Continental Breakfast

7:00am – 2:45pm

Exhibit & ePoster Displays
7:30am – 8:30am
**SWSC Debate: “Is There a Future for the Practice of General Surgery?”**
**Moderator:** Brian Eastridge MD, *San Antonio, TX*
Pro: John R. Potts, III MD, *Chicago, IL*
Con: Dmitry Oleynikov MD, *Omaha, NE*

8:00am – 10:00am
**Spouse Hospitality**

8:30am – 10:00am
**Scientific Session III: Trauma**
Moderators: Laura Moore MD, *Houston, TX*; Bryan Morse MD MS, *Atlanta, GA*

8:30am – 8:45am
**12. TRAUMA-ASSOCIATED PNEUMONIA: TIME TO REDEFINE VENTILATOR-ASSOCIATED PNEUMONIA IN TRAUMA PATIENTS**
**Presenter:** Jacqueline Sohn MBS, *Glendale, AZ*
**Discussant:** Mike Truitt MD, *Dallas, TX*

8:45am – 9:00am
**13. PEDIATRIC TRAUMA SYSTEM MODELS: DO SYSTEMS UTILIZING ADULT TRAUMA SURGEONS COMPARE FAVORABLY TO THOSE UTILIZING PEDIATRIC SURGEONS?**
**Presenter:** P.J. Stiles MD, *Wichita, KS*
**Discussant:** David Partrick MD, *Aurora, CO*

9:00am – 9:15am
**14. EVALUATION OF STO2 TISSUE PERFUSION MONITORING AS A TOOL TO PREDICT THE NEED FOR LIFE SAVING INTERVENTIONS IN TRAUMA PATIENTS**
**Presenter:** Catherine Carlile BS, *Houston, TX*
**Discussant:** Brian Eastridge MD, *San Antonio, TX*

9:15am – 9:30am
**15. SKIP AND SAVE: UTILITY OF PELVIC X-RAYS IN THE INITIAL EVALUATION OF BLUNT TRAUMA PATIENTS**
**Presenter:** Jose Raul Soto MD MPH, *Dallas, TX*
**Discussant:** Krista Kaups MD, MSc, *Fresno, CA*
9:30am – 9:45am
*16. IMPACT OF INTRACRANIAL PRESSURE MONITORING ON MORTALITY FOLLOWING SEVERE TRAUMATIC BRAIN INJURY
Presenter: Brian MacLaughlin MD, Torrance, CA
Discussant: S. Rob Todd MD, Houston, TX

9:45am – 10:00am
*17. SERIAL ROUTINE REPEAT COMPUTED TOMOGRAPHY SCANS IN PATIENTS WITH TRAUMATIC BRAIN INJURY: A PRACTICE OF THE PAST
Presenter: Ansab Haider MD, Tucson, AZ
Discussant: Ronald Sing DO, Charlotte, NC

10:00am – 10:45am
Edgar J. Poth Memorial Lecture
History of the American Board of Surgery- Vignettes from the Certifying Exam
Presenter: J. Patrick Walker MD, Crockett, TX

10:45am – 11:15am
Beverage Break/Exhibit & ePoster Displays

11:15am – 12:15pm
Scientific Session IV: Vascular & CT
Moderators: Rudy Lackner MD, Omaha, NE; Richard Pennell MD, St. Louis, MO

11:15am – 11:30am
*18. EXPERIENCE WITH NEW ORAL ANTICOAGULANTS FOR THE MANAGEMENT OF POST-OPERATIVE ATRIAL FIBRILLATION AFTER ISOLATED CORONARY ARTERY BYPASS GRAFTING
Presenter: Eric Anderson MD, Grand Forks, ND
Discussant: Danny Chu MD, Pittsburgh, PA

11:30am – 11:45am
*19. “BLUSH AT FIRST SIGHT”; SIGNIFICANCE OF CT AND ANGIOGRAPHIC DISCREPANCY IN PATIENTS WITH BLUNT ABDOMINAL TRAUMA
Presenter: Abdul Alarhayem MD, San Antonio,
Discussant: Thomas White MD, Salt Lake City, UT
11:45am – 12:00pm
20. SURGICAL STABILIZATION OF SEVERE RIB FRACTURES DECREASES INCIDENCE OF RETAINED HEMOTHORAX  
**Presenter:** Sarah Majercik MD MBA, *Salt Lake City, UT*  
**Discussant:** Daniel L. Dent MD, *San Antonio, TX*

12:00pm – 12:15pm
21. NUSS SURGERY CAUSES DECOMPRESSION OF RIGHT HEART CHAMBERS IN PATIENTS UNDERGOING SURGERY FOR PECTUS EXCAVATUM  
**Presenter:** Chieh-Ju Chao MD, *Phoenix, AZ*  
**Discussant:** David J. Cole MD, *Charleston, SC*

12:15pm – 1:30pm
**Graduate Medical Education Luncheon:** Social Media: Positives & Pitfalls  
**Moderator:** Daniel Vargo, MD,  
*Salt Lake City, UT*  
**Presenters:** Sean J. Langenfeld MD, Omaha, NE; Elisabeth Mitchell, Salt Lake City, UT  
**Registration Fee:** $25

12:15pm – 12:25pm
**Introduction**  
Daniel Vargo MD, *Salt Lake City, UT*

12:25pm – 12:50pm
**Social Media and Professionalism**  
Sean J. Langenfeld MD, *Omaha, NE*

12:50pm – 1:15pm
**Social Media and How to Use Responsibly**  
Elisabeth Mitchell, *Salt Lake City, UT*

1:15pm – 1:30pm
**Question and Answer**
12:15pm – 1:30pm
Advanced Practitioners in Surgery Luncheon: SWSC as an Organization for Advanced Practice Providers
Moderator: Walr Biffl MD, Denver, CO
Panelists: Alicia Conrad, Denver, CO
Courtney Scaife, MD, Salt Lake City, UT
Ronald Stewart, MD, San Antonio, TX
Registration Fee: $25

12:30pm – 2:00pm
Spouse/Guest Activity: Cooking Demonstration with the Chef
Registration Fee: $25

1:30pm – 2:30pm
Scientific Session V: Acute Care Surgery
Moderators: Frederic Pieracci MD, Denver, CO; David Plurad MD, Torrance, CA

1:30pm – 1:45pm
22. MANAGEMENT OF ACUTE APPENDICITIS IN A RURAL POPULATION
Presenter: David Borgstrom MD, Cooperstown, NY
Discussant: Bryan Morse MD, MS, Atlanta, GA

1:45pm – 2:00pm
23. OUTCOMES OF PRIMARY FASCIAL CLOSURE AFTER OPEN ABDOMEN FOR NON-TRAUMA EMERGENCY GENERAL SURGERY PATIENTS
Presenter: Lindsay O’Meara CRNP, Baltimore, MD
Discussant: Clay Cothren Burlew MD, Denver, CO

2:00pm – 2:15pm
24. ESTABLISHING BENCHMARKS FOR CHOLEDOCHOLITHIASIS MANAGEMENT IN AN URBAN SAFETY NET HOSPITAL: ANALYSIS OF 915 SUBJECTS
Presenter: Laindy Liu BA, Dallas, TX
Discussant: Sarah Majercik MD, MBA, Salt Lake City, UT

2:15pm – 2:30pm
*25. AN ANALYSIS OF OMITTING BILIARY TRACT IMAGING IN 668 SUBJECTS ADMITTED WITH CHOLEDOCHOLITHIASIS
Presenter: Andrew J Riggle, Dallas, TX
Discussant: Rifat Latifi MD, Tucson, Arizona

2:30pm – 2:45pm
Beverage Break/Exhibit & ePoster Displays
2:45pm – 3:30pm  
Thomas G. Orr Memorial Lecture:  
The Brain-Gut-Lung Axis: Uncovering Multiple Organ Failure after Injury  
Presenter: Raul Coimbra, MD, PhD, San Diego, CA

3:30pm – 4:30pm  
Scientific Session VI: Breast & Endocrine  
Moderators: Anees Chagpar MD, MSc, MPH, MA, MBA, New Haven, CT; Chris Raeburn MD, Denver, CO

3:30pm – 3:45pm  
26. VARIATION IN METASTATIC WORKUP FOR PATIENTS WITH INVASIVE BREAST CANCER  
Presenter: Anees Chagpar MD, MSc, MPH, MA, MBA, New Haven, CT  
Discussant: John C. Russell MD, Albuquerque, NM

3:45pm – 4:00pm  
*27. REGIONAL RECURRENCE OF BREAST CANCER IN THE ERA OF SENTINEL LYMPH NODE BIOPSY  
Presenter: Maria Linnaus MD, Phoenix, AZ  
Discussant: Jared Linebarger MD, La Crosse, WI

4:00pm – 4:15pm  
28. A “SAFE AND EFFECTIVE” PROTOCOL FOR POST-THYROIDECTOMY HYPOCALCEMIA  
Presenter: Maria Albua-Cruz MD, Aurora, CO  
Discussant: Mark Cohen MD, Ann Arbor, MI

4:15pm – 4:30pm  
*29. OUTCOMES OF THYROIDECTOMY FROM A LARGE CALIFORNIA STATE DATABASE  
Presenter: Anna Weiss MD, San Diego, CA  
Discussant: Marlon Guerrero MD, Tucson, AZ

4:30pm – 5:15pm  
SWSC Annual Business Meeting

7:00pm – 10:00pm  
SWSC Reception
WEDNESDAY, APRIL 29, 2015

7:00am – 8:00am
Quick Shot – Oncology
Moderators: Joshua Mammen MD, PhD, Kansas City, KS; Terry Lairmore MD, Temple, TX;

7:00am – 7:08am
QS 43. DOES SURGICAL RESECTION FOR LINITIS PLASTICA OF THE STOMACH IMPROVE OUTCOMES? ANALYSIS OF A POPULATION CANCER REGISTRY.
Presenter: James Chang MD, Scottsdale, AZ

7:08am – 7:16am
QS 44. ENERGY-BASED HEPATIC RESECTION PROMOTES HYPOXIA INDUCIBLE FACTOR-1A-MEDIATED METASTASIS IN A MURINE MODEL OF PANCREATIC ADENOCARCINOMA
Presenter: Jeniann Yi MD, Denver, CO

7:16am – 7:24am
QS 45. INCIDENCE OF RESIDUAL MALIGNANCY AFTER NEOADJUVANT CHEMORADIOThERAPY FOR ADENOCARCINOMA OF THE DISTAL ESOPHAGUS
Presenter: Zachary Ernst MD, Grand Forks, ND

7:24am – 7:32am
QS 46. DEFINING THE SAFETY OF EPIDURAL PAIN CONTROL IN CYTOREDUCTIVE SURGERY PLUS HYPERTERMIC INTRAPERITONEAL CHEMOTHERAPY IN CONJUNCTION WITH VENOUS THROMBOEMBOLISM PROPHYLAXIS
Presenter: Richard Sleightholm MD/PhD Student, Omaha, NE

7:32am – 7:40am
QS 47. OUTCOMES OF THE ADDITION OF SINGLE PHOTON-EMISSION COMPUTED TOMOGRAPH/COMPUTED TOMOGRAPHY (SPECT-CT) FOR SENTINEL LYMPH NODE DETECTION IN PATIENTS WITH MALIGNANT MELANOMA
Presenter: Kate Peng MD, Phoenix, AZ
7:48am – 7:56am
**QS 49.** MRI AS THE SOLE IMAGING MODALITY FOR THE PREOPERATIVE STAGING OF PRIMARY RECTAL ADENOCARCINOMA: A RETROSPECTIVE ANALYSIS  
**Presenter:** Sabrina Goddard MSIII, Oklahoma City, OK

7:00am – 8:00am
**Quick Shot – Critical Care**  
**Moderators:** Ronald Sing DO, Charlotte, NC; Nicolas Melo MD, MS, Los Angeles, CA

7:00am – 7:08am
**QS 50.** CONGESTIVE HEART FAILURE IS ASSOCIATED WITH INCREASED RISK OF PNEUMONIA, RE-INTUBATION, AND DEATH FOLLOWING LAPAROSCOPIC CHOLECYSTECTOMY: A NSQIP DATABASE REVIEW  
**Presenter:** Chad Hall MD, Temple, TX

7:16am – 7:24am
**QS 52.** THREE VERSUS FOUR-FACTOR PROTHROMBIN COMPLEX CONCENTRATES TO REVERSE ORAL ANTICOAGULATION IN PATIENTS FOLLOWING TRAUMA  
**Presenter:** Alicia Mangram MD, Phoenix AZ, AZ

7:24am – 7:32am
**QS 53.** POST-EXTUBATION STRIDOR IN TRAUMA PATIENTS: A BREATHTAKING PROBLEM  
**Presenter:** Jordan Lilienstein MD, Fresno, CA

7:32am – 7:40am
**QS 54.** FACTORS ASSOCIATED WITH CLINICAL DECOMPENSATION REQUIRING RAPID RESPONSE TEAM ACTIVATION WITHIN 24 HOURS OF EMERGENCY DEPARTMENT ADMISSION  
**Presenter:** Sonja McAllister RN, MSN, La Jolla, CA

7:40am – 7:48am
**QS 55.** HANDOFFS IN THE INTENSIVE CARE UNIT: WORSE DURING OFF HOURS?  
**Presenter:** Mark Barry MD, Philadelphia, PA
7:48am – 7:56am
QS 56. LOW VOLUME TRANSFUSION IN TRAUMA: IS THERE ROOM FOR IMPROVEMENT?
Presenter: Daisy Chou MD, Los Angeles, CA

7:00am – 8:00am
Quick Shot – Trauma
Moderators: Ernest Gonzalez MD, Austin, TX; Susan McLean MD, El Paso, TX

7:00am – 7:08am
QS 57. ARE TRAMPOLINE PARKS SAFER THAN THE BACKYARD: LET’S NOT JUMP TO CONCLUSIONS
Presenter: Brian Nguyen MD, Torrance, CA

7:08am – 7:16am
QS 58. HYPOALBUMINEMIA AT ADMISSION IS ASSOCIATED WITH INCREASED INCIDENCE OF IN-HOSPITAL COMPLICATIONS IN GERIATIC PATIENTS SUSTAINING SEVERE INJURIES
Presenter: Tabitha Garwe PhD, Oklahoma City, OK

7:16am – 7:24am
QS 59. SAFE AT HOME: GUIDELINES FOR DISCHARGE IN NON-OPERATIVE MANAGEMENT OF BLUNT SPLENIC INJURY
Presenter: Amy Kwok MD, Fresno, CA

7:24am – 7:32am
QS 60. A NEGATIVE URINALYSIS IS ASSOCIATED WITH AN EXTREMELY LOW LIKELIHOOD OF INTRA-ABDOMINAL INJURY AFTER BLUNT ABDOMINAL TRAUMA
Presenter: Teresa Jones MD, Denver, CO

7:32am – 7:40am
QS 61. THE IMPACT OF METHAMPHETAMINE USE ON TRAUMA PATIENTS AT A LEVEL 1 TRAUMA CENTER: A 10-YEAR RETROSPECTIVE REVIEW
Presenter: Greg Stroh MS, Wichita, KS

7:40am – 7:48am
QS 62. PEDIATRIC TRAUMA PATIENTS; BENEFITS FROM FREE STANDING PEDIATRIC HOSPITALS WITH TRAUMA CENTERS
Presenter: Laura Harmon MD, Temple, TX
7:48am – 7:56am
**QS 63.** A PEDIATRIC SPECIFIC SHOCK INDEX IDENTIFIES CHILDREN WITH LIFE THREATENING OR SEVERE TRAUMATIC BRAIN INJURY
**Presenter:** Shannon Acker MD, *Aurora, CO*

7:00am – 11:00am
Registration

7:00am – 9:00am
Continental Breakfast

8:15am – 9:00am
**Claude H. Organ Jr. Memorial Lecture:**
*Playing It Safe: When, What, Who*
**Presenter:** Roxie M. Albrecht MD, *Oklahoma City, OK*

9:00am – 9:30am
Beverage Break

9:30am – 10:30am
**Scientific Session VII:**
*Surgical Oncology*
**Moderators:** Donald Lesslie DO, *Houston, TX*; Robert P. Sticca MD, *Grand Forks, ND*

9:30am – 9:45am
**30.** DETERMINATION OF SIGNIFICANT RISK FACTORS FOR LYMPHEDEMA FOLLOWING NODAL DISSECTION FOR MELANOMA
**Presenter:** Jeffrey Friedman BS, *Ann Arbor, MI*
**Discussant:** Ernest Gonzalez MD, *Austin, TX*

9:45am – 10:00am
**31.** INFECTIOUS COMPLICATIONS IN COMBINED COLON RESECTION AND ABLATION OF COLORECTAL LIVER METASTASES
**Presenter:** Anne Doughtie MD, *Louisville, KY*
**Discussant:** Gary D. Dunn MD, *Oklahoma City, OK*
10:00am – 10:15am
32. CLINICAL PRESENTATION AND OUTCOME OF NON-FUNCTIONAL PANCREATIC NEUROENDOCRINE TUMORS IN A MODERN
Presenter: Duncan Watley BS, Omaha, NE
Discussant: Brian Eastridge MD, San Antonio, TX

10:15am – 10:30am
33. RESTRICTIVE BLOOD TRANSFUSION PROTOCOL IN UPPER GASTROINTESTINAL AND PANCREATIC RESECTIONS PATIENTS REDUCES BLOOD TRANSFUSIONS WITH NO INCREASE IN PATIENT MORBIDITY
Presenter: Robert CG Martin, II MD PhD, Louisville, KY
Discussant: Charles St. Hill MD MSc, Las Vegas, NV

10:30am – 10:45am
Award Presentations & Closing Session
KIOSK #1 TOP 5 FEATURED POSTERS
ePOSTERS #2 – 7

2. CORRELATING FINE NEEDLE THYROID NODULE BIOPSY RESULTS WITH PRE-OPERATIVE ULTRASOUND TO GUIDE SURGICAL DECISION MAKING IN THYROIDECTOMY
Presenter: Caitlin Gade MD, Denver, CO

3. ELDERLY TRAUMA PATIENTS: WHERE YOU GO DETERMINES WHERE YOU GO
Presenter: Walter Biffl MD, Denver, CO

4. TEACHING IN THE OPERATING ROOM: HOW TO ENGAGE A LEARNER
Presenter: Peter Tsai MD, Houston, TX

5. THE AILING SURGEON: PERCEPTION VERSUS FACT? A SYSTEMATIC REVIEW OF SURGEON SYMPTOMS AND CORRESPONDING EXERTION AS MEASURED BY ELECTROMYOGRAPHY.
Presenter: Chee-Chee Stucky MD, Houston, TX

7. THE EFFECT OF ALCOHOL INTOXICATION ON PHYSICAL EXAM AFTER BLUNT HOLLOW VISCUS INJURY
Presenter: Brian Nguyen MD, Torrance, CA
KIOSK #2
ePOSTERS #8 – 20

8. INJURY TO THE CARDiac CONDUCTION SYSTEM: MANAGEMENT OF A RARE SEQUELA OF PENETRATING CARDiac TRAUMA

9. REPAIR OF RECURRENT PECTUS EXCAVATUM FOLLOWING MINIMALLY INVASIVE REPAIR: TECHNIQUES AND OUTCOMES

10. ALCOHOL ADMINISTRATION IN THE ICU TO PREVENT WITHDRAWAL: A VIEW FROM THE TRENCHES

11. HOSPITAL WIDE MESH CONVERSION RESULTS IN COST SAVINGS

12. INSURANCE TYPE, PATIENT RACE, AND DIAGNOSTIC IMAGING AS A MEASURE OF QUALITY OF CARE

13. REMEDIATION OF SURGICAL RESIDENTS MITIGATES THE RISK OF QUALIFYING EXAMINATION FAILURE

14. VIDEO ASSISTANCE IS NOT NECESSARY FOR SUPERIOR COSMETIC RESULTS WITH MINIMALLY INVASIVE THYROIDECTOMY

15. THE COST OF PATIENT SATISFACTION, A SYSTEMATIC REVIEW OF THE DIFFERENCES IN SURGEON REPORTED PAIN AND SYMPTOMS BETWEEN MINIMALLY INVASIVE AND OPEN SURGERY

16. DANGEROUS CHOICES: STIMULANT USE IN TRAUMA PATIENTS

17. HOSPITAL OUTCOMES ASSOCIATED WITH TRAUMATIC FARM INJURIES MECHANISMS IN A RURAL STATE

19. SKIP THE RADIATION: ROUTINE USE OF MRI DOES NOT ALTER TREATMENT PLANS IN NEUROLOGICALLY INTACT BLUNT TRAUMA PATIENTS

20. CLINICAL OUTCOMES AFTER SLEEVE GASTRECTOMY (SLEEVE) VARY ACCORDING TO HEALTH INSURANCE CARRIER: SELF-PAY VS PRIVATE INSURANCE VS MEDICAID VS MEDICARE IN 8,393 BOLD DATABASE PATIENTS
KIOSK #3
ePOSTERS #21 – 33

21. EARLY IDENTIFICATION OF DISSEMINATED PERITONEAL ADENOMUCINOSIS IN «AT RISK» MUCINOUS NEOPLASM PATIENTS, A NEW APPROACH TO MUCINOUS NEOPLASM SURVEILLANCE

22. OUTCOMES OF COLON RESECTION IN PATIENTS WITH METASTATIC COLON CANCER

23. GROUND LEVEL FALLS IN THE ELDERLY: ALWAYS A TRAUMATIC EVENT?

24. PROTECTIVE EQUIPMENT AND MOTORBIKES: DOES IT MATTER?

25. CHARACTERISTICS AND MANAGEMENT OF BLUNT RENAL INJURY IN CHILDREN

26. MOVE THE BUMPER? A NOVEL TECHNIQUE TO PREVENT PEG TUBE DISPLACEMENT

27. USE OF MULTIPLE WIRE LOCALIZATION FOR BREAST CONSERVATION SURGERY

28. CONGENITAL DIAPHRAGMATIC HERNIA AND ECTOPIC LIVER: A 10 YEAR EXPERIENCE

29. PEDIATRIC FARM INJURIES: MORBIDITY AND MORTALITY

30. PEDIATRIC TRAMPOLINE INJURIES

31. OPEN VERTEBRAL COLUMN TRAUMA: PURVIEW OF THE TRAUMA SURGEON?

32. THE UTILITY OF VATS FOR THE EVALUATION OF OCCULT PENETRATING CARDIAC INJURIES

33. ROBOTIC COLORECTAL SURGERY LEARNING CURVE IN RELATION TO CASE COMPLEXITY
34. FOR CANCER SURVIVORS WITH SEVERE RADIATION-INDUCED ILIO-FEMORAL ARTERIAL DISEASE: REVASCULARIZATION CAN ACHIEVE EXCELLENT LIMB-SALVAGE BUT RE-INTERVENTIONS ARE COMMON

35. SAFETY AND OUTCOMES OF CYTOREDUCTIVE SURGERY AND HYPERThERMIC INTRAPERITONEAL CHEMOTHERAPy IN ELDERLY PATIENTS WITH HIGH PERITONEAL CANCER INDEX, LARGE VOLUME PERITONEAL METASTASIS

36. USE OF EPIDURALS IN ESOPHAGECTOMY PATIENTS: DO EPIDURALS CONTRIBUTE TO ANATOMOTIC LEAKS?

37. INVASIVE FUNGAL SOFT TISSUE INFECTIONS: SMALL ORGANISM, GIANT PROBLEM

38. IMPACT OF OBESITY ON CESAREAN SECTION OUTCOMES

39. HIGH VOLUME CHOLECYSTECTOMY PROMOTES EXTREMELY LOW CONVERSION RATE

40. IS VERTEBRAL AUGMENTATION IN THE ELDERLY TRAUMA PATIENT COST EFFECTIVE?

41. ROBOTIC SINGLE-SITE ADRENALECTOMY: A CASE SERIES

42. EXTRACORPOREAL MEMBRANOUS OXYGENATION FOLLOWING THORACIC SURGERY: A SINGLE CENTER EXPERIENCE

43. HYPERThERMIC INTRAPERITONEAL CHEMOTHERAPy OUTCOMES IN ADVANCED OVARIAN CANCER AT INDEX SURGERY, SALVAGE, AND PALLIATIVE CYToreDuctIVE SURGERY PLUS HYPERThERMIC INTRAPERITONEAL CHEMOTHERAPy

45. PREVENTING FARM EQUIPMENT RELATED INJURY ON OUR ROADWAYS: WHERE ARE WE NOW?

46. EXPERIENCE AND LESSONS LEARNED FROM A TRANSITION TO PRACTICE PROGRAM

47. INGUINOSCROTAL HERNIATION OF THE URETER: A CASE SERIES
48. DOES THE HISPANIC PARADOX STILL EXIST? DEMONSTRATING HIGHER INCIDENCE OF ADVANCED BREAST MALIGNANCIES IN OUR YOUNG HISPANIC POPULATION

49. LESSONS LEARNED FROM IMPLEMENTATION OF AN ELECTRONIC MEDICAL RECORD IN A LARGE MULTIDISCIPLINARY DEPARTMENT OF SURGERY

50. DERMATOFIGROSARCOMA PROTUBERANS: INSTITUTIONAL EXPERIENCE WITH A RARE SOFT TISSUE MALIGNANCY

51. DOES AGE MATTER IN THE ACUTE TRAUMA SETTING?

52. CYTOREDUCTIVE SURGERY (CRS) AND HYPERTERMIC INTRAPERITONEAL CHEMOTHERAPY (HIPEC) FOR PATIENTS WITH PERITONEAL CARCINOMATOSIS: INTERMEDIATE TERM OUTCOMES FROM THE MAYO CLINIC

53. GRAFT VERSUS HOST DISEASE AFTER LIVER TRANSPLANTATION: A CASE SERIES

54. OUTCOMES FOLLOWING TRAUMATIC GRAIN ELEVATOR INJURIES

55. ELECTRIC WHEELCHAIRS AND TRAUMATIC INJURY: AN UNRECOGNIZED SOURCE OF MORBIDITY IN THE ELDERLY

56. ANTICOAGULATION OPTIONS FOR PATIENTS WITH HEPARIN INDUCED THROMBOCYTOPENIA UNDERGOING CARDIOPULMONARY BYPASS: CURRENT LITERATURE REVIEW

57. A DESCRIPTIVE ANALYSIS OF LIVER TRANSPLANT RECIPIENTS AT A MAJOR TEACHING HOSPITAL

59. SILICONE CUP: ENTEROVAGINAL FISTULA CONTROL

60. A PERIPHERAL IV LEADING TO ECMO; SEPTIC THROMBOPHLEBITIS WITH NECROTIZING PNEUMONIA.

61. A NOVEL TECHNIQUE TO MANAGE CHRONIC CAROLI’S DISEASE
62. CONTEMPORARY MANAGEMENT OF RECURRENT DOEGE-POTTER SYNDROME

63. BREAST COCCIDIOIDOMYCOSIS

64. LAPAROSCOPIC COMMON HEPATIC DUCT EXPLORATION AFTER FAILED ERCP: A CASE REPORT AND REVIEW OF THE LITERATURE

65. ENDOVASCULAR REPAIR OF LONG STANDING ILIAC-ILIAC TRAUMATIC ARTERIOVENOUS FISTULA

66. ENDOVASCULAR REPAIR OF TRAUMATIC INJURY TO THE COMMON ILIAC ARTERY FROM SEAT BELT: CASE REPORT AND REVIEW OF LITERATURE

67. A DELAYED SUBCLAVIAN ARTERY INJURY AFTER BLUNT TRAUMA

68. TREATMENT STRATEGY OF METASTATIC GASTROINTESTINAL STROMAL TUMOR IN PREGNANCY

69. EARLY ENTERAL FEEDING FACILITATED INDEPENDENCE FROM PARENTERAL NUTRITION IN SHORT BOWEL SYNDROME: A CASE REPORT

70. SUPERIOR GLUTEAL AND INFERIOR GLUTEAL ARTERY PSEUDOANEURYSMS FOLLOWING BLUNT TRAUMATIC PELVIC RING DISRUPTION
SCIENTIFIC PAPER ABSTRACTS

*Indicates resident paper competing for Jack A. Barney Award.
SCIENTIFIC PAPER ABSTRACTS

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1. POSTOPERATIVE ANTIBIOTICS ARE NOT ASSOCIATED WITH DECREASED WOUND COMPLICATIONS AMONG PATIENTS UNDERGOING APPENDECTOMY FOR COMPLICATED APPENDICITIS

DY Kim MD, N Nariman MD, DJ Saltzman MD, MP Ferebee BS, IT Macqueen MD, AH Kaji PhD, A Moazzez MD, DS Plurad MD, C de Virgilio MD

Torrance, CA

BACKGROUND: Although postoperative antibiotics are commonly administered for complicated appendicitis, there are limited data regarding their efficacy for preventing complications. The objective of this study was to determine the role of postoperative antibiotics in reducing wound complications in patients undergoing appendectomy for complicated appendicitis.

METHODS: This is a 5-year retrospective cohort study performed at two academic, university-affiliated County hospitals. The study included a consecutive sample of adult patients who underwent appendectomy for acute appendicitis. All patients with complicated appendicitis (perforated or gangrenous) as determined by operative reports were categorized into two groups: those who received postoperative antibiotics and those who did not. The main outcome measures included postoperative wound complications [superficial and deep surgical site infections (sSSI and dSSI)], length of stay (LOS), and re-admission to hospital. Multivariate and linear regression analyses were performed to identify predictors of complications and LOS.

RESULTS: Of 1,479 patients, 410 patients (27.7%) were diagnosed with complicated appendicitis. Postoperative antibiotics were administered to 67% of patients (n=274). Bivariate analysis revealed no difference in the incidence of wound complications among patients who did or did not receive antibiotics postoperatively (13.1 vs. 9.6%, p=0.3). Overall length of stay was increased by 24 hours for the group who received antibiotics (p=0.016), whereas readmission rates were similar between groups (12 vs. 8.1%, p=0.23). On multivariate regression analysis, after controlling for patient demographics, comorbidities, and surgical approach (open versus laparoscopic), postoperative antibiotic use was not associated with a decrease in sSSI, dSSI, or readmission. Linear regression analysis identified postoperative antibiotics (p=0.01) and coronary artery disease (p=0.04) as independent predictors of increased LOS.

CONCLUSION: In this multicenter study, postoperative antibiotic administration in the setting of acute complicated appendicitis was not associated with a decrease in wound complications but did result in an increased hospital LOS. Further studies are required to determine the risk-to-benefit ratio of postoperative antibiotics in patients with acute complicated appendicitis.
**2. LONG-TERM OUTCOMES OF AN INTEGRATED TRANSFUSION REDUCTION INITIATIVE IN PATIENTS UNDERGOING RESECTION FOR COLORECTAL CANCER**

AD Van Osdol MD, AJ Borgert PhD, KJ Kallies MS, SB Shapiro MD

*La Crosse, WI*

**BACKGROUND:** Perioperative blood transfusion (BT) in patients with colorectal cancer has been associated with increased cost, morbidity, mortality and decreased survival. Five years ago, in 2009, our surgical department instituted a 3-part transfusion reduction initiative (TRI) program that significantly decreased perioperative transfusions in colorectal surgery. We now focus on the 5-year effectiveness of this program and patient outcome differences in the era before TRI vs. after TRI when blood was transfused significantly less frequently.

**METHODS:** After IRB approval, the medical records of patients who underwent operation for adenocarcinomas before TRI (1/2006 – 10/2009) and after TRI (11/2009-12/2013) were reviewed. Standard demographics, transfusion rates, ASA, age, morbidity, mortality, cancer recurrence, and survival were studied. P<0.05 was considered significant.

**RESULTS:** A total of 484 cancer patients were included for study, 267 in the Pre-TRI and 217 in the Post-TRI groups. A decrease in overall BT rates was sustained throughout the entire Post-TRI era (17% vs. 28%, P=0.006). Patients who received a transfusion experienced higher 30 day rates of mortality (9% vs. 0.8%, P<0.001), abscess (9% vs. 2%, P=0.001), pneumonia (5% vs. 0.3%, P<0.001), and UTI (7% vs. 3%, P=0.041). Three-year colorectal cancer recurrence rates were similar in the Pre and Post-TRI eras when stratified by stage 1-4 individually and when stage 1-4 was pooled at 88.1% and 85.6%. (P=0.267). Five-year survival differences were significant in those getting BT vs. those without BT (39.5% vs. 69.6%, P=0.0001). Patients with low hemoglobin <10 who got BT vs. no BT experienced 5-yr overall survival at 37.8% vs. 59.9% and those with hemoglobin >10 who didn’t get a BT had 5-yr survival of 76.0% (P<0.0001).

**CONCLUSION:** Perioperative transfusion rates in colorectal cancer surgery significantly decreased after the implementation of a TRI and have remained low over a 5-year study period. Regardless of era, perioperative BTs were associated with increased 30-day mortality, abscess formation, UTI, other complications, and decreased 5-year overall survival. Transfusion Reduction Initiative remains a straightforward, safe, and effective way to reduce blood utilization in colorectal surgery.
**3. ROUTINE ENDOSCOPIC SURVEILLANCE FOR LOCAL RECURRENT OF RECTAL CANCER IS FUTILE**
LA Martin MD, ME Gross MD, MC Mone RN BSE, CK Whiting BS, HJ Hansen, EM Mecham MD, WPeeche MD, CL Scaife MD
Salt Lake City, UT

**BACKGROUND:** National Comprehensive Cancer Network (NCCN) guidelines (2015) for rectal adenocarcinoma give consideration to routine surveillance with proctoscopy every 6 months for 3 to 5 years for local recurrence at the anastomosis following low anterior resection (LAR). There are no current studies to support this practice, which is based on the high local recurrence rate seen prior to total mesorectal excision (TME) and neoadjuvant therapy. The purpose of this study was to examine the use of rectal surveillance for evaluation of local recurrence in the current treatment paradigm.

**METHODS:** This is a single-center, retrospective review of patients who underwent TME (2004-2011) for rectal cancer (stage I-III). Demographics and follow-up time were collected. The primary endpoint was cancer recurrence. For each recurrence, the detection method(s) were noted: symptoms, physical exam, CEA, CT/PET, or endoscopic examination. The number of procedures was collected: anoscopy, proctoscopy, or flexible sigmoidoscopy.

**RESULTS:** The study included 112 patients who underwent TME with ≥ 1 year of follow-up by a surgeon, oncologist, or gastroenterologist. Of these, 54 (48%) had stage III, 41 (37%) stage II, and 17 (15%) stage I disease. The mean age was 57.7±12, with 67% male. The median follow-up time was 3.9 years (1 – 10). Neoadjuvant therapy was given to 77% of patients. There were no local recurrences identified by rectal surveillance. There were 18 recurrences (16%), 1 local, 17 distant, with the majority found in stage III patients (78%), with the median time of 1.6 years (0.7-5.5). The single local recurrence (stage III) occurred at 1.3 years and was identified by elevated CEA and minor rectal bleeding with a confirmatory biopsy of the mass. During the study period, a total of 20 anoscopies ($78-$157), 44 proctoscopies ($389-$563), and 495 flexible sigmoidoscopies ($442-$546) were done for surveillance (11 procedures for stricture or dilation excluded). There were 14 patients (12.5%) that had no surveillance procedures performed, 11 were stage II or III. In the 98 patients who underwent routine surveillance, a median of 5 procedures were completed during the follow-up period. The total charges for these procedures (based on yearly average charges) were estimated to be $266,000.

**CONCLUSION:** Routine local rectal surveillance at this single center appears to have not been beneficial. There were no local recurrences detected using this method of surveillance in 112 patients after TME. With the current low rate of local recurrence for rectal cancer, we challenge the NCCN guideline that gives consideration to the use of invasive, expensive, and uncomfortable routine surveillance procedures. Those patients considered to be at high risk for local recurrence, i.e. those not undergoing a TME or those in whom chemoradiation therapy is indicated but not given, may warrant local surveillance; however, this decision should be made on an individualized basis.
4. OUTCOMES OF CHRONIC STEROID USE IN COLORECTAL SURGERY
Z Moghadamyeganeh MD, MH Hanna MD, JC Carmichael MD, SD Mills MD, A Pigazzi MD, MJ Stamos MD
Irvine, CA

BACKGROUND: Chronic steroid use has been introduced as a factor which has effects on multiple organs. We aim to investigate associations between chronic steroid use and postoperative complications following colorectal surgery.

METHODS: The American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) database was used to examine the clinical data of patients undergoing colorectal resection during 2005-2012. Chronic steroid use was defined as administration of oral or parenteral corticosteroid medications in the 30 days prior to surgery for a duration of more than 10 days. Multivariate regression analysis was performed to investigate outcomes of patients with and without chronic steroid use following colorectal surgery.

RESULTS: We sampled a total of 161,499 patients who underwent colorectal resection. Of these, 12290(7.6%) had history of chronic steroid use. Patients who had history of chronic steroid use had higher rate of emergent/urgent operations (26.2% vs. 15.9%, AOR: 1.22, P<0.01) as well as higher risk of preoperative sepsis (AOR: 1.12, P<0.01), hypoalbuminemia (AOR: 1.77, P<0.01), bleeding disorders (AOR: 1.41, P<0.01), and diabetes (AOR: 1.15, P<0.01). Patients who had history of chronic steroid use had higher mortality risk for emergent (AOR: 1.30, P<0.01), urgent (AOR: 1.55, P<0.01), and elective colorectal operations (AOR: 1.41, P<0.01). Postoperative complications of wound disruption (AOR: 1.74, P<0.01), organ space surgical site infection (SSI) (AOR: 1.25, P<0.01), sepsis (AOR: 1.36, P<0.01), and pneumonia (AOR: 1.21, P<0.01) were higher in patients with chronic steroid use. Laparoscopic surgery had association with significant decrease in mortality (AOR: 0.59, P<0.01) and overall morbidity (AOR: 0.61, P<0.01) for patients with chronic steroid use.

CONCLUSION: Patients with history of chronic steroid use have high risk of preoperative malnutrition, diabetes, bleeding disorders, and sepsis. Also, they have a higher risk for emergent/urgent surgery. Patients with history of chronic steroid use have higher risk of mortality and morbidity especially infectious complications in colorectal surgery. Laparoscopic approach can significantly decrease risk of morbidity and mortality of such patients.
5. MANAGEMENT OF BILIARY SYMPTOMS FOLLOWING BARIATRIC SURGERY

JR Brockmeyer MD, BT Grover DO, SN Kothari MD

La Crosse, WI

BACKGROUND: Biliary disease is common in morbidly obese patients and its incidence rises following bariatric surgery. No consensus exists on the management of the gallbladder at the time of bariatric surgery.

METHODS: A retrospective review of our institution’s prospective bariatric surgery registry was completed to identify patients who underwent laparoscopic Roux-en-Y gastric bypass (LRYGB) or laparoscopic sleeve gastrectomy (LSG) from September 2001 through September 2014. All patients were included, even with previous history of cholecystectomy. Our protocol is to only perform concomitant cholecystectomy at the time of bariatric surgery if the patient has imaging and symptoms consistent with biliary disease.

RESULTS: Overall, 1527 patients underwent either LRYGB (n=1366) or LSG (n=161) during the study period. There were 415 (30%) patients with a previous history of cholecystectomy prior to bariatric surgery. Ninety-one patients (8%) of the 1112 without prior cholecystectomy had biliary symptoms requiring intervention: two patients following LSG and 89 patients following LRYGB. Ninety patients underwent cholecystectomy with 86 successfully completed laparoscopically. One patient had a percutaneous cholecystectomy tube placed due to existing co-morbidities several years after bariatric surgery. Of the 90 cholecystectomies, six patients required laparoscopic-assisted percutaneous transgastric endoscopic retrograde cholangiopancreatography (ERCP) to clear gallstones from the common bile duct, with a 100% success rate of clearing the common bile duct. Four of these were done concomitantly with cholecystectomy. Three patients who had undergone cholecystectomy prior to bariatric surgery developed primary common bile duct stones. Two of these patients underwent successful laparoscopic-assisted transgastric ERCP and one patient required percutaneous tranhepatic laser-assisted stone fragmentation and extraction. Interventions occurred between 36 days and 11.6 years from bariatric surgery (median 1.7 years). Postoperative complications included superficial surgical site infections (n=2), organ space surgical site infection (n=1), bile leak (n=2), urinary tract infection (n=2), postoperative pneumonia (n=1), and pancreatitis (n=3). There were no mortalities and no common bile duct injuries associated with biliary procedures.

CONCLUSION: Biliary disease in our bariatric surgery population occurred at a rate similar to the general population. Surgery for biliary disease following bariatric surgery can be completed successfully with minimal complications, making concomitant cholecystectomy with bariatric surgery unnecessary in most patients. The use of percutaneous transgastric ERCP has a high success rate of access to and clearance of the biliary tree.
6. A COMPARISON OF THE ENDOSCOPIC AND LAPAROSCOPIC VIEW OF THE GASTROESOPHAGEAL JUNCTION IN THE USE OF TRANSORAL FUNDOPLICATION
GM Ihde MD, LA Dill DO, DG Lister MD, CF Lucchese MD, C Cottrell MD, PK Krone MD, RA Stone MD
Dallas, TX

BACKGROUND: Reliable application of transoral fundoplication requires accurate evaluation of the gastroesophageal junction, including hiatal hernia assessment, to determine if hiatal hernia repair is necessary prior to fundoplication. We have noted that failing to address a significant hiatal hernia can lead to early return of reflux symptoms after transoral fundoplication. We studied the comparison of both the endoscopic evaluation and laparoscopic evaluations of the gastroesophageal junction and hiatal defect.

METHODS: As part of a prospective study, 53 patients with a diagnosis of gastroesophageal disease who underwent a laparoscopic repair of hiatal defect prior to transoral fundoplication, were studied to compare video recordings of their endoscopic evaluation (n=53) of the gastroesophageal junction to the video recording of their laparoscopic view (n=45) of the gastroesophageal junction. Eight general surgeons experienced in endoscopy and reflux surgery performed blinded evaluation of the videos. We compared their evaluation of each patient in an endoscopic view versus a laparoscopic view. Unpaired and paired t-test were used to determine if there is a significant difference between means of hiatal hernia defect as assessed endoscopically and laparoscopically.

RESULTS: Considering all cases, mean greatest transverse dimension of the hiatal defect was significantly lower in the endoscopic view (3.23 ± 1.01). P=0.002 (unpaired t-test). Similarly, comparing matched pairs only, (n=44), mean greatest transverse dimension of the hiatal defect assessed endoscopically was 3.30 ± 1.00 versus 3.88 ± 1.03 assessed laparoscopically, P < 0.001 (paired t-test). In 4 of 8 (50%) evaluators, average greatest transverse dimension of hiatal defect was found to be significantly lower when assessed endoscopically. On average the endoscopic Hill grade was lower than the estimation of Hill grade when viewed laparoscopically in 22.8% of the evaluations. In 11.1% (range 6 to 15%) of the cases, the endoscopic view indicated a hiatal hernia repair was unnecessary when the matching laparoscopic view indicated hiatal repair would be needed.

CONCLUSION: In this study the endoscopic evaluation of the gastroesophageal junction failed to indicate the need for a hiatal hernia repair in 11.1% of patients undergoing transoral fundoplication when evaluated by eight general surgeons. Up to 22.8% of the endoscopic evaluations underestimated the size of the hiatal defect. It appears that the greatest transverse dimension of a hiatal defect is underestimated if evaluated endoscopically. Further studies are needed to determine if endoscopic evaluation alone is adequate to predict the need for hiatal hernia repair prior to fundoplication.
7. TAILORING SURGICAL APPROACH FOR ELECTIVE VENTRAL HERNIA REPAIR BASED ON OBESITY AND NSQIP OUTCOMES

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BACKGROUND: Currently a third of the US population is obese with projections to exceed 40% by 2030—approximately 140 million. Obesity’s influence on post-operative (post-op) complications in elective ventral hernia repairs (VHR) with respect to surgical approach, laparoscopic (LVHR) versus open (OVHR) has yet to be defined. While 30 day postoperative complications in both LVHR and OVHR are more frequent as body mass index (BMI) increases, we propose the laparoscopic approach minimizes infectious complications for given BMI categories.

METHODS: Retrospective review of the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database (2009-2012) for all patients (pts) age ≥18 undergoing elective repair of reducible ventral hernia. Exclusion criteria included immunosuppression, disseminated malignancy, advanced liver disease, or pregnancy. Pts were stratified by World Health Organization (WHO) BMI categories of normal weight (NLWT), overweight, and obesity classes I, II, and III, (BMI 20-25, 25-30, 30-35, 35-40, and ≥40 respectively). 30 day postoperative complications were evaluated across BMI groups for LVHR versus OVHR using chi-squared test. Linear regression adjusted for diabetes, smoking, gender and age.

RESULTS: 75,168 patients met inclusion criteria, with nearly 55% of patients obese. Rate of LVHR increased with BMI (NLWT 17.8%, ≥40 28.3%). Superficial and deep SSIs increased with increasing BMI for both techniques. However, LVHR minimizes superficial and deep SSIs across all BMIs (odds ratio (OR) open versus lap, specifically for BMI ≥40, superficial SSI 5.34; deep inf 4.76). Organ space infections, reoperation and wound dehiscence increased with increasing BMI only in OVHR (p<0.05). For organ space infections, reoperation, and wound dehiscence, only higher classes of obesity had statistically significant difference (odds ratio open versus lap at BMI 35-40: organ space 1.98, reoperation 1.86, wound dehiscence 4.79). Significance at p<0.05.

CONCLUSION: Obese patients are overrepresented in ventral hernia repairs. National data demonstrates laparoscopic approach is increasingly preferred as BMI increases when repairing elective reducible hernias. Early postoperative complications are more common as BMI increases in both open and laparoscopic repairs. Laparoscopic approach is associated with lower superficial and deep surgical site infectious complications for all BMI categories, in addition to lower organ space infections, reoperation and wound dehiscence complications for higher obesity classes.
**8. SPONTANEOUS PNEUMOMEDIASTINUM IN THE PEDIATRIC PATIENT**

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**BACKGROUND:** Pneumomediastinum is a rare radiographic finding with concerning clinical implications. While pneumomediastinum occurring from trauma, airway instrumentation, or surgery is well-described, spontaneous pneumomediastinum (SPM) is rare and more poorly understood. We sought to evaluate the management of patients at our institution with spontaneous pneumomediastinum.

**METHODS:** We performed a retrospective chart review of all children (≤ 18 years) with pneumomediastinum, identified with ICD-9 codes, at a large tertiary care hospital from January 2011 to October 2014. Patients with SPM or pneumomediastinum from intrathoracic infections or asthma were included. Patients were categorized as having primary SPM (with no precipitating factors) or secondary SPM (underlying respiratory infections or asthma). Data were collected on clinical presentation, radiographic findings, and respiratory outcomes.

**RESULTS:** One hundred twenty-nine patients met inclusion criteria at an average age of 11.6±4.6 years; 30.2% (n=39) were males. Most patients (n=68) were transferred in from outside institutions for radiographic findings of pneumomediastinum. The most frequent symptoms at presentation were chest pain (n=76), shortness of breath (n=51), and cough (n=44). All patients had chest x-rays at admission. In addition, 7 patients had esophagrams and 2 had chest CTs. Eighty-nine patients (69%) were admitted to the hospital for a median of 1 day (IQR 0-2 days) with the majority admitted to non-ICU status (n=66). No patient required an esophagogastroduodenoscopy, bronchoscopy, or operative intervention. Eighty-five patients (65.9%) had follow-up over an average time of 11.3±12.9 months. Seventy-three patients had radiographic follow-up with 59% (n=43) having documented resolution over a median time of 2 days (IQR 1-25.5 days). Patients with secondary SPM (n=61) were more likely than primary SPM (n=68) to be admitted (84% vs. 56%, p=0.001), receive supplemental oxygen (82% vs. 61%, p=0.02), and have longer hospital stays (2 days (IQR 1-2.5) vs. 1 day (0-1), p<0.001). No patient with primary SPM developed respiratory distress during the hospital stay. There were no differences between primary SPM and secondary SPM in time to radiographic resolution of SPM (1 day (IQR 1-12) vs. 2 days (1-48), p=0.34) or readmission rates for SPM associated symptoms (1.5% vs. 1.6%, p=0.352).

**CONCLUSION:** This is the largest series describing pediatric spontaneous pneumomediastinum to date. Our study reveals that patients with secondary SPM are frequently admitted to treat their underlying disease while those with primary SPM are often observed and discharged home without any interventions or major complications. This suggests that patients with primary SPM may potentially be managed conservatively in the ED and discharged if stable. Further prospective studies are warranted to determine the appropriate management of primary SPM to decrease unnecessary hospital admissions and imaging tests to minimize cost.
9. TRANSITION FROM GRANT FUNDING TO A SELF-SUPPORTING BURN TELEMEDICINE PROGRAM IN THE WESTERN UNITED STATES
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BACKGROUND: Many Americans have limited access to specialty burn care and telemedicine has been proposed as a means to address this disparity. However, many telemedicine programs have been founded on grant support and then fail once grant support expires. Our objective was to demonstrate that a telemedicine program in burns can be financially viable.

METHODS: This retrospective review evaluated telemedicine visits and financial reimbursement during and after a Technology Opportunities Grant to a regional burn center in the Western United States. A convenience sample of burn patients managed via telemedicine from 2005-2014 was reviewed. The main outcome measure was payment received from telemedicine visits versus in-person clinic visits.

RESULTS: During the grant-funded years, telemedicine visits ranged from 12 (2005) to 75 (2007). In the post-grant period (post-2008), telemedicine visits initially dipped to 47 in 2009 but then progressively increased to 478 in the first 10 months of 2014. Our telemedicine network has grown from our initial 3 partners during the grant years to 52 sites in 6 states. In terms of how this compares to “face-to-face” clinic visits, we saw a consistent increase in telemedicine visits as a percentage of total clinic visits. Our initial rate of telemedicine visits of 0.26% in 2005 increased dramatically by 2014 to 14% of outpatient visits. Payment data showed that for 2007-2009 the percent of total charges showed a trend toward being higher for telemedicine than for in-person clinical visits. In 2010, in-person visits paid significantly better than telemedicine visits as a percentage of billing. Since 2011 telemedicine reimbursement has not differed significantly from in-person visits.

CONCLUSION: Specialty telemedicine programs can successfully transition from grant-funded enterprises to self-sustaining activities. The telemedicine program at our burn center has continued to increase in patient volumes and is not inferior to regular in-person visits in terms of reimbursement. Most importantly, the availability of telemedicine services allows access to specialty expertise in a large and sparsely populated region.
*10. THE EFFECT OF SUPPLEMENTAL PARENTERAL NUTRITION ON OUTCOMES OF NECROTIZING ENTEROCOLITIS IN PREMATURE, LOW BIRTH WEIGHT NEONATES.
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BACKGROUND: Necrotizing enterocolitis (NEC) commonly affects premature, low birth weight infants after the initiation of enteral nutrition. The ideal rate of advancement of enteral feeds remains controversial. We hypothesized that supplemental parenteral nutrition (PN) decreases the need for surgery and mortality associated with NEC in premature, low birth weight infants.

METHODS: We reviewed the charts of all premature, low birth weight (<37 week gestation at birth and ≤1500g) neonates diagnosed with NEC at our institution between January 2006 and December 2013. The diagnosis of NEC was based on clinical findings including abdominal distension, feeding intolerance and radiographic findings including pneumatosis intestinalis, or pneumoperitoneum. Clinical outcomes included the need for surgery and in-hospital mortality. Surgical NEC was defined as NEC requiring bedside drain placement or exploratory laparotomy.

RESULTS: Of the 185 NEC patients, 114 (61.6 %) were premature infants with low birth weights and were included in the remaining analysis. A total of 37 (32.4 %) had perforated NEC and 14 had NEC totalis. Fifty-nine (51.8 %) patients required surgical management for NEC. Patients who required surgery for NEC were younger (25.8±4.0 vs. 27.8±3.3 weeks; p=0.005) and weighed less at birth (829±281 vs. 938±271; p=0.038) than those managed medically. There was no difference in the use of PN (37.7% vs. 31.4%; p=0.541) or full enteral feeds (EF) (52.3% vs. 62.8%; p=0.383) between surgical and medical NEC patients. Patients who were on full enteral feeds were almost two times less likely to have a perforation compared to those not on full EF (26.0% vs. 43.2%; p=0.111. There was no difference in mortality at discharge between patients who had PN at NEC onset and those who did not (31.4% vs. 42.6%; p=0.294)

CONCLUSION: In this study, we hypothesized that supplemental parenteral nutrition would decrease the severity of NEC. However, we found that supplemental parenteral nutrition at NEC onset did not appear to improve outcomes as demonstrated by equivalent rates of surgical management and in-hospital mortality.
*11. IMPLEMENTATION OF THE WHO CHECKLIST AND DEBRIEFIG IMPROVES ACCURACY OF SURGICAL WOUND CLASS DOCUMENTATION

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BACKGROUND: The Centers for Medicare and Medicaid Services (CMS) plan to link quality measures to subsequent reimbursement; surgical site infections (SSI) are one such quality measure. The surgical wound classifications (SWC) in one component of SSI risk stratification. Studies have demonstrated that the documented SWC in the medical record is often different from the actual surgical wound classification. This study examines the improvement in SWC documentation before and after implementation of nursing education, the World Health Organization (WHO) Checklist, and debriefing.

METHODS: Retrospective review of the hospital documented surgical wound class for eight common pediatric operations was compared to surgical wound class based on NSQIP algorithm. Operations examined included appendectomy, inguinal hernia repair, fundoplication, gastrostomy tube placement, pyloromyotomy, irrigation and debridement (I & D), cholecystectomy, and stoma takedown. Wound class was documented for up to 25 cases for each operation. Percent agreement between the hospital documented SWC and the NSQIP-SWC was calculated and comparisons were made before and after implementation of WHO Checklist and debriefing. Analysis was performed using Chi-square and a p valued < 0.05 was considered significant.

RESULTS: Pre-intervention there were 191 cases examined with an overall concordance of 58% (112/119) and post intervention the overall concordance increased to 83% (163/199), p = 0.001. The biggest increase in accuracy occurred in the appendectomy group with pre-intervention accuracy 28% (7/25) and post-intervention accuracy 80% (20/25), p = 0.0005. The most frequently documented wound class for appendectomy prior to intervention was wound class I. Interestingly, there were 5 cases in which pre-intervention I & D was listed as wound class I or II. The most accurately documented operation pre-intervention was pyloromyotomy. The most accurately documented operation post-intervention was gastrostomy tube and inguinal hernia. The least accurately documented operation pre and post-intervention was cholecystectomy.

CONCLUSION: The surgical wound class is often documented incorrectly in the medical record. Implementation of the WHO Checklist, debriefing, and nursing education improved the accuracy of documented surgical wound classification.
12. TRAUMA-ASSOCIATED PNEUMONIA: TIME TO REDEFINE VENTILATOR-ASSOCIATED PNEUMONIA IN TRAUMA PATIENTS

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BACKGROUND: The prevalence of ventilator-associated pneumonia (VAP) in trauma patients is about 4-folds higher than in ventilated non-trauma patients. However, the role of trauma factors in the development of pneumonia in ventilated trauma patients, and the distinction between VAP and trauma-associated pneumonia (TAP) remain in question. In this study, we hypothesize that trauma factors play a critical role in aggravating the development of pneumonia in ventilated trauma patients.

METHODS: In this retrospective study 1,044 ventilated trauma patients were identified from December 2010 to December 2013 using our trauma registry. Study outcome was dichotomous: patients who developed pneumonia and those who did not. Data collection included demographics, injury severity score (ISS), ventilation days, days to develop pneumonia, hospital and ICU length of stay, and trauma factors including rib fracture, aspiration, blood in or around mouth, blood in or around nose, failed pre-hospital intubation, facial fractures, traumatic brain injury, spinal injury, sternal fracture, and pulmonary contusion. Variables were analyzed and compared between two groups and the relationship between development of pneumonia and the trauma factors were analyzed using univariate and multivariate analyses.

RESULTS: Among 1,044 ventilated trauma patients, 95 patients (9.1%) developed pneumonia, and 949 patients (90.9%) did not. Patients who developed pneumonia had significantly higher number of trauma factors than patients who did not develop pneumonia (4.1 vs. 2.4; p<0.001). Univariate regression analysis showed that all of the individual trauma factors except for blood in or around nose significantly increased the chance of developing pneumonia. Multivariate regression analysis further revealed that rib fractures, pulmonary contusion, and failed pre-hospital intubation were the most significant trauma factors in development of pneumonia in ventilated trauma patients. Of the 95 patients who developed pneumonia, 36 patients (37.9%) did not have any of the 3 significant trauma factors (rib fractures, pulmonary contusion, or failed pre-hospital intubation), and 59 patients (62.1%) had at least one of them. The later group developed pneumonia significantly faster than the patients who did not have any of the 3 significant trauma factors (4.4 days vs. 6.3 days; p=0.015).

CONCLUSION: Trauma injuries to the face and oro-pharyngeal cavity, rib fractures, pulmonary contusion, and failed-intubation in the field contribute to the development of pneumonia in ventilated trauma patients, which we would consider as TAP. We propose that the mechanism of infection involves transfer of microbial agents from damaged mucosal surfaces into the lungs, and this process is accelerated in TAP patients. Current CDC definition of VAP needs to be adjusted to account for the effect of these factors in the etiology of TAP.
**SCIENTIFIC PAPER ABSTRACTS**

*13. PEDIATRIC TRAUMA SYSTEM MODELS: DO SYSTEMS UTILIZING ADULT TRAUMA SURGEONS COMPARE FAVORABLY TO THOSE UTILIZING PEDIATRIC SURGEONS?*

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**BACKGROUND:** Background: While there exists a nationwide shortage of pediatric surgeons, few studies have examined differences in pediatric trauma outcomes using adult trauma surgeons compared to pediatric surgeons. The purpose of this study was to evaluate pediatric trauma patient outcomes for institutional models using pediatric surgeons vs. adult trauma surgeons.

**METHODS:** Methods: A 10-year retrospective review was conducted at two geographically similar ACS-verified level II pediatric trauma centers. Center I (pediatric center) provides pediatric trauma coverage through the use of 24-hour in-house trauma surgeons to resuscitate pediatric patients and then hand off the patient to a pediatric surgery service for all operative and non-operative management, with mid-level support. Center II (adult center) provides 24-hour in-house senior surgical resident coverage with an on-call trauma surgeon no more than 15 minutes away. All operative and non-operative management in Center II is provided by adult trauma surgeons with resident support, with a pediatric surgeon available for specific consultation. All pediatric trauma activations resulting from any injury mechanism between July 1, 2003 and June 30, 2013 were identified. Data collected included patient demographics, mechanism of injury, injury severity (injury severity score [ISS] and Glasgow Coma Scale [GCS] score), initial vitals, imaging utilization (ultrasonography and CT scan), intensive care unit (ICU) and ventilator utilization, hospital length of stay (LOS), and mortality.

**RESULTS:** Results: Patients from the pediatric center were younger (8.3 ± 5.7 vs. 9.3 ± 5.6 yrs, P<0.001), more severely injured (ISS=9.4 ± 9.1 vs. 7.2 ± 8.0, P<0.001; GCS score=13.6 ± 3.6 vs. 14.0 ± 3.0, P=0.027), and more often arrived with a systolic blood pressure of <90 mmHg (5.6% vs. 4.3%, P=0.038) as compared to those from the adult center. Patients at the adult center more often underwent ultrasonography (93.3 vs. 58.8%, P<0.001); however, CT scan utilization was not different between institutions. Admission to the ICU was more common at the pediatric center (52.2% vs. 33.5%, P<0.001), but ICU LOS was longer in the adult center (3.0 vs. 2.5 days, P=0.035). Mechanical ventilation was also more common at the pediatric center (12.9% vs. 7.7%, P<0.001, respectively), but ventilator days did not differ between Centers. Hospital LOS was significantly longer in the pediatric center (3.1 ± 4.6 vs. 2.5 ± 4.7 days, P<0.001). However, mortality was not different between the pediatric and adult centers (3.2% vs. 2.5%, P=0.116).

**CONCLUSION:** Conclusion: This study found little to no differences in clinically significant outcomes comparing trauma models utilizing adult trauma surgeons vs. pediatric surgeons. As it appears that trauma surgeons’ outcomes compare favorably to those of pediatric surgeons, utilizing adult trauma surgeons may help alleviate shortages in pediatric surgeon coverage, although additional studies are needed to validate these findings.
14. EVALUATION OF STO2 TISSUE PERFUSION MONITORING AS A TOOL TO PREDICT THE NEED FOR LIFE SAVING INTERVENTIONS IN TRAUMA PATIENTS
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BACKGROUND: Background: Hemorrhage remains the leading cause of potentially preventable death among trauma patients. Earlier recognition of hemorrhagic shock decreases the time to implementation of Life Saving Interventions (LSI) such as blood transfusions or hemorrhage control procedures and improves patient survival. However, the presence of hemorrhagic shock is not always apparent using standard vital signs monitoring, a clinical state referred to as occult shock. We hypothesized that near-infrared spectroscopy (NIRS)-derived tissue oxygenation saturation (StO2) can predict the need for LSIs in trauma patients with occult hemorrhagic shock.

METHODS: Methods: This prospective, observational study was performed over an 8 week period at our Level I trauma center with the highest-activation adult trauma patients. Exclusion criteria were prisoners, pregnant women, and patients with burn injuries >30% TBSA or bilateral upper extremity fractures. Hutchinson Technologies Spot Check StO2 device was used to measure StO2 values upon arrival, then every 5 minutes throughout the first 60 minutes after arrival, and before and after the implementation of LSI. Vital signs, outcomes and procedures performed were also recorded for data analysis. Statistical analysis was performed using a Mann-Whitney test for continuous variables and Fisher exact test for categorical data, and a p<.05 was considered significant.

RESULTS: Results: Sixty-two patients were included in the study with a median age of 42 (26, 58), 67% male, 69% blunt injuries with a mortality of 9.7%. There was no difference in StO2 values between blunt and penetrating groups (p=.36), race (p=.059) or gender (p=.054). StO2 <75% were predictive of the need for blood product transfusions (p<.001) and the need for emergency surgeries, as no patients proceeded to the OR within 60 minutes with a StO2 value ≥75%. Patients who presented with StO2 <75% had a median admission systolic blood pressure of 104 (86, 142), a statistically significant difference in median base deficit (p=.01) and ABC score (p=.015) from patients with a StO2 value ≥75%. Nearly 1/3rd of patients who presented with a systolic blood pressure ≥120mmHg presented with StO2 <75%, and had a median base deficit of 5 (3,6.5).

CONCLUSION: Conclusion: Admission StO2 measurements <75% predicts the need for LSIs including administration of blood products and emergent surgical procedures, and may be used as an adjunct method for identifying critically injured patients suffering from severe hypoperfusion. StO2 measurements can aid in determining the presence of occult shock where additional lab values and trauma scores are unavailable for analysis. Our data indicates that StO2 measurements are useful, noninvasive and can rapidly identify critically injured patients suffering from severe hypoperfusion, and further studies are planned to evaluate this tool in triage in the prehospital setting.
*15. SKIP AND SAVE: UTILITY OF PELVIC X-RAYS IN THE INITIAL EVALUATION OF BLUNT TRAUMA PATIENTS
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BACKGROUND: The cost of medical care is an area of major emphasis in the current healthcare environment. Medical providers have a significant role in reducing costs. One way to achieve this goal is to eliminate practices that add little value to patient care. The pelvic x-ray obtained during the initial evaluation of blunt trauma is an example. The objective of this study was to explore the utility of the pelvic x-ray in patients with a negative physical exam.

METHODS: Blunt trauma patients with pelvic fractures of any type admitted to our urban trauma center from January through December 2012 were reviewed. Demographics including age, sex, race, mechanism of injury, and outcome were collected. Findings on pelvic x-ray and computed tomography (CT) were compared for correlation. Patients requiring surgery for their pelvic fracture were identified.

RESULTS: Out of 1,757 trauma admissions, 153 patients sustained a pelvic fracture. Mean age 50 years (15-97), male 54%, and Caucasian 46%, Hispanic 31%, African American 22%, Asian 1%. The main mechanism of injury was motor vehicle collisions 45%, followed by fall from standing 22% and auto/pedestrian accidents 12%. There were 22 patients that did not have both imaging modalities for comparison. Of the 131 patients with both CT and pelvic films, findings were the same in 44 (33%). CT identified one or more additional pelvic fractures in 88 (67%) patients. However, the pelvic x-ray findings did not alter patient management in the trauma bay. Out of the 153 patients with pelvic fractures, 24% required surgery for their pelvic injuries. Mortality was 4% for reasons unrelated to pelvic trauma.

CONCLUSION: In the normotensive blunt trauma patient with no pelvic instability or evidence of hip dislocation on physical exam, who are to undergo further evaluation with CT, the trauma bay pelvic film is unnecessary.
*16. IMPACT OF INTRACRANIAL PRESSURE MONITORING ON MORTALITY FOLLOWING SEVERE TRAUMATIC BRAIN INJURY

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BACKGROUND: Intracranial hypertension contributes to secondary injury among patients with severe traumatic brain injury (sTBI). Consensus guidelines recommend intracranial pressure (ICP) monitoring for all salvageable sTBI patients meeting pre-defined criteria. Considerable variability exists regarding compliance with ICP monitoring guidelines. The objective of this study was to examine the impact of ICP monitoring on mortality following sTBI. We hypothesized that ICP monitoring is not associated with improved survival.

METHODS: A 5-year retrospective analysis was performed at a level 1 trauma center to identify all adult blunt sTBI patients. Data collected included patient demographics, Injury Severity Score (ISS), field and admission Glasgow Coma Scale (GCS) scores, episodes of hypotension (systolic blood pressure [SBP] <=90 mmHg), the presence of and time to ICP monitoring, and admission coagulation profile. Patients with EVD monitors placed after emergency craniotomy were excluded. The primary outcome was in-hospital mortality. Logistic regression was performed to identify independent predictors of death. A propensity score adjusted analysis was also performed to minimize selection bias between patients who did and did not undergo ICP monitoring.

RESULTS: During the study period, 249 patients sustained a sTBI. After excluding those who died within the first 24 hours, 123 patients remained. Of these, 40 (33%) underwent ICP monitoring. On univariate analysis, patients who underwent ICP monitoring were younger (40 vs. 50 years, p=0.009) with a higher ISS (30 vs. 24, p=0.0003). Admission GCS, SBP, and coagulation profiles were similar between groups. Mortality was decreased in patients undergoing ICP monitoring (23 vs. 41%, p=0.04). Eleven patients (9%) underwent delayed ICP monitor placement due to coagulopathy and the time from admission to ICP monitor placement was twice as long in this group (18 vs. 9 hours, p=0.03). On multivariate analysis, controlling for age, ISS, hypotension, comorbidities, and coagulopathy, ICP monitoring was associated with a decreased risk for mortality (OR=0.32, 95% CI=0.11-0.99; p=0.049). Upon propensity adjusted analysis, a decreased yet statistically significant reduction in mortality remained among patients undergoing ICP monitoring (OR=0.42, 95% CI=0.18-0.99; p=0.047).

CONCLUSION: Significant variability exists in the use of ICP monitoring among patients with sTBI, as only one-third of patients in the current study underwent ICP monitoring. Despite this, an adjusted analysis demonstrates improved survival among sTBI patients undergoing ICP monitoring. Adequately powered, prospective randomized controlled studies are required to define the optimal group, timing, and outcomes of ICP monitoring following sTBI.
**17. SERIAL ROUTINE REPEAT COMPUTED TOMOGRAPHY SCANS IN PATIENTS WITH TRAUMATIC BRAIN INJURY: A PRACTICE OF THE PAST**

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**BACKGROUND:** The practice of a routine repeat computed tomography (RHCT) scans in patients with traumatic brain injury (TBI) is under question. The aim of our study was to evaluate the utility of a greater than one repeat head computed tomography (M1CT) scans in patients with TBI and intracranial hemorrhage (ICH). We hypothesized that, performance of a M1CT scans do not lead to neurosurgical intervention in examinable patients.

**METHODS:** We performed a 3 year prospective analysis of all TBI patients with an intracranial injury (skull fracture and/ or ICH) presenting to our level 1 trauma center. Patients that received M1CT scans were included. Findings and reason (routine vs. neurologic deterioration) for M1CT were recorded. Neurologic deterioration was defined as altered mental status, focal neurological deficits and/or pupillary changes. Primary outcome measure was the need for neurosurgical intervention (craniotomy/ craniectomy).

**RESULTS:** A total of 1,148 patients were evaluated of which, 25.8% (n=296) patients that underwent M1CT were included. 98.6% (n=291) had a routine M1CT while the remaining (n=5) had M1CT due to neurologic decline. In patients that had a routine M1CT (n=291), worsening was seen in 23% (n=67) patients. Neurosurgical intervention was performed in one patient (0.3%) who was in-examinable (Glasgow Coma Scale score=6). Among patients that received M1CT due to neurologic decline, 80% (4/5) had worsening of ICH and neurosurgical intervention was performed in 75% (3/4) patients. Neurological decline was independently associated with the need for neurosurgical intervention (OR [95%CI]: 5.1 [4.2-6.8], p=0.001) in patients undergoing M1CT.

**CONCLUSION:** The practice of multiple repeat head CT scans in clinically examinable patients after TBI with intracranial hemorrhage leads to over utilization of this tool. M1CT should be limited to non-examinable patients or patients with neurological deterioration.
**18. EXPERIENCE WITH NEW ORAL ANTICOAGULANTS FOR THE MANAGEMENT OF POST-OPERATIVE ATRIAL FIBRILLATION AFTER ISOLATED CORONARY ARTERY BYPASS GRAFTING**

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**BACKGROUND:** New onset post-operative atrial fibrillation (POAF) occurs in 20-30% of isolated coronary artery bypass graft (CABG) patients. Randomized clinical trials comparing the new oral anticoagulants (NOACs) apixaban, rivaroxaban, and dabigatran to warfarin for the management of atrial fibrillation in medical patients have shown that NOACs have lower rates of intracranial hemorrhage and are equivalent or superior to warfarin with regards to stroke and major bleeding. NOACs do not require chronic monitoring and do not have the same interactions with medications and diet as warfarin. We hypothesized that the use of NOACs for the management of POAF could be used safely with low rates of bleeding and post-operative stroke.

**METHODS:** All patients from a single tertiary referral center undergoing that underwent isolated CABG from January 2013 to October 2014 were reviewed and patients with POAF were identified. Anticoagulation with warfarin or NOAC was used in all patients with POAF and differences in clinical outcomes, length of stay (LOS), post-operative blood product transfusions, and readmissions for bleeding were measured.

**RESULTS:** 510 patients undergoing isolated CABG were identified. 28.0% (n=143) experiencing new onset POAF. Between the NOAC and warfarin groups there was no difference in the average age (NOAC 74.7 ± 6.2 years vs warfarin 73.6 ± 8.5 years, p-value=0.61) or lengths of stay (NOAC 6.6 ± 2.8 days vs warfarin 7.4 ± 3.9 years, p-value=0.46). There were no differences between the time at which the anticoagulation was started (NOAC POD5 vs warfarin POD4, p-value = 0.25) or the average number of days the patient was on anticoagulation at discharge (NOAC 2.2 days vs warfarin 3.2 days, p-value = 0.19). Both groups had similar rates of average post-operative blood product transfusion (NOAC 1.6 ± 2.6 units vs warfarin 1.2 ± 2.3 units, p-value 0.52). No patients in either group required a blood product transfusion after the initiation of anticoagulation. 1 patient in the warfarin group was readmitted for bleeding, while no patients in the NOAC group required readmission for bleeding. No patients in either anticoagulation group suffered a post-operative stroke.

**CONCLUSION:** While cardiac surgery patients are at high risk for bleeding, this study shows that both warfarin and the NOACs can be used safely and effectively for the management of POAF with no immediate post-operative bleeding issues after initiation of anticoagulation, low rates of readmission for bleeding, and no post-operative strokes. NOACs were noninferior to warfarin in the short term management of POAF and may have long term benefits to their use, such as no need for monthly monitoring, no need for lab draws and possible lower rates of long term bleeding and hemorrhagic stroke.
**19. “BLUSH AT FIRST SIGHT”; SIGNIFICANCE OF CT AND ANGIOGRAPHIC DISCREPANCY IN PATIENTS WITH BLUNT ABDOMINAL TRAUMA**  
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**BACKGROUND:** “Blush”, defined as a focal area of contrast pooling within a hematoma, is frequently encountered in patients with severe blunt torso trauma. This radiographic sign often implies the presence of active extravasation or pseudoaneurysm and is associated with an increased propensity for ongoing hemorrhage. Contemporary clinical practice guidelines recommend the use of angiography with embolization in all hemodynamically stable patients with evidence of active extravasation on abdominal CT. Patients presenting with blush visualized on CT, but not demonstrated on subsequent angiography, present a challenging clinical dilemma. In this scenario, the interventional radiologist and the trauma surgeon must make a clinical risk benefit decision of empiric embolization with the attendant procedural risks versus terminating the angioembolization with the potential for rebleeding. The purpose of this study was to study the natural course of patients with this blush disparity between CT and angiography in order to devise an algorithm for management.

**METHODS:** The study was conducted as a retrospective analysis of patients who underwent angiography after initial CT scans revealed blush following blunt abdominopelvic trauma at a level I trauma center (June 2005 to July 2013). Data collected on the patient cohort included demographic data, injury mechanism, admission vital signs and laboratory data, ISS, and incidence of rebleeding after angiography and clinical outcome.

**RESULTS:** During the study period, a total of 139 blunt torso injury patients underwent angiography after CT revealed blush concerning for active hemorrhage. The negative angiography rate was 23%. The liver had the highest incidence of CT/angiographic discrepancy at 12/28 (43%). Patients with CT blush secondary to hepatic injury with a subsequent negative angiography without embolization had a 25% (3/12) rate of recurrent hemorrhage requiring intervention. CT/angiographic discrepancy in patients with spleen injury was demonstrated in 15/90 (16.7%) patients. Amongst patients with splenic injuries with positive blush findings on CT, there was a four-fold increase in rebleeding in patients managed without embolization the 3/11 (27.7%) compared to those that were embolized 6/79 (7.6%).

**CONCLUSION:** CT imaging has enhanced our ability to detect contrast extravasation after injury. Evidence of blush on CT suggests the presence of significant hemorrhage. The current analysis suggests that in patients with CT blush associated with splenic and hepatic injury, the risk of recurrent hemorrhage requiring intervention is substantial and warrants consideration of empiric embolization at the time of the initial procedure even in the absence of blush on angiographic evaluation. In patients with renal and pelvic injuries, CT blush in the absence of contrast extravasation on angiography may be managed expectantly with the expectation of equivalent clinical outcomes. Prospective studies are needed to validate these findings.
20. SURGICAL STABILIZATION OF SEVERE RIB FRACTURES DECREASES INCIDENCE OF RETAINED HEMOTHORAX

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BACKGROUND: Retained hemothorax (RH) is relatively common after severe chest trauma. Patients who develop RH often endure additional procedures, readmissions, and are at risk for empyema, fibrothorax, and even death. At our Level One Trauma Center, we started performing surgical fixation (SSRF) of severe rib fractures in 2009. We hypothesized that patients who have SSRF have a lower incidence of RH than similarly injured patients who are managed non-operatively (NON-OP).

METHODS: All patients admitted to the trauma service with rib fractures between January 2009 and June 2013 were identified. A 2:1 propensity score model was created using age, gender, chest AIS, ISS, and hospital length of stay as variables to identify NON-OP patients who were similar to the SSRF patients. Injury, hospital, surgical, cost, and charge data was collected for all patients for the index hospitalization and for any relevant readmissions. RH was defined as radiographic evidence of intra-thoracic blood requiring additional procedural intervention after placement of tube thoracostomy, or development of intra-thoracic blood requiring intervention more than 96 hours after admission. Discrete variables were compared using Fishers’ exact test, and continuous variable were compared using Wilcoxon rank sum tests.

RESULTS: Propensity score matching successfully identified 411 patients (137 SSRF, 274 NON-OP) who were included in the analysis. 31 (7.5%) patients in the entire cohort had RH, 3 who had SSRF, and 28 NON-OP. Overall, the incidence of RH was lower (2.2%) in the SSRF group than in the NON-OP group (10.2%), p=0.003. Twelve (39%) of the RH cohort did not have a thoracostomy tube placed to treat hemothorax or pneumothorax at the time of admission. 6 RH patients (19.3%) required readmission related to their thoracic injury, as compared to 14 (3.7%) in the non-RH group (p=0.002). As expected, all 31 (100%) patients in the RH group required additional thoracic procedures to treat RH, as compared to 4 (1.4%) in the non-RH group. Interventions to treat RH included 20 (65%) simple drainage (tube thoracostomy or radiology-guided pigtail), 4 (13%) VATS, and 7 (23%) thoracotomy. Overall hospital costs and charges were not different between the RH and non-RH group, even when taking into account the costs of readmissions.

CONCLUSION: Patients who have SSRF have a decreased incidence of RH as compared to similarly injured patients who have NON-OP management. Those with severe thoracic trauma and rib fractures who develop RH have more procedures and more thoracic injury-related readmissions than patients who do not. While not a singular reason to perform SSRF, this clinical benefit should not be overlooked.
21. NUSS SURGERY CAUSES DECOMPRESSION OF RIGHT HEART CHAMBERS IN PATIENTS UNDERGOING SURGERY FOR PECTUS EXCAVATUM

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BACKGROUND: Pectus excavatum (PE) is a common malformation of the chest wall that includes posterior depression of the sternum and adjacent costal cartilages. The cardiopulmonary implications and benefits of surgical correction have been debated. PE can cause physiologic limitation by compression of the right heart chambers. Associated incidence of other structural cardiac anomalies and the effects of Nuss surgical repair on right heart chamber dimensions are evaluated.

METHODS: A retrospective evaluation of 120 adult PE patients who underwent a modified Nuss with intraoperative transesophageal echocardiography (TEE) at a single institution was performed from 2010-2012. The prevalence of abnormal cardiac anatomy was recorded in 120 patients who underwent baseline TEE and measurement of right heart chamber dimensions before and immediately after the PE deformity was corrected was performed in 60 subjects who also underwent a post procedure TEE. A single surgeon (DJ) performed PE repair with a modified Nuss and all echo data and measurements were performed by a single observer (CJC). Continuous variables pre and post-surgery were analyzed by 2-tailed, paired Student t-test.

RESULTS: Of the 120 patients reviewed (age: 33.7±10.7, male: 94(78.3%), female: 26 (21.6%)), 1.6% had bicuspid aortic valve, 3.3% had mitral valve prolapse, 5.8% had tricuspid valve prolapse and 3.3% had patent foramen ovale. There were no patients with coronary anomalies or aortic root dilatation. In the 60 patients (age: 32.6±11.3, male: 48(80.0%), female: 12(20.0%)) with pre and post echo images, significant increase in right heart chamber dimensions occurred as follows: right atrium (3.3±0.8 cm to 3.9±0.8, p<0.0001, 18% change), tricuspid annulus end systole (2.3±0.5 cm to 2.6±0.5, p <0.0001, 13% change) , right ventricular outflow tract (RVOT) size end-diastole (1.8±0.5 cm to 2.0±0.4, p =0.0019, 10% change), and RVOT size end-systolic (2.2±0.4 cm to 2.3±0.3, p=0.0400m 4.5% change), baseline versus post surgery respectively.

CONCLUSION: In patients with pectus excavatum deformity, surgical correction significantly improved right heart chamber size with relief of compression. An increased prevalence of associated cardiac anomalies was not found in this patient cohort. Relief of right heart compression may translate into improved functional performance after surgery in PE patients and is undergoing further evaluation.
22. MANAGEMENT OF ACUTE APPENDICITIS IN A RURAL POPULATION
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BACKGROUND: The delivery of surgical care to rural America continues to be a concern to many organizations. Many health care systems have developed different strategies to provide surgical care to rural America. Our system uses a Spoke and Wheel Approach (SWA). Patients access health care anywhere in the system, but are subsequently transferred centrally for surgical care. This model works only if the transfer process and the delays incurred do not compromise care. We sought to analyze this assumption in our own network. Outcomes should be equivalent regardless of where patients access care. If they are not, the care model needs to be revisited. We chose Acute Appendicitis (AA) to investigate appropriateness of our care model.

METHODS: Our rural health care system provides care and services for an eight county region covering 5,600 sq mi. AA was chosen as our model for several reasons. First, AA is one of the most frequently performed procedures by general surgeons in the US. Second, the natural history of AA has been extensively studied and is somewhat predictable. Third, outcome of AA after appendectomy can be affected by the timing of the surgery. We identified patients admitted with the diagnosis of AA using ICD-9 code and CPT codes over a two year period. We divided the patients into 2 groups, main campus (MC) presentation and satellite centers (SAT) presentation. Demographics of the two groups were compared as well as site of presentation, time of presentation, time of surgery, time to surgery and clinical information associated with the pre-op, intra-op, and post-op care.

RESULTS: There were no differences between the groups with regard to age, gender, surgical intervention, or use of imaging. Subjects with initial presentation at SAT had longer mean surgery times, 51.5 minutes versus 60.7 (p=0.008). There was no difference in time to surgery, length of stay, Lap v. open surgery, antibiotics, perforation rate, intra-op complications, post op ileus or Intrabdominal abscess.

CONCLUSION: The traditional belief is that AA progresses toward perforation. Therefore expeditious appendectomy is necessary to remove the source and prevent perforation and all its complications. With this in mind, minimizing delay to operation is important. For surgeons working in rural areas, this delay is sometimes hard to avoid. As it is the case in our health network patient have to be transferred from satellite to main campus for definitive treatment. Remote access to health care did not compromise outcome. It is interesting to note that the time to surgery is identical between the two groups. This supports a pragmatic approach to rural patients with AA. Our study showed no difference in any of the variables studied except for the length of operation. Though statistically significant it is only about 10 min difference. This study shows that it is safe to care for patients with AA in a network such as ours without putting patients presenting in satellite centers at a disadvantage.
23. OUTCOMES OF PRIMARY FASCIAL CLOSURE AFTER OPEN
ABDOMEN FOR NON-TRAUMA EMERGENCY GENERAL SURGERY
PATIENTS
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BACKGROUND: In patients managed with open abdomen (OA), early closure and
fewer abdominal washouts have been associated with successful primary fascial closure
and fewer wound complications; however, these studies included mostly trauma
patients. We hypothesized that emergency general surgery (EGS) patients managed
with OA would have a similar association.

METHODS: Adult EGS patients managed with OA from June 2013 to December
2013 were prospectively enrolled into an IRB-approved study at a university medical
center. Variables included age, BMI, Charlson Comorbidity Index (CCI), presence
of contamination at index operation, intraoperative blood loss, resuscitation, time to
fascial closure, and number of abdominal washouts. Primary outcome was success or
failure of facial closure. Data was analyzed using Wilcoxon rank sum, Fisher’s exact,
and unpaired t tests.

RESULTS: closures were primarily closed with running or interrupted slowly
absorbable suture; two used biologic or synthetic mesh. Mortality was 30% (4 failed,
7 successful). Uncomplicated versus complicated closure was not associated with time
to closure (median 3 vs. 2.5 days, p=0.39), time to first re-exploration (median 37
vs. 35 hours, p=0.66), number of re-explorations (median 2 vs. 2.5, p=0.66), or type
of closure (running vs. interrupted sutures, p=0.47). Higher BMI was significantly
associated with complicated closure (mean BMI 29.3 vs. 36.9, p=0.02). Fascial closure
outcome was not associated with age, CCI, indication for operation (p=0.25), or type
of intervention (p=0.51). Physiologic compromise was the most common reason for OA
(n=19, 53%), 15 of which were closed successfully. Presence of contamination trended
towards closure failure (p=0.056). Intraoperative blood loss (median EBL 700 vs. 200,
p=0.05) tended to be higher in those who were successfully closed, but infusion of
crystalloids or blood products did not have an affect.

CONCLUSION: Contrary to previous studies, time to closure or number of re-
operations did not affect fascial outcome. This prospective analysis showed that
successful fascial closure was achieved in patients with lower BMI and higher intra-
operative blood loss. Patients with intra-abdominal contamination trended towards
higher failure rates. This suggests that patients who required OA for hemorrhage
fared better in terms of fascial closure, although this should be investigated in a larger
sample.
24. ESTABLISHING BENCHMARKS FOR CHOLEDOCOLITHIASIS MANAGEMENT IN AN URBAN SAFETY NET HOSPITAL: ANALYSIS OF 915 SUBJECTS

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BACKGROUND: The push for public reporting of the quality of health care delivery makes it imperative that relevant benchmarks exist for particular disease states across different settings. Safety net hospitals have been shown to treat patients with more advanced disease and higher complexity than their private counterparts, so it seems intuitive that their benchmarks for treating given disease states should be different. We undertook this descriptive study to establish benchmarks for the management of choledocholithiasis in the setting of an urban safety net hospital that sees a high volume of biliary disease.

METHODS: We retrospectively reviewed all patients admitted to our urban safety net hospital’s acute care surgery (ACS) with biochemical evidence of choledocholithiasis and undergoing same-admission cholecystectomy (CCY) between July 1, 2012 and December 31, 2013. During this time period, the ACS service was staffed by 13 surgeons, 12 of whom have acute care surgery as their primary practice.

RESULTS: Over the 18 month study period, 2217 CCYs were performed at our institution (382 electively at our hospital’s ambulatory surgery center, 321 electively at our main hospital as a same day surgery, and 1514 as an urgent case after admission to the ACS service). Of these urgent ACS cases, 915 met inclusion criteria and comprised the study cohort (females= 82.2%; mean age= 38.6 (SD + 13.6) years). The majority of subjects were in their 3rd and 4th decades of life (29.8% and 28.7%, respectively). Additionally, a majority of subjects were obese as body mass indexes of 30.0-34.9 were seen in 29.7% (class I obesity), 35.0-39.9 in 11.4% (class II), and >40 in 10.5% (class III). Total bilirubin elevations were generally mild as 9.1% of subjects had levels >3.0, and 16.1% had an abnormal lipase level. Sonographic gallbladder wall thickening was seen in 16.5% of patients, while a pathology report diagnosing cholecystitis was seen in 95.4% of specimens. Conversion to an open procedure was performed in 4.0% of subjects overall and 9.3% of those with gall bladder wall thickening on ultrasound. Intraoperative cholangiography was done in 18.0% of patients, and common bile duct exploration (CBDE) was rare (laparoscopic CBDE=1.0%, open CBDE=0.5%). The dominant management pathway was admission with trending of liver function tests, and CCY with omission of biliary tract imaging in those whose levels decreased expeditiously (n=630, 68.9%). A complication occurred in 5.8% of patients, and the attributable mortality was 0.2%. Finally, the length of stay (LOS) was 3.1 (SD + 2.2) days for laparoscopic CCY and 5.9 (SD + 2.7) days for open.

CONCLUSION: These findings can serve as a first effort at benchmarking outcomes associated with the management of choledocholithiasis at an urban safety net hospital. Similar centers are encouraged to perform and promulgate their own analyses to help refine these point estimates.
*25. AN ANALYSIS OF OMITTING BILIARY TRACT IMAGING IN 668 SUBJECTS ADMITTED WITH CHOLEDOCOLITHIASIS  
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BACKGROUND: Background: Our acute care surgery (ACS) group’s practice for the management of patients admitted with biochemical evidence of choledocholithiasis allows for trending of liver function tests (LFTs) for a 24 hour period. Patients who show a downtrend may then undergo cholecystectomy (CCY) without intraoperative cholangiography (IOC) and be discharged home without performance of biliary tree imaging. We undertook this study to assess outcomes related to omitting biliary tree imaging in patients admitted with elevated LFTs which downtrend.

METHODS: Methods: All patients admitted to our academic ACS practice with biochemical evidence of choledocholithiasis and undergoing same-admission CCY between 7/1/2012 and 12/31/2013 were identified. Patients who underwent preop or intraop imaging of their biliary tree were excluded. Demographics, lab data and their trends, postop procedures performed and their timing, and outcomes were reviewed. Log-transformed ANOVA was used to compare means between groups with Tukey’s post hoc testing when indicated.

RESULTS: Results: A total of 668 subjects with initially elevated but downtrending LFTs and no preop imaging underwent CCY without IOC during the 18 month study period. Thirty eight subjects (5.7%) ultimately underwent postop imaging of their biliary tree with endoscopic ultrasound, endoscopic retrograde cholangiopancreatography (ERCP), or magnetic resonance cholangiopancreatography alone or in combination at some point in their postop course. Twenty two subjects (3.3%) were shown to have definite evidence of postop choledocholithiasis. Of these, ten cases were diagnosed during the index admission at 2.2 (SD + 2.1) days postop and 12 cases after discharge at 49.8 (SD + 50.4) days after discharge. One case of cholangitis from a retained stone was seen in the latter group in a patient presenting 82 days after discharge. She underwent ERCP at that time, was discharged three days later, and was doing well when seen in clinic two weeks after ERCP. Of the 646 subjects who did not show definitive evidence of postop choledocholithiasis, 482 (74.6%) had their last follow up at 20.8 (SD + 22.0) days after discharge while the remaining 164 (25.4%) were lost to follow up after discharge from their index admission. When considering the three groups of subjects with 1) no postop choledocholithiasis and follow up, 2) no postop choledocholithiasis and no follow up, and 3) proven postop choledocholithiasis, omnibus and post hoc testing showed no differences in presenting LFTs between the patients with and without follow up, and significantly higher presenting LFTs for those patients proven to have postop choledocholithiasis (total bilirubin p=0.02, ALT p=0.02, and AST p=0.004).

CONCLUSION: Conclusion: Omission of biliary tract imaging for patients with choledocholithiasis who have downtrending preop LFTs appears to be safe. Delayed intervention for clinically significant retained stones appears to be rare and well tolerated.
26. VARIATION IN METASTATIC WORKUP FOR PATIENTS WITH INVASIVE BREAST CANCER

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BACKGROUND: Despite clear guidelines regarding which asymptomatic breast cancer patients require a metastatic workup, we hypothesized that there would be significant variation amongst surgeons regarding when to order such a workup, and the tests comprising the same.

METHODS: An anonymous web-based survey of surgeon practices was distributed to surgeons via the American College of Surgeons Communities. We evaluated variation in both the indications for ordering a metastatic workup, and the tests used for the same. Statistical analyses were conducted using IBM SPSS Statistics (Version 21).

RESULTS: 253 surgeons from 8 countries responded to the survey; 93.6% were from the US. 17.7% were in academic practice, 39.1% were hospital employed, and 43.2% were in private practice. 55.8% claimed that ≥ 50% of their practice was breast-related; and 30.6% had solely breast practices. Of the 233 surgeons who answered the question regarding when they ordered a metastatic workup in patients presenting with invasive breast cancer, 17 (7.3%) stated they always did a metastatic workup prior to surgery, 74 (31.8%) stated they did so for patients presenting with clinical stage 2 or greater, 122 (52.4%) stated they did so for patients presenting with clinical stage 3 or greater, and 20 (8.6%) stated they never did a metastatic workup. Surgeons who had ≥ 50% of their practice related to breast cancer were more likely to order a metastatic work up in patients with stage 3 or greater disease (61.1% vs. 41.1%, p = 0.031). In terms of tests ordered as part of their usual metastatic workup, 142 (61.7%) surgeons ordered a CT scan of the abdomen, 123 (53.5%) a CT scan of the chest, 102 (44.4%) a bone scan, 94 (40.9%) a chest xray, 94 (40.9%) a PET scan, 19 (8.3%) a CT/ MRI of the brain, and 13 (5.7%) an ultrasound of the liver. Only 43 surgeons (17%) stated that a CT chest/abdomen and bone scan was their “usual” metastatic workup. Surgeons with practices of ≥ 50% breast cancer were more likely to order these tests (23.0% vs. 11.2%, p=0.018), as were those in academic settings compared to those who were either hospital-employed or in private practice (32.6%, 20.0% and 9.5%, respectively, p=0.003). Significant differences were also found in practice patterns based on geography. American surgeons were more likely to use PET scans as part of their metastatic workup (38.9% vs. 12.5%, p=0.035) than their non-US counterparts, who were more likely to order bone scans (68.8% vs. 38.9%, p=0.032) and ultrasounds of the liver (18.8% vs. 4.3%, p=0.042).

CONCLUSION: Despite clearly defined guidelines, nearly 40% of surgeons perform metastatic workups when they are not indicated. In addition, a minority of surgeons adhere to NCCN guidelines in terms of the tests ordered for the same, with tremendous variation based on practice type and setting. These data highlight significant areas for improvement in terms of cost and value.
27. REGIONAL RECURRENCE OF BREAST CANCER IN THE ERA OF SENTINEL LYMPH NODE BIOPSY

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BACKGROUND: The incidence of regional recurrence after sentinel lymph node (SLN) biopsy is not well documented. The aim of this study was to identify patients who experienced a regional recurrence during the era of SLN biopsy and analyze for associated risk factors.

METHODS: A retrospective review of a prospectively maintained database was performed to identify patients with a regional recurrence of breast cancer after undergoing a first operation for invasive unilateral breast cancer. Patients with a regional recurrence were compared to patients who were alive and disease-free for at least 5 years. Those with ductal carcinoma in-situ and recurrent breast cancer at presentation were excluded. Characteristics were analyzed using two-sample t-test and chi-square analysis.

RESULTS: A total of 1060 patients were eligible for evaluation. Twenty-one patients (2%) experienced a regional recurrence. The majority of the patients underwent SLN biopsy with 16 (1.6%) undergoing axillary lymph node dissection (ALND) alone as their axillary staging. A positive SLN biopsy was found in 24% of the patients and of those, 44 (4% of the total) did not undergo a completion axillary lymph node dissection (CALND). The group with regional recurrences had larger tumor sizes (p<0.001), higher stage disease (p<0.001), more ER negative and/or triple negative breast cancers (p<0.001), and more initial positive lymph nodes (p=0.03). Age, menopausal status, race and BMI were not significantly different between the groups. Among treatment factors, mastectomy at initial operation (p<0.001) and receipt of chemotherapy and/or neoadjuvant therapy (p<0.001) were significantly more common among those with regional recurrences, but the type of axillary staging and the rate of CALND after positive sentinel lymph nodes did not differ significantly between the two groups (p=0.41). The regional recurrences were in axillary (12, 57%), supraclavicular (4, 19%), internal mammary (3, 14%), cervical (1, 5%), and interpectoral (1, 5%) nodes. Two patients had regional recurrences in more than one nodal basin.

CONCLUSION: Regional recurrence of breast cancer occurs very infrequently in the era of SLN biopsy. Risk factors that were more frequent among those with regional recurrences include high risk cancers (large size and triple negative status) that present at a higher stage, with positive lymph nodes and which undergo therapies reflecting higher-risk biology. The type of axillary staging and rate of CALND after positive sentinel lymph nodes did not differ significantly between patients with and without regional recurrence.
28. A “SAFE AND EFFECTIVE” PROTOCOL FOR POST-THYROIDECTOMY HYPOCALCEMIA
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BACKGROUND: Post-operative hypocalcemia is the most common complication after total thyroidectomy (TTX) and there are no standard guidelines for management. This study evaluates the safety and effectiveness of a protocol to manage hypocalcemia after TTX.

METHODS: A review of prospectively collected data was performed in 130 consecutive patients who underwent TTX after introduction of a protocol that incorporated immediate post-operative PTH level, percentage of PTH drop and corrected calcium level (CCL). Based on laboratory results, patients were stratified to a high risk category (PTH<10 or PTH drop>60%) and were immediately started on oral calcitriol and calcium; intermediate risk (PTH 11-19 and/or CCL<8) and were given only calcium supplementation; and low risk (PTH>20 and CCL>8) and received no supplementation. These study patients were compared to a control group of 190 consecutive patients that underwent TTX the year prior to the protocol when routine calcium supplementation was the practice. Patient demographics, indications for TTX, concomitant central and/or lateral neck dissection, parathyroid auto transplantation, hypocalcemia events, symptomatic and severe hypocalcemia events, need for supplementation on discharge and length of hospital stay were compared between both groups.

RESULTS: Of the 120 patients in whom protocol was followed-10 patients were excluded because of deviation from protocol-, 37% (n=44) were classified in the high risk category; 11% (n=13) intermediate and 53% low (n=63). Overall, 24% of patients (n=29) had hypocalcemia (CCL<8), of those 7% required IV calcium and 9% were symptomatic; the protocol predicted hypocalcemia in 93% of the patients and none of the patients required readmission. Five patients (4%) were discharged home with a CCL <8, of those, none require additional clinic visits or admission, all were eucalcemic 2 weeks after thyroidectomy, and all discontinued calcium/calcitriol supplementation within 3 months. The protocol had a sensitivity of 95% (95%CI: 83-99%), specificity 67% (95%CI: 56-77%) and negative predictive value of 97% (95%CI: 95% to 100%) for predicting hypocalcemia. There was a complete elimination of severe hypocalcemia symptoms (prior protocol 2.1% vs on protocol 0%), a reduction in half of severe hypocalcemia (calcium <7) events (prior 3.1% vs on protocol 1.5%) and reduction in the need for IV calcium (prior 10.3% vs on protocol 6.2%), however it did not achieve statistical significance. Patients receiving calcium supplementation was significantly lower in the protocol group in comparison to the control group (96.9% vs. 47%; p<0.05).

CONCLUSION: This hypocalcemia protocol accurately identifies patients who do not require additional supplementation and additional monitoring. At the same time, the protocol identifies those patients who will benefit from calcium or calcium and calcitriol supplementation after TTX.
BACKGROUND: Thyroidectomy is an operation with a relatively low complication rate; however, these complications can be serious and occasionally, life threatening. The objective of this study is to determine risk factors associated with complications following thyroidectomy in the State of California.

METHODS: A retrospective analysis was performed using the California Office of Statewide Health Planning and Development (OSHPD) hospital discharge database from 1995 to 2010. Main outcome measures were complications following thyroidectomy; these were examined individually and as an aggregate outcome including any complication and death. Logistic regression was used to identify significant risk factors for complication. High volume centers were identified as those at the 90th percentile of volume, performing >121 thyroidectomies per year.

RESULTS: 106,773 patients underwent thyroidectomy in California. 82% of patients were female; 69% of patients were Caucasian, 5.6% were African American, and 16% were of Hispanic origin. 10,979 (10%) thyroidectomies were performed at high volume centers. 16% of operations were performed at teaching hospitals. Voice changes occurred in 0.5% of patients, vocal cord dysfunction in 1.1%, hypocalcemia in 4.5%, Horner’s syndrome in 0.01%, wound infection in 0.44%, tracheostomy in 1.62%, hematoma in 1.2%, and death in 0.3%. While age had no effect on hypocalcemia, there was significantly increased risk of all complications with odds ratios (OR) of 1.1 [0.96-1.2] for age 41-50, 1.2 [1.1-1.3] for age 50-64, and 2.0 [1.8-2.3] for age >65 compared to age <40. High volume hospitals had significantly lower risk of voice changes (0.5 [0.3-0.8]), postop blood transfusion (0.5 [0.3-0.9]), prolonged intubation (0.5 [0.3-0.8]), or any complication or death (0.8 [0.6 -0.97]), (p=0.026) compared to low volume hospitals.

CONCLUSION: Older age was the most significant risk factor for complications following thyroidectomy. Patients who underwent thyroidectomy at high volume hospitals were at lower risk for complications. This information should be useful in counseling patients about the risks of thyroid surgery.
30. DETERMINATION OF SIGNIFICANT RISK FACTORS FOR LYMPHEDEMA FOLLOWING NODAL DISSECTION FOR MELANOMA

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BACKGROUND: Secondary lymphedema is a significant post-operative complication following lymph node dissection. In melanoma patients this rate following axillary dissection (ALND) has been reported to be between 9-25% and for inguinal lymph node dissection (ILND) between 24-44%. While several studies in breast cancer patients identify risk factors for development of lymphedema including radiation therapy, extent of surgery, and tumor burden, such risk assessment is not well described for melanoma patients. The goal of this study is to more accurately define clinical factors associated with the development of lymphedema following ALND or ILND in melanoma patients using a robust patient cohort.

METHODS: From a prospectively collected database of 600 melanoma cases having nodal dissection between January 2008 and July 2014, we identified 283 patients who underwent axillary or inguinal lymphadenectomy for lymph-node positive melanoma under general anesthesia at our institution. Patients that underwent bilateral lymphadenectomy or simultaneously underwent both ALND and ILND were excluded from this analysis. The primary outcome evaluated was development of lymphedema as determined by diagnosis in post-operative clinic evaluations or documented referral to lymphedema services. Demographic, clinical, and post-operative data were collected by review of the electronic medical record. Univariate and multivariate analysis were used to determine independent predictors of lymphedema.

RESULTS: Of the 283 patient cohort, 54 (19.08%) developed lymphedema following lymph node dissection with most having stage 3A disease. Patients were fairly evenly distributed between ALND (N=164; 15 (9.2%) with lymphedema) and ILND (N=119; 39 (32.8%) with lymphedema). On univariate logistic regression: having an ILND, getting post-operative immuno- or chemotherapy, and presence of preoperative peripheral vascular disease (PVD) were each clinical factors significantly associated with increased risk of lymphedema (p<0.001, p=0.028, and p=0.011, respectively). In multivariate logistic regression, ILND (OR: 4.33; 95% CI: 2.14-8.79; p<0.001), chemotherapy (OR: 2.12; 95% CI: 1.05-4.26; p=0.035), and PVD (OR: 3.41; 95% CI: 1.05-11.08, p=0.041) remained significant predictors of lymphedema. The average post-op time to the development of lymphedema was 104 days [Range 7 to 521 days].

CONCLUSION: This is the first recent large series to critically evaluate risk factors for lymphedema following lymph node dissection for melanoma. On both univariate and multivariate analysis, factors that significantly increase the risk for developing lymphedema include having an ILND instead of an ALND, getting post-operative immuno- or chemotherapy, and the presence of PVD. As such these factors should be taken into account for surgical decision-making.
31. INFECTIOUS COMPLICATIONS IN COMBINED COLON RESECTION AND ABLATION OF COLORECTAL LIVER METASTASES

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BACKGROUND: The multifactorial incidence of infectious complications carries considerable consequences for patients undergoing more extensive surgery with intent to cure metastatic colorectal cancer. Advances in ablation techniques have emerged as an efficacious method in regional control for liver metastasis from colorectal cancer; however, the degree of increased risk of infectious complications when ablation is performed in combination with colon resection has not been defined.

METHODS: An analysis of a single institution’s prospective database was performed for patients undergoing colon resection. Patients were stratified into a colon resection combined with either microwave (MWA) or radiofrequency (RFA) ablation compared to a colon resection only group. Variables included baseline clinicopathologic data, type of operation, complication grade, and infectious outcome. Fisher’s exact test, student t test and analysis of variance were used to detect significance levels of p<0.05.

RESULTS: A total of 141 patients with colon cancer of various origins were identified. The group of colon resection combined with RFA or MWA (August 1998 to December 2012) of 53 patients (34 male:19 female) was compared to a matched group of 88 patients (46 male:42 female) who underwent colon resection only (August 2012 to July 2014). Median age (58.2 vs. 60.2 years; p=0.252), complication rate (58.4% vs. 62.5%; p=0.722), infection rate (30.1% vs. 35.2%; p=0.584), mean blood loss (352 vs. 462 mL; p=0.453), mean blood transfused (1.36 vs. 0.72 units; p=0.191), and receipt of neoadjuvant chemotherapy (47.1% vs. 51.85%; p=0.724) were all similar between the ablation group and colon only group respectively. Overall complication rate was 60.9%, with 33.3% infections. One mortality was observed in each group. Transfusion rate (39.6% vs. 18.9%; p=0.016) and Clavien classification grade 3 or higher complication (35.8% vs. 19.3%; p=0.045) were significantly higher in the colon resection combined with ablation group.

CONCLUSION: Combining MWA or RFA techniques with colon resection for liver metastasis appears to have similar infectious and overall complication rates when compared to performing an isolated resection of the primary colon cancer alone, although there may be a higher degree of complication seen in the more aggressive approach for curative intent in patients with colorectal liver metastasis.
32. CLINICAL PRESENTATION AND OUTCOME OF NON-FUNCTIONAL PANCREATIC NEUROENDOCRINE TUMORS IN A MODERN
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BACKGROUND: The natural history of Non-Functional Pancreatic Neuroendocrine Tumors (NF-PNET) is largely unstudied due to its rarity. Furthermore, most studies include patients evaluated over long periods of time, without the use of high quality cross-sectional imaging. The primary goal of this study was to characterize clinical features, tumor characteristics and outcomes of patients with NF-PNETs, in particular, those identified as incidental tumors, treated at a tertiary referral center with high contemporary imaging.

METHODS: An IRB approved retrospective study of patients with NF-PNET who underwent evaluation by the Surgical Oncology service, from January 1st, 2002 to December 31st, 2013. Patients were evaluated with dedicated pancreatic and liver imaging using multiphasic CT scan and dedicated MRI protocols.

RESULTS: The cohort consists of 46 patients (Male 47.8%) were evaluated and 35 ultimately received surgical resection during the study period. Of these, 16 tumors were discovered incidentally [Head=4, Body=12]. The median age of patients with incidentally discovered tumors in comparison to those with symptoms was similar 62 years and 59 years, respectively. The most common symptomatic presenting sign was jaundice, found primarily in tumors of the pancreatic head [Head: 26.7%, Body: 6.9%, p=.07]. Median tumor size in the incidentally detected group was 2.4 cm in contrast to 6 cm in the symptomatic group, p=.037. The presence of lymphatic and liver metastases was 10% and 25% for asymptomatic patients and 45% and 67% for those with symptoms (p≤.05). Despite these differences, median survival between incidentally discovered tumors and symptomatic tumors were 61.7 months and 56.8 months, p=.43.

CONCLUSION: While appearing clinically benign in many objective ways including: size and lymphatic/hepatic metastasis when compared to symptomatic disease, incidentally discovered NF-PNETs do carry similar survival outcomes. Overall, the clinical outcome of patients with NF-PNETs is characterized by the indolent nature of these tumors.
33. RESTRICTIVE BLOOD TRANSFUSION PROTOCOL IN UPPER GASTROINTESTINAL AND PANCREATIC RESECTIONS PATIENTS REDUCES BLOOD TRANSFUSIONS WITH NO INCREASE IN PATIENT MORBIDITY

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BACKGROUND: Appropriately managing perioperative anemia in surgical oncology patients continues to be one of the most important factors affecting treatment in these cases. Several studies have examined the consequences of blood transfusions and have demonstrated worse outcomes associated with transfusion. The purpose of this study was to determine the impact of a restrictive blood transfusion protocol on the number of transfusions performed and the related effect on patient morbidity. The hypothesis was that the restrictive protocol would effectively reduce the frequency of transfusion without negatively affecting patient morbidity.

METHODS: A cohort study was performed using our prospective database with information from 01/01/2000 to 06/01/2013. The restrictive blood transfusion protocol was implemented in September of 2011, so 09/01/2011 served as the separation point for the date of operation criteria.

RESULTS: For the study, 415 patients undergoing operation for an abdominal malignancy were reviewed. Following the restrictive blood transfusion protocol the percentage of patients that received blood dropped from 35.6% to 28.3%. The disease status of the patients showed 13.0% of patients before the protocol either died from their disease or other causes, while this percentage was only 6.2% in patients following the implementation of the restrictive guidelines.

CONCLUSION: The restrictive blood transfusion protocol resulted in a reduction of the percentage of patients transfused, and there was no evidence to suggest that it negatively impacted the outcomes of patients in this group. These results suggest that a restrictive protocol for blood transfusions is effective and may prevent adverse reactions associated with transfusion.
QUICK SHOT ABSTRACTS
1. ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY PERFORATIONS: OUTCOMES IN MANAGEMENT
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BACKGROUND: Endoscopic retrograde cholangiopancreatography (ERCP) is a common procedure performed worldwide. It is generally regarded as a safe procedure with a 4% overall complication risk; however, it carries a small but significant risk of perforation, ranging from 0.1%-1% in the literature. Once thought to require immediate surgical intervention, a select group of patients can be managed successfully without operative intervention. However, there has yet to be a consensus in the current literature on patient factors that can be used as markers for successful non-operative management. Furthermore, there has yet to be any published data at a community-based center. The objective of this study was to evaluate the management of ERCP perforations at a single community hospital.

METHODS: A retrospective review of the medical records of all patients who underwent ERCP from January 1, 2004 through June 30, 2014 was completed. Study variables included indications for ERCP, ERCP procedures, diverticula or altered anatomy (i.e. Billroth, gastric bypass), mode of diagnosis, location of perforation, and clinical presentation at time of known perforation. Outcomes included failure of non-operative management, ICU length of stay (LOS), and death.

RESULTS: Nineteen patients underwent ERCP with documented perforation out of 1486 patient who underwent ERCP (0.9%). All ERCPs were performed by an attending gastroenterologist. Among the patients with an ERCP perforation, 10 were female (53%) and the mean age was 50.1 years. ERCPs were performed for choledocholithiasis (47%), choledocholithiasis with cholangitis (16%), jaundice with peri-pancreatic mass (11%), and other (26%). ERCP procedures included sphincterotomy (32%) or sphincterotomy with stent placement (26%), with or without concurrent balloon sweep (32%). Duodenal diverticula were present in 2 (11%) and altered anatomy was present in 5 (26%). Perforation was diagnosed via the following imaging modalities: ERCP 11%, X-ray (37%), CT (84%), and upper GI (16%). Seventy-nine percent of patients had a surgical consult. Seventeen of the 19 patients were treated non-operatively with 3 (16%) undergoing percutaneous drain placement. One patient failed non-operative treatment requiring surgery. All 3 patients that underwent surgery had laparotomy. All patients with perforation were treated with antibiotics. Peritonitis and sepsis were absent in all patients at time of perforation diagnosis. Three patients required ICU stay with median post-ERCP LOS of 5 days. Two patients had 30 day mortality.

CONCLUSION: Perforations remain a rare, but serious, complication of ERCPs. Non-operative management is highly successful in the carefully chosen patient without signs of sepsis or peritonitis. Early recognition of perforation with initiation of antibiotics is key. Our community-based practice patterns match or exceed those previously published for successful non-operative management of ERCP perforations.
2. LAPAROSCOPIC NISSEN FUNDOPPLICATION USING A LEFT POSTERIOR APPROACH MINIMIZES ESOPHAGEAL INJURY: OUR EXPERIENCE
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BACKGROUND: Laparoscopic Nissen fundoplication (LNF) is now considered by most as the gold standard in surgical treatment of GERD with hiatal hernia. The most feared complication of LNF is esophageal perforation. There are different approaches to create the 360° wrap. However, little has been reported on modified posterior approaches resulting in improved patient outcomes. We present our experience with modified Laparoscopic Nissen Fundoplication using the Left Posterior (mLNF-LP) approach to strategically minimize the risk of esophageal injury.

METHODS: This retrospective review identified patients who underwent fundoplication from 2012 to 2014. Data assessed were age, sex, body mass index (BMI). Indications for Nissen fundoplication repair were: persistent GERD, hiatal hernia type, Barrett’s esophagus, or recurrent GERD. Intra-operative and post-operative complications were assessed. Data were analyzed using descriptive statistics. Details of the procedure are described

RESULTS: 171 patients underwent mLNF-LP. The average age was 60±14 (range 17-86) years, males (29%) and the mean BMI was 29.8±6.2 kg/m2. Forty-seven percent of patients (80/171) were obese. Indications for fundoplication were: persistent GERD (88%), recurrent GERD (11%), recurrent hiatal hernia (8%), Barrett’s esophagus (4%). Among the 171 patients, 158 patients underwent mLNF-LP and hiatal hernia repair, and 13 patients had mLNF-LP alone. Intra-operatively, there were no esophageal perforations, splenic injuries, inadvertent vagotomies, or other organ injuries. The operation time was 100±20 minutes. Overall 98.5% of patients returned for follow-up (median time to visit 20 days). Postoperatively, 39 patients reported dysphagia. Thirty-one of whom improved by their second visit with only 21% (n=8) patients ultimately requiring endoscopic dilation. The following endpoints and complications were noted during follow-up visit: inability to belch (.6%), gas bloating (2%), diarrhea (11%), early transient recurrent reflux (11%), and epigastric pain (19%). There was no pleural effusion (0%), early satiety (0%) or mortality (0%). Seven percent of patients underwent revision surgery

CONCLUSION: This mLNF-LP approach which strategically minimizes risk to the esophagus is a safe and effective surgical procedure for select patients presenting with symptomatic GERD and hiatal hernia. Moreover, this modified technique can potentially eliminate the high morbidity and mortality of esophageal injury.
**3. FORMATION OF HIATAL HERNIA IS ASSOCIATED WITH OTHER ABDOMINAL WALL HERNIAS: A LARGE DATABASE ANALYSIS**

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**BACKGROUND:** Background: The presence of a hiatal hernia (HH) is a very common condition and has been estimated to occur in up to 20% of adults. Previous research regarding the etiology of HH has identified several themes in predisposing risk factors in patients: increased intra-abdominal pressure, esophageal shortening, and abnormalities at the cellular and molecular levels. These elements are also commonly noted as potential risk factors in other abdominal hernias, making the examination of its relationship to other hernia types and tissue abnormalities of importance. The aim of this study is to see if there is evidence to support a common genetic predisposition between hiatal hernia formation and other hernias of the abdominal wall using a national database. Abdominal wall hernias (AWHs) of interest were inguinal (IH), femoral (FH), umbilical (UH), and ventral (VH) hernias.

**METHODS:** Methods: This study examined records from the University HealthSystem Consortium (UHC), which consists of approximately 300 academic and affiliate institutions. The records of patients older than 18 years from October 2010 to October 2014 were queried. International Classification of Diseases 9th revision (ICD-9) codes were utilized to select for patients presenting with HH, IH, FH, UH, and VH. Patient records were grouped into those with and without HH. Demographic factors of race and gender were compared with Pearson’s $\chi^2$ test as were prevalence of comorbidities and co-diagnosed AWHs. Age was analyzed with the T-Test. Analyses were conducted with IBM SPSS v.22.0.0.0 and an $\alpha$-level of 0.05.

**RESULTS:** Results: A total of 16,175,506 records were used in this study. HH patients consisted of 292,188 records while all other non-HH patients totaled 15,883,318 records. Patients with HH were significantly older than those without HH (65.8 years ± 16.4 vs 54.5 years ± 19.6, p<0.001). All AWHs were significantly more common in patients with HH compared to non-HH patients (IH: 0.58% vs 0.28%; FH: 0.03% vs 0.01%; UH: 0.86% vs 0.41%; VH: 1.38% vs 0.82%; each p<0.001). Comorbidities of obesity, rheumatism/collagen disorders, hypertension, diabetes, chronic pulmonary disease, renal failure, and congestive heart failure, were all significantly more prevalent in patients with HH compared to those without (all p<0.001).

**CONCLUSION:** Conclusion: AWHs were significantly related to the presence of HH, in each case approximately twice as frequently in HH patients compared to the general patient population. Likewise, the rheumatism and collagen disorders were nearly twice as common in HH patients. Since patient UHC records are not longitudinal, the lifetime prevalence of an AWH and HH in the same individual is likely higher. Management strategies can be refined based on genetic risk factors present at time of diagnosis to determine at risk populations.
4. IMPACT OF MINIMALLY INVASIVE SURGERY ON HEALTHCARE UTILIZATION, COST AND WORKPLACE ABSENTEEISM IN PATIENTS WITH INCISIONAL/VENTRAL HERNIA (IVH)

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BACKGROUND: Incisional hernia repair is one of the most common general surgery operations being performed today. With the advancement of laparoscopy since the 1990s, we have seen vast improvements in faster return to normal activity, shorter hospital stays and less post-operative narcotic use to name a few.

METHODS: Data for this study were obtained from the Truven Health Analytics MarketScan® Commercial Claims and Encounters Database. This Commercial database contains the enrollment and health care (medical and drug) claims of multi-million employees and their dependents that are covered annually under a variety of health plans offered by medium-sized or large firms. Specifically, this commercial database includes inpatient, outpatient, emergency room and outpatient prescription drug claims, linked by a unique patient identifier. The three years (2009-2011) of the Commercial database contains de-identified claims data for approximately 70 million enrollees from more than 300 self-insured employers, 25 health plans and 350 unique carriers in the United States.

RESULTS: A total of 3012 patients were included in the analysis. 84.9% (n=2557) of patients underwent IVH repair and 15.1% (455) were observed and did not undergo IVH repair. Significant results in the surgery group showed a lower mean 90 day post-index cost at $21,180 vs. $24,215.46 and a shorter inpatient stay at 3.98 days vs. 4.58 days and estimated days off of 13.98 days vs. 15.64 days as compared to the no surgery group. At 365 days, there was a significant decrease in total payments in the surgery group, $29,797.41 vs. $32,373.53 and inpatient length of stay at 4.76 days vs. 5.69 days as compared to the no surgery group. Of the patients that underwent IVH surgery, 24.5% (n=626) were done utilizing minimally invasive surgical (MIS) techniques and 75.5% (n=1931) were done open. There was a significant reduction 90 days post-surgery in the MIS group as compared to the open group in total payment ($19,171.00 vs. $21,745.6), inpatient length of stay (3.11 days vs. 4.24 days), number of outpatient visits (8.19 vs 10.18) and estimated days off (11.41 vs. 14.51), respectively. At 365 days post-surgery, there was a significant reduction in the MIS group vs. open in total payment ($27,398.72 vs $30,177), inpatient length of stay (3.70 days vs. 5.04 days), outpatient visits (23.13 vs 26.72) and estimated days off (35.40 vs. 41.11), respectively. Surgical repair of IVH is cost-effective when compared to observation at 90 days and 1 year.

CONCLUSION: Surgical repair of incisional/ventral hernia is cost effective when compared to observation at 90 days and 1 year. When surgical repair of incisional/ventral hernia is done, there is a clear advantage with the MIS approach versus Open in regards to cost, length of stay, number of outpatient and emergency room visits and days off work.
5. RISK FACTORS FOR CONVERSION TO AN OPEN CHOLECYSTECTOMY
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BACKGROUND: Laparoscopic cholecystectomy (LC) is one of the most commonly performed operations in the United States. Conversion to open cholecystectomy (OC) is occasionally needed but can be unduly delayed in an attempt to continue laparoscopically. The objective of this study was to identify predictors for conversion to an OC.

METHODS: We performed a 30-month retrospective analysis of consecutive adult patients who underwent a LC at our university-affiliated county hospital. Variables analyzed were demographics, symptom duration, laboratory values, ultrasound (US) findings, Tokyo and American Society of Anesthesiologists (ASA) grade. Outcomes of interest included surgery duration, complications, final pathologic diagnosis, and length of stay. Multivariable logistic regression analysis was performed to identify independent predictors for conversion to OC.

RESULTS: Of 1,203 patients identified, 77 patients (6.4%) underwent conversion to an OC. Univariate analysis revealed no significant difference in age, gender, body mass index (BMI), or symptom duration between groups. Patients converted to an OC demonstrated a higher ASA score (p<0.0001), elevated wall thickness on US (4.6mm vs 3.3mm, p=0.02), and were more likely to have gangrenous cholecystitis (37.7% vs 10.0%, p<0.0001). Patients undergoing conversion experienced a greater number of complications (p<0.0001) and length of stay (8 vs. 5 days, p<0.0001). On multivariate analysis, after controlling for age, gender, BMI, Tokyo grade, gallbladder wall thickness, ASA status, and gangrenous cholecystitis, impendent predictors for open cholecystectomy included ASA status (Odds Ratio [OR] 1.6, 95% Confidence Interval [CI] 1.1-2.4, p=0.03), gallbladder wall thickness (OR 1.2, CI 1.1-1.4, p<0.0001), and gangrenous cholecystitis (OR 3.3, CI 1.8-5.8, p<0.0001).

CONCLUSION: Identification of predictors for conversion to OC is important for pre-operative planning, and may prompt earlier conversion in high risk patients. Understanding these risks can potentially improve overall operative time and reduce complications from difficult laparoscopic circumstances.
6. GLYCEMIC CONTROL IMMEDIATELY FOLLOWING BARIATRIC SURGERY: ROUX-EN-Y GASTRIC BYPASS VERSUS SLEEVE GASTRECTOMY

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BACKGROUND: Morbid obesity is a major risk factor for type 2 diabetes mellitus (T2DM). Roux-en-Y gastric bypass (RYGB) and sleeve gastrectomy (SG) have both been shown to improve glycemic control and in many cases lead to remission of T2DM. Multiple studies show a higher long-term remission rate with RYGB compared to sleeve gastrectomy. The effect of RYGB on stimulating hormones such as GLP-1 has been identified in improving long-term T2DM control. Many patients with T2DM are discharged from the hospital following bariatric surgery with no or significantly decreased T2DM medications, before any weight loss is seen. Some believe that early glycemic control is mediated via bypassing the duodenum as is seen in RYGB. Others contend that postoperative dietary changes are the major contributor to early glycemic control. We attempted to address this question by comparing in-hospital postoperative glycemic control in patients with T2DM who underwent RYGB or SG.

METHODS: After obtaining IRB approval, a retrospective review of our institution's prospective bariatric surgery registry was completed to identify patients with T2DM who underwent laparoscopic RYGB or laparoscopic SG. We introduced SG as a surgical option in early 2010; therefore our study period ranges from February 2010 through September 2014. Postoperative blood glucose monitoring on the first 2 postoperative days and discharge medications for T2DM were compared between the RYGB and SG patients.

RESULTS: During the study period, 484 patients underwent RYGB and 161 patients underwent SG. Of those, 186 patients had T2DM: 165 in the RYGB and 21 in the LSG group, respectively. Preoperative hemoglobin A1c values were similar for the RYGB group and SG groups, (7.3% vs. 7.0%; P=0.283) respectively. The mean glucose values for the RYGB and SG groups were 161.1 vs. 157.1 mg/dL on postoperative day 1 (P=0.636), and 157.5 vs. 154.3 mg/dL on postoperative day 2 (P=0.293), respectively. On admission, 151 (91%) patients in the RYGB and 17 (81%) patients in the SG group were on either oral hypoglycemic medications or insulin. Upon hospital discharge, 127 (84%) patients in the RYGB group and 16 (95%) patients in the SG group were able to discontinue all hypoglycemic medications (P=0.318). For those that remained on medications for T2DM, all were discharged on a decreased number of medications.

CONCLUSION: SG patients experience similar glycemic control immediately following surgery compared to RYGB patients, and both patient populations have a similar reduction in oral hypoglycemic medications and insulin requirements. The effect of bypassing the duodenum as is seen with RYGB may play a role in longer-term T2DM remission, but appears to not have a major contribution in glycemic control immediately after surgery. Dietary factors, or potentially an unrecognized metabolic component, appear to have a significant influence on early glycemic control.
7. A RETROSPECTIVE CHART REVIEW COMPARING TRANSABDOMINAL VERSUS TRANSORAL REMNANT EXTRACTION IN LAPAROSCOPIC SLEEVE GASTRECTOMY
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BACKGROUND: As the incidence of morbid obesity continues to rise worldwide, laparoscopic sleeve gastrectomy (LSG) is becoming an increasingly popular definitive bariatric operation owing to the ongoing research supporting its safety, efficacy and long-term benefits. The technical aspects of this operation continue to evolve in hopes of minimizing perioperative complications. Natural orifice translumenal endoscopic surgery (NOTES) and natural orifice specimen extraction have become areas of focus in hopes of reducing the morbidity associated with open and laparoscopic abdominal operations. This study compares postoperative complications between traditional transabdominal remnant extraction (TARE) and transoral remnant extraction (TORE) in patients undergoing LSG.

METHODS: A retrospective chart review was conducted on 145 patients who underwent LSG from June 2012 through August 2013 with either TARE or TORE. All patients undergoing LSG during this time period were included in the study. Analyzed data included age, sex, preoperative body mass index (BMI), diabetes mellitus (DM) status, surgical site infection (SSI), and postoperative pain control, as assessed by narcotic prescription refill. The operation was conducted in an identical fashion by a single surgeon excluding the extraction of the specimen.

RESULTS: For the TARE and TORE procedures, respectively, patients presented a mean age of 51.4 years (sd=13.31) and 50.89 years (sd = 12.81); and a mean BMI of 42.8 kg/m2 (sd = 7.1) and 42 kg/m2 (sd = 6.0). Baseline differences across procedures were not statistically significant for age (p = 0.8249), BMI (p = 0.8639) or gender (p = 0.2228). The overall difference in post-operative prescription refills between TARE (32.9%) and TORE (16.7%) was statistically significant (p = 0.03382). The common odds of refill were higher in the TARE than TORE patients when controlling for age (odds ratio [OR] = 2.413, p = 0.03438), for BMI (OR = 2.454, p = 0.03391) and for presence of diabetes (OR = 2.011, p = 0.1076). The female odds of TARE refill to TORE refill were OR = 2.454 (p = .03391) and for males this value was OR = 0.2000 (p = 0.3024). There were 3 (4.0%) surgical site infections (SSI) in the TARE patients and 1 (1.4%) SSI in the TORE patients (OR = 3.0, p = 0.6200).

CONCLUSION: This study reports a comparison of TORE versus conventional LSG in the largest group of patients to date. Outcomes of this study support the feasibility and efficacy of TORE and suggest superiority compared to traditional LSG with regard to postoperative pain management. More post-operative pain prescription refills occurred under the TARE than TORE procedure, which was statistically significant. Overall, a near fifty percent decline in post-operative pain medication refills was observed for TORE relative to TARE. Although SSI rates were not significantly greater in TARE when compared to TORE, the OR suggests a potential future area of study with a greater population.
8. DOES AN IN-HOUSE TRAUMA ATTENDING REALLY MAKE A DIFFERENCE
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BACKGROUND: Background: Differences in patient outcomes between trauma systems using on-call versus in-house attending coverage are well explored, but remain controversial with variable results in prior studies. The purpose of this study was to validate patient outcomes for institutional models using in-house versus on-call trauma attending coverage.

METHODS: Method: A 10-year retrospective review was conducted at two trauma centers one mile apart. Center I provides trauma coverage through 24-hour in-house trauma surgeons with mid-level support. Center II provides 24-hour in-house senior surgery resident coverage with an on-call trauma surgeon no more than 15 minutes away. All adult trauma activations resulting from any injury mechanism between 2003 and 2013 were identified. Data collected included demographics, mechanism and injury data, work-up, treatment, hospital and ICU length of stay, ventilator days, mortality, and complications. All comparisons were by univariate analysis.

RESULTS: Results: Patients from Center I (in-house, n=12,151) were more severely injured (ISS=10.5 vs 9.1, P<.001), had lower GCS scores (13.6 vs 13.8, P=.031), and had more patients with a GCS ≤8 (10.4 vs 8.5%, P<.001) as compared to those from Center II (on-call, n=18,904). There was no difference between Centers with regards to proportion with penetrating injury (overall 6.8%) or in shock as defined by a systolic blood pressure <90 mmHg (overall 2.8%). Patients at Center II, more often underwent CT evaluation (65.9 vs 54.3%, P<.001). Intensive care unit admission was more common at Center I (39.3 vs 36.0%, P<.001), but ICU length of stay was longer in Center II (4.0 vs 3.8 days, P<.001). Mechanical ventilation was also more common at Center II (14.8 vs 11.9%, P<.001), but no difference existed in ventilator days between Centers. Hospital length of stay was significantly longer in Center II (4.4 vs 3.9 days, P<.001). Overall mortality was not different between Center I and II (5.1 vs 5.0%, P=0.664). Mortality at Center II (on-call) was higher in those patients presenting with GCS ≤8 (40.4 vs 32.6%, P<0.001) or in shock (55.2% vs 31.0%, P<.001). There were 34 patients (0.3%) at Center I and 190 (0.1%) at Center II who presented in full arrest. After excluding these patients, more patients presented in shock at Center II (2.5 vs 1.8%, P<.001), but mortality was then similar in Centers I and II (24.4 vs 30.5%, P=0.83). Similarly, after excluding patients in full arrest, mortality of patients with GCS ≤8 was also similar between Centers I and II (30.9 vs 32.9%, P=.283).

CONCLUSION: Conclusion: Although there was no difference in overall mortality between centers, mortality was improved in the in-house attending model in patients presenting in shock and this remained a positive trend after excluding patients who presented in full arrest. Further studies are needed to determine if mortality improvement is due to the attending presence, and if so how management is improved, especially in the shock population.
9. CONTROL THE DAMAGE: MORBIDITY AND MORTALITY AFTER EMERGENT TRAUMA LAPAROTOMY
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BACKGROUND: Damage control laparotomy (DCL) is often performed as a temporizing measure for physiologically deranged patients. Recent studies suggest a significant overutilization of DCL, which may be associated with a multitude of potentially iatrogenic complications. Among trauma patients with truncal hemorrhage requiring laparotomy, we aimed to determine the independent effect of DCL on morbidity and mortality.

METHODS: We conducted an IRB approved retrospective cohort study of all trauma patients admitted from 01/2011-12/2013 who (1) underwent an emergent laparotomy (arrival to the operating room [OR] ≤ 90 minutes) for suspected intra-abdominal hemorrhage, (2) received preoperative blood products, and (3) were > 15 years of age. The group was then divided into definitive laparotomy (DEF) and DCL. Following univariate analysis, a comprehensive propensity score was generated for each patient to account for the probability of DCL. After matching, a logistic regression model estimated the treatment effect of DCL.

RESULTS: Of 13,656 trauma patients admitted, 625 underwent emergent laparotomy (39% DCL rate). 237 received preoperative blood products and were the study group: 78 (33%) in DEF group, 144 (61%) in the DCL group, and 15 (6%) who died in the OR. While there were no differences in demographics, the DCL group had a lower ED systolic blood pressure (median 86 mmHg, IQR 70, 108 vs 100 mmHg, IQR 82, 112; p<0.001), lower base excess (median -7 mmol/L, IQR -10, -4 vs -3, IQR -7, -1; p<0.001), higher ED transfusion requirement (median RBC 2 units, IQR 1, 4 vs 2, IQR 1, 2; p=0.006), and higher Injury Severity Score (median 34, IQR 24, 41 vs 19, IQR 13, 35; p<0.001). Time to OR was shorter in the DCL group (median 31 minutes, IQR 20, 45 vs 35 minutes, IQR 21, 65; p=0.05). At completion of laparotomy, final OR SBP, OR pH, and OR BE were not different. The DCL group was more likely to have undergone enteric resection (31% vs 17%, p=0.024), hepatorrhaphy (41% vs 26%, p=0.029), and thoracotomy/sternotomy (16% vs 5%, p=0.018). Following propensity score matching, DCL was independently associated with an 18% increase in hospital mortality, a 7% increase in ileus, a 7% increase in suture line failure, an 11% increase in fascial dehiscence, and a 19% increase in superficial surgical site infection.

CONCLUSION: In severely injured trauma patients, utilization of DCL depends upon the judgment of the operating surgeon. However, the overuse of DCL appears to unnecessarily expose patients to an increased risk of morbidity and mortality.
10. COMPUTED TOMOGRAPHY SCAN OF CHEST IN TRAUMA PATIENTS: AN ESSENTIAL OR AN OVER UTILIZED TOOL?
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BACKGROUND: The role of computed tomography (CT) scan of the chest for management of patients with thoracic injuries remains debatable. The aim of this study was to determine the association between CT scan of the chest and need for intervention and outcomes in trauma patients.

METHODS: This is a 2 year (2011-2012) retrospective review of the National Trauma Database (NTDB) including all patients with an initial chest X-ray and a thoracic abbreviated injury severity scale (T-AIS) score of ≥3. Patients were divided into two groups: patients managed with only chest X-ray (No-CT) and patients that received a CT scan of chest after initial X-ray (CT). Presence of hemothorax, pneumothorax, or rib fractures was recorded using diagnosis codes. Intervention was defined as placement of thoracic catheter or thoracoscopy. Outcome measures were: need for intervention, and mortality. Association between CT scan of the chest and outcomes was assessed using multivariate regression analysis.

RESULTS: A total of 19,987 patients with initial X-ray were included of which, 54.4 % (n=10,877) had a chest CT scan after the initial X-ray. There was no difference in age (p=0.31), t-AIS score (p=0.18), penetrating injury (p=0.12), and systolic blood pressure on admission (p=0.24) between the two groups. After controlling for all confounding factors, use of chest CT scan was not independently associated with need for an intervention. However; use of chest CT scan was significantly associated with reduction in mortality by 20% (OR [95%CI]: 1.19 [1.06-1.34], p=0.031).

CONCLUSION: The use of chest CT scan is associated with reduction in mortality rate in trauma patients with thoracic injuries independent of severity and type of injury. The results of this study may help better define the utility of chest CT scan in patients with isolated thoracic injury.
11. ISOLATED TRAUMATIC BRAIN INJURY IN PATIENTS WITH CIRRHOSIS: DO DIFFERENT TREATMENT PARADIGMS RESULT IN INCREASED MORTALITY?
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BACKGROUND: Trauma is associated with significant morbidity and mortality in patients with liver cirrhosis. There is a paucity of data determining how cirrhosis affects outcomes following traumatic brain injury (TBI). We hypothesize that cirrhosis adversely effects mortality and increases complications following TBI.

METHODS: Patients with isolated TBI were identified at our academic, Level 1 trauma center between 2000 and 2013. Patients with cirrhosis were matched with non-cirrhotic TBI patients in a 3:1 ratio based on age, gender, injury mechanism, and injury severity score. Demographic data, admission GCS, head injury severity and diagnosis, transfusion of blood products, operative intervention, and outcome measures were collected.

RESULTS: During the 13-year study period, 30,132 patients were admitted to the trauma center. Of those, 8,748 had isolated TBI and 124 patients had isolated TBI and liver cirrhosis. Patients with cirrhosis had increased mortality compared to matched controls (16% vs. 9%, p=0.03) and were less likely to be taken to the operating room for craniotomy (6% vs. 13%, p<0.05). There was no difference in distribution of admission GCS or in the type of intracranial hemorrhage between groups. Patients with cirrhosis were more likely to receive a transfusion of plasma (29% vs. 8%), platelets (20% vs. 4%), and packed red blood cells (10% vs. 5%). There was also no difference in length of stay, infectious, cardiovascular, or thromboembolic complications between groups.

CONCLUSION: Liver cirrhosis is associated with increased mortality in patients admitted with isolated TBI. Cirrhotic patients were less likely to undergo operative intervention for intracranial hemorrhage, perhaps as a result of coagulopathy related to their liver disease. New treatment paradigms may be needed to improve outcomes for cirrhotic patients suffering TBI.
12. PLEURAL EFFUSION FOLLOWING RIB FRACTURES IN THE ELDERLY: ARE WE BEING AGGRESSIVE ENOUGH?
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BACKGROUND: Delayed pleural effusion (DPF) is a well-documented complication of rib fractures, however, the consequences of DPF in the elderly has not been discussed in current literature, and many DPF are not treated unless symptomatic. We sought to investigate the characteristics of rib fracture DPF, its associated outcomes, and implications for management in these geriatric trauma patients.

METHODS: A retrospective study was conducted from January 2012 – May 2014 on patients with rib fractures at a single Level-1 Trauma Center. Development of DPF was based on X-ray studies. Predictive variables were: demographics, mechanism of injury, trauma factors, rib fracture severity, and lab values. Patient outcome variables were: hospital length of stay (HLOS), ICU length of stay (ICULOS), and discharge disposition. Student’s t-test, chi-square test, logistic regression analysis were used for data analysis. p<0.05 was considered statistically significant.

RESULTS: 373 patients were identified, 89.5% were white, 54.2% were male, and the average age was 73.6 ± 0.48 years. 54.4% of patients were involved in motor vehicle collisions. An average of 4.8 ± 0.2 ribs were broken. Average ISS and TRISS were 13.9 ± 0.49 and 0.91 ±0.01 respectively. 40.8% of patients had DPF. Independent predictors for DPF were severe rib fractures (high fracture numbers, flail chest, left sided fractures, bilaterality), trauma factors (motor vehicle collision (MVC), high ISS, chest tube placement, hemothorax, pneumothorax, pulmonary contusion), and abnormal admission lab values (WBC ≥11.3, glucose ≥142, albumin <3.5). Multivariate logistic regression derived the equation: Logit(p) = -1.307 + 0.962(MVC) + 0.831(Chest tube placement) + 0.926(pulmonary contusion) + 0.620(rib frx ≥ 6) – 0.828(Albumin≥3.5). Patients with DPF had significantly longer HLOS (9.1± 0.44 vs. 5.6 ± 0.39), and were more likely to go to rehab/skilled nursing facility (rehab/SNF) (OR = 2.938, p < 0.001).

CONCLUSION: The prevalence of DPF is high in geriatric trauma patients who were injured in MVC, have ≥6 rib fractures, pulmonary contusion, chest tubes placement, and albumin <3.5. These patients have significantly longer HLOS and are 3 times more likely to be discharged to rehab/SNF. We recommend more aggressive treatment in these geriatric trauma patients in effort to improve their outcomes.
14. HOW HAS OIL DRILLING ACTIVITY AFFECTED TRAUMA IN NORTHWESTERN NORTH DAKOTA
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BACKGROUND: New oil extraction technology, known as “Fracking”, as well as high oil prices have made oil drilling in deep shale formations in northwestern North Dakota economically feasible. Oil production in the state rose from 30.8 to 243 million barrels from 2002 to 2012. Similarly, the active drilling rig rose from 10 to 200 from 2002 to 2012. To meet the needs of the industry a large influx of population from out of state has been necessary. The oil producing region of the state is largely a rural area being served by critical access hospitals. The dangerous nature of the oil and gas industry, as well as the influx of population, has strained the infrastructure of the region including trauma providers.

METHODS: Patients were identified from the North Dakota State trauma registry that were admitted to the hospital between 2008 and 2013. Patients with unknown county of injury or injury outside of North Dakota were excluded. Patients with other missing data were excluded from individual sub analysis. Data collected on age, county of injury, injury severity score (ISS), cause of injury, work related accident, time of injury, scene arrival, ED arrival time, transport method and outcome (alive or dead). Patients were assigned to high, moderate, and low oil production area based on the county of injury. Patients were assigned to early or late time periods based on the year of injury. Total elapsed time and transport time were calculated by subtracting the injury time or EMS scene arrival time from the ED arrival time. Severely injured was defined as ISS>15. Chi-square test was used to analyze the differences between groups for categorical variables and Wilcoxon signed-rank tests for continuous variables. All P-values are two-sided and statistical significance was defined as P-value < 0.05.

RESULTS: 17,224 patients met inclusion criteria. In the high oil production area there was an 82% increase in total number of trauma admissions in the early vs. late time period from 1026 to 1867 total admissions (p<0.0001). Motor vehicle crashes (39%) were the most prevalent cause of trauma in the high oil production area and also doubled between the early (339) and late (793) time periods (p<0.0001). Similarly the occurrence of work related accidents, fixed wing and helicopter transports, and severely injured patients increased. Mortality of the severely injured patients increased over the period of the study from 9.2 to 15% in the high oil production area (p<0.0001).

CONCLUSION: The strength of the study is that it is a large data set from the entire state over a long period of time. The limitations are that data may be missing or unreliable, however we are able to see some definite trends. The oil industry has significantly impacted trauma care in northwestern North Dakota not only in terms of numbers but outcomes, especially for the most severely injured. Interventions to improve this include improving workplace and highway safety, as well as access to emergency care and transportation.
15. ARTERIAL REVASCULARIZATION WITH THE RADIAL ARTERY IS SAFE AND EFFECTIVE IN PATIENTS UNDERGOING BYPASS GRAFTING: A CONSECUTIVE SERIES OF 1946 PATIENTS
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BACKGROUND: Arterial revascularization for patients undergoing coronary artery bypass grafting (CABG) has been demonstrated to improve short and long-term outcomes. Despite this, and while utilization of the left internal mammary artery (IMA) during CABG is commonplace, the use of more than one arterial conduit is uncommon in the United States. While recognized as a potential conduit for decades, the radial artery is not widely used due to early reports of vessel spasm and recurrent ischemic events. We hypothesized that current techniques with pedicled endoscopic harvesting reduces trauma and allows for routine, safe, and effective use of the radial artery as a second arterial conduit for CABG.

METHODS: Consecutive patients from a single center undergoing isolated CABG between 2007-2013 were retrospectively reviewed. All patients underwent preoperative arterial Doppler screening to ensure an intact palmar arch and suitable radial artery. All patients with a suitable radial conduit were utilized along with the IMA during CABG. Endoscopic harvesting of the radial artery and intraluminal application of papaverine was used in all cases and the resulting pedicled radial artery used either as a sequential T graft from the IMA or as a free graft off the aorta.

RESULTS: All patients undergoing isolated CABG during 2007-2013 were included in the study (n=1946). 76.7% of patients (n=1493) underwent radial artery grafting and 96.7% (n=1879) underwent IMA grafting. Outcomes included: reoperation for bleeding 2.0% (n=39), deep sternal wound infection 0.3% (n=6), permanent stroke 0.7% (n=15), prolonged intubation 4.4% (n=85), atrial fibrillation 23.6% (n=459), readmission within 30 days 10.5% (204), and 30 day mortality 1.4% (27). Complications from radial artery harvesting were minor (seroma 3%) and no patient developed ischemic complications of the hand. Kaplan-Meyer survival estimates after isolated CABG were 0.95 at 3-years and 0.92 at 5-years. For comparative purposes, from July 2010 to December 2012 the Society of Thoracic Surgery national database statistics show a national radial artery grafting rate of 4.6% in patients undergoing CABG.

CONCLUSION: In this inclusive, consecutive series, the frequency of radial artery utilization was greater than 15 fold the national norm and clinical outcomes in the short and medium term were excellent. We submit that the radial artery may be routinely used during CABG as a second arterial conduit with few complications, low readmission rates, and low rates of 30 day and 5 year term mortality. Routine preoperative arterial ultrasound makes ischemic complications negligible and endoscopic harvesting and intraluminal papaverine allow for routine use while minimizing vasospasm.
16. IMMEDIATE POST-TRAUMATIC PULMONARY EMBOLISM IS NOT ASSOCIATED WITH RIGHT VENTRICULAR DYSFUNCTION
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BACKGROUND: Background: Pulmonary embolic events among trauma patients are associated with a high morbidity and mortality. Computed tomography pulmonary angiography (CTPA) is a preferred imaging modality in these patients due to its ability to detect right heart dysfunction. Interventricular septum position, right ventricle (RV) to left ventricle (LV) diameter ratio, and RV to LV volume ratio have been shown to be predictive of RV dysfunction in the setting of acute pulmonary embolus (PE). However, no studies to date have examined whether these CT findings differ between early versus late PE. We set out to compare the prognostic role of CT signs of RV dysfunction between early versus late PE and to determine whether there is a difference in outcomes between the two groups.

METHODS: Methods: All patients admitted to an urban level I trauma center with a traumatic injury and radiographic evidence of PE via computed tomography during the same hospitalization from 2008 to 2013 were retrospectively identified. The study population was divided into two groups based on the time of diagnosis of the PE [early (< 48 hours from admission) vs. late (≥ 48 hours from admission)]. Patients’ demographic and clinical characteristics were extracted. The primary outcome was PE related mortality. Secondary outcomes included radiographic findings from the CTPA, ICU length of stay and total ventilation days.

RESULTS: Results: During the study period, a total of 50 patients were identified. Of these, a total of 14 patients had an early PE while 36 had a late PE. No significant differences between the baseline characteristics were identified. The mean age was 45 years and 72% were males. Patients sustaining a late PE had a higher PE-related mortality rate. The mean RV diameter was 39 ± 5 mm for early PE versus 44 ± 7 mm for late PE (p<0.05), and the mean RV volume was 20 ± 5 cm2 for early PE versus 26 ± 7 cm2 for late PE (p<0.05). The mean RV/LV diameter was 0.95 ± 0.11 for early PE versus 1.14 ± 0.27 for late PE. The RV/LV volume was 0.88 ± 0.24 and 1.05 ± 0.29 for early versus late PE, respectively. Patients sustaining an early PE had a shorter hospital length of stay and fewer ventilator days compared to their counterparts.

CONCLUSION: Conclusion: Early post-traumatic PE appears to be associated with fewer right ventricular physiologic changes than late post-traumatic PE. Many of the radiologic findings may represent pulmonary thrombosis from direct chest trauma as opposed to underlying embolic phenomenon. It remains to be seen whether early CT findings of pulmonary embolus should be managed according to previously established guidelines for embolic disease.
17. THE DARK SIDE OF THE SPLEEN; COMPLICATIONS OF ANGIOEMBOLIZATION
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BACKGROUND: Nonoperative management (NOM) of blunt splenic injuries not infrequently includes angioembolization. Indications for angioembolization include contrast blush within the splenic parenchyma, associated large hemoperitoneum, and or a high-grade splenic injury. Published rates of failure after angioembolization range from 0% to 33% and includes re-bleeding, infection, and infarction. Splenic infarction after angioembolization reportedly occurs in up to 3.8% of embolized patients. We hypothesized that splenic infarction occurs more frequently than previously reported.

METHODS: A retrospective review was performed at an ACS verified Level 1 trauma center from 1/2007-7/2014. All patients undergoing angioembolization for a trauma-related splenic injury were included. Data collected included patient demographics, injury related information, embolization procedure details, and reason for embolization failure, if applicable. Statistical analysis was performed using Mann-Whitney U tests and Chi-square tests. Significance was attributed to a p value < 0.05.

RESULTS: During the study period, there were 19,031 trauma admissions and 847 patients had blunt splenic injury. Angioembolization was performed in 77 patients (9%) with the majority being performed for contrast extravasation on CT scan (49 patients) or large hemoperitoneum seen on CT scan (21 patients). Subsequently, 10 of the 77 patients (13%) were found to have splenic infarction requiring a splenectomy and 7 of the 10 had active extravasation at the time of embolization. 6 of 10 patients failed within 5 days of embolization and an additional 2 patients failed at 10 days. Patients with splenic infarction following embolization were older (53 vs 39, p=0.03), but no differences existed between patients with infarct and patients without infarct in injury severity score, grade of spleen injury, embolization material, or location of embolization.

CONCLUSION: Splenic embolization is a safe and effective part of the armamentarium in NOM for a majority of blunt splenic injuries. However, the incidence of splenic infarction is more common than previously reported (13%) and vigilance for this complication, especially in older patients, is required.
18. TRENDS IN THE MANAGEMENT OF MAJOR ABDOMINAL VASCULAR INJURIES: 2000-2014

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BACKGROUND: Abdominal vascular injuries are highly lethal. Damage control surgery (DCS) and hemostatic resuscitation have improved outcomes among trauma patients. The objectives of this study were to examine our institutional experience with abdominal vascular injuries, to identify risk factors for mortality, and to characterize the evolution of management over time.

METHODS: We performed a 15-year retrospective analysis of our level-1 trauma center database to identify patients with major abdominal vascular injuries. The primary outcome measure was mortality. Bivariate analysis identified significant differences between survivors and non-survivors. Multivariate and trend analyses were performed to identify predictors of mortality and changes in the use of DCS (shunting/ligation) and resuscitative practices over time.

RESULTS: A total of 566 abdominal vascular injuries were identified in 364 patients. The majority were male (70.0%) with a mean age of 33 (± 15 years). Penetrating mechanisms accounted for 62% of all injuries and the mean Injury Severity Score (ISS) was 32 (± 18). The overall mortality was 49% (n=179). Patients who died were more likely to present with hypotension (78% vs. 22%, p<0.0001), undergo resuscitative thoracotomy (30% vs. 3%, p<0.0001), and had a higher incidence of concomitant arterial and venous injuries (22 vs. 9%, p=0.02). Non-survivors were more likely to undergo a massive transfusion (34% vs. 15%, p<0.0001). There was no significant difference in the use of DCS techniques between groups. Increasing American Association for the Surgery of Trauma-Abdominal Vascular Injury Scale grade was associated with an increased risk for mortality: grade I, 30%; grade II, 18%; grade III, 45%; grade IV, 56%; grade V, 72% (OR 2.21, 95% CI 1.03-4.76; p=0.043). Independent predictors of mortality on adjusted analysis included both an increased intraoperative base deficit and estimated blood loss (both p<0.005). Over the 15-year study period, there was a non-significant decreased trend in mean crystalloid volume administration (3% change annually, p=0.07) and increased use of shunting/ligation (mean 20% change annually, p=0.09). Since the introduction of an institutional massive transfusion protocol in July 2009, there has been a significant decrease in the mean packed red blood cells to fresh frozen plasma ratio (7% change annually, p<0.0001). However, mortality due to major abdominal vascular injuries has remained relatively unchanged over time.

CONCLUSION: Despite increased use of damage control surgery and modern resuscitative practices, mortality from abdominal vascular injuries continues to remain high. Injury severity, increased blood loss and base deficit are predictive for mortality. Prospective, multi-center studies may provide further insight into the optimal surgical and resuscitative practices associated with survival in patients with these lethal injuries.
19. IDENTIFYING THE BROKEN HEART: PREDICTORS OF MORTALITY IN BLUNT CARDIAC INJURY
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BACKGROUND: Blunt cardiac injury (BCI) is an infrequent but potentially fatal finding in thoracic trauma. Its clinical presentation is highly variable and patient characteristics and injury pattern have never been described in trauma patients. The aim of this study was to identify predictors of mortality in BCI patients.

METHODS: We performed a 4-year retrospective analysis of all trauma patients diagnosed with BCI at our level 1 trauma center. Patients older than 18 years, blunt chest trauma, and diagnosis of BCI were included. BCI was diagnosed based on presence of electrocardiography, echocardiography, biochemical cardiac markers and/or radionuclide imaging studies. Elevated troponin I was defined as more than two recordings of ≥ 0.2. Abnormal EKG findings were defined as presence of bundle branch block, ST segment, and t-wave abnormalities. Univariate and multivariate regression analyses were performed.

RESULTS: A total of 117 patients with BCI were identified. The mean age was 51±42 years, 66% were male, mean SBP was 96.4 ± 25.7, and overall mortality rate was 43%. Patients who died were more likely to have a lactate > 2.5 (68.8% vs. 39.6%; p=0.02), hypotension (SBP < 90) (86% vs. 18.9%; p=0.001), and elevated troponin I (65.7% vs. 10.6%; p=0.01). There was no difference in the rib fracture (38.3% vs. 37%; p=0.9), sternal fracture (40.2% vs. 26.3%; p=0.3) and abnormal EKG (40.7% vs. 34%; p=0.5) findings. Hypotension and Lactate > 2.5 were the strongest predictors of mortality in BCI. (Table)

CONCLUSION: Blunt cardiac injury remains an important diagnostic and management challenge. However once diagnosed resuscitative therapy focused on correction of hypotension and lactate may prove beneficial. Although role of troponin in diagnosing BCI remains controversial, elevated troponin may have prognostic significance.
20. FACTORS AFFECTING MORTALITY AFTER PENETRATING CARDIAC INJURIES: 10 YEAR EXPERIENCE AT URBAN LEVEL I TRAUMA CENTER
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BACKGROUND: While penetrating cardiac injuries (PCIs) are associated with a high mortality, patients that survive to reach the hospital can provide a significant challenge for trauma surgeons. The objective of this study is to assess factors which affect mortality after PCIs to assist in practical surgical decision making.

METHODS: Patients with PCIs were identified from a trauma registry from January 2003 to December 2012. Patients who arrived without recent signs of life were excluded. Prehospital, injury complex and clinical patient factors were analyzed by odds ratio to determine their effect on mortality.

RESULTS: Over the 10 year study period, 80 PCI patients survived to reach the hospital. The majority of these patients were critically injured young males who had sustained gunshot wounds (GSWs) [males = 72/80 (90%), median age = 29 years, GSW = 49/80 (61%), median base deficit (BD) = -12]. In terms of injury complex, 27 patients (34%) had multi-chamber injuries, 44 (55%) patients presented with cardiac tamponade and 30 (38%) presented with left side massive hemothorax. Emergency department (ED) thoracotomy was performed in 21 (26%) patients. Of the 21 factors analyzed, prehospital CPR [OR = 30, 95% CI(3.4,253)], scene time > 10 minutes [OR = 58, 95% CI(5.9,573)], undergoing ED thoracotomy [OR = 19, 95% CI(4.7,79)] and massive left hemothorax [OR = 15, 95% CI(4.7,45)] had the most impact on mortality for PCI patients. Cardiac tamponade physiology appeared to be protective with an OR = .08 [95% CI(0.03,0.23)].

CONCLUSION: Factors which demonstrate the lethal nature of PCIs such as need for prehospital CPR or ED thoracotomy were associated with significantly higher risk of mortality. However some modifiable factors such as EMS scene time were also associated with higher mortality. Interestingly, patients with cardiac tamponade demonstrated a lower risk of mortality indicating early operation for these patients may improve survival after PCI.

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BACKGROUND: With the development of new endovascular techniques there is a focus on the use of aggressive measures, including Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) and emergency department resuscitative thoracotomy (ED-RT), for patients presenting in extremis after penetrating torso injury. Choosing which patients may benefit from using these aggressive measures is difficult. The recently published Western Trauma Association Algorithm for ED-RT suggest systolic blood pressure (SBP) is the key indicator for patients who might benefit from ED-RT. But, intense pre-hospital resuscitative efforts can alter SBP and mask true injury severity. As a result, exploring other indicators of the physiologic reserve, such as cardiac rhythm, may aid in determining potential survivability after penetrating torso trauma. We hypothesized for patients presenting in Class III and IV shock after penetrating torso injury that cardiac rhythm would be associated with survivors of aggressive resuscitative measures.

METHODS: All patients admitted to an urban Level I trauma center from 06/2010-04/2014 with penetrating injury from the mandible to iliac crest circumferentially with an initial SPB ≤90 and signs of life were followed prospectively. At presentation, a rhythm strip (RS) was obtained. RS were evaluated by a cardiologist blinded to patient outcome and injury status. Bivariate analyses were used to determine the association of presenting rhythm (Atrial vs Ventricular) with survival.

RESULTS: 71 patients met inclusion criteria. Of those, 25 (35%) had ED-RT, operating room thoracotomies or sternotomies. Patients with atrial rhythms were much more likely to survive compared to patients with ventricular rhythms (70.2% v 7.7%, OR 28.23 p<0.001) no matter the class of shock. Among those with thoracic surgical intervention similar trends were observed, but did not reach statistical significance (31.6% v 0.0%, p < 0.114). Of patients who had ED-RT (n=15), 14 died prior to discharge. The lone survivor presented with an atrial rhythm. There was no relationship with survival based on location of injury

CONCLUSION: Cardiac rhythm on arrival predicts survivability of penetrating torso trauma. Patients that present in a ventricular rhythm carry a significantly worse prognosis. Strong consideration should be given to withholding aggressive measures, including ED-RT and REBOA, in patients who present in profound shock and with a ventricular rhythm and algorithms should be altered to include presenting rhythm as a key indicator in addition to SBP.
22. ANTI-TEXTING CAMPAIGNS DO NOTHING TO AFFECT DISTRACTED DRIVING CRASHES AND DEATHS IN TEXAS
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BACKGROUND: Distracted driving, most notably texting and driving, has been a focus of many injury prevention efforts in the state of Texas since 2010. We wanted to see the effect “No Texting” programs had on distracted driving crashes and deaths.

METHODS: We accessed the Texas Department of Transportation Crash Data system. We collected crash reports from 2003 through 2013 and assessed both crashes and fatalities by Contributing Factor, focusing specifically on the three areas officers use to record known or even potential texting and driving events: Distraction in Vehicle, Driver Inattention, and Mobile/Cell Phone use. These were collectively termed “Distracted Driving.” We also accessed the system for all crashes and deaths related to alcohol, total crash deaths, and miles driven by year. The significance of variation in rates with year was assessed with a linear Poisson model with a long link and offset of miles in log units. All statistical testing was 2-sided with a significance level of 5%.

RESULTS: From 2003 through 2013 crashes involving Driver Inattention fell from 104,548 to 86,628 (p<0.001), Distraction in Vehicle rose from 9,899 to 10,890 (p=0.93), and Mobile Phone use fell from 4,364 to 3,430 (p<0.001). Total miles driven in the state rose from 222.7 to 246.7 Billion Miles Driven (Bmd). Total Crash Deaths fell from 17.2/Bmd to 13.7/Bmd (p<0.001). Distracted Driving crashes fell from 533.4/Bmd to 409.2/Bmd from 2003 to 2013 (p<0.001), deaths fell from 607 (2.73/Bmd) to 462 (1.87/Bmd) (p<0.001). Over the same time frame, Alcohol related crashes fell from 15,676 (70.4/Bmd) to 14,967 (60.7/Bmd) (p<0.001), Alcohol related deaths rose from 486 (2.18/Bmd) to 594 (2.41/Bmd) (p<0.001). From 2010 to 2013 Distracted Driving Crashes increased from 389.5/Bmd to 409.2/Bmd (p<0.001). Distracted Driving Deaths did not change significantly from 2010 to 2013, 1.90/Bmd to 1.87/Bmd (p=0.98).

CONCLUSION: The effort to stem distracted driving deaths and crashes through the current injury prevention model in Texas did not seem to help. Moreover, texting, despite its exponential increase nationally since 2007, did not seem to affect the total numbers of Distracted Driving crashes or deaths in Texas. Texting still represents a significant distraction to drivers. But our data suggests something else, other than texting alone, is the major contributor to Distracted Driving crashes and deaths in our State. Texas needs to focus its efforts to better identify the cause of these crashes. Only then can we hope to really improve injury and death prevention from Distracted Driving.
23. SUBCELLULAR METABOLIC DERANGEMENT POTENTIATES ACIDOSIS AND NITROGEN IMBALANCE IMMEDIATELY FOLLOWING HEMORRHAGIC SHOCK

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BACKGROUND: BACKGROUND: Severe metabolic aberration is a hallmark of major traumatic injury contributing to patient morbidity and mortality. While the metabolic response to trauma has been a long-standing focus of investigation, the complex biochemistry and subcellular metabolism responsible remain largely unknown.

METHODS: METHODS: Trauma and hemorrhagic shock (T/HS) was induced in Sprague Dawley rats by controlled hemorrhage and resuscitation was performed with normal saline and half shed blood. Plasma samples were sequentially collected for metabolomic analysis by Ultra High Pressure Liquid Chromatography – tandem Quadrupole Orbitrap high resolution mass spectrometry. Student T-test was employed to determine significance of fold change comparisons from pre- and 1hr post-shock samples between T/HS and sham shock animals.

RESULTS: RESULTS: Immediately following T/HS we identified purine catabolism (consumption of basic compounds inosine and hypoxanthine) compared with sham shock, p<0.05. These purine precursors are known to fuel energy production via the Tricarboxylic Acid (TCA) cycle as an alternate pathway to glycolysis. Consistent with this we identified a corresponding production of TCA cycle intermediates (2-oxoglutarate, citrate, succinate, fumarate and malate) as well as accumulation of other downstream purine catabolites (polyamines spermine and spermidine) related to the urea cycle.

CONCLUSION: CONCLUSION: By metabolomic analysis we have identified the subcellular catabolism of purines to fuel the accumulation of TCA cycle intermediates. The consumption of basic purines with resultant accumulation of TCAs provides additional evidence for the proposed role of subcellular metabolites in post-shock acid-base imbalance. The accumulation of spermine and spermidine suggests an immediate nitrogen imbalance at the cellular level following T/HS. These unique metabolic findings provide the foundation for future studies to evaluate metabolic deregulation with patient outcome, acidosis and efficacy of resuscitation strategies at the cellular level.
24. CHARACTERIZING FLOW DISRUPTIONS DURING TRAUMA SIMULATIONS
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BACKGROUND: Human factors can improve the efficiency and safety of patient care by optimizing systems to reduce flow disruptions. While simulations are frequently incorporated into team training, a comprehensive, ergonomic evaluation is required to better understand how simulations improve learning. We therefore applied human factor techniques to evaluate the frequency and specific causes of flow disruptions (FD) in a trauma simulation.

METHODS: A 60-minute auto versus pedestrian trauma simulation was conducted with 26 trauma care providers: surgical residents (2), trauma surgeon, emergency medicine physician, pharmacist, social worker, radiology technician, clinical partner, emergency department nurses (5), paramedics (3), OR nurses (3), OR recovery nurses (2), OR triage nurse, surgical technician, anesthesiologist, perfusionist and blood bank technician (2). Three trained observers recorded disruptive events that occurred during the simulation. Each FD was analyzed and categorized into one of five root causes. After completion of the simulation, participants completed an 18-question yes/no survey.

RESULTS: A total of 39 FD related to the simulation were categorized as anatomical (14), coordination (7), equipment (10), instructor (3) and participant (5). Anatomical disruptions included mannequins limited by awkward location of the femoral pulse, EKG leads that would not stay in place, and peripheral access that lacked realism. Coordination disruptions included participants guessing operative need by the presence of OR staff during the briefing, vital signs that were out of sync with the simulation and the lack of an OR bed such that the mannequin was not transferred from the gurney. Instructors inadequately discussed available options for the mannequin, excluded important equipment such as endotracheal tube stylet and Mayo stand, and delayed the start of the simulation. Participants frequently avoided opening specific equipment along with procedure trays, rapid infuser, Foley, NG’s and medications. Survey results noted that simulation should be mandatory (69%), simulation was easy to use (73%), comfortable with the setting (92%), talking to the mannequin was difficult (58%).

CONCLUSION: Trauma simulations require a complex relationship among task, team, technology and goals. Thoughtful modifications such as refining mannequin anatomy, improving coordination of simulation plan, reducing equipment defects, and training instructors and participants on expectations will reduce flow disruptions and improve the educational experience.
25. OVERUTILIZATION OF BIOHAZARD RED BAGS
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BACKGROUND: In an era of unsustainable healthcare costs, reductions are necessary in all areas of healthcare. US health care facilities produce 6,600 tons of waste daily. Biohazard waste disposal (BWD) is a significant part of hospital costs, composing 86% of all environmental services cost. The operating rooms (OR) and obstetrics and gynecology (OB/GYN) departments alone compose 70% of all hospital waste. We hypothesized that there is an overuse of biohazard red bags (BRB). The objective of this study was to reduce BWD by means of staff education as to what should and should not be placed in a BRB.

METHODS: Baseline BWD volumes from the OR were measured for one month and subsequently measured in OB/GYN for four months. In-services were then conducted to educate OR and OB/GYN staff as to the current recommendations by the Center for Disease Control and Occupational Safety and Health Administration for BWD and the indications for use of the BRB. Pre and post in-service surveys were conducted. Differences in pre and post in-service survey responses were compared via binomial sign test. For the next year, the amount of BWD from the OR was measured. For the next three months, the BW was weighed from the OB/GYN department.

RESULTS: Pre-inservice surveys demonstrated 35% of OR and 44% of Ob/Gyn staff did not know the proper indications for BWD. Post-inservice surveys demonstrated a statistically significant improvement in knowledge (P=0.0002 for OR and P=0.007 for Ob-Gyn). In the following year, the OR maintained a 21% BWD reduction. The Ob/Gyn department demonstrated a 64% BWD reduction in the three months following the in-services. Combined, this resulted in reduction of 40,000 lbs of BRB.

CONCLUSION: Overuse of the BRB is common. Education alone as to the indications for BRB use can result in cost and environmental savings.
26. IMPROVING OR EFFICIENCY: CONVERSION FROM A FIRST-COME OR SCHEDULING SYSTEM TO A BLOCKED TIME OR SCHEDULING SYSTEM
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Cooperstown, NY

BACKGROUND: Changes in health care financing have reduced operation margin and prompted improvements in the efficiency of health care delivery. Operating room (OR) efficiency remains a frequent topic of conversation but the literature to help guide policy remains primarily theoretical and model-driven. No clear consensus exists on the preferred method of scheduling. We present data gathered during a successful transition from the “first-come, first-served” model to an 8-hour block schedule for individual surgeons based upon historical utilization. Goals of the transition included improved OR productivity, reduced OR staff turnover and implementation of protected booking time for individual surgeons.

METHODS: To optimize the transition to block scheduling, historical patterns of utilization were calculated and used to assign quantities of block time. Blocks were assigned as 8 hour days in the OR to individual surgeons based upon average weekly OR time over a 1 year period. Additionally, a separate block assignment was created for urgent cases. Data from two six month spans (prior to and after implementing block scheduling) were collected and compared. Data points included total case volume, operating room utilization, turnaround times, first case on-time starts, same day cancellations and after-hours case numbers.

RESULTS: OR productivity increased evidenced by a 3% increase in case volumes in the context of decreased utilization from 71% to 68% during the two time periods studies. Average turnaround time remained relatively constant at 40 minutes. After block-time implementation, first case on-time starts rose from an average of 83% to 91%. We experienced a 40% reduction in OR staffing agency expenditures as well as a decrease in same day surgery cancellations from 4.8 to 4% with block time scheduling. The total OR hours of late cases after 5 p.m. decreased by 6% with block time scheduling with a decrease in case hours after 11 p.m. of 43%.

CONCLUSION: Studies have shown that optimal utilization (if service workloads were always the same each weekday) would be 68%. Changing to block scheduling optimized our utilization. We increased our case volume while reducing agency costs. Improvement in first case on-time starts converts unproductive down time early in the day to productive end of the day prep time for the next day’s schedule. There are numerous considerations when planning a conversion from a first-come, first-served OR booking system to a block time system. We were able to optimize our OR’s productivity by converting to a block time booking system using mathematical calculations and a relatively simple set of rules. As a result, we were able to improve first case on-time starts, decrease same day surgery cancelations, increase OR case volumes without increasing utilization and decrease dependence on OR staffing agencies. These metrics all indicate improved workflow and OR productivity following a transition to block scheduling.
27. PREHOSPITAL FAST: WHAT IS THE POTENTIAL IMPACT IN A LARGE URBAN SETTING
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BACKGROUND: Prehospital focused assessment with sonography in trauma (FAST) can provide early identification of patients with abdominal hemorrhage. The purpose of this study was to investigate potential benefits of prehospital FAST in a large, urban EMS system on the following three measures: 1) time spent in the emergency department (ED) before the operating room 2) appropriate triage by the receiving hospital and 3) appropriate EMS hospital destination determination.

METHODS: All blunt-trauma patients from 2010 – 2012 who went directly to the operating room from the ED, were upgraded to a trauma code, or were received from an outside facility were reviewed. In order to have a better understanding of the percentage of impact on a specific EMS system, only patients from one county were included.

RESULTS: Over the 3-year period, the EMS system transported 2,372 patients with abdominal trauma of which 1,438 went directly to the trauma center. Sixty (4%) of these patients had a positive FAST and required emergent operative intervention after a median ED time of 45 minutes. 112 patients (8%) were upgraded to a trauma code after a positive FAST in the ED. Their median ED length of stay was 135 minutes. 159 patients were transferred to the trauma center from a community hospital with positive FASTs. The median outside ED length of stay prior to transfer was over 3 hours.

CONCLUSION: While prehospital FAST would benefit only a small percentage of patients, the time savings could be significant. Furthermore prehospital FAST as a destination determination criterion could significantly decrease under-triage and time to arrival at a trauma center.
28. PEDIATRIC APPENDICITIS AND NEED FOR ANTIBIOTICS AT TIME OF DISCHARGE: DOES ROUTE OF ADMINISTRATION MATTER?
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BACKGROUND: Approximately one fourth of children with acute appendicitis have complicated appendicitis requiring ongoing antibiotic therapy following hospital discharge. Unfortunately, there are limited data available to guide the surgeon regarding antibiotic selection, specifically in regards to route of administration. Some surgeons prefer IV antibiotics while others prescribe only oral antibiotics. We hypothesized that among children with appendicitis who are discharged home with antibiotic therapy, the post-discharge readmission and complication rates do not differ between those children who receive IV antibiotics and those who receive oral antibiotics.

METHODS: We performed a retrospective review of all children discharged home on antibiotics following appendectomy at a single institution between 11/10 – 4/14. We compared outcomes including ED and hospital readmission rates, and development of postoperative complications, between those children who were discharged on IV antibiotics and those discharged on oral antibiotics. Exclusion criteria included interval appendectomy, negative or incidental findings, significant concomitant illness or ICU admission postoperatively, and open appendectomy in order to eliminate these confounding factors from analysis.

RESULTS: 276 children were discharged with antibiotics following appendectomy during this time period (n=248 oral antibiotics group; n=28 IV group). These groups did not differ in terms of the percentage of children who were male (55% oral vs 54% IV; p=0.9) or the mean age (9.5 oral vs 9.7 years IV; p=0.8). Children in the IV group had a longer initial hospitalization length of stay (LOS) (9.1 vs 5.1 days; p<.0001) and longer course of home antibiotics (9.6 vs 6.1 days; p<.001) compared to the oral group. On univariate analysis, rate of each complication did not differ between the two groups including inpatient readmission (4% oral vs 7% IV; p=0.3, 95% confidence interval 0.4-8.8), ED readmission (8% vs 11%; p=0.7, 95% CI 0.4-4.7), post discharge complications related to the operation (10% vs 15%; p=0.5, 95% CI 0.5-4.9), or abscess development post discharge (4% vs 4%; p=1, 95% CI 0.1-8.1). On multivariate analysis, after controlling for the presence of a postoperative complication prior to hospital discharge, initial hospital LOS, and days of post discharge antibiotic therapy, no differences were seen between the IV and PO groups with regard to inpatient or ED readmission, development of post discharge complications or post discharge abscess.

CONCLUSION: We found that among children with appendicitis who are discharged home with antibiotics, route of administration did not correlate with hospital readmission or postoperative complication rates. Given the known increased cost associated with home IV antibiotic administration, as well as increased risk, lower patient satisfaction and longer return to activity, our data suggest that oral antibiotics are favorable for these children.
29. PATIENT SATISFACTION AFTER OUTPATIENT APPENDECTOMY
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Temple, TX

BACKGROUND: Outpatient laparoscopic appendectomy has shown to be safe, with a low morbidity and readmission rate. Outpatient management decreases the cost of care for uncomplicated appendicitis. It has been questioned whether outpatient appendectomy produces poorer patient satisfaction.

METHODS: Patients with uncomplicated appendicitis were treated as per a previously published protocol from our institution. Patients were counselled preoperatively as to plans for outpatient management and provided a written instruction sheet for postoperative care, follow up appointments, and contact information. Telephone surveys of patients who underwent outpatient laparoscopic appendectomy for uncomplicated appendicitis from January through October 2013 were performed. A Likert scale from very dissatisfied (1) to very satisfied (5) was employed. Patients were also queried that if in retrospect, they were given the opportunity to stay in the hospital, would they have chosen to do so.

RESULTS: Forty-one males and thirty-one females with an average age of 36 years (range 19-79 years) underwent outpatient laparoscopic appendectomy for uncomplicated appendicitis at our institution from January through October 2013. Fifty-four (75%) were reached for telephone satisfaction surveys. Patients were dismissed from the recovery room in keeping with a previously published protocol for outpatient management. Dismissal occurred between 6 a.m.-noon in 24%, noon- 6 p.m. in 17%, 6 p.m.-midnight in 22%, and midnight-6 a.m. in 37%. Average satisfaction score for outpatient management was 4.6 (range 2-5). In the subset of patients dismissed between midnight and 6 a.m., patient satisfaction with outpatient therapy averaged 4.7. Six patients (11%) stated they would have preferred hospitalization if given the opportunity. The reasons stated included: Inadequate pain control (2 patients), lack of home assistance (2 patients), nausea and vomiting after dismissal (1), and prolonged drowsiness (1 patient). Four of these patients represented violations of the outpatient management guidelines (pain controlled on oral analgesics and adequate home assistance).

CONCLUSION: Outpatient laparoscopic appendectomy can be performed with high patient satisfaction and acceptance. Night time dismissal did not diminish patient satisfaction. Adherence to protocol guidelines for outpatient management is important to properly select patients for outpatient management and maximize patient satisfaction.
30. PREDICTORS OF THE PRESENCE OF STRANGULATED BOWEL IN PATIENTS WITH HERNIAS
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*Torrance, CA*

**BACKGROUND:** Diagnosing intestinal strangulation in the setting of incarcerated hernias remains challenging. Multiple studies have been performed without identification of reliable predictors of ischemic bowel. Hyponatremia has been identified as a predictor of the presence of necrotizing soft tissue infections and gangrenous cholecystitis. We hypothesized that hyponatremia could be used as a predictor of ischemic bowel in the setting of incarcerated hernias containing small bowel.

**METHODS:** Medical records for 163 patients diagnosed with an acutely incarcerated hernia or hernia with symptoms of small bowel obstruction over a five-year period were reviewed. Preoperative clinical, laboratory, and radiologic findings as well as demographic data, and final intraoperative diagnosis were collected for each patient. We then performed univariate followed by multivariate analysis to identify predictors of ischemic bowel.

**RESULTS:** Fifty percent of patients were male with an average age of 50.2 years. Thirty-six patients (22.1%) had ischemic bowel requiring resection. Multiple variables were noted to be significant on univariate analysis including serum sodium (p=0.0002), chloride (p=<0.0001), bicarbonate (p=0.04), glucose (p=<0.0002), white blood cell count (WBC) (p=0.002), and skin changes (p=0.001). In a multivariable model including skin changes and sodium, skin changes were associated with an odds ratio for ischemia of 3.3 (1.3-8.6 p=0.01). Sodium of less than 135 had an odds ratio for having ischemic bowel of 3.9 (1.7-9.1, p=0.01). If a patient had neither skin changes nor was hyponatremic the model had a negative predictive value of 88.7% (80.7-93.7%). This model had an area under the curve of 0.73 and Hosmer Lemeshow fit statistic of p=0.3.

**CONCLUSION:** We have assessed clinical, radiologic and laboratory predictors of ischemic bowel. Analysis of multiple preoperative criteria demonstrate that skin changes on physical exam and hyponatremia are both associated with the presence of ischemia bowel in the setting of incarcerated hernias. Hyponatremia should raise suspicion for underlying strangulated bowel and prompt urgent hernia exploration and repair.
31. DETERMINATION OF INDEPENDENT CLINICAL FACTORS FOR ANASTOMOTIC LEAK IN ACUTE CARE SURGERY
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BACKGROUND: Anastomatic leak (AL) after emergent intestinal operations can have devastating effects on patient outcomes. The objective of this study was to identify risk factors associated with intestinal AL in the era of acute care surgery in order to practically assist in surgical decision making.

METHODS: A retrospective review of the academic surgery database was performed from July 2009 to June 2013 to identify patients who had intestinal (small bowel [SB] and colon) anastomoses. The primary outcome was AL after emergent operation which was assessed according to 33 patient and operative factors using bivariate analysis. Variables considered for multivariate logistic regression model if they had p-value <0.25 in bivariate analysis.

RESULTS: Of the 682 patients (mean age 59.5±18.1, 53% female, median BMI 27.5 [23.2,33.2]) identified with anastomoses, the overall leak rate was 5% (38/682). Of these 97 (14%) [median age 52.6 (33.1,79.2) 42% female, median BMI 24 (19.8,30.8)] underwent an emergent operation with an AL rate of 9% (9/97). Anastomatic anatomy included SB to SB (74/97, 76%), SB to colon (18/97, 19%), colon to colon (5/97, 5%). Operations were categorized as open (81/97, 84%), laparoscopic (16/97, 16%). In bivariate analysis, gender, BMI, pulmonary disease, malnutrition, anticoagulation, anastomatic tension, use of drains and blood transfusion were statistically significant factors associated with AL. Of these factors in bivariate analysis, two were found to be independent predictors of AL in emergent operations using logistic regression model: use of drains (OR 7.6 [1.6-36]), peri-operative blood transfusion (OR 6.2 [1.1-35]).

CONCLUSION: Recognition of factors associated with AL after emergent intestinal operations can assist acute care surgeons in mitigating these risks in the peri-operative period and guide intra-operative decisions.
32. FACTORS THAT INFLUENCE SURGICAL MANAGEMENT OF LARGE BOWEL OBSTRUCTION
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BACKGROUND: Multiple interventions are available to surgeons for the management of large bowel obstruction. Obstruction location, root cause, patient status, and available hospital resources can alter treatment planning. For this study we sought to review the etiology and surgical management of large bowel obstruction at a county hospital to determine factors that influence management.

METHODS: A retrospective analysis of all surgically managed large bowel obstructions was performed from 2006 through early 2014. Patient demographics, etiology, adjunct procedures such as stent placement and type of surgical interventions were evaluated.

RESULTS: Ninety-three cases of large bowel obstruction were identified, with patient average age of 54 years and an even distribution among gender (52% male). Malignant bowel obstruction (74%) was the most prominent etiology, of which 82% were colon and rectal cancers (CRC). Metastatic disease from gynecologic primary (10%), as well as individual cases from lymphoma (n=2), breast (n=2), and lung cancer (n=1) were noted.
Right sided pathology accounted for 15% of obstructions, of which 71% were from malignancy. All patients were initially treated with surgical intervention, with 43% undergoing primary anastomosis.
Left sided pathology accounted for 85% of obstructions, of which 76% were due to malignancy, 13% to diverticular disease and 8% from sigmoid volvulus. Thirty six patients (46%) initially underwent diversion procedures while 7 (9%) had resection with primary anastomosis without any further intervention. Twenty four patients had colonic stents placed or attempted prior to surgical intervention. Eleven (46%) served as bridge to surgery, all for primary CRC, with seven (29%) others used for palliation. Four (17%) failed to provide decompression (3 from diverticular disease and 1 from a metastatic lesion) resulting in the need for immediate diversionary procedure. Two stents were unable to bypass the obstruction.
Five out of 6 cases of sigmoid volvulus were successfully treated with initially with colonoscopy and rectal tube decompression. Resection for redundant sigmoid occurred an average of 8 days after initial decompression, with 4 primary anastomoses.

CONCLUSION: Primary CRC is the etiology for the majority of large bowel obstructions, but multiple other causes may lead to similar clinical presentation. Right sided obstructions were treated with surgery first, while left sided obstructions either underwent surgery or attempts at endoscopic decompression with stenting. Colonic stenting served as a bridge to surgery or for palliation when applied in obstruction due to CRC; it failed to offer decompression in cases of diverticular disease or metastatic cancer.
QUICK SHOT ABSTRACTS (cont.)

33. RISK FACTORS AND INFLUENCE OF SYSTEM TIME ON INCIDENCE OF ACUTE APPENDICITIS PERFORATION GIVEN THAT PATIENT’S TIME DELAY IS NOT A FACTOR
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BACKGROUND: Several studies on acute appendicitis (AA) concluded that in-hospital delay (system time, ST) did not lead to increased complications (complication correlated with the incidence of perforation). However, many of these studies failed to control for patient time delay (patient time, PT) which played a significant role on AA perforation. In this study, we controlled PT delay and analyzed risk factors associated with AA perforation as well as how ST influenced the incidence of perforation.

METHODS: Using our prospectively maintained acute care surgery database from October 2009 through September 2013, we performed chart review on patients with AA. We collected demographic data, body mass index, presence of fecaliths, PT (i.e., time from abdominal symptom onset to time arrival in the emergency department (ED), ST (i.e., time from arrival in ED to time of surgical incision, and total time (TT) (i.e., PT+ST). We first performed logistic regression to identify risk factors associated with AA perforation after we controlled TT to < 36 hours. Subsequently, we analyzed the influence of ST at 6-hour interval on incidence of perforation after we controlled PT delay to less than 24 hours.

RESULTS: During our 4-year period, 747 patients were seen for possible AA. The incidence of perforation was 23% (n=172). When we analyzed patients whose TT<36 hours, we identified age > 50 (odds ratio [OR] 2.1; 95% confidence interval [CI], 1.4-3.1) and the presence of fecalith (OR, 2.52; 95% CI, 1.7-3.7) as significant risk factors for AA perforation. When we analyzed the influence of ST on AA perforation at 6-hours interval on patients whose PT < 24 hours, we did not observe increased risk of perforation with increased ST.

CONCLUSION: Age > 50 and the presence of fecalith place patient with AA at increased risk of perforation. ST delay did not increase incidence of AA perforation given that PT delay was eliminated. Future study that wants to analyze ST needs to look at AA patient with increased risk of perforation and presents to the hospital early.
34. ROUTINE CULTURES IN APPENDICITIS: ARE THEY REALLY WORTH THE COST?
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**BACKGROUND:** Abdominal and pelvic fluid cultures are routinely obtained from patients during appendectomy, which are thought to help guide antimicrobial therapy. However, the utility of acquiring these cultures in patients with appendicitis is not well defined. Also, cost analysis is lacking. This study was conducted to identify if these culture results influenced management and if the costs supported antimicrobial and/or financial stewardship.

**METHODS:** After both university and hospital institutional review board approvals were obtained, a retrospective review was performed on all abdominal, peritoneal, and pelvic culture results from January 2008 to November 2013. Due to significant variation in antimicrobial management and limited provider documentation, cultures associated with pathology other than appendicitis were excluded. Only intraoperative, intraperitoneal cultures associated with appendicitis were included. Data collection included evaluation of the following: standard patient demographics, operative technique and details, microbiology results, how culture results influenced patient management, and costs of the cultures. Data for continuous variables are expressed as mean ± standard deviation.

**RESULTS:** During the study period, 70 patients with appendicitis had 140 culture samples tested. Mean patient age was 36.8 ± 25.6 years. Forty three patients were male (61%) and 27 female (39%). Appendectomies were performed via laparoscopy (5.7%), open (84.3%), and conversion from laparoscopy to open (10%) for both nonperforated (22.9%) and perforated appendicitis (72.9%). Culture results influenced management in only 4 patients (5.7%). There were 18 negative culture results. Five patients grew organisms resistant to antibiotics used; only 1 of which had change in his treatment as a result. On average, culture charges were $409 ± $112. Of the 5 patients with fungal cultures obtained, only 1 influenced antifungal therapy. In the 94% of patients whose cultures did not affect their management, the total culture charges were $26,764. The cost per change in management was $7,159.

**CONCLUSION:** Culture results from abdominopelvic fluid did not significantly influence the type or length of antibiotic/antifungal therapy. Similarly, the costs of these cultures appeared to be disproportionate to the low incidence of culture result utilization affecting patient care.
35. CAN ORAL CONTRAST COMPUTED TOMOGRAPHY SCAN AFFECT THE CLINICAL COURSE OF ADHESIVE SMALL BOWEL OBSTRUCTION? 
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G Vercruysse MD, P Rhee MD MPH 
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BACKGROUND: Deciding which adhesive small bowel obstruction (ASBO) patients need surgery remains difficult. Several studies have suggested that gastrogafin oral contrast challenge has both diagnostic and therapeutic values. So one would theoretically assume then that computed tomography (CT) scan performed with oral contrast would have a beneficial effect on the course of ASBO. This study analyzed the effect of CT oral contrast on the course of ASBO.

METHODS: Using our previously derived multi-institution prospective observational database of ASBO, we performed a separate analysis of ASBO patients whose CTs were performed with or without oral contrast. The decision to perform CT with (WC) or without oral contrast (WOC) was not protocolized in that study. Primary outcome was number of patients who underwent surgery. Secondary outcomes were duration of patients who had successful conservative treatment and hospital length of stay (HLOS).

RESULTS: There were 234 ASBO patients enrolled during 22-month study period; 5 patients had missing data, yielding 129 patients who had CT performed WC and 100 WOC. Overall, patients’ mean age was 59 ± 18 years; 52% were male, and 26% (N = 60) need surgical intervention. There was no difference between the groups on patients who need surgery (WC, 27% vs. WOC, 26%; P = 0.87). There were also no difference in duration among patients who were managed successfully with conservative treatment (WC, median 2 days; range 2-3 vs. WOC, median 2 days; range 1-3, P = 0.22) and HLOS (WC, median 4 days; range 3-8.5 vs. WOC, median 4; range 2-8, P = 0.24)

CONCLUSION: CT performed with oral contrast on ASBO patient did not have therapeutic effect in term of patients who need surgery and number of days of successful of conservative treatment. The oral contrast administered via CT may have a different quantity and quality effect than the oral contrast challenge being given in ASBO.
36. IS THE ACS NSQIP® SURGICAL RISK CALCULATOR APPLICABLE FOR BREAST CANCER PATIENTS UNDERGOING BREAST CONSERVING SURGERY?

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BACKGROUND: There has been a recent emphasis placed on the importance of the surgeon’s ethical and legal obligations to provide complete, accurate, and patient participatory informed consent discussion regarding operative risk. The ACS NSQIP® has developed a universal risk estimation tool to facilitate this process. The purpose of this study was to analyze the applicability of the NSQIP® risk calculator to patients undergoing breast conserving surgery (BCS) for breast cancer at our institution.

METHODS: After IRB approval, a prospectively maintained breast cancer registry at a community-based multidisciplinary breast center was queried to identify all patients diagnosed with breast cancer from 2010-2012. A retrospective review was performed to identify patients treated with BCS. Patients with benign or metastatic disease were excluded, as were those who had surgery elsewhere or had mastectomy. The risk calculator was applied to each patient to generate an individual risk profile. The performance of the universal risk calculator model was then evaluated using two metrics: the c-statistic and the Brier score.

RESULTS: There were 287 patients with a median age of 65 years. 55 (19%) had DCIS and 232 (81%) had invasive cancer. 69 (24%) underwent lumpectomy alone while 218 (76%) underwent lumpectomy with surgical axillary staging. Actual observed outcomes versus NSQIP® predicted outcomes, with performance analyses (Brier score, c-statistic), are as follows (NC=Not Calculated): Serious Complication 2.4% (n=7) vs 5.0% (0.024, 0.797); Any Complication 3.8% (n=11) vs 6.7% (0.042, 0.745); Pneumonia 0.3% (n=1) vs 0.1% (0.003, 0.954); Cardiac Complication 0.0% (n=0) vs 0.1% (<0.001, NC); Surgical Site Infection 2.4% (n=7) vs 1.1% (0.024, 0.538); Urinary Tract Infection 0.3% (n=1) vs 0.2% (<0.001, NC); Venous Thromboembolism 0.0% (n=0) vs 0.1% (<0.001, NC); Renal Failure 0.0% (n=0) vs 0.0% (<0.001, NC); Return to OR 1.0% (n=3) vs 5.0% (0.013, 0.673); Death 0.0% (n=0) vs 0.1% (<0.001, NC). In addition to the 3 patients that returned to the OR for wound complications, 37 patients returned for oncologic indications. Of these, 29 patients (10.1%) had positive margins, while 8 patients (2.7%) returned due to an upstage in diagnosis. Global analysis revealed Return to OR 13.9% (n=40) vs 5.0% (0.128, 0.529).

CONCLUSION: A low rate of complications was observed. The NSQIP® risk calculator performed adequately for all complications, with Brier scores of <0.05. This suggests a strong applicability to the informed consent process. However, a return to the OR after BCS for positive margins or an upstaged diagnosis of invasive cancer is the standard of care in breast cancer treatment. When factoring in these occurrences, the observed Return to OR rate of 13.9% is significantly higher than the predicted 5.0%. This deviation must be addressed when utilizing the NSQIP® risk calculator model during preoperative risk discussion with patients undergoing BCS at our institution.
37. BEFORE AND AFTER Z0011—EFFECT ON EARLY BREAST CANCER TREATMENT
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Grand Forks, ND

BACKGROUND: Axillary lymph node dissection (ALND) had been considered the standard of care for lymph node metastasis of breast cancer for many years. The American College of Surgeons Oncology Group (ACOSOG) clinical trial Z0011 demonstrated equivalent overall survival and disease-free survival for breast cancer patients with limited lymph node involvement. These patients were treated with breast conservation surgery (BCS), sentinel lymph node dissection (SLND) and tangential whole-breast radiation, and then compared to patients who received the same treatment along with ALND. We investigated the impact of Z0011 on early breast cancer treatment in a large community hospital.

METHODS: All patients who underwent lumpectomy and SLND from January 2008 - December 2013 were analyzed in a retrospective review. Data was collected from clinical records which included demographics, surgical procedure, and pathology results. Z0011 guidelines were implemented in May, 2011 and patients treated before and after Z0011 implementation were compared. Statistical analysis was performed using IBM SPSS Statistics, Version 21.0 with Pearson's $\chi^2$ test and Fisher's exact test.

RESULTS: Nine hundred and thirty-five patients had BCS and SLND during this time period. All patients were female and the two groups were similar with regard to age, histology and initial presentation. Ninety-six (18.8%) of 512 patients and 28 (6.6%) of 423 patients underwent ALND before and after the implementation of Z0011 respectively (p<0.05). The odds ratio of ALND was 0.307 (95% confidence interval [CI] 0.197-0.478) after Z0011 implementation. Among patients who underwent ALND, 21 (21.9%) of 96 patients and 12 (42.9%) of 28 patients had greater or equal to 3 lymph node metastases before and after the implementation of Z0011 respectively. (p<0.05) (Odds ratio was 4.886. Pearson $\chi^2=0.027$).

CONCLUSION: ALND incidence decreased significantly after the implementation of Z0011. Among all the patients who underwent ALND, a significantly higher percentage of patients with ALND had 3 or more involved lymph nodes after Z0011 adaptation. These results indicate rapid and successful implementation of recent clinical trial results. This resulted in a significant reduction in the number of patients exposed to potential morbidities of ALND.
38. POSITION STATEMENT ON BREAST CANCER LUMPECTOMY MARGINS: IMPACT ON MARGIN REVISION PRACTICE
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BACKGROUND: Approximately 132,750 lumpectomies are performed annually in
the United States for breast cancer, and 26,550 women undergo
re-excision for close but negative margins. The position statement by the American
Society of Breast Surgeons (ASBS) streamlines the indications for margin revision.
Elimination of unnecessary re-excisions offers a potential saving of $31 million per
year. This study computes the rate of post-lumpectomy margin re-excisions in breast
cancer before and after the publication of the position statement.

METHODS: A retrospective analysis of a prospectively maintained quality assurance
database between January 2009 and October 2014 was conducted. The patient pool
before and after the ASBS position statement on lumpectomy margins in January
2013, was compared for the rate of margin revision. Pearson’s one-tailed chi-squared
test without Yates correction was utilized to determine the significance of difference
between the two groups.

RESULTS: Out of 565 breast cancer patients, 317 underwent lumpectomy (56.1%); 280 (88.3%) had a margin width of ≥ 1 mm. Number of lumpectomy patients with >
1mm margin pre and post ASBS position statement was 221 (90.2%) and 59 (81.9%); the number of margin revisions for these groups were 49 (21.7%) and 8 (13.6%)
respectively [X2 (1, N = 280) = 2.131, p=0.072]. One (1.75%) patient was found
to have residual disease in the revised margin; 19 (6.0%) patient ultimately had a
mastectomy. One patient that refused margin revision and adjuvant therapy in the pre-
position statement group, had a mastectomy a year later for local recurrence.

CONCLUSION: The collective review of evidence leading to a position statement has
reduced the rate of margin revision in breast cancer patients undergoing lumpectomy
(marginally significant). Larger registry based datasets are needed to confirm the
impact of this guideline.
40. CENTRAL VENOUS PARATHYROID HORMONE MONITORING DURING MINIMALLY INVASIVE PARATHYROIDECTOMY: DESCRIPTION OF A NOVEL, SIMPLIFIED TECHNIQUE FOR SAMPLING THROUGH THE NECK INCISION WITH VALIDATION OF RESULTS

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BACKGROUND: Clinicopathologic and biochemical data was collected and retrospectively analyzed for 55 consecutive patients undergoing minimally invasive parathyroidectomy by a single surgeon between January 2012 and October 2014, utilizing central venous sampling for PTH levels. A novel, standardized anatomic approach was employed for central venipuncture through the small incision, by accessing the internal jugular vein between the sternohyoid and sternothyroid muscles cranial to the parathyroid venous drainage. Samples were drawn at baseline prior to entering or manipulating the central neck tissues, and at 10 minutes post-excision of all hyperfunctioning parathyroid tissue. A second cohort of 12 patients was prospectively studied by drawing simultaneous peripheral venous values and central values obtained by this method, and comparing levels between the two sampling sites. Central and peripheral values pre- and post-excision were compared, while also comparing percent decay of central and peripheral values.

METHODS: Clinicopathologic and biochemical data was collected and retrospectively analyzed for 55 consecutive patients undergoing minimally invasive parathyroidectomy by a single surgeon between January 2012 and October 2014, utilizing central venous sampling for PTH levels. A novel standardized anatomic approach was employed for central venipuncture through the small incision, by accessing the internal jugular vein between the sternohyoid and sternothyroid muscles at a level cranial to the parathyroid venous drainage. Samples were drawn at baseline prior to entering or manipulating the central neck tissues, and at 10 minutes post-excision of all hyperfunctioning parathyroid tissue. A second cohort of 12 patients was prospectively studied by drawing simultaneous peripheral venous values and central values obtained by this method, and comparing levels between these two sampling sites. Central and peripheral values pre and post-excision were compared, while also comparing percent decay of central and peripheral values.

RESULTS: All central values independently met criteria for biochemical cure according to the Miami criteria. This is demonstrated in the prospective cohort of 12 patients and in all 55 patients analyzed retrospectively. While the mean post-excision central value (22±8.5) was slightly higher than the peripheral value (18.3±6.7), there was no significant difference seen when comparing the percentage decay of central and peripheral values, which were 84.36±10.2% and 84.37±8.6% respectively. Therefore central values can be reliably utilized to accurately predict operative success.

CONCLUSION: Central venous sampling for PTH determinations utilizing this specific anatomic method closely approximates peripheral values, and accurately predict cure as the sole measurements obtained. This novel method facilitates minimally invasive parathyroidectomy by obviating the need to place, maintain, and troubleshoot peripheral venous access solely for PTH monitoring.
41. OUTCOMES AFTER PANCREATECTOMY WITH SURGICAL RESIDENT INVOLVEMENT: A NSQIP ANALYSIS
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Tucson, AZ

BACKGROUND: Due to duty hour restrictions and other changes in surgical resident training, there are concerns that the presence of surgical residents may lead to poorer outcomes after certain surgical procedures. There are few large studies examining outcomes after pancreatectomy when surgical residents are involved.

METHODS: The American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) database from 2005-2010 was queried for all electively performed pancreatic resections. Multiple logistic regression models were constructed for outcomes such as total complications and mortality.

RESULTS: A total of 13,711 cases were identified; residents were involved in 85.0%. Total complications with and without the presence of residents were 34.3% and 32.5% respectively (p=0.11). Resident involvement was significantly protective of mortality (2.15% vs. 3.30%, p=0.01). On logistic regression, the presence of residents was not predictive of overall complications (p =0.36), while it remained protective of 30-day mortality (OR = 0.68, p = 0.01). Resident involvement was significantly associated with surgical site infections (OR = 1.21, p=0.04).

CONCLUSION: The presence of surgical residents during pancreatectomy does not increase 30-day morbidity. Mortality is decreased, although the underlying reasons for this remain to be determined. Pancreatectomy may be safely performed with surgical resident involvement.
42. THE EFFECT ON LENGTH OF STAY USING AN ENHANCED RECOVERY AFTER SURGERY SYSTEM
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BACKGROUND: Enhanced recovery-after-surgery (ERAS) pathways have been developed in an effort to improve overall patient outcomes. We evaluated hospital length of stay before and after an ERAS pathway implementation in order to determine its applicability/effectiveness within our institution.

METHODS: In early 2013, an ERAS pathway for the comprehensive care of patients undergoing small and large bowel operations was developed and implemented at our institution. Our hospital database was utilized for data collection on all patients undergoing colon/rectal and small bowel operations based on billing codes for small and large bowel surgeries. Data were compiled for the six months prior to and the six months following implementation of the ERAS. The post implementation data were further analyzed based on whether or not the various surgeons within our institution utilized an order set. Statistical analysis was completed using an t-test.

RESULTS: All patients undergoing small and large bowel operations within the six months prior to (n=242) and the six months post (n=328) ERAS implementation were identified. The average (median 7 days) length of stay following ERAS implementation decreased to 9.60 days from 10.90 days prior to implementation (p=0.05). The rate of compliance with ERAS as assessed by order set utilization improved from 38% to 70% during the six-month period following initiation. Overall, order set utilization was observed in 145/328 (44%) patients and for these patients the mean length of stay was 7.79 days (p<0.01).

CONCLUSION: We observed a statistically significant decrease in hospital length of stay following ERAS pathway implementation for patients undergoing small and large bowel operations within our institution. A further and more dramatic decrease in length of stay can be achieved with the addition and adherence to a standardized order set.
43. DOES SURGICAL RESECTION FOR LINITIS PLASTICA OF THE STOMACH IMPROVE OUTCOMES? ANALYSIS OF A POPULATION CANCER REGISTRY.
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BACKGROUND: Gastric adenocarcinoma (GA) is a leading cause of cancer related death worldwide. A subset of gastric cancer, linitis plastica (LP), is characterized by diffuse tumor infiltration causing thickening and stiffening of the gastric wall. Traditionally, LP has been considered a fatal disease with few management options. Little evidence has been reported regarding prognostic factors and the role for surgical therapy in the treatment of LP. Our goal was to study the impact of surgery and adjuvant therapy on survival in these patients.

METHODS: We performed a retrospective review of GA patients with LP from the Surveillance, Epidemiology, and End Results (SEER) database (2004-2009). LP Patients were analyzed for differences from GA and factors associated with disease-specific survival.

RESULTS: Our study population was comprised of 29426 patients with GA, of whom 948 (3.2%) had linitis plastica. Compared to GA, patients with LP were younger (mean age 69 vs. 63, p<0.001), more likely female (37% vs. 49%, p<0.001), more likely to have metastatic disease at presentation (44.9% vs. 70.3%, p <0.001), more likely to have nodal involvement (50.6% vs 62.6%, p<0.001), and have higher tumor grade (68.1 % vs 94.1%, p<0.001). Patients with LP were less likely to undergo surgery (45.6% vs 36.9%, p<0.001) or radiation therapy (25.3% vs 17.7%, p<0.001) compared to GA. Near total or total gastrectomy was performed for 76% of LP patients compared to 51% of GA patients (p <0.001). After matching for AJCC stage, LP patients had significantly worse 5-year disease specific survival compared to GA; Stage I (27% vs. 67%), Stage II (19% vs. 49%), Stage III (6% vs. 29%), Stage IV (2% vs. 8%, all p values <0.001).

In the LP population, surgical resection (HR 0.55, 95%CI: 0.45-0.66) and radiation therapy (HR 0.71, 95%CI: 0.57-0.89) both decreased the chance of disease specific mortality, after controlling for AJCC stage, grade, race, and age. In LP patients with Stage I-III disease only, 159/260 (61%) of patients underwent surgery. The best survival outcomes in these potentially curable patients were seen in patients undergoing both surgery and radiation (median survival 25 months and 5 year disease specific survival of 16%). Patients who underwent neither surgery nor radiation had a median survival of 5 months.

CONCLUSION: The presence of linitis plastica is a marker of poor long term survival in gastric adenocarcinoma, independent of traditional prognostic factors such as T and N classification. Although selection bias may play a part, the best oncologic outcomes in these patients are achieved with multimodal therapy combining surgical resection with radiation therapy.
44. ENERGY-BASED HEPATIC RESECTION PROMOTES HYPOXIA INDUCIBLE FACTOR-1α-MEDIATED METASTASIS IN A MURINE MODEL OF PANCREATIC ADENOCARCINOMA
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BACKGROUND: Electrocautery is a commonly employed energy-based surgical device used during hepatic resection. Post-resection, tumor recurrence and intrahepatic metastasis may be due to resection mediated-hepatic injury although the mechanism is unclear. Hypoxia inducible factor-1α (HIF-1α) is a transcription factor that modulates numerous cellular functions critical to tumor growth and metastasis and is upregulated in hepatic injury. We hypothesize that electrocautery induced hepatic injury promotes tumorigenesis via HIF-1α and inhibition of hepatic-tumor HIF-1α interaction will abrogate hepatic metastasis.

METHODS: The Pan02 murine pancreas adenocarcinoma cell line was modified using short-hairpin RNA targeting HIF-1α via lentiviral transduction to create Pan02-SH+ cells lacking HIF1α activity. Knockdown of HIF-1α activity by >80% was confirmed using polymerase chain reaction prior to injection of the tumor cells. C57/Bl6 mice underwent splenic injection of 200,000 Pan02 or Pan02-SH+ cells followed by hemisplenectomy to create intraabdominal metastatic tumor dissemination. Partial hepatectomy was performed using electrocautery removing a 4 x 20 mm portion of the right hepatic lobe. At 4 weeks, mice were euthanized and necropsy performed by blinded observers. Tumor burden was quantified by volume (calculated as height x width2) and discrete metastases. Statistical analysis was performed using one-way ANOVA and Kruskal-Wallis tests, with significance determined as α<0.05.

RESULTS: Following hepatic resection, all mice developed metastases at the resection border. Mice injected with Pan02-SH+ cells lacking HIF-1α activity had decreased liver tumor volume (p = 0.0010) and reduced liver metastases (p = 0.0079) as compared to mice injected with Pan02 cells. Hepatectomy with electrocautery resulted in increased tumor volume (p = 0.0464) as compared to mice without partial hepatectomy. Additionally, the number of discrete liver metastases was higher in mice that receiving hepatectomy via electrocautery compared to mice without hepatectomy (p = 0.0038).

CONCLUSION: Hepatectomy using electrocautery induced local tumorigenesis and increased metastasis in a murine pancreatic adenocarcinoma model. Inhibition of the HIF-1α tumor-hepatic interaction markedly reduced tumor progression. Based on these data, further investigation of HIF-1α mediated tumor progression is warranted.
45. INCIDENCE OF RESIDUAL MALIGNANCY AFTER NEOADJUVANT CHEMORADIOOTHERAPY FOR ADENOCARCINOMA OF THE DISTAL ESOPHAGUS
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BACKGROUND: Current NCCN guidelines for patients with locally advanced esophageal adenocarcinoma include neoadjuvant chemoradiotherapy (NAC) and surgical resection. Overall survival is significantly better in patients who obtain pathologic complete response (pCR) after NAC. Reported pCR rates range from 10-49% but are difficult to interpret as most studies have combined histologies and many different NAC regimens. Complete clinical response after NAC can be hard to evaluate and ranges from 0-59%. Controversy exists on the need for surgical resection after apparent complete clinical response. This study aims to identify the rate of pCR in patients treated with NAC and the need for surgical resection.

METHODS: A retrospective chart review was performed on patients with adenocarcinoma of the distal esophagus or gastroesophageal junction from Jan 2005 to Dec 2013 who received NAC with subsequent surgical resection. Data collected included demographics, preoperative clinical stage, and type of neoadjuvant therapy. Surgical data included timing of surgery, type of resection, and postoperative morbidity and mortality. Pathologic data included pathologic response, pathologic staging, and margin status. Pathologic response was classified as downstaged, upstaged, or unchanged.

RESULTS: 40 patients fit inclusion criteria of which 35(87.5%) were male. Median age at diagnosis was 60 (range 33-83). Preoperative clinical staging revealed stage 1 – 3(7.5%), stage 2 – 18(45%), stage 3 – 19(47.5%). 39(97.5%) received NAC with a platinum based agent (cis-platin-67.5%, carboplatin-27.5%, oxilplatin-2.5%). After neoadjuvant therapy 24(60%) were downstaged, 5(12.5%) were upstaged and in 11(28%) stage was unchanged. Surgical resection consisted of transhiatal esophagectomy in 25(62.5%) and Ivor-Lewis esophagectomy in 13(32.5%). Final pathology revealed 5(12.5%) with pCR, and 35(87.5%) with residual disease. 4(10%) had residual disease in lymph nodes only (T0N1).

CONCLUSION: Trimodality therapy (NAC followed by surgical resection) is best for curative treatment of esophageal adenocarcinoma. Surgical resection is indicated regardless of apparent clinical response, as almost 90% of patients will have residual disease after neoadjuvant therapy. Regional lymph node dissection is important, as up to 10% of patients will have residual disease in lymph nodes only.
46. DEFINING THE SAFETY OF EPIDURAL PAIN CONTROL IN CYTAREDUCTIVE SURGERY PLUS HYPERTHERMIC INTRAPERITONEAL CHEMOTHERAPY IN CONJUNCTION WITH VENOUS THROMBOEMBOLISM PROPHYLAXIS

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BACKGROUND: Post-operative pain management is a major challenge in CRS/HIPEC. Inadequate pain control can contribute to complications and extend recovery time. The safety and efficacy of regional pain control (epidural catheters) has not been described in CRS/HIPEC. Likewise, EC safety with Dextran prophylaxis has never been reported. VTE risk without prophylaxis approximates 30-50%, and with contemporary prophylaxis the incidence ranges from 10-20% in CRS/HIPEC. Balancing bleeding risks with VTE is one of the many challenges in this patient population.

METHODS: Retrospective analysis was performed on 76 CRS/HIPEC patients. Epidurals were placed prior to dextran which was started in the OR preceding surgery. The duration of epidural, time to pain control, complication, need for additional analgesics, and median LOS were collected. Also perioperative bleeding and VTE rates in-hospital and 30-days were determined.

RESULTS: All patients tolerated dextran and EC therapy. Pain was well controlled with EC alone in 70% of patients, and optimal pain control was reached within 1 hour post-op. No complications were observed with EC, and median duration of therapy was 5 days. LOS was 11 days, and VTE occurred in 5.3% of patients at 30-days. There were 2 lower extremity DVTs, 1 catheter related upper extremity DVT, and 1 DVT/PE in a patient with previous VTE.

CONCLUSION: EC regional pain control is a safe and effective option for CRS/HIPEC patients. This is the first report to demonstrate that Dextran is safe to use with epidural catheters, and observed VTE events are consistent with heparin based prophylaxis.
47. OUTCOMES OF THE ADDITION OF SINGLE PHOTON-EMISSION COMPUTED TOMOGRAPH/COMPUTED TOMOGRAPHY (SPECT-CT) FOR SENTINEL LYMPH NODE DETECTION IN PATIENTS WITH MALIGNANT MELANOMA

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BACKGROUND: Sentinel lymph node (SLN) biopsy is the standard procedure to stage the lymph node basin in patients with melanoma. Recent reports have demonstrated the addition of single photon-emission computed tomograph/computed tomography (SPECT-CT) improves SLN detection and subsequent survival. We evaluated the impact SPECT-CT has on our melanoma population.

METHODS: We performed a retrospective analysis on a prospectively maintained melanoma SLN database for patients treated between 1997-2013. All patients underwent lymphoscintigraphy. Beginning in 2006, SPECT-CT was added to the pre-operative lymph node evaluation for all patients. Outcome measures included local-regional recurrence, recurrence-free survival, overall survival, and melanoma-specific survival.

RESULTS: A total of 745 patients were studied, of whom 429 underwent standard lymphoscintigraphy and SLN biopsy and 316 had additional SPECT-CT. Between the two groups, there was no significant difference in age (p=0.15), gender (p=0.53), location of primary tumor (p=0.89), depth (p=0.60), mitotic rate (p=0.20), or rate of SLN metastases (p=0.85). The number SLNs removed by the surgeon (p=0.61) and the number of lymph node basins dissected per patient (p=0.71) was not significantly different between the groups. There was a difference in melanoma-specific survival at five years that approached statistical significance (87% vs. 96%, 95% CI 0.29 – 1.02; p=0.06) favoring patients who underwent SPECT-CT. There was no difference in local-regional recurrence, (88% vs. 91%, 95% CI 0.65–1.65; p=0.9), recurrence-free survival (60% vs. 78%, 95% CI 0.83–1.52; p=0.45), and overall survival (65% vs. 85%, 95% CI 0.76–1.53; p=0.67). Evaluation of the patients based upon melanoma location (head and neck, trunk, or extremity) also did not demonstrate a significant difference in outcomes.

CONCLUSION: Unlike other reported series, SPECT-CT in addition to lymphoscintigraphy did not significantly impact outcomes among the melanoma patients in this cohort. The perception of the surgeons that it facilitates identification and removal of the sentinel lymph node especially in the head and neck area were not reflected in these outcomes but could impact other unmeasured factors such as operative time or morbidity.
49. MRI AS THE SOLE IMAGING MODALITY FOR THE PREOPERATIVE STAGING OF PRIMARY RECTAL ADENOCARCINOMA: A RETROSPECTIVE ANALYSIS
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BACKGROUND: The prognosis and management of rectal carcinoma depends largely on the stage of the tumor. Imaging plays a crucial role in the preoperative staging and thus, management of rectal carcinoma. Staging is important to distinguish patients that require local excisions from those that require a more radical excision as well as identify those that require preoperative neoadjuvant therapy to downstage the tumor. Currently, various combinations of imaging modalities are used in the preoperative staging of rectal cancer. The aim of this study is to analyze the use of MRI as the sole imaging modality for rectal cancer staging.

METHODS: Using the University of Oklahoma Health Science Center EMR (Meditech), all patients with a biopsy-proven rectal adenocarcinoma who were diagnosed between 2008 and 2013 were identified. Patients were then placed into two groups: those who received only preoperative MRI and those who received a combination of preoperative imaging. The combination group includes any combination of CT, EUS, or MRI. Eighteen patients received MRI alone and forty-one patients received combination imaging. A total of fifty-nine patients were identified for this study, 28 of which received neoadjuvant therapy.

Pre-Operative classification of tumor location, staging and CRM involvement by MRI alone and combination imaging were compared to post-operative findings. This study also compared MRI to other imaging modalities in the ability to differentiate between TII and TIII tumors. Cohen’s kappa coefficient statistic was used to calculate agreement between Pre- and post-operative classification of tumor. SAS 9.3 was used to do the analysis.

RESULTS: It was found that MRI alone was equal to combination imaging in regards to determining tumor location, n-stage and t-stage, including distinguishing between T2 and T3. Combination Imaging was found to be superior to MRI alone at determining tumor distance from the anal verge. After excluding patients who received neoadjuvant therapy, MRI alone was equal to Combination Imaging in predicting tumor size.

CONCLUSION: MRI alone was as accurate as combination imaging in distinguishing between T2 and T3, which is an important determinant of neoadjuvant therapy. Since MRI Alone is equal to Combination Imaging, it seems unnecessary to undergo the extra cost and time of additional imaging studies. In addition to decreased cost and a decreased number of visits, MRI also has less radiation than CT. MRI has several known benefits to CT including the ability to visualize the peritoneal reflection, the CRM, and liver metastases less than 5mm. Using MRI alone for the staging of rectal adenocarcinoma allows multidisciplinary teams to establish a “common language” to avoid issues such as misinterpretation and miscommunication.
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UICSHOTABSTRACTS
(cont.)

50. CONGESTIVE HEART FAILURE IS ASSOCIATED WITH INCREASED RISK OF PNEUMONIA, RE-INTUBATION, AND DEATH FOLLOWING LAPAROSCOPIC CHOLECYSTECTOMY: A NSQIP DATABASE REVIEW
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BACKGROUND: Laparoscopic cholecystectomy (LC) is the gold standard operation for gallbladder disease in patients of all ages with a variety of medical conditions. Elective LC has been performed as an outpatient operation for nearly 15 years. Few studies have examined the impact of specific co-morbidities on outcomes after LC and determined if certain co-morbidities may benefit from post-operative admission. Congestive heart failure (CHF) is a common co-morbidity that necessitates appropriate peri-operative management. This study aims to quantify adverse events after LC and determine if patients with CHF should be admitted following LC.

METHODS: This is a retrospective review of all adult patients undergoing laparoscopic cholecystectomy recorded in the NSQIP database between 2005-2012. Exclusion criteria were pregnancy, disseminated cancer, recent chemotherapy or radiation, and liver disease. Included patients were categorized into elective and emergent populations. Bivariate and multivariate analyses determined the impact of CHF on post-operative complications.

RESULTS: Laparoscopic cholecystectomies were performed electively in 131,081 patients and emergently in 12,680 patients. Congestive heart failure was more common in older patients and accounted for 0.38% of elective and 0.62% of emergent operations. Pneumonia, re-intubation and death occurred in 9% of elective and 17% of emergent operations in CHF patients. Bivariate analysis revealed a relative risk for pulmonary complications of 16.6 in the elective and 12.98 in the emergent populations. The multivariate analysis demonstrated patients with CHF were nearly four times more likely to suffer from these outcomes. Other co-morbidities contributing to respiratory complications included age, BMI, COPD and dyspnea.

CONCLUSION: Laparoscopic cholecystectomy is a safe operation, but patient co-morbidities affect surgical outcomes. Congestive heart failure is associated with potentially severe pulmonary complications after LC, including pneumonia, re-intubation and death. This study demonstrates that patients with CHF need appropriate pre-operative counseling and management to improve outcomes after laparoscopic cholecystectomy. Patients with CHF may benefit from post-operative admission following LC for prevention of pulmonary complications.
52. THREE VERSUS FOUR-FACTOR PROTHROMBIN COMPLEX CONCENTRATES TO REVERSE ORAL ANTICOAGULATION IN PATIENTS FOLLOWING TRAUMA
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BACKGROUND: The use of oral anticoagulants is pervasive in the elderly. However upon injury these patients often require urgent reversal of anticoagulation due to life threatening hemorrhage or surgery. Little has been reported on efficacy of 3-factor (Bebulin) vs. 4-factor (KCentra) prothrombin complex concentrates (PCC). The objective of this study was to compare efficacy, adverse effects and cost-effectiveness of 3-factor vs. 4-factor PCC product.

METHODS: This retrospective review identified trauma patients with coagulopathy secondary to oral anticoagulants with an INR ≥ 1.5 who received 3-factor PCC or 4-factor PCC from 2012 to 2014. Data assessed were demographics, mechanism of injury, anticoagulants, INR, blood products administered, adverse drug events, indication for anticoagulants, efficacy and cost. Efficacy was determined by assessing the first INR post-PCC administration and successful reversal was defined as INR < 1.5. Adverse effects included any thrombotic episode post-administration and cost-effectiveness was determined using cost (drug acquisition price) per successful reversal.

RESULTS: There were 64 patients: 46 patients received 3-factor and 18 patients received 4-factor PCC. Patient demographics were similar. The baseline INR was 3.1 ± 2.3 and 3.4 ± 3.7 for 3- and 4-factor PCC, respectively (p=.520). The average unit dose was 30 ± 13 for 3-factor and 26 ± 6 units/kg for 4-factor PCC (p=.198). A second dose was required for 17% of 3-factor PCC patients and 0% of 4-factor PCC patients (p=.093). INR post administration was 1.6 ± 0.6 (3-factor PCC) vs. 1.3 ± 0.2 (4-factor PCC), p=.001. Successful reversal occurred in 50% and 83% of 3- and 4-factor PCC patients respectively (p=.022). Thrombotic event rates were not statistically different between in both groups (15% vs. 0%, p=.177). Cost-effectiveness favored 4-factor PCC ($5382 vs. $3797).

CONCLUSION: The 4-factor PCC was more efficacious than 3-factor PCC for urgent reversal of anticoagulation in injured patients without an increase in thrombotic events. 4-factor PCC was more cost-effective. Hospitals and patients may benefit when providers replace 3-factor PCC with 4-factor PCC for this indication. Future prospective and long term follow-up studies are needed to validate our observations.
53. POST-EXTUBATION STRIDOR IN TRAUMA PATIENTS: A BREATHTAKING PROBLEM
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Fresno, CA

BACKGROUND: Extubation failure is a common complication in intensive care units (ICUs), leading to increased time on the ventilator, longer hospital stays, and higher rates of morbidity and mortality. Risk factors for extubation failure have been reported in the medical ICU literature; however, there is relatively little literature specifically examining causes of extubation failure in the trauma ICU. Post-extubation stridor (PES) has been identified as an infrequent cause of extubation failure. We hypothesized that PES is a more frequent cause of extubation failure than previously thought. The purpose of this study was to better define the causes of extubation failure (including for PES) and their risk factors in trauma patients.

METHODS: A retrospective review of all intubated patients was performed at an ACS verified level 1 trauma center from 5/07-5/14. Patients were divided into 3 categories: failed extubation with stridor (FS), failed extubation without stridor (FE), or successful extubation (SE). Patients in the stridor group were matched with successfully extubated patients for age, gender, and injury severity score (ISS). Data collected included patient demographics, injury related information, and details of intubation and extubation. Statistical analysis was performed using paired t-tests, independent t-tests, and Chi-square tests. Significance was attributed to a p value < 0.05.

RESULTS: During the seven year study period, there were 3127 intubated trauma patients; 1400 were excluded due to intubation less than 24 hours, death, transfer, or tracheostomy prior to an extubation attempt. 1597 patients were successfully extubated during the initial attempt, but 130 (7.5%) required reintubation following their initial extubation and 42 (32.3%) of these failed extubations were due to stridor.

Comparing FS with SE, patients in the FS group were significantly more likely to have been intubated for ≥5 days prior to first extubation (FS=71%, SE=44%, p=0.02). Patients that failed extubation for PES had longer ICU lengths of stay (FS=15±6, SE=8±8; p<0.001) and more days on the ventilator (FS=14±7, SE=5±4; p<0.001) than the SE group. Comparing FS to FE, the stridorous patients were more likely to be female (FS=45%, FE=22%, p=0.008) or under the age of 18 (FS=76%, FE=4%, p=0.001). There were no differences in abbreviated injury score for head/neck, abdomen or extremities between groups, and no difference in endotracheal tube size.

CONCLUSION: PES in trauma patients constitutes a significantly larger proportion of total reintubations than previously reported. This group represents an at-risk population and an opportunity for intervention to reduce reintubation rates. A prospective study is being undertaken to further delineate and mitigate specific risk factors for PES.
54. FACTORS ASSOCIATED WITH CLINICAL DECOMPENSATION REQUIRING RAPID RESPONSE TEAM ACTIVATION WITHIN 24 HOURS OF EMERGENCY DEPARTMENT ADMISSION

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BACKGROUND: Rapid Response Teams (RRT) have been utilized to provide expert assessment, early intervention, and rapid stabilization of patients to prevent clinical deterioration or arrest. We reviewed all patients undergoing RRT evaluation on a Medical-Surgical (MedSurg) unit within 24 hours (hrs) of admission from the Emergency Department (ED) to determine factors associated with early clinical decompensation and identify opportunities for improvement in patient placement and outcomes.

METHODS: This study included all patients undergoing an RRT within 24 hrs of MedSurg unit admission from the ED over an 18 month period (January 2013 through June 2014) in one tertiary community hospital. All cases were reviewed on a monthly basis by our hospital’s Emergency Response Team. Cases were then forwarded for review by a designated ED physician and ED RN to determine whether the patient was mistriaged and whether this affected patient outcomes. We reviewed each case for indication for RRT, whether patient required transfer to a higher level of care or increased monitoring.

RESULTS: There were a total of 125 RRTs within 24 hours of MedSurg unit admission from the ED with 65 (52%) requiring transfer to a higher level of care. From January through June 2013, there were 61 RRTs within 24 hrs of MedSurg unit admission from the ED with 31 (51%) requiring transfer to a higher level of care and 5 (8%) progressing to code blue status. From July through December 2013, there were 43 RRTs within 24 hrs of MedSurg unit admission from the ED with 21 (49%) requiring transfer to a higher level of care and 7 (16%) progressing to code blue status. From January through June 2014, there were 21 RRTs within 24 hrs of MedSurg unit admission from the ED with 13 (62%) requiring transfer to a higher level of care and 1 (5%) progressing to code blue status. Indications for RRT were categorized for each patient with up to two reasons noted per patient: acute mental status change in 80 (22.9%), bradycardia (HR<40) in 12 (3.4%), chest pain in 10 (2.9%), fall in 3 (0.9%), concern by RN in 61 (17.5%), desaturation (SpO2 < 90%) in 51 (14.6%), failure to respond to treatment in 7 (2.0%), hypopnea (RR<8) in 2 (0.6%), hypotension (SBP<90mmHg) in 58 (16.6%), seizure in 6 (1.7%), significant hemorrhage in 6 (1.7%), tachycardia (HR>130) in 34 (9.7%), and tachypnea (RR>24) in 19 (5.4%).

CONCLUSION: We have seen a significant decrease in RRT activations within 24 hrs of MedSurg unit admission from the ED with diligent physician review and feedback of cases. The most common causes of RRT activation within 24 hrs of admission from the ED are acute mental status change, concern by RN, hypotension, and desaturation. Thorough ED evaluation for disease processes that can lead to acute mental status change, hypotension and desaturation may lead to earlier treatment and ICU admission, avoiding mistriage to lower levels of inpatient care.
55. HANDOFFS IN THE INTENSIVE CARE UNIT: WORSE DURING OFF HOURS?
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BACKGROUND: Communication failures during handoffs are common and associated with adverse events and patient harm. Operating room (OR) to intensive care unit (ICU) handoffs are especially complex, involving simultaneous communication between multiple teams (anesthesia, surgery, and critical care) in addition to patient and equipment transfer. We hypothesized that bedside handoff quality diminishes during night and weekend hours, and that bedside handoff practices are similar in high and moderate volume ICUs of the same health system.

METHODS: OR-to-ICU bedside handoffs were assessed in two surgical ICUs (ICU1 = high volume, 210 admissions/month; ICU 2 = moderate volume, 125 admissions/month) within the same tertiary care university health system. Trained research staff directly observed and scored bedside handoffs at all times of day using an assessment metric evaluating: duration and number of people in room during the encounter; number of content items omitted from reports; quality of transmitter delivery, teamwork, and professionalism; number of passive/active listening skills of receiving provider; and existence of a receiving provider physical exam. Within each ICU, weekday (0700-1700, M-F) and night/weekend scores were compared using t-test and Chi square analyses. Overall scores were also compared between the ICUs.

RESULTS: In ICU1, good transmitter delivery scores (satisfactory or better) were significantly more common during nights and weekends (91%) than weekdays (65%, p<0.01). Other metrics tended to also be better on non-weekday than weekday hours. In ICU2, there were no significant differences between weekday and non-weekday hours in any of the measures. ICU1 scored significantly better than ICU2 across all but one handoff quality measure at all times, particularly in teamwork (rated satisfactory or better 5.9 times more often, p<0.001), content omissions (49% fewer, p<0.001) and encounter length (144% longer, p<0.01).

CONCLUSION: Contrary to the hypotheses, bedside handoff practices appear to be equal or slightly better on nights and weekends in a high volume surgical ICU and dissimilar between ICUs in the same health system. In a higher volume ICU this could indicate an emphasis on the bedside handoff during off hours, and a higher vigilance during times when resources are restricted. Lower volume ICUs with presumably fewer resources may not be adequately equipped to conduct proper bedside handoffs. Specific handoff practices merit evaluation and training implementation to ensure consistent ICU practices at different times and different locations.
56. LOW VOLUME TRANSFUSION IN TRAUMA: IS THERE ROOM FOR IMPROVEMENT?
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BACKGROUND: Avoiding unnecessary administration of blood products is difficult in the trauma patient, as transfusion of blood products when there is concern for bleeding is advocated. However, aggressive use may lead to transfusion of blood products in patients who do not necessarily need them. There are risks to the use of blood for patients for whom it is not indicated. We sought to identify trauma patients who received a low volume transfusion at our hospital to identify whether there is room for improvement by potentially avoiding transfusions.

METHODS: We queried the trauma registry at our level I trauma center from 2011-2013 for patients who received 1 to 3 units of packed red blood cells (PRBC) during their hospitalization. We performed an individual chart review to identify patient data including the hematocrit level (hct) and reason for transfusion decisions. We also analyzed the timing of the transfusion and the nadir hct during the hospital stay and the last hct prior to discharge. Timing of transfusion was divided into early (E, <24 hours) and late (L, >24 hours after admission).

RESULTS: Over a two year period we identified 74 trauma patients who met criteria and all analysis was done on these. Average age of these patients was 59 years. Average ISS was 14.9. Just prior to transfusion 63 patients (85%) had a systolic blood pressure (SBP) >90 mmHg, and 40 (54%) had a heart rate (HR) of less than 90 beats per minute. The mean hct prior to discharge was 30.7.

For the thirty E patients the average hct was 32% at the time of transfusion. None of these patients had a low hct (< 21%) recorded during their admission and were discharged with a mean hct of 31%. Of the forty-four patients in L (59%) the mean pre-transfusion hematocrit was 25% and the discharge hct was 31%. Transfusion reason was listed as a low hematocrit in 51 (69%) patients, hypovolemia in 19 (26%) with other for the remaining four patients.

Complications occurred in 24 (32%) with the majority, 19, infectious. Most (68%) of these infectious complications were in patients over age 50. One patient developed a transfusion associated acute lung injury (TRALI). There were no deaths.

CONCLUSION: Most trauma patients in our trauma center who received low volume red blood cell transfusion had normal vital signs, a hct > 21%, and received their transfusion more than 24 hours after arrival. These data suggests that many of these low volume transfusions were potentially unnecessary and should remind us to be more critical in future transfusion decisions.
57. ARE TRAMPOLINE PARKS SAFER THAN THE BACKYARD: LET’S NOT JUMP TO CONCLUSIONS

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BACKGROUND: In recent years, trampoline recreation parks have increased in popularity. However, the American Academy of Pediatrics has long cautioned against the recreational use of trampolines. Despite safety guidelines and supervision, trampoline parks are facing litigation for injuries occurring at their facilities. The purpose of this study is to compare trampoline-related injuries occurring at home to those occurring at sports/recreation parks to determine if presumed safety measures and supervision results in less severe injuries.

METHODS: The National Electronic Injury Surveillance System (NEISS) was used to examine all cases of trampoline-related injury treated in U.S. emergency rooms from 2006-2012. Injuries sustained at home were compared to those occurring at sports/recreation parks in terms of demographics, hospitalization, and injury type and location.

RESULTS: An estimated 690,013 (95% CI: 574,147 to 805,879) trampoline-related injuries were treated in emergency rooms in the U.S. during the study period. The majority of injuries occurred in males (53.58%) and children 16 years old and younger (90.30%) with a mean age of 9.98 years old. The majority of injuries occurred at home (63%), and 3.34% of injuries occurred at sports/recreation centers; however, the incidence of injuries occurring at sports/recreation parks increased by 203% (1,635 in 2006 to 4,958 in 2012) over the study period. When comparing patients whose injuries occurred at home to those whose injuries occurred at sports/recreation parks, patients were younger (age ≤16 90.5% vs 84.8%, OR: 1.70, 95% CI: 1.38-2.11, p: <0.0001) and more likely to be male (54.13% vs 49.86%, OR: 1.19, 95% CI: 1.02 to 1.38, p: 0.026). Hospital admission rates were the same in both groups (5.62% vs 5.20%, OR: 1.09, 95% CI: 0.77-1.52, p: 0.64). When comparing the types of injuries, the rate of lacerations differed between the two groups (10.67% at home vs 8.29% at sports/recreation facilities, OR: 1.32, 95% CI: 1.01 to 1.74, p: 0.04), whereas the rate of fractures, dislocations, soft tissue injuries, internal organ injuries, and concussions were not significantly different.

CONCLUSION: Discussion: Comparison of injuries occurring at home to those occurring at sports/recreation parks shows a similar injury pattern, despite presumed safety regulations and supervision. The recreational use of trampolines has been discouraged by physicians for many years because of the alarming rates of injuries associated with their use. Trampoline recreation parks are no safer than privately owned recreational trampolines. Therefore, the use of these trampoline parks should also be discouraged until better oversight can be established.
58. HYPOALBUMINEMIA AT ADMISSION IS ASSOCIATED WITH INCREASED INCIDENCE OF IN-HOSPITAL COMPLICATIONS IN GERIATRIC PATIENTS SUSTAINING SEVERE INJURIES
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BACKGROUND: Elderly patients are at an increased risk of protein-energy malnutrition (PEM) which is associated with impaired wound healing, increased infectious morbidity, multi-organ dysfunction, prolonged hospitalization and disproportionate mortality. Despite a high incidence of multi-system and non-extremity injuries in the elderly, most prior studies on nutritional predictors of outcomes in older patients have narrowly focused on those with hip fractures. Studies addressing nutritional risk factors in geriatric patients sustaining severe single or multisystem injuries are lacking. We evaluated the association between hypoalbuminemia at admission (as a marker of pre-injury PEM) and 30-day incidence of in-hospital infectious and non-infectious complications.

METHODS: This was a nested case-control with incidence density sampling conducted within a prospective cohort study of geriatric trauma patients 55 years and older treated at a Level I trauma center between May 2013 and March 2014. Eligibility criteria included hospital length of stay of at least 3 days and at least 1 day stay in the intensive care unit. Exposure of interest was albumin level at admission dichotomously defined as either PEM (albumin <3.6g/dl) or NO PEM (albumin >=3.6g/dl). The outcome of interest was 30-day incidence of complications. Covariates of interest included patient demographics, body mass index, mechanism of injury, initial ED vital signs, EMS/ED intubation, tube feeding status, injury pattern and severity, and pre-existing comorbidity.

RESULTS: A total of 130 patients met study eligibility. Of these, 86 (66%, 95%CI: 58-74%) had hypo-albuminemia at admission and were therefore considered to be protein energy malnourished. Unadjusted comparisons showed no significant (p>0.05) differences by PEM status in the distribution of age, gender, BMI, race, mechanism of injury, EMS/ED intubation, initial ED vital signs, injury severity scores (ISS), multisystem trauma, and comorbidity. However, compared to the NO PEM group, patients in the PEM group were significantly (p<0.05) more likely to be taken to the OR from the ED, had disproportionately more severe abdominal injuries and, were predominantly female (p<0.09) and more likely to be tube fed (p<0.05). After adjusting for tube feeding and ISS, PEM at admission was associated with a two-fold increase in the risk of 30-day overall hospital complications (OR=2.2, 95%CI: 1.2-4.1) and an even higher risk of infectious complications (OR=2.5, 95%CI: 1.2-5.1).

CONCLUSION: Serum albumin level at admission is a significant predictor of in-hospital complications especially, of infectious complications in geriatric patients sustaining severe injuries. This relatively low-cost, easily obtainable test should be used more often as a prognostic tool to detect malnutrition and to predict risk of in-hospital complications, particularly in the geriatric patient population in whom comorbid conditions are relatively frequent.
59. SAFE AT HOME: GUIDELINES FOR DISCHARGE IN NON-OPERATIVE MANAGEMENT OF BLUNT SPLENIC INJURY
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BACKGROUND: Non-operative management (NOM) of blunt splenic injury has success rates from 93%-98%. Controversy exists over the safe period of observation for NOM prior to discharge. Published guidelines in 2008 included a normal physical exam, hemoglobin checks every 6 hours for 24 hours for all grades, and then every 12 hours until stable for grades 2-5. The success rate using these guidelines was 96%, but the study was predominantly grades 1 and 2 injuries. The purpose of this study was to investigate the safety and efficacy of these guidelines in a larger group of patients, including a large number of patients with grades 3-5 injuries.

METHODS: A retrospective review of all trauma patients with blunt splenic injuries was performed at an ACS verified Level 1 Trauma Center from 7/2007-5/2014. Patients who did not require emergent laparotomy were included in this study. Patients who died or were transferred to another hospital prior to the resolution of their splenic injuries were excluded from analysis. Data collected included patient demographics, injury related information, hospital length of stay, and initial spleen management outcomes. Statistical analysis was performed using 2-tailed independent t-tests and one-way analysis of variance. Significance was attributed to a p-value < 0.05.

RESULTS: During the study period, there were 708 patients with blunt splenic injury. 235 were excluded (OR=141, transfers=15, death=79), leaving 473 NOM patients. 44% (192/435) of these patients had grades 3-5 splenic injuries. Using our guidelines, NOM was successful in 95% of all patients and 93% of grades 3-5 injuries. 55% of patients that failed NOM did so within the first 72 hours and 77% failed within 5 days. 20/22 of these patients failed NOM during the initial hospital stay. The risk factors associated with failed NOM were older age (44 vs 35) and higher injury severity score (26 vs 19) (p=0.037; p=0.001, respectively). NOM was successful in 97% of patients (62/64) with isolated splenic injuries. Hospital length of stay differed between splenic grades in patients with isolated injury (p=0.001), with higher grade injuries having longer hospital stays (grade 1=1.6 days; grade 5= 4.5 days).

CONCLUSION: NOM following our institutional guidelines had a 95% success rate which included 192/435(44%) of high grade injuries. All but 2 patients failed NOM during their initial hospital stay. Therefore, patients undergoing NOM for splenic injury may be safely discharged if they have stable hemoglobins and a normal physical exam including patients with higher grade splenic injuries.
60. A NEGATIVE URINALYSIS IS ASSOCIATED WITH AN EXTREMELY LOW LIKELIHOOD OF INTRA-ABDOMINAL INJURY AFTER BLUNT ABDOMINAL TRAUMA

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BACKGROUND: The utility of routine urinalysis (UA) after blunt abdominal trauma (BAT) remains controversial, particularly with increased use of computed tomography. The purpose of this study was to determine the diagnostic significance of a UA after BAT. We hypothesize that a normal UA will be associated with a very low risk for both genitourinary (GU) injury and intra-abdominal (IA) injury.

METHODS: This is a retrospective review of all patients ≥18 years old admitted for blunt abdominal trauma from January 2011 to January 2013 at a level I trauma center. Patients with a UA within 12 hours of arrival were included. Patients with gross hematuria, initial trauma workup at another facility, or no UA results were excluded. The presence of any red blood cell or hemoglobin in the specimen was considered a positive study. The sensitivity (SN), specificity (SP), predictive values and likelihood ratios of UA were calculated for GUI, IAI and those injuries that required intervention.

RESULTS: We identified 1795 patients meeting inclusion criteria. The majority (64%) were male with a mean age of 44±21 years and mean Injury Severity Score of 13±10. Eight hundred and ten patients (45.1%) had a negative UA. Only two of these patients (2/810 patients, 0.2%) had GU injuries and none (0%) required intervention. Thirty-two of these patients (32/810, 4%) had an IA injury and two (2/810 patients, 0.2%) required an intervention.

The characteristics of a UA for any IAI are as follows: SN 0.85, SP 0.45, PPV 0.175, NPV 0.96. The characteristics of a UA for an IAI requiring intervention are as follows: SN 0.96, SP 0.46, PPV 0.05, NPV 0.99. The characteristics of a UA for any GUI injury are as follows: SN 0.98, SP 0.46, PPV 0.05, NPV 0.99. The characteristics of a UA for any GUI requiring intervention are as follows: SN 0.98, SP 0.46, PPV 0.05, NPV 0.99.

CONCLUSION: A negative UA indicates low risk for genitourinary or intra-abdominal injury, and even lower risk for injury requiring intervention. Without other indications for imaging, observation of patients with a negative UA after blunt abdominal trauma should be considered and may decrease the number of negative radiographic studies obtained after blunt abdominal trauma.
61. THE IMPACT OF METHAMPHETAMINE USE ON TRAUMA PATIENTS AT A LEVEL 1 TRAUMA CENTER: A 10-YEAR RETROSPECTIVE REVIEW
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BACKGROUND: Methamphetamine (MA) users have a disproportionate number of traumatic injuries compared to the general population. The effects of MA on trauma outcomes have been evaluated, but many of the results have been discordant and may represent geographically limited populations. Further study is needed to assess the impact of MA use on hospital and ICU length of stay (H-LOS and I-LOS), ventilator use, and mortality.

METHODS: A retrospective review was performed of all adult patients presenting at a level 1 trauma center between 1/1/2004 and 12/31/2013 who received a urine drug screen (UDS). Demographics, Injury Severity Score (ISS), UDS results, I-LOS, H-LOS, duration of ventilator use (V-days), discharge disposition, and mortality were extracted from the database. Patients were categorized into four groups: negative test results (NTR), positive for MA only (MA), positive for poly-substance use without MA (PS), positive for poly-substance use with MA (PS/MA). Logistic regression analysis was used to identify factors associated with mortality.

RESULTS: Among the 2,321 subjects included in the final analysis, 75.1% (n=1,744) were male, 81.9% (n=1,896) were Caucasian, and the average age was 38.5 ± 14.8 years. The majority of patients were in the PS group (n=1,573, 67.8%), followed by NTR (n=522, 22.5%), PS/MA (n=188, 8.1%) and MA only (n=38, 1.6%). The majority of patients had an ISS <15 (n=1,710, 73.7%). Compared to the NTR group, PS had a significantly lower risk of mortality (OR 0.50, CI 0.32, 0.80) and significantly longer H-LOS (p=0.0003), however, neither the MA nor the PS/MA group were associated with mortality (OR 0.95, CI 0.23, 3.99 and OR 0.32, CI 0.21, 1.34 for MA and PS/MA, respectively). The MA group had the longest mean I-LOS (3.3 ± 5.4 days) and V-days (2.8 ± 5.3 days), but neither differed significantly from NTR (p=0.11 and p=0.10, respectively). Using ISS< 15 as a reference, higher ISS significantly increased the risk of mortality (ISS 16 to 24: OR 3.04, CI 1.48, 6.28; ISS >25: OR 41.7, CI 25.21, 68.98). The overall in-hospital mortality rate was 5.6% (n=130). Mortality among the four groups was highest in the PS group (n=78, 60.0%), 42 (32.3%) in the NTR group, 7 (5.4%) in the PS/MA group with 3 (2.3%) deaths in the MA group. Each 5-year increase in age was associated with an increased risk of in-hospital mortality across groups (OR 1.1, CI 1.1, 1.2).

CONCLUSION: The results of this study suggest, as compared to NTR group, that methamphetamine use does not significantly increase the risk of in-hospital mortality. While patients who tested positive for drugs other than MA demonstrated lower risk of in-hospital mortality, they also experienced the longest H-LOS, I-LOS and V-days compared to the NTR group. Increased age and ISS were associated with increased odds of mortality.
62. PEDIATRIC TRAUMA PATIENTS; BENEFITS FROM FREE STANDING PEDIATRIC HOSPITALS WITH TRAUMA CENTERS
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BACKGROUND: Differences in the care of pediatric trauma patients at combined adult and pediatric trauma centers versus stand-alone pediatric trauma centers remains unclear with regard to complications and outcomes. While pediatric trauma centers are becoming more common, only 36% of states have designated pediatric trauma centers and less than 24% are Level 1 status. The goal of this study is to compare the treatment of pediatric trauma patients at a tertiary level 1 trauma center before and after the institution of a free-standing pediatric trauma center with Level 2 status.

METHODS: This is a retrospective review, from 2008 to 2014, comparing the outcomes and management of pediatric trauma patients at our ACS-verified Level 1 adult/pediatric trauma center and ACS-verified Level 2 free standing pediatric trauma center. Descriptive statistics were calculated for all variables of interest in the data set. Chi square test is used to compare the distribution of categorical variables between the two hospitals. The Kruskal-Wallis test is used to compare the distribution of numeric variables between the two hospitals.

RESULTS: A total of 2,823 patients were evaluated between 2008-2014, with 1630 at the Level 1 center and 1193 patients at the Level 2 center. Median ISS was higher at adult trauma center hospital, with a median score of 9 vs 4 (p=0.0017). Eighty nine percent of patients evaluated had GCS of 15 , with no significant difference noted between the two institutions. Length of emergency room stay was significantly shorter at the pediatric hospital (p=0.0017), however, total length of stay was longer at the pediatric hospital (p=0.0108 ). The pediatric trauma center volume was made up of more transfers ( 72% vs 60% , (p=0.0017)). Complication rates were similar between the two institutions - 2.02% at the adult trauma center versus 3.64% at the pediatric trauma center(p=0.0515).

CONCLUSION: Conclusion: Pediatric trauma patients presenting to a free standing pediatric trauma center had shorter length of stay in the emergency room and lower average ISS, but with overall longer length of stay. Complication rates were similar between the adult and pediatric trauma centers. Based on our data, pediatric trauma centers may have some advantage in terms of process, but outcomes do not appear different.
63. A PEDIATRIC SPECIFIC SHOCK INDEX IDENTIFIES CHILDREN WITH LIFE THREATENING OR SEVERE TRAUMATIC BRAIN INJURY
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BACKGROUND: We previously demonstrated that an elevated shock index, pediatric age adjusted (SIPA) accurately identifies severely injured children following blunt trauma. We aimed to determine if SIPA could better identify children with traumatic brain injury (TBI) compared to hypotension alone.

METHODS: We performed subset analysis of those children with TBI among a cohort of patients 4-16 years old admitted following blunt trauma with an injury severity score (ISS) >15 from 1/07-6/13. Ability of hypotension on presentation versus elevated SIPA to predict outcomes were compared. SIPA was defined by maximum normal HR and minimum normal SBP by age. Cutoffs included SI >1.22 (age 4-6), >1.0 (7-12), and >0.9 (13-16).

RESULTS: Hypotension was present in 24/392 (6.1%); elevated SIPA was present in 106/392 (27%). The presence of hypotension alone was associated with a statistically significant (p<0.05) increase in the risk of requiring blood transfusion in the first 24 hours (20% of children requiring transfusion were hypotensive at presentation), need for mechanical ventilation (10%), discharge to rehabilitation (9%) and in hospital mortality (42%). Elevated SIPA alone was associated with a significantly increased risk of requiring blood transfusion in the first 24 hours (53% of children requiring blood transfusion had an elevated SIPA), need for ICU admission (32%), need for mechanical ventilation (40%), discharge to rehabilitation (42%), and in hospital mortality (71%). Elevated SIPA identified a greater percentage of patients with each complication than did hypotension alone.

CONCLUSION: Among blunt injured children with TBI, elevated SIPA identifies the most severely brain injured children at risk for requiring mechanical ventilation, prolonged hospital stay, discharge to rehabilitation, and/or death with greater sensitivity than does the presence of hypotension alone. Severe neurologic injury in children results in an elevated SIPA and may mimic hemorrhagic shock.
FEATURED POSTER ABSTRACTS
1. PREPARING FOR THE WORST: DOES AGE EFFECT OUTCOMES IN DECOMPRESSIVE CRANIECTOMY AFTER TRAUMATIC BRAIN INJURY?
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BACKGROUND: A large intracranial bleed post trauma is a life threatening condition requiring prompt neurosurgical intervention. Studies have shown promising results in young patients undergoing decompressive craniectomy (DC). The aim of this study was to assess outcomes in elderly patients undergoing DC after traumatic brain injury. We hypothesized that elderly patients have worse outcomes after DC.

METHODS: We performed a three-year retrospective study of all patients with TBI presenting to our level 1 trauma center. Patients undergoing craniectomy were included. Patients were divided into two groups: young (age < 55 years) and elderly (≥ 55 years). Outcome measures were: Mortality and unfavorable discharge disposition (rehabilitation center or skilled nursing facility). Regression analysis was performed.

RESULTS: A total of 109 patients were included of which, 37.6% (n=41) were elderly patients. The two groups were similar for neurological examination (p=0.21), type of intracranial hemorrhage (p=0.36), Glasgow coma scale score (p=0.11), and head abbreviated injury scale score (p=0.19). The overall mortality was 29.4% (n=32). Elderly patients had a higher mortality rate (39% vs. 23.1%, p=0.01), longer hospital length of stay (10.9±9.5 vs. 8.9±6.4, p=0.038), and were more likely to have an unfavorable discharge disposition (53.6% vs.33.8%, p=0.021). After adjusting for confounding factors, old age was an independent predictor for mortality (OR [95%CI]: 1.15[1.10-1.6], p=0.024) and unfavorable discharge (OR [95%CI]: 1.09[1.05-1.3], p=0.038) in patients undergoing neurosurgical intervention.

CONCLUSION: Decompressive craniectomy is a life-saving procedures, however, age is an important factor to consider in patient selection for surgery. Age ≥ 55 years is an independent predictor for mortality as well as poor functional outcomes in these patients. Further research is warranted to redefine resuscitation in this cohort of patients.
BACKGROUND: Thyroid nodules are very common in the general population, but only 5 to 15% prove to be malignant, warranting a total thyroidectomy. Indeterminate cytologic subtypes mimic cancer in preoperative fine-needle aspiration biopsy and ultrasonography in up to 30% of patients. Bethesda classifications “atypia”, “follicular neoplasm” and “suspicious for malignancy” also commonly share suspicious ultrasound findings. Ultrasound findings known to correlate with malignancy include: size (>1cm), microcalcifications, ultrasonic halo, hypoechoogenicity and hypervascularity. This study attempts to correlate fine needle aspiration and Bethesda subtype with suspicious ultrasound findings that suggest malignancy.

METHODS: The charts of 134 patients who underwent a total thyroidectomy for any reason between Jan 1, 2009 and Dec 31, 2013 from a single-surgeon endocrine practice were reviewed. Age, sex, final pathology, thyroid fine needle aspiration biopsy (FNABX) and ultrasound findings were evaluated. Univariate and multivariate analysis was performed to help determine which combinations of FNABx and ultrasound findings are suggestive of malignancy.

RESULTS: Univariate analyses revealed that calcifications noted on ultrasound or ultrasonic halo were most frequently associated with malignancy, but were not independently significant predictors of thyroid cancer. Multivariate analysis demonstrated that presence of “atypia”, “suspicious” or “follicular neoplasm” cytopathology, in the presence of such calcifications identified on preoperative ultrasound had a positive predictive value (PPV) for malignancy of 75%, 75% and 20%, respectively. The presence of ultrasonic halo with “atypia”, “suspicious” or “follicular neoplasm” cytopathology yielded a PPV of 50%, 67%, and 50%, respectively. Small numbers in this cohort study preclude reliable sensitivity and specificity data for accurately predicting malignancy as the majority of thyroid nodules are not malignant. Additional statistical analysis is pending on these cytopathologic subtypes and will be available in the final manuscript. PPV data can be useful in preoperative counseling to mitigate patient anxiety.

CONCLUSION: Thyroid cancers are uncommon in the general population. These data suggests that the presence of ultrasonic calcifications or halo were often associated with malignancy. When ultrasonographic calcifications are combined with the indeterminate Bethesda subtypes of “atypia” or “suspicious” the PPV of malignancy approaches 75%. Ultrasonographic calcification combined with “follicular neoplasm “cytopathology is not a reliable indicator of malignancy. Surgeons can use the combination of FNABX and preoperative US results to better estimate the risk of thyroid malignancy when counseling their patients on the likelihood of needing total thyroidectomy.
3. ELDERLY TRAUMA PATIENTS: WHERE YOU GO DETERMINES WHERE YOU GO
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Denver, CO

BACKGROUND: Background: Elderly (>64 years) trauma patients (pts) comprise a greater proportion of the trauma pt population than ever before, and their numbers are expected to increase. A current debate is whether they should be triaged to high-level trauma centers, and whether they are best cared for by surgeons versus nonsurgeons. We hypothesized that elderly trauma pts have better outcomes if they are admitted to high-level trauma centers and cared for by trauma surgeons.

METHODS: Methods: Our State Department of Health maintains a trauma database, to which data submission is mandatory for state-designated level I-III trauma centers. Data were analyzed to determine survival and discharge (DC) disposition for elderly trauma pts, based on their admission to trauma (TR), orthopedic (ORTHO), neurosurgery (NS) or nonsurgical (MED) service; their admission to level (L) I, II, or III centers, and their Injury Severity Score (ISS). Hospice DC was categorized with death. DC to home or rehabilitation was considered favorable; DC to nursing facilities was unfavorable.

RESULTS: Results: In 2012, 9302 (40%) of 22986 trauma pts were elderly. 22% were admitted to LI, 37% to LII, and 41% to LIII centers. Overall, 4858 (52%) were admitted to MED. 820 (9%) of the elderly pts had ISS >15; 59% were admitted to TR and 26% to MED. In contrast, among pts with ISS <16, 56% were admitted to MED. ORTHO admitted 22% with ISS <16 but just 1.5% with ISS >15. Mortality of pts with ISS <16 was 4%, and that of pts with ISS >15 was 25%; mortality within these ISS subgroups did not vary by trauma center level or admitting service. Among pts with ISS >15 at LI centers, favorable DC was equivalent between TR and MED, with slightly more unfavorable DCs. In all other trauma center groups at both ISS levels, TR pts had significantly more favorable DCs than MED pts. ORTHO pts DC mirrored MED pts, while NS pts mirrored TR pts.

CONCLUSION: Conclusions: Mortality in elderly trauma pts is related to ISS, and is independent of trauma center level or admitting service. On the other hand, DC disposition is related to the admitting service, with TR admission resulting in favorable DC much more frequently. Among the more severely injured patients, mortality was very high and was not affected by level of trauma center or admitting service. Although there are likely confounding factors that contributed to trauma center triage and admission decisions, these data raise questions about protocols to direct all elderly pts to trauma centers. On the other hand, it appears that elderly trauma pts may benefit from primary admission to TR services at all level trauma centers.
4. TEACHING IN THE OPERATING ROOM: HOW TO ENGAGE A LEARNER
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BACKGROUND: Classical teaching in a controlled environment such as the classroom or the laboratory inherently has its challenges. The teacher needs to provide all the necessary tools of the trade to capture the learner’s attention, interest, participation, and concomitantly evaluate and assess their knowledge and understanding of what has been taught. Teaching in the operating room not only encompasses classical teaching, but needs to deal with the immediacy of the patient’s condition, while communicating with the operating room staff and simultaneously teaching the learner, hands-on skill set that may be invasive and address patient safety and outcome.

METHODS: A preliminary observational study relative to learning theory, which assesses the fundamentals of teaching in a unique environment such as the operating room. We attempt to describe through the eyes of a novice the observations made from the time entering into the operating room to the demands of communication between the learner and the teacher as well as other operating room staff members, to mastering the hands-on skill set with caution for patient safety as a way of constructing a teaching environment with the learner in mind.

RESULTS: A step-by-step depiction of a novice learner entering the operating room, with awareness of the unique environment as well as the demands of important communication during the teaching between the surgeon and the surgical assistants, anesthesiologist and trainees, scrub techs, circulators, perfusionists, and X-ray technicians. Amidst all these interactions is the command of total concentration of care for the patient, which includes expectations of the teacher that of the learner in terms of background knowledge, judgment and concomitant technical capability in performing the operation. The sequence of events follow with the time pressure built into the teaching session, that of expediting the surgical case so that a second or third operation can follow expeditiously. Last but not least, is the quality control and outcome measures of patient safety that is above and beyond the teaching responsibility to the learner, but still allowing the learner to excel and gain surgical competence with zero compromise to patient safety.

CONCLUSION: The teacher in the operating room needs to be aware of the potential sensory overload for the novice when first introduced into the operating room environment, and the multiple inter-play between usage of instruments, rules of engagement regarding sterility for the patient being operated on, as well as constant communication with other operating room staff that need to be acknowledged and thought about in advance, in order to make teaching a productive and positive experience for the learner. This preliminary observational learning theory will address the challenges and elicit the second stage of teaching, which incorporates the tactics that can be used to accomplish the above goals in a sequential and effective manner.
5. THE AILING SURGEON: PERCEPTION VERSUS FACT? A SYSTEMATIC REVIEW OF SURGEON SYMPTOMS AND CORRESPONDING EXERTION AS MEASURED BY ELECTROMYOGRAPHY.
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BACKGROUND: Many surgeons will experience work-related pain and other symptoms, even early on in their careers. Recently, these symptoms have sparked interest in operating room ergonomics. However, data correlating perceived symptoms with actual muscle strain as measured by electromyogram (EMG) monitoring are limited.

METHODS: Five medical indices were systematically searched using standard search criteria, to identify peer-reviewed literature discussing ergonomics in the operating room. Data were extracted and stratified by survey outcomes (minimally invasive and open surgery) and Surface EMG results. A fixed-effects model was created to report pooled estimates of reported symptoms. The incidences of these symptoms were then compared to results from studies reporting specific muscle group strain in terms of %-maximum voluntary isometric contraction (%-MVIC).

RESULTS: Thirty-three articles were identified via systematic review. EMG data were reported in 13 articles and survey data were reported in 27 articles. A total of 7499 surgeons responded to survey questions related to pain and symptoms. Of the 3858 surgeons surveyed regarding overall pain, 58% (95%-CI: 45%-69%) endorsed experiencing pain related to surgery. The arm/shoulder was the most common site of reported pain (45%; 95%-CI: 32%-59%), followed by the neck (41%; 95%-CI: 31%-52%), back (41%; 95%-CI: 30%-52%), eye (23%; 95%-CI: 16%-32%), hand (20%; 95%-CI: 13%-31%) and leg (20%; 95%-CI: 9%-39%). Fatigue from surgery was noted in 69% (95%-CI: 40%-88%) of surgeons. Numbness of the hand predominantly and generalized stiffness were noted by 20% (95%-CI: 9%-37%) and 17% (95%-CI: 9%-29%) of surgeons, respectively. Surface EMG studies evaluated specific muscle groups of the neck, back, shoulder, upper arm, forearm, hand and lower extremity. The highest rate of exertion was noted in the hand (95%-MVIC), followed by the lower extremity (65%-MVIC), forearm (61%-MVIC, extensor digitorum communis), and neck (44%-MVIC).

CONCLUSION: Surgeons experience pain most frequently in the shoulder, neck and back but the muscles performing the highest rate of exertion were actually in the hand, leg and forearm. Given the discrepancy between perceived pain and actual exertion, additional ergonomic research could be performed to create an ideal environment in which posture and equipment align.
POSTER ABSTRACTS
7. THE EFFECT OF ALCOHOL INTOXICATION ON PHYSICAL EXAM AFTER BLUNT HOLLOW VISCUS INJURY
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BACKGROUND: The analgesic effects of alcohol have been well-studied. The aim of this study is to determine if acute alcohol intoxication affects the reliability of the abdominal physical exam in patients suffering hollow viscus injury after blunt trauma.

METHODS: We conducted a retrospective review of registry data at a Level I center of blunt trauma patients that were found to have a hollow viscus injury on exploration. We excluded patients with a GSC<13 on admission, pediatric patients (age <18) and patients whose mental status deteriorated or became hemodynamically unstable in initial evaluation. Acute alcohol intoxication was determined by a serum ETOH level drawn on admission. Intoxicated patients were compared to non-intoxicated patients with regard to the presence or absence of abdominal pain on physical exam.

RESULTS: There were 223 blunt trauma patients that underwent exploratory laparotomy during the six year study period. Eighty-one patients met our inclusion criteria. Comparing intoxicated patients to non-intoxicated patients, there were no differences in gender (Male: 91.3% vs. 72.4%, OR: 4, 95% CI: 0.76-27.8, p = 0.08) or age (Age <45: 65.2% vs 65.5%, OR: 0.99, 95%CI: 0.32-3.07, p = 1.0). In patients with hollow viscus injury, neither alcohol intoxication (60.9% vs. 77.6%, OR: 0.45, 95%CI: 0.14-1.44, p = 0.17) nor the presence of a distracting injury (69.0% vs. 82.6%, OR: 0.47, 95%CI: 0.12-1.76, p = 0.27) appeared to be associated with a decreased incidence of abdominal pain. However, when adjusting for age, gender, and the presence of a distracting injury, the relationship between alcohol intoxication and absence of pain on physical exam trended towards significance (p = 0.06).

CONCLUSION: While the presence of a distracting injury appears to have no association with abdominal pain after blunt hollow viscus injury, alcohol intoxication can potentially alter the physical examination in these patients. Further studies with a larger database may yield statistically significant results; nonetheless, these results are likely clinically significant. A more liberal policy of imaging or observation may be indicated in acutely intoxicated patients who do not meet other indications for further objective evaluation.
8. INJURY TO THE CARDIAC CONDUCTION SYSTEM: MANAGEMENT OF A RARE SEQUELA OF PENETRATING CARDIAC TRAUMA
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BACKGROUND: Although conduction abnormalities are rare after penetrating cardiac injuries (PCIs), rapid identification and treatment of these arrhythmias is critical to patient survival. The objective of this study is to describe our experience with this uncommon sequela of PCIs.

METHODS: Patients with conduction system abnormalities after PCIs were identified from the registry of a large urban, level I trauma center over a five year study period.

RESULTS: Over the 5 year study period, 71 patients survived to reach the hospital after PCI. Of these, 3 (4%) survivors (male = 3, mean age 41.3, median ISS = 25) were identified with conduction system abnormalities after cardiorrhaphy for PCIs. Two patients had gunshot wound (GSW) mechanism to the chest, one with exsanguination into the left chest and the other presented with cardiac tamponade. One patient was impaled by a nail. All patients had multi-chamber injury and injury to the atrioventricular node. After initial cardiorrhaphy and control of hemorrhage, all patients had sustained hypotension with bradycardia from a complete heart block. Pacing wires were used immediately in these cases for rate control with improved blood pressure. The two GSW patients developed right heart failure from a ventricular septal defects (VSD) requiring repair. The other patient had spontaneous resolution of the arrhythmia without need for further intervention. All three patients survived this injury.

CONCLUSION: Injury to the cardiac conduction system after PCI is rare, but rapid recognition of this injury pattern as a source of sustained hypotension after cardiorrhaphy is essential to early restoration of cardiac function. These injuries also appear to be associated with VSDs which may also need to be repaired.
9. REPAIR OF RECURRENT PECTUS EXCAVATUM FOLLOWING MINIMALLY INVASIVE REPAIR: TECHNIQUES AND OUTCOMES
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Phoenix, AZ

BACKGROUND: Successful repair of recurrent pectus excavatum (PE) after failed minimally invasive repair has been reported using minimally invasive or open approaches. Presented is a review of our experience for revision of recurrent PE after minimally invasive repair, and a review of the techniques used for repair in these patients.

METHODS: A retrospective review of adult patients undergoing repair for recurrent PE after minimally invasive repair from January 2010 through June 2014 was performed.

RESULTS: 72 adult patients underwent repair for recurrent PE with 24 (33%) having been performed for recurrence after prior minimally invasive repair. Mean patient age was 30 years (range 18-51 years), with mean Haller index 4.7 (range 2.4-9). Of the 24 patients, 23 were repaired using a minimally invasive approach, although 5 required a midline incision for either rib resection or xiphoid resection in order to complete the repair. One patient underwent Ravitch repair. Average operative time for the group was 180 minutes (range 89–332), and the average blood loss was 227 ml (range 10-600). The majority of patients (n=15/24, 62%) had 2 support bars placed and 9 had 3 bars placed (38%). During the post-operative course, 3 patients (12%) required placement of a chest tube for large pneumothorax, one patient had unilateral vocal cord paresis, and one patient returned to the OR for resection of cartilage for cosmetic reasons several months later. Average length of follow up was 8 months (range 0-40). No patients had recurrence of their deformity during the follow up period.

CONCLUSION: Recurrence after minimally invasive repair of pectus excavatum can be repaired in a variety of ways. In our experience the majority of these cases can be managed with a minimal invasive approach, although a significant portion of patients will require an additional incision for resection of ribs or the xiphoid in order to complete the repair. This approach leads to a durable repair with a low rate of recurrence.
10. ALCOHOL ADMINISTRATION IN THE ICU TO PREVENT WITHDRAWAL: A VIEW FROM THE TRENCHES
Denver, CO

BACKGROUND: The administration of alcohol to prevent withdrawal in the surgical intensive care unit remains an emotionally charged controversy. Opponents of the use of alcohol warn of the social implications of physicians condoning alcohol use and point to alternative medications. Supporters argue oral alcohol intake in limited doses is the best way to prevent dangerous withdrawal syndromes without the side effects of benzodiazepines. We surveyed critical care providers about their sentiments on the ethics and effectiveness of using alcohol as part of an alcohol withdrawal protocol.

METHODS: A fourteen-item voluntary and anonymous questionnaire was distributed at a local critical care nursing conference to nurses, nurse educators, respiratory therapists, and other critical care providers to assess their experience with alcohol withdrawal policies, perspectives about the ethics of alcohol administration, and demographics. We used a 5-point Likert-type scale. We evaluated data using Stata.

RESULTS: Of 95 attendees at the conference, 72 completed surveys (76%). The majority were female (71%) and the mean age was 37.5. Most respondents (82%) were nurses. Only 22% reported using alcohol as part of their normal critical care practice (53% reported not using alcohol as a normal part of their practice while 25% were neutral or did not know). Ten percent of respondents would refuse to administer alcohol, while 72% said that they would not refuse to use alcohol as part of their provision of care. Twenty-two percent thought providing alcohol encourages patients to keep drinking, in other words “enabling” them, while 57% did not think giving alcohol enabled patients. The majority of respondents thought providing alcohol prevents withdrawal (81%) and that it helped to avoid the overuse of benzodiazepines (79%). The majority (58-85%) considered methadone programs and the use of nicotine patches to be important components of treatment for narcotic and nicotine addictions. When we stratified by respondents with over 10 years of experience, providers with more experience were more likely to think that providing alcohol to patients prevents alcohol withdrawal (83% vs 78%, p=0.018. However, they also tended to believe alcohol provision increased length of stay (24% vs. 11%, p=0.001).

CONCLUSION: In a single-site survey, many non-physician critical care practitioners appear to support the idea of using oral alcohol as part of their clinical practice. In particular, the most experienced nurses believe that alcohol helps their patients to avoid alcohol withdrawal. However, a more extensive sampling of experienced providers’ practice is warranted to help define perspectives on alcohol withdrawal. However, because of this anecdotal support of oral alcohol administration, before studies of alcohol as an adjunct for averting alcohol withdrawal syndromes are dismissed, more extensive research on the science of its efficacy should be pursued.
11. HOSPITAL WIDE MESH CONVERSION RESULTS IN COST SAVINGS
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BACKGROUND: In the current climate of health care with the main goal of providing high quality care while addressing the cost of care, one of the main initiatives to reducing cost is via medical product cost comparisons. Health care systems are undertaking in-house studies to ascertain if changing products based on lower cost will translate into overall cost savings while not sacrificing quality. Pacemakers and orthopedic joint components are examples of products in which cost and outcomes have been examined. In the area of the general surgical practice, the type of biologic mesh for ventral hernia repair (VHR) is an example of cost variation that could result in potential savings. The goal of this study was to examine whether a change in mesh product in VHR, based on reduced cost, provided similar efficacy in patient outcomes.

METHODS: At our academic, tertiary center, a hospital directed product change based on cost; Strattice™ to Permacol™ was examined. A prospective survey by the surgeon was done to determine appropriate utilization of biologic mesh. This was followed by a retrospective chart review of those treated; one-year prior (Sept. 2012 to Aug. 2013) with strict Strattice™ use and one-year after (Sept. 2013 to Aug. 2014) product conversion with strict Permacol™ use. Outcomes measured included postoperative wound complications, readmission, and product cost.

RESULTS: There were 28 patients that received treatment with Strattice™ and 41 with Permacol™. Four patients received both treatments. There was no difference based on gender, age, BMI, or comorbidities (smoking, DM, COPD, CAD, or ASA score) in mesh use groups. There was also no difference based on; hernia type, wound classification, or Ventral Hernia Working Group classification. There was no difference in the surgical site infection (SSI) rates for; superficial, deep, or organ space or rates of skin necrosis, fistula formation, hematoma or seroma formation between mesh groups at 30-day follow up. There was no difference in hospital stay post repair or 30-day readmission rates. In several subgroup analyses for superficial SSI there was a trend toward improved outcomes with Permacol™. The charges were significantly higher for Strattice™ mesh as compared to Permacol™ with the median (25th – 75th quartile), respectively $8,940 (7,847 – 11,175) to $1,600 (1,200-2,400), p<0.001. Overall cost of Permacol™ for the 41 patients was $90,352. If Strattice™ would have been utilized the overall cost in mesh for the same 41 patients would have been $271,672.

CONCLUSION: In this single center analysis we found that there was no difference in the short-term wound outcomes for patients when a product of lesser cost was introduced. Surgeons should be active participants in determining the utilization of operative products and materials as they are changed and incorporate decision-making tools in order to track and ensure compliance based on tested and verified guidelines.
12. INSURANCE TYPE, PATIENT RACE, AND DIAGNOSTIC IMAGING AS A MEASURE OF QUALITY OF CARE
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BACKGROUND: Insurance status and race are known determinants of poorer trauma outcomes, but their significance on outcomes other than mortality remains unclear. This study examines the effect of patient race, multiple insurance types, and number of diagnostic studies per patient as a measure of quality of trauma care.

METHODS: Multiple logistic regression models were built using data obtained from an ACS Verified Level I Trauma Center between January 1, 2011 and December 31, 2012 that attends to 25% to 50% of patients who are minorities. A total of 3,621 records from surviving patients age ≥18 years were assessed.

RESULTS: The adjusted regression model showed fewer diagnostic images among African Americans (AA) compared to Caucasians (odds ratio [OR] 0.92, 95% CI: 0.86 – 1.00), and patients without insurance (OR 0.90, 0.83 – 0.99), with government insurance (OR 0.80, 0.69 – 0.93), or Medicare (OR 0.85, 0.75 – 0.96) compared to commercial insurance plans. Patient race, but not insurance type, remained a significant determinant of imaging studies after further adjustment for injury mechanism. Subgroup analysis revealed that the magnitude of racial variations in imaging studies among AA patients was attributed to non-motor vehicle related injuries.

CONCLUSION: In an analysis of diagnostic images received while in care, patient race and insurance type were significant indicators of care quality only when mechanism of injury was omitted. Subgroup analyses confirmed known race-related disparities in outcomes, but also illustrate that variations may be attributable to specific injury mechanisms. The etiology of these discrepancies underlines the importance of monitoring and reducing race-related disparities in trauma care and offers initial evidence as to where additional research and surveillance might be targeted.
13. REMEDIATION OF SURGICAL RESIDENTS MITIGATES THE RISK OF QUALIFYING EXAMINATION FAILURE
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BACKGROUND: The ABS QE (American Board of Surgery Qualifying Examination) seeks to evaluate a surgeon’s fund of clinical knowledge. Prior to the examination, surgery training program must attest to the competence of the examinee and, hence, his/her eligibility to sit for the examination. Surgical training programs struggle with ensuring that all residents are well prepared to successfully complete the examination. To assure adequate preparation, most programs have initiated mandatory remediation courses for those residents identified at high risk for failing the ABS QE, but the effect of these remedial programs on (ABS QE) performance has not been reported. Resident performance on the American Board of Surgery In-Service Training Examination (ABSITE) has consistently been found to correlate with ABS QE performance. We sought to review the remediation program at a general surgery resident program and its effect on ABS QE pass rates on the first attempt.

METHODS: The records of all general surgery residents who graduated from 2002 to 2010 were reviewed and the residents who participated in the remediation program were identified. The remediation program was individualized to each resident, but always included meeting with a learning specialist at regular intervals, a structured reading/study program with specific readings for each week, meetings with the residency program director every two weeks, and education regarding test taking strategies. Additionally, graduate performance on the ABS QE on the first attempt was reviewed.

RESULTS: A total of 34 residents graduated a general surgery resident program from 2002 to 2010. Five of those graduates completed the remediation program. They were identified as having poor clinical performance with regards to knowledge and ABSITE scores below the tenth percentile. 85% of graduates (29/34) passed the ABS QE on their first attempt. Of the five individuals in the remediation program, 80% (4/5) successfully passed the ABS QE on their first attempt. The sample size, however, is not powered to confirm statistical equivalence (more than 2600 residents being needed to demonstrate equivalence within 5% or less).

CONCLUSION: The remediation program at a general surgery resident program leads to ABS QE pass rates similar for individuals who required remediation compared to all general surgery graduates. Based upon this success, the core focus of the remediation program (an intensive structured reading program and a lecture from a learning specialist) was expanded in 2011 to include all residents in the residency program.
14. VIDEO ASSISTANCE IS NOT NECESSARY FOR SUPERIOR COSMETIC RESULTS WITH MINIMALLY INVASIVE THYROIDECTOMY  
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Temple, TX

BACKGROUND: Video-assisted thyroidectomy has been promoted as a safe alternative to robotic-assisted thyroidectomy with excellent cosmetic results. We report on the same minimally invasive thyroidectomy (MIT) through a 2 cm incision without the added need for video-assistance and postulate similar superior cosmetic and clinical results.

METHODS: Between May 2012 and October 2014, 102 non-endoscopic MIT procedures in 99 patients were evaluated for demographics, clinical outcomes and patient satisfaction with the appearance of the incision on a 1 to 10 scale.

RESULTS: The 99 study patients were 94% female, 6% male with mean age of 43.1 years (17-78), and mean BMI of 25.4 (18-37). The 102 thyroidectomy procedures included 6 partial lobectomies, 39 lobectomies, 3 completion total thyroidectomies, 54 total thyroidectomies (7 with bilateral central lymph node dissections), with mean lobectomy weight of 9.4 grams (2 to 37). Transient recurrent laryngeal nerve (RLN) injury occurred in 2.0% of nerves-at-risk (3 of 150) with no permanent injuries, transient symptomatic hypocalcemia in 14.0% of total thyroidectomies (all with autoimmune thyroiditis) with no permanent hypoparathyroidism, and 0% postoperative hematoma. Outpatient thyroidectomy was possible in 97% of procedures with only 1 postoperative admission for symptomatic hypocalcemia. On follow-up the measured MIT scar was 2.1cm, which resulted in a mean cosmetic satisfaction rating of 9.65 out of 10 with 85% of the ratings 10 out of 10.

CONCLUSION: In selected patients, MIT through a 2 cm incision can be done safely without video-assistance for the gamut of thyroid disease and thyroidectomy procedures and results in superior patient satisfaction with the cosmetic appearance of the incision.
15. THE COST OF PATIENT SATISFACTION, A SYSTEMATIC REVIEW OF THE DIFFERENCES IN SURGEON REPORTED PAIN AND SYMPTOMS BETWEEN MINIMALLY INVASIVE AND OPEN SURGERY.
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Houston, TX

BACKGROUND: Minimally invasive surgery (MIS) has become widely adopted after studies demonstrated reduction in patient perceived pain and shorter lengths of hospital stay compared to traditional open surgery. However, while patients benefit from the MIS approach, surgeons performing these techniques may have worse pain and fatigue. The goal of this systematic review was to quantify the differences in surgeon-reported pain and symptoms associated with MIS compared to open surgery.

METHODS: Five medical indices were systematically searched, using standard search criteria, to identify peer-reviewed literature discussing ergonomics in the operating room. Survey data regarding surgeon pain and symptoms were extracted and stratified by reported operating technique (MIS or open). A fixed-effects model was created to pool estimates of reported symptoms. A logistic regression model was used to evaluate differences in symptoms related to surgical approach.

RESULTS: Thirty-five studies were identified (23 MIS versus 12 open). Of the 4213 surgeons answering questions about MIS, 3286 (78%) reported pain. The most common sites of pain were the back (55%), shoulder (52%), neck (52%), and hand (32%). Fatigue associated with MIS was noted by 3665 surgeons (87%) and 1053 surgeons (32% of those reporting pain) sought treatment. Of the 2206 surgeons answering questions regarding open surgery, 1390 (63%) of them reported overall pain. The most frequently noted sites of pain from open procedures were in the neck (37%), back (29%) and shoulder (21%). On regression analysis, MIS surgeons were significantly more likely to report pain in the arm/shoulder (OR: 3.88, P<0.01), neck (OR: 2.49, P=0.03), hands (OR: 3.16, P<0.01) and back (OR: 2.48, P=0.03). Those performing MIS were substantially more likely to note fatigue associated with the procedure (OR: 10.71, P>0.01). Despite the higher prevalence of pain in specific body parts with MIS, overall pain symptoms were similar between open and MIS surgeons.

CONCLUSION: Compared to open technique, surgeons performing MIS report higher levels of pain in the neck, back, shoulder and hands. MIS is associated with significantly higher rates of perceived fatigue compared to open surgery. Interventions designed to reduce strain on the back, neck, and upper extremity may improve symptoms of surgeons performing surgery by the MIS and open approaches.
16. DANGEROUS CHOICES: STIMULANT USE IN TRAUMA PATIENTS
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BACKGROUND: INTRODUCTION: Use of stimulant drugs (STIM) including methamphetamine (METH), cocaine (COC) and phencyclidine (PCP) occurs frequently in trauma patients. Published reports have clearly linked COC with interpersonal violence, but the demographics and injuries of patients using other STIM drugs is less clear. Our objective was to describe the STIM positive population at a regional Level I Trauma Center.

METHODS: METHODS: The trauma registry was reviewed from 1/1/2008 to 12/31/2012. Data collected included demographics, insurance type, injury related information, initial vital signs, blood alcohol level (BAL), drug of abuse (DOA) results, base deficit (BD), blood products in 24 hours (BL24), ventilator days, ICU length of stay (LOS), hospital LOS and outcomes. Urine DOA screening was by ELISA and patients were counted as STIM positive if they tested positive for COC, PCP, or amphetamine, which was considered a surrogate for METH. Gunshot wounds, stab wounds, and assaults were considered violent injuries and all others were considered non-violent. Statistical analyses were performed using Mann Whitney U and Chi-square tests with significance attributed to p value <0.05.

RESULTS: RESULTS: Over the 5-year study period, 12,394 patients were included, with 6,513 (52.5%) having DOA testing. STIM drugs were present alone or in combination with other drugs in 1071 patients (16.4%) and 300 patients had only STIM present. STIM-only patients were compared to patients negative for all drugs (NEG). Groups did not differ by GCS, ISS, initial vital signs, BL24, vent days, ICU or hospital LOS, or outcomes but STIM patients were younger (38 vs 43 years, p = 0.007) and had a greater proportion of males (77% vs 69%, p = 0.03). STIM patients were more likely to have penetrating injury (23% vs 13%, p < 0.001), violent injury (34% vs 19%, p < 0.001), and be legally intoxicated (38% vs 26%, p < 0.001). Additionally, NEG patients were more often insured (87% vs 81%, p < 0.001) and more likely to have private insurance (26% vs 9%, p <0.001).

CONCLUSION: CONCLUSIONS: STIM positive patients are more likely to have violent mechanisms of injury, be legally intoxicated, and uninsured, and less likely to have private insurance, thus demonstrating multidimensional hazardous behaviors.
17. HOSPITAL OUTCOMES ASSOCIATED WITH TRAUMATIC FARM INJURIES MECHANISMS IN A RURAL STATE
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Wichita, KS

BACKGROUND: The disproportionate distribution of trauma care resources in a mostly rural state can affect transportation time following injuries that occur on a farm. Agricultural workers are susceptible to traumatic injuries related to occupational hazards such as large machinery and livestock. The purpose of this study was to evaluate injury severity and patterns among agriculture workers who sustained animal- or machine-related injuries.

METHODS: A retrospective review was conducted of adult patients (> 18 years of age) presenting with farm-related injuries at an ACS verified level-1 trauma center between 1/1/2004 and 12/31/2013. Outcomes of interest included mortality, ICU length of stay (I-LOS), hospital length of stay (H-LOS), number of ventilatory days (v-days), and discharge destination. Data collected included: demographics, mechanism of injury, transportation time and mode, injury details, severity, and patterns, H-LOS, I-LOS, v-days, and discharge disposition. Chi-square tests were conducted to identify the association of risk factors between the two types of injuries.

RESULTS: Among the 150 patients included in this study, 73.3% (n=110) were male with a mean age of 49.9± 18.5 years, and most (98%, n=147) sustained a blunt injury. Injury mechanisms included animal (n=61, 40.7%) and machine-related (n=89, 59.3%). The overall mortality rate was 4% (n=6 of 150), and all deaths were due to machine-related injuries. Patients with machine-related injuries had significantly longer H-LOS (5.3 vs 3.7 days), I-LOS (2.2 days vs. 0.9 days), and v-days (0.8 days vs 0.0 days) than those with animal-related injuries. Both groups were primarily transported by ground ambulance (n=96, 64.0%), followed by private vehicle (n=38, 25.3%), and helicopter or fixed wing flight (n=16, 10.7%). More than one-third of the patients in each group demonstrated transportation times in excess of 4 hours (36.0% and 42.6% for machine- and animal-related injuries, respectively), and more than half of patients had transportation time in excess of 2 hours (66.3% and 55.7% for machine- and animal-related injuries, respectively). Patients with machine-related injuries had significantly higher ISS (10.9 vs. 8.3, p=0.04) than patients with animal-related injuries. The majority of patients were discharged to home (n=118, 78.7%); 19 were discharged to a rehabilitation center and 7 to a skilled nursing unit. Of the patients with non-animal injuries, 17 (19.1%) required placement in a skilled nursing unit or rehabilitation, compared to 9 (14.8%) patients with animal-related injuries.

CONCLUSION: Patients with machine-related injuries had poorer outcomes. Regardless of the mechanism of injury, the mode and time of transportation were not associated with patient outcome or disposition, even though more than half the population experienced prolonged transportation times (greater than 2 to 4 hours).
19. SKIP THE RADIATION: ROUTINE USE OF MRI DOES NOT ALTER TREATMENT PLANS IN NEUROLOGICALLY INTACT BLUNT TRAUMA PATIENTS.
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Johnstown, PA

BACKGROUND: The utility of magnetic resonance imaging (MRI) in combination with and subsequent to computed tomography (CT) has been increasingly debated for cervical spine clearance in blunt trauma patients. With the increasing availability of MRI and concerns for missed injuries medicolegally, MRI being used as an adjunct is common. The purpose of our study was to investigate the utility of the use of MRI as to the influence of these imaging results on the treatment plan in all levels of suspected vertebral injuries; the belief being that the use of MRI did not change the propensity for patients to have operative treatment, despite the potential of finding additional injuries not seen on the CT scan.

METHODS: A retrospective five year study was conducted at a level 1 trauma center of blunt trauma patients who received both CT and MRI imagining of suspected injuries at the cervical, thoracic, or lumbar vertebral levels without neurologic deficit. Inclusion criteria included adults who received both CT and MRI imaging to elucidate injuries for possible operative treatment. Participants included 240 adults who were unable to be clinically or radiographically cleared of spinal injury and therefore subsequently received MRI.

RESULTS: For 79% of patients, MRI did not influence the decision for operative treatment. A chi-square test for association was statistically significant ($\chi^2(1) = 11.430, p = .001$) between operative treatment plan (surgical or not) and MRI utility pertaining to influencing the original treatment plan from non-surgical prior to the MRI to operative. In only 24 cases (10%), the MRI results influenced the treatment to surgical status. A statistically significant association ($\chi^2(1) = 59.198, p < .0005$) was also found between chronicity and MRI utility, whereby the MRI results provided useful insight for 17 cases (7%). Of note, the Injury Severity Score was similar between those in which MRI influenced a treatment plan change and in those it did not, 9.02 and 9.97 respectively.

CONCLUSION: Though MRI subsequent to CT has historically demonstrated the ability to identify previously unknown injuries, the question of sufficient clinical relevance to justify its current usage level still exists. In our study, MRI in the evaluation of vertebral or spinal injury did not provide sufficient additional clinically relevant information to change the operative treatment plan for an adequate portion of our study population. As such, justification for the nearly automatic MRI order after a CT for these injury modalities is suspect. Additional imaging not only increases patient burden and harm potential, but also adds substantial financial cost absent a favorable cost to benefit ratio. The results of this study imply significant patient benefits, e.g. reduced radiation exposure and testing and financial cost savings.
20. CLINICAL OUTCOMES AFTER SLEEVE GASTRECTOMY (SLEEVE) VARY ACCORDING TO HEALTH INSURANCE CARRIER: SELF-PAY VS PRIVATE INSURANCE VS MEDICAID VS MEDICARE IN 8,393 BOLD DATABASE PATIENTS
ES Walker DO, AA Wallace DO, GJ Slotman MD
Vineland, NJ

BACKGROUND: Post-operative weight loss and resolution of obesity comorbidities following sleeve gastrectomy are well-understood. Previous reports have identified differences in baseline weight, BMI and weight-related medical problems according to type of health insurance. Nevertheless, it is unknown whether or not outcomes following bariatric surgery vary by health insurance carrier. The objective of this study was to identify health insurance-related variations in weight loss and resolution of obesity comorbidities following sleeve gastrectomy.

METHODS: Data from 8,393 SLEEVE patients in the Surgical Review Corporation’s BOLD database was analyzed retrospectively in four groups: Medicaid (n=372), Medicare (n=304), Private Insurance (n=5,911), and Self-Pay (n=1,806). Weight, weight loss, BMI and prevalence of obesity comorbidities in each group were tabulated at 2, 6, 12, 18, 24 and 36 months post-operatively. Statistical analysis was performed with General Linear Models that included baseline and post-operative data and were modified for binomial distribution of dichotomous variables. Pair-wise comparisons of results for Medicaid, Medicare, Private Insurance and Self-Pay versus each other were made at each interval.

RESULTS: Weight loss, BMI and select comorbidities at 18 or 24 months following SLEEVE.

<table>
<thead>
<tr>
<th></th>
<th>Months</th>
<th>Self-Pay</th>
<th>Private</th>
<th>Medicare</th>
<th>Medicaid</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight loss (kg)</td>
<td>24</td>
<td>45.4±25.5</td>
<td>45.7±19.8</td>
<td>39.3±15.9</td>
<td>44.4±21</td>
<td>0.01 &lt; p &lt; 0.05</td>
</tr>
<tr>
<td>BMI</td>
<td>24</td>
<td>30.5±8</td>
<td>34.8±8.9</td>
<td>38.6±7.4</td>
<td>41.6±10.5</td>
<td>0.01 &lt; p &lt; 0.05</td>
</tr>
<tr>
<td>Abdominal hernia</td>
<td>24</td>
<td>0</td>
<td>10.09</td>
<td>0.09</td>
<td>18.18</td>
<td>p &lt; 0.0001</td>
</tr>
<tr>
<td>GERD (%)</td>
<td>24</td>
<td>46.88</td>
<td>33.94</td>
<td>20.83</td>
<td>64.29</td>
<td>p &lt; 0.05</td>
</tr>
<tr>
<td>HTN (%)</td>
<td>18</td>
<td>25</td>
<td>36.37</td>
<td>49.15</td>
<td>30.88</td>
<td>p &lt; 0.05</td>
</tr>
<tr>
<td>Panniculitis (%)</td>
<td>18</td>
<td>11.73</td>
<td>9.12</td>
<td>16.95</td>
<td>14.71</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>Cholelithiasis (%)</td>
<td>18</td>
<td>14.8</td>
<td>22.48</td>
<td>25.42</td>
<td>29.41</td>
<td>p &lt; 0.05</td>
</tr>
<tr>
<td>Musculoskeletal pain (%)</td>
<td>18</td>
<td>21.94</td>
<td>28.77</td>
<td>54.24</td>
<td>25</td>
<td>0.01 &lt; p &lt; 0.05</td>
</tr>
<tr>
<td>Impaired functional status (%)</td>
<td>18</td>
<td>0.51</td>
<td>1.85</td>
<td>16.95</td>
<td>1.47</td>
<td>p &lt; 0.01</td>
</tr>
<tr>
<td>Diabetes mellitus (%)</td>
<td>24</td>
<td>0</td>
<td>13.76</td>
<td>9.09</td>
<td>9.09</td>
<td>p &lt; 0.0001</td>
</tr>
</tbody>
</table>

CONCLUSION: Outcomes after sleeve gastrectomy vary significantly by health insurance status. Self-Pay patients’ results were superior in weight loss, BMI, cholelithiasis and resolution of hypertension, diabetes, musculoskeletal pain, and impaired functional status. This may be related to personal motivation in this population. Private Insurance patients had the greatest resolution of panniculitis and performed generally second to Self-Pay patients. BMI, abdominal hernia, GERD and cholelithiasis were highest among Medicaid patients, while weight loss equaled Self-Pay and Private. Medicare patients experienced the least weight loss and persistently lower resolution of nearly all comorbidities except GERD and diabetes. This suggests that obesity-years may be a factor. Knowledge of these health insurance variations, may facilitate surgical decision making with regard to patient selection for sleeve gastrectomy.
21. EARLY IDENTIFICATION OF DISSEMINATED PERITONEAL ADENOMUCINOSIS IN “AT RISK” MUCINOUS NEOPLASM PATIENTS, A NEW APPROACH TO MUCINOUS NEOPLASM SURVEILLANCE

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Omaha, NE

BACKGROUND: Disseminated peritoneal adenomucinosis (DPAM-PMP) is often diagnosed late when patients present with symptomatic bulky disease. Most patients have a history of appendectomy with an incidental mucinous neoplasm (MAN). Major obstacles to early detection of DPAM include lack of a standardized early detection tool and unknown rate of PMP in MAN. At our institution MAN patients are referred early for surveillance and monitoring to the Peritoneal Surface Malignancy Program.

METHODS: We retrospectively reviewed charts of patients referred with MAN. At initial evaluation, imaging was reviewed, and baseline cancer markers (CEA, CA-19-9, CA-125) were performed. Follow-up cross sectional imaging and markers were obtained every 4-6 months. In the event of radiographic disease or at 12 months post diagnosis, diagnostic laparoscopy was performed.

RESULTS: Four patients (20%) were found to have occult disease at 12-month laparoscopy. One patient (5%) developed radiographic progression at 6-months confirmed with laparoscopy. Four patients were treated with CRS/HIPEC, while one patient was solely treated with CRS since only acellular mucin was identified. The 15 patients with negative laparoscopy remain disease free with a median follow-up of 33 months.

CONCLUSION: Here we report 25% of patients with MAN developed PMP, while 75% did not develop peritoneal dissemination. Five patients with DPAM CRS/HIPEC for PMP had very low PCI scores (<9). This approach results in early detection with low volume disease, and may be instrumental in establishing a rate of DPAM in MAN patients. Longer follow-up and further patient accrual will reveal the long-term utility of this approach.
22. OUTCOMES OF COLON RESECTION IN PATIENTS WITH METASTATIC COLON CANCER
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BACKGROUND: There are limited data examining the outcomes of patients who have distant metastasis at the time of colorectal resection for colorectal cancer. We sought to identify 30 day outcomes of such patients and compare them with patients who did not have distant metastasis.

METHODS: The National Surgical Quality Improvement Project (NSQIP) database was used to evaluate all patients who had metastasis at the time of colorectal resection for colorectal cancer in 2012. Multivariate analysis using logistic regression was performed to quantify complications associated with presence of metastasis. Adjustments were made for 20 factors.

RESULTS: A total of 2,278 colon cancer patients who underwent colon resection were identified. 28.9% (658) had metastasis at the time of operation. 76.4% of patients with metastasis had an emergent indication for surgery. The in-hospital mortality rate was significantly higher for patients with metastasis (5.3% vs. 1.9%, AOR: 1.99, P=0.04). Among postoperative complications, deep vein thrombosis (DVT) (AOR: 2.42, P=0.02) and hospitalization more than 40 days (AOR: 4.17, P=0.01) were significantly higher in patients with metastases. Anastomotic leakage (AOR: 1.09, P=0.78) and prolong ileus (AOR: 1.21, P=0.22) were not associated with the presence of metastatic disease.

CONCLUSION: Nearly one third of patients undergoing colectomy for cancer have metastatic disease. Postoperative morbidity and mortality of these patients are significantly higher than in patients with localized disease.
23. GROUND LEVEL FALLS IN THE ELDERLY: ALWAYS A TRAUMATIC EVENT?
NA Parks MD, JW Davis MD, RC Dirks PhD
Fresno, CA

BACKGROUND: Background: Ground level falls (GLF) in the elderly have extremely high morbidity and mortality. This is a significant mechanism of injury in this population and there is an obvious need for their traumatic injuries to be evaluated. However, many of these patients are frail with multiple medical comorbidities that also require rapid assessment to optimize outcomes. It remains unclear if poor outcomes are a result of injury or of the patients’ underlying physiologic reserve and comorbidities. The purpose of this study was to assess the characteristics of elderly GLF patients admitted to trauma (TRM) or medicine (MED) and to evaluate their outcomes.

METHODS: Methods: A retrospective study was performed on all patients ≥65 years admitted to an ACS verified Level 1 trauma center after GLF between 1/06-8/14. Patients who sustained an isolated hip fracture or were admitted by services other than TRM or MED were excluded. Data collected included patient demographics, injury related information, need for ICU admission or mechanical ventilation, comorbidities, and discharge disposition. A subgroup analysis was performed comparing the patients admitted to MED with a trauma consult to the TRM group. Statistical analysis was performed using Mann-Whitney U and Chi-square tests with significance assigned to a p value <0.05.

RESULTS: Results: During the study period, 2083 patients were admitted after GLF. 179 of these patients were transferred, left against medical advice, or had an unknown discharge disposition and were excluded from analysis. Of the remaining patients, 1083 were admitted to MED and 821 were admitted to TRM. Age was similar for both groups (TRM=80.0, MED=80.6, p=0.13). Patients admitted to TRM had higher injury severity scores (TRM=13.2, MED=9.4, p<0.001), lower probability of survival (TRM=0.89, MED=0.95, p<0.001), and lower GCS (TRM=13.7, MED=14.3, p=0.03). TRM patients had more injuries to the head/neck and chest (p<0.001), but MED patients had more injuries to the extremities (p<0.001) and had more comorbidities (TRM=2.2, MED=2.5, p=0.001). TRM patients were more likely to be discharged to home/rehab (TRM=59%, MED=51%) versus expire/extended care facility (p=0.001). Of the MED admits 272 patients had a trauma consult (MED+T). As in the larger group, MED+T patients were not as injured as the TRM group based on ISS and Ps (p<0.001), but were discharged less frequently to home/rehab (TRM 59%, MED+T 50%) versus expire/extended care facility (p=0.006).

CONCLUSION: Conclusion: Patients admitted to TRM were more injured, but still were more likely to be discharged to home or rehab than patients admitted to MED. This difference may be partly explained by the increased number of comorbidities in patients admitted to MED. Trauma service consultation with MED admission does not appear to change these outcomes. Based on this analysis, TRM admission benefits elderly GLF patients.
24. PROTECTIVE EQUIPMENT AND MOTORBIKES: DOES IT MATTER?
R Stiles MS4, C Benge MS, F Dong PhD, E Ablah PhD, J Ward MSCR, P Stiles MD, J Haan MD
Wichita, KS

BACKGROUND: Organized and recreational sport activities involving motorbikes are increasingly popular in Kansas, yet few state regulations exist related to their use. Concurrently, little is known regarding type and severity of motorbike injuries in a rural state such as Kansas. This study compared outcomes between those injured at a motorbike track who were required to follow safety equipment guidelines and those involved in recreational activities where usage is voluntary.

METHODS: A retrospective review was conducted of all patients (ages 0 to 89) presenting with motorbike-related injuries at an ACS-verified level 1 trauma center between 1/1/2009 and 12/31/2013. Collected data included: demographics, mechanism of injury, ICD-9-CM injury E code, injury severity and patterns, initial vitals, time from injury to admission, use of safety equipment, hospitalization details, and discharge disposition. Comparisons were made regarding protective equipment usage.

RESULTS: Of the 115 motorbike trauma patients in Kansas, 97.4% were Caucasian, 93.9% were male, and 64.4% were 18 to 54 years old. More than half (54.8%, n=63) were injured on a motorbike track, and 45.2% (n=52) were injured in a recreational setting. One death was reported – an adult recreational rider without protective equipment. The most common safety equipment in both groups was helmet, followed by protective clothing, eyewear, boots, and neck protection. There was a statistically significant difference on the percentage of patients wearing protective equipment (60 of 63, 95.2% vs 24 of 52, 46.2%, for track and recreational riders, respectively, p<0.0001). Among track riders, comparisons between those who wore protective equipment and those who did not were impossible due to unbalanced sample size. Among recreational riders, although not statistically significant, those who wore protective equipment had shorter H-LOS (2.33 vs 3.04) and vent days (0 vs 0.11), but longer ICU stay (0.58 vs 0.36) than those without protective equipment. Among those who wore protective equipment, the track riders had longer H-LOS (3.18 vs 2.33), longer ICU (1.12 vs 0.58), and vent-days (0.6 vs 0) than the recreational activity users, although these outcomes were not statistically different.

CONCLUSION: Injured recreational riders were less likely to wear protective equipment than motorbike track riders. Despite lack of statistically significant differences, recreational riders with protective equipment experienced shorter H-LOS and vent days, but slightly longer ICU stay than those without the protective equipment, and among those who wore protective equipment, track riders experienced consistently longer H-LOS, ICU, and vent days than recreational riders. These may be clinically significant differences that warrant further study. This limited data warrants protective equipment policy reinforcement.
25. CHARACTERISTICS AND MANAGEMENT OF BLUNT RENAL INJURY IN CHILDREN

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El Paso, TX

BACKGROUND: Renal trauma in the pediatric population is predominately due to blunt mechanism of injury. Our purpose was to determine the associated injuries, features, incidence, management and outcomes of kidney injuries resulting from blunt trauma in the pediatric population in a single Level I Trauma Center.

METHODS: This was a retrospective chart and trauma registry review of all pediatric blunt renal injuries at a regional Level I trauma center that provides care to injured adults and children. The inclusion dates were January 2001 to June 2014.

RESULTS: Of 5,790 pediatric blunt trauma admissions over 13.5 years, 68 children sustained renal injury (incidence: 1.2%). Mean age was 12.4 years (range: 9 months to 17 years). 66% were male. Most common injury mechanism was MVC (46%). AAST Injury Grades: I: 21 (31%), II: 14 (20%), III: 17 (25%), IV: 12 (18%) V: 4 (6%). Gross hematuria was 21% (42%-Grade IV & 50%-Grade V). Mean ISS was 21±14. Mean hospital LOS was 9±9.5 days. 37% were admitted to the ICU. 57% of patients had associated intra-abdominal injury with the liver as the predominant organ followed by the spleen. Mortality rate was 5.8%. No deaths were caused by renal injury. Nephrectomy rate was 2.9% (Nephrectomy: 1-Grade IV & 1-Grade V). No patient had angioembolization.

CONCLUSION: Blunt renal trauma is rare in children and most injuries are low AAST injury grade. Pediatric renal trauma is commonly associated with intra-abdominal injury, especially liver and spleen. Gross hematuria is more frequent with higher injury grade. Nephrectomy rate is lower in injured children compared to the adult population. Most pediatric blunt renal injury, especially AAST injury grades I-IV, can be safely managed without nephrectomy or angioembolization.
26. MOVE THE BUMPER? A NOVEL TECHNIQUE TO PREVENT PEG TUBE DISPLACEMENT
BC Chapman MD, CC Burlew MD, EE Moore MD, C Fox MD, C Barnett MD, DD Bensard, J Johnson MD, FM Pieracci MD, GJ Jurkovich MD
Denver, CO

BACKGROUND: Percutaneous endoscopic gastrostomy (PEG) is often employed in the SICU to provide enteral access to patients. Extreme bumper height (<2cm or >5cm) has been questioned as a cause of complications; excessive pressure on the gastric mucosa or abdominal wall could lead to tissue erosion, leakage, or tube dislodgement. To minimize complications, we adopted a protocol of bumper “relaxation” on day 3-5 following PEG placement. The purpose of this study is to review the incidence of complications before and after implementation of this protocol. We hypothesized complications following protocol implementation would be reduced.

METHODS: All trauma patients undergoing bedside PEG placement from 7/4/12 to 6/23/14 were reviewed. The two groups were defined as those without manipulation (NoM) of the PEG bumper versus those who had bumper “relaxation” (Relax).

RESULTS: In the 24 month period, 80 patients had PEGs placed. Records of the PEG’s bumper height placement were incomplete in 22 patients. Of the 58 patients with complete data, 48 patients were pre-protocol while 10 had documented relaxation of the PEG bumper. In the NoM group, 3 patients suffered PEG tube dislodgment, 2 of which required laparotomy. No patient in the Relax group had dislodgement or leaking from his/her PEG.

CONCLUSION: Although limited by small sample size, relaxation of the PEG bumper 3-5 days after initial placement may reduce PEG dislodgment rates and prevent this disastrous complication. Further evaluation of these preliminary report findings will identify the optimal protocol for PEG management.
27. USE OF MULTIPLE WIRE LOCALIZATION FOR BREAST CONSERVATION SURGERY
ES Lee MD, MB Ley MD, RK Viscusi MD, AL Waer MD, MH Borders MD, KA Fitzpatrick MD
Tucson, AZ

BACKGROUND: Mastectomy is often indicated for larger sized breast cancers, breast cancers with extensive calcifications or patients with higher tumor:breast ratios. Recently there has been a marked increase in the rate of mastectomies versus only a slight increase in breast conserving therapy (BCT). In 2004, the rate of mastectomies was 35% and by 2006, had jumped to 60%. This has prompted newer studies to evaluate the long term outcomes of both mastectomies and BCT which have noted a higher overall survival and a breast cancer specific survival in patients undergoing BCT. There is a need to find reliable, accurate breast cancer localizing techniques to allow larger masses to be excised using BCT without affecting re-excision rates or local recurrence. One method is to perform wire bracketing of larger, more complex breast cancers to better outline a border for surgical resection, allowing for BCT with clear margins. A recent study states the re-excision rate for positive margins for BCT was 21.6%. For our study, we compared breast cancer tumor size and the rate of re-excision for positive margin in BCT using three or more wires to bracket breast lesions versus two wires.

METHODS: A single institution retrospective review of 71 female subjects with non-invasive or invasive breast cancer who underwent a partial mastectomy with two or more localization wires from 2007 to 2013 was performed. Inclusion criteria include patients over the age of 18 who have a diagnosis of breast cancer, either non-invasive or invasive who underwent a partial mastectomy with multiple wire localization. All patients had biopsy proven carcinoma in situ or invasive carcinoma. Comparisons were made between partial mastectomies performed with two or less wires and three or more wires and the rate of return to the operating room for re-excision of positive or close margins noted on finalized tissue pathology results. In our study, 16 patients had three or more wires and 55 patients (9.1%)in the two or less wire group, however, was not found to be statistically significant. Overall, our re-excision rate was found to be 9.86%.

RESULTS: For the lesions localized with three or more wires, the average size of the lesion was 3.8cm (range 1.13cm-6.47cm) and for the lesions localized with two or less wires 1.7cm (range 0.38cm-3.0cm). Two out of the 16 patients (12.5%) in the three or more wire group required additional surgery for re-excision due to positive or close margins on final pathology results versus five (11.4%) of the 55 patients (9.1%)in the two or less wire group. Overall, our re-excision rate was found to be 9.86%.

CONCLUSION: Our study demonstrates there is no statistically significant increased risk for re-excisions based on the number of wires used. However, it was observed that larger breast lesions were localized with three or more wires for excision. We can conclude that localizing larger areas is feasible and can lead to further breast conservation. Further study of long term outcomes is warranted.
28. CONGENITAL DIAPHRAGMATIC HERNIA AND ECTOPIC LIVER:
A 10 YEAR EXPERIENCE
SM Cruz MD, AC Akinkuotu MD, DL Cass MD, TC Lee MD, CI Cassady MD, AR
Mehollin-Ray MD, R Ruano MD PhD, SE Welty MD, OO Olutoye MD PhD
Houston, TX

BACKGROUND: The objective of this study is to evaluate the incidence and outcomes
of patients diagnosed with ectopic liver in the presence of congenital diaphragmatic
hernia (CDH). Intrathoracic ectopic liver mass is a rarely discussed entity in the
literature. However, it has been previously hypothesized that these defects may coexist
due to a failure of growth of the posthepatic mesenchymal plate during the embryologic
period.

METHODS: The medical records of all patients with a diagnosis of congenital
diaphragmatic hernia in a tertiary center from July 2004-July 2014 were evaluated.
Ectopic liver was defined as an incidental finding of heterotopic liver tissue and
distinguished from intrathoracic liver herniation. Presence of ectopic liver was
confirmed based on operative and final pathologic findings. Patient characteristics,
prenatal imaging and outcomes were evaluated.

RESULTS: There were 189 cases of CDH identified, of which 8 cases had ectopic liver
confirmed by pathology. Sixty-three percent of these patients were female, and none
had any associated anomalies. Seven out of the 8 cases were left intrapleural CDH, and
there was one right CDH. None of the ectopic liver masses was prenatally diagnosed.
Only one of the cases was correctly diagnosed intraoperatively, while 50% of them
were assigned a perioperative diagnosis of extralobar bronchopulmonary sequestration.
Operative findings included herniation of liver into the chest in 75% and presence of
a hernia sac in all cases. In 63% of the cases the left lateral lobe of the liver was found
to be adherent to the diaphragmatic hernia sac, and the sac was the most common
location where heterotopic liver tissue was found by histology. Only 2 cases were
associated with pericardial defects. Overall survival was 88% with the sole death a case
of right CDH with severe pulmonary hypertension.

CONCLUSION: We describe the clinical features of a rare clinical finding,
ectopic liver associated with congenital diaphragmatic hernia. Ectopic livers are
typically associated with a hernia sac and are often mistaken grossly for extralobar
bronchopulmonary sequestration. Patients with this condition have a favorable
outcome.
29. PEDIATRIC FARM INJURIES: MORBIDITY AND MORTALITY
C Rathje DO, A Venegas MS3, SD Helmer PhD, RM Drake MEd, JM Haan MD
Wichita, KS

BACKGROUND: Background: Agriculture is a hazardous industry, and is one of the few industries where family members often live and work on the same premises. In 2012, an estimated 955,000 youth under the age of 20 years of age lived on a farm. Another estimated 259,000 nonfarm resident youth were hired to work on US farms. This population is at a high risk of fatal and nonfatal injuries. In 2012, around 14,000 youth were injured on farms. It is estimated that, on average, 113 youth die annually from farm injuries. Most of these deaths occur between the ages of 16-19 years of age and the leading cause of these deaths is due to machine-related injury. The purpose of this study was to evaluate injury patterns and outcomes in children from farm-related injury.

METHODS: Methods: A retrospective review was conducted of pediatric patients (<18 years of age) who presented with farm-accident related injuries at an ACS verified level 1 trauma center between 1/1/2004-12/31/2013. Data collected included: demographics, past medical history, mechanism of injury, accident details, injury severity and patterns, treatments required, hospitalization details, and discharge disposition.

RESULTS: Results: Of the 65 patients included in this study, 58.5% were male with a mean age of 9.7 ± 4.8 years. The median ISS and GCS were 5 and 15, respectively. Accident mechanisms included animal-related (43.1%), fall (21.5%), motor vehicle accident (21.5%), struck (6.2%), gunshot wound (4.6%), machinery (1.5%), and cut (1.5%). Soft tissue injuries, concussions and upper extremity fractures were the most common injuries observed (58.5, 29.2, and 26.2%, respectively). Traumatic brain injuries (TBI) were suffered by 4.6% of patients (n=3). Four patients (6.2%) had spine fractures with 2 of these suffering a cord injury. Four patients (6.2%) suffered unilateral rib fractures. Thoracic injuries included 7 pneumothoraces, 4 pulmonary contusions, and 3 hemothoraces. Splenic injuries were seen in 4 patients (6.2%) and liver injuries in 2 (3.1%). Fractures included 17 upper extremity (26.2%), 7 lower extremity (10.8%), and 4 pelvic (6.2%). No deaths were identified; however, 23 patients (35.4%) were admitted to the intensive care unit. Mechanical ventilation was required for 9 patients (13.8%) and 26 (40%) required surgical intervention. Mean hospital length of stay was 3.4 ± 4.7 days. The majority of the patients were discharged to home (n=62, 95.4%), 1 to home with home health, and 2 to a rehabilitation center. Two patients suffered permanent disability.

CONCLUSION: Conclusion: Concussion, soft tissue injuries and fractures were the most common injuries related to pediatric farm accidents. Blunt trauma is a significant contributor to injuries, which mostly occurs with animals, falls, and motor vehicles. Overall, outcomes for this population were favorable, but additional measures to increase safety such as driver training, animal safety, and fall prevention should be advocated.
30. PEDIATRIC TRAMPOLINE INJURIES
SF McLean MD, A Volk BS, AH Tyroch MD
El Paso, TX

BACKGROUND: Trampoline injuries are increasingly reported among children. Reports vary as to injury frequencies, with many citing upper extremity injuries in the youngest, with variable incidences of traumatic brain injury (TBI). The aim of this study was to review injury frequencies to see if there was an age correlation with TBI, and examine injury patterns.

METHODS: Retrospective review of trauma database at a level one trauma center 2000-2014. Means were compared with Mann-Whitney U test, Pearson correlations for bivariate correlations.

RESULTS: 48 patients, age 1-14 (mean age 6). There were 26 males, 22 females. Mean ISS was 6.27 (1-17), Mean hospital length of stay was 1.5 days (1-6). 4 patients went to ICU. Most common injury was fall off trampoline. Most common injury was upper extremity fracture (fx) in 32 (68%) and TBI in 9. Two patients had spleen injuries. Age was not correlated with either injury; however no patient had a TBI over age 10. TBI was significantly negative correlated with presence of upper extremity fx (p=.000, Correlation coefficient was negative .508); only one patient had both TBI and upper extremity fx. All patients survived and were discharged home. Humerus fracture was the most common upper extremity fx in 27, followed by radius/ulna: 14, and 6 lateral condyle fx, 1 clavicle; 6 patients had multiple fx. The most common head/skull injury was concussion in 6, with basilar skull fracture in 4, and one intracerebral bleed. Mean LOS was not different between the head injured and non-head injured. There were only 5 patients with lower extremity fractures, 3 patients with 4 tibia/fibula fx, 1 tibia fx, 1 femur fx. None of the lower extremity fracture groups had upper extremity fractures or TBI. Discussion: Pediatric trampoline injuries result from falls from trampolines. The most common injuries were upper extremity fractures and closed head injuries. We did not find a significant correlation between age and TBI; however none of the TBI patients was over 10 years. Injury patterns appear exclusionary; there was little overlap between upper extremity fractures and TBI, nor with lower extremity fractures. In fact, presence of TBI was significantly negatively correlated with upper extremity fractures. In this study, pediatric falls from trampolines yielded distinct injuries usually isolated to one region.

CONCLUSION: Pediatric trampoline injuries result from falls from trampolines. The most common injuries were upper extremity fractures and closed head injuries. We did not find a significant correlation between age and TBI; however none of the TBI patients was over 10 years. Injury patterns appear exclusionary; there was little overlap between upper extremity fractures and TBI, nor with lower extremity fractures. In fact, presence of TBI was significantly negatively correlated with upper extremity fractures. In this study, pediatric falls from trampolines yielded distinct injuries usually isolated to one region. Conclusion: Injuries requiring hospitalization occur in children after trampoline falls. Injuries fell into 3 categories: Head, lower extremity and upper extremity, the most common.
31. OPEN VERTEBRAL COLUMN TRAUMA: PURVIEW OF THE TRAUMA SURGEON?
V Johnson MD, M Truitt MD, N Patel MD, E Dunn MD
Dallas, TX

BACKGROUND: Background: Open traumatic injury to the vertebral column is a relatively uncommon occurrence. The associated injury patterns, their management, and expected hospital course have not been well described. We sought to examine our experience with patients who have open vertebral column injuries as a result of trauma.

METHODS: Methods: We conducted a retrospective review of the open vertebral column fractures at our urban trauma center from July 1, 2004 to June 30, 2014. We then examined the mechanism of injury, incidence of meningitis, incidence of disability, and disposition at discharge. We also recorded the associated injuries and treatment modalities required to safely disposition each patient.

RESULTS: Results: From July 1, 2004 to June 30, 2014, there were seventy-six patients admitted with open vertebral column injuries. Seventy-one (94.7%) were gunshot victims, two (2.6%) were stabbings, two (2.6%) were motor vehicle collisions and one (1.3%) was a motorcycle collision. There were eighteen (23.7%) injuries to the cervical spine, thirty-three (43.4%) injuries to the thoracic spine, and twenty-five (32.9%) injuries to the lumbar spine.

Eight patients (10.5%) required operative intervention by neurosurgery (three halo placement and five fusions), whereas forty-seven (61.8%) patients required operations by the trauma surgeon (five tracheostomies, four neck explorations without tracheostomy, three thoracotomies, and thirty-five exploratory laparotomies). Five patients (6.6%) required surgery by other surgical specialties.

Of all patients with injury to the vertebral column, only fifteen (19.7%) suffered an injury to their spinal cord. All (100%) were the result of a gunshot wound. The injuries to the cord resulted in 4 (26.7%) patients with paraplegia, and 5 (33.3%) with quadriplegia. One patient (1.3%) developed meningitis.

Of the patients with spinal cord injury, five (33.3%) were discharged home, six (40%) required rehabilitation, and four (26.7%) expired during the index hospitalization. In the group without cord injury, ten patients (16.3%) expired during the index hospitalization; the remaining fifty-one (83.7%) were discharged to a post acute care setting.

CONCLUSION: Conclusion: Open vertebral column injuries are complex traumatic injuries that are often the result of gun violence in an urban community. They are commonly associated with life-threatening, concomitant injuries that must be managed by the trauma surgeon. While traditionally viewed as primarily a neurosurgical problem, the trauma surgeon is paramount in the successful treatment of patients with open vertebral column injuries.
32. THE UTILITY OF VATS FOR THE EVALUATION OF OCCULT PENETRATING CARDIAC INJURIES
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BACKGROUND: The association of a pericardial effusion detected on Focused Assessment with Sonography for Trauma (FAST) and penetrating cardiac injuries may vary. Subsets of patients may be more prone to harbor serious injuries to the heart in spite of a negative or non-diagnostic FAST. Video assisted thoracoscopic surgery (VATS) can be helpful in some cases.

METHODS: Patients undergoing operative repair of a penetrating cardiac injury evaluated with at least one pre-operative pericardial FAST over an eight year study period were retrospectively examined. Patients with an effusion on FAST [group 1] were compared to those with a negative or non-diagnostic (ND) exam [group 2]. Detection of pericardial fluid on repeat exam after an initial (-) or ND study was considered a (+) result. Studies followed by computed tomography and/or formal ECHO were considered equivocal exams.

RESULTS: During the review period, 366 patients sustained penetrating cardiac injuries. Sixty-seven underwent at least one FAST with subsequent formal exploration and were included. There were 12 (17.9%) patients in group 2 [7 (-) and 5 (ND) exams] where the presence of retained mediastinal fragments from a GSW (50.0% vs. 13.6%, p = 0.012) and a BMI ≥ 30 (41.2% vs. 10.0%, p = 0.008) were significantly increased. The incidence of hemothorax did not differ. However, five of the 55 FAST (+) exams (9.1%) were (-) or (ND) before thoracostomy tube drainage of pleural blood. Mortality was similar (18.2% vs. 17.8%, p=0.968). Expedited VATS performed for retained hemothorax in high risk patients was diagnostic in five of the 12 (41.7%) group 2 patients. A patient with a negative FAST underwent laparotomy for hemoperitoneum revealing pericardial blood decompressing into the abdominal cavity.

CONCLUSION: The utility of FAST in screening for penetrating cardiac injuries via detection of a pericardial effusion varies. This can be due to limitation of the exam as well as absence of pericardial blood due to cavitary decompression. Repeat FAST after evacuation of any hemothorax is required. An expedited VATS should be considered in high risk patients initially presenting with a hemothorax and a negative or equivocal FAST.
33. ROBOTIC COLORECTAL SURGERY LEARNING CURVE IN RELATION TO CASE COMPLEXITY
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Omaha, NE

BACKGROUND: Use of robotic surgery has increased markedly in the past decade. Of great interest in prior studies is the learning curve to achieve acceptable outcomes. Recommendations for case selection during the learning curve for laparoscopic surgery have previously been established, recommending up to 150 laparoscopic colorectal cases prior to attempting cases of the highest complexity. This system assigns complexity dependent upon colon versus rectal cases, anatomy of pelvis, as well as BMI. We applied these complexity guidelines to our experience retrospectively, to determine if expert laparoscopic colorectal surgeons could perform complex cases early in the robotic learning curve with good outcomes.

METHODS: 56 patients having undergone robotic colorectal surgery by two colorectal surgeons were retrospectively chart reviewed spanning over three years. Each case was assigned a category of complexity ranging from 1 to 4, from an established grading system designed for laparoscopic cases. We analyzed outcomes with less than 15 prior robotic cases, as compared to those with greater than 15 prior cases performed. Subcategories of rectopexy and rectal cancer dissections were analyzed as well.

RESULTS: Our robotic experience demonstrated that far more cases of greatest complexity were performed after only 15 robotic cases (35%) than were performed in the first 15 cases (10%) (P=0.05). Far fewer operations assigned to the technically easiest category were performed in the group having performed more than 15 prior robotic cases (15%) than were performed in the initial 15 cases (40%) (P=0.04). Despite this significant increase in case complexity, we found that operative time significantly decreased in the group with greater than 15 cases as compared to the group with fewer than 15 cases. For rectal cancer procedures, operative time improved from 522 minutes to 395 minutes (P=0.008). This was true for rectopexy as well, with operative time decreasing from 371 down to 258 minutes (P=0.03). Overall complications were reduced after 15 cases (8%) as compared to less than 15 prior cases (33%) (P=0.03).

CONCLUSION: This data shows that robot surgery can be performed by expert laparoscopic surgeons for complex cases early in the experience, with rapid improvement in operative time. In addition, outcomes improve relatively rapidly by 15 cumulative robotic cases, as composite complications are reduced. This study is important as it shows the improvement in robotic operating time and outcome can occur with difficult cases, as opposed to reflecting improved case selection.
34. FOR CANCER SURVIVORS WITH SEVERE RADIATION-INDUCED Ilio-Femoral Arterial Disease: Revascularization Can Achieve Excellent Limb-Salvage But Re-Interventions Are Common
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Houston, TX

BACKGROUND: Advances in radiation techniques have improved patient survival and reduced side-effects in the oncologic treatment of various cancers. We sought to evaluate the current therapeutic options for radiation-induced iliac and femoral arterial occlusive disease in cancer survivors.

METHODS: We retrospectively reviewed consecutive patients who presented with leg ischemia due to iliac and/or femoral arterial occlusive disease and had history of radiation treatment to the pelvis or lower extremity, in a tertiary referral cancer center between July 2010 and December 2013. Patient demographics, mode of therapy, and 30-day and intermediate-term outcome were reviewed.

RESULTS: Twelve patients developed ilio-femoral arterial occlusive disease after radiation treatment (8 women), with average age 55.2 year-old (range 39-72). Four patients were active smokers, 4 former and 4 never smoked. Three patients had non-insulin diabetes. Median interval time between completion of radiation treatment and onset of limb ischemia was 8 years. Nine patients had rest pain or non-healing wound, 2 disabling claudication, and 1 acute limb-threatening ischemia. Cancer of the cervix/vulva was the most common type of cancer (n=7). Five patients had endovascular interventions, 3 had surgical bypasses, 3 had hybrid procedures (which included femoral patch angioplasty, and iliac or superficial femoral stenting), and 1 had medical therapy. Median follow-up was 15 months (range: 11-36). Initial revascularization intervention was successful in 11/11 patients, and all survived at 30-days. One patient died from chronic relapsing urinary tract infection complications at 20 months after revascularization. One-year re-intervention rate was 63.6% (7/11); 80% (4/5) for patients who had endovascular interventions and 50% (3/6) for surgical or hybrid interventions. Only one patient had above-knee amputation 13 months after initial endovascular intervention.

CONCLUSION: The findings of our study show that contemporary vascular interventions can achieve excellent intermediate limb-salvage rate in cancer survivors with severe radiation-induced ilio-femoral arterial disease. However, re-intervention rate remains high and future studies are warranted to reduce recurrent vascular events.
35. SAFeTY AND OUTCOMES OF CYTOREDUCTIVE SURGERY AND HYPERThERMIC INTRAPERITONEAL CHEMOTHERAPy IN ELDERLY PATIENTS WITH HIGH PERITONEAL CANCER INDEX, LARGE VOLUME PERITONEAL METASTASIS

RL Sleightholm, DC Watley, JM Foster MD
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BACKGROUND: As the patient population treated with CRS-HIPEC increases, more elderly patients (>70) with large volume disease are presenting for consideration of this modality. There currently is limited data on morbidity, mortality, and long-term outcomes in this age group who undergo multivisceral resections (>4 organs) with PCI>24. Here we present the outcomes in an elderly patient population.

METHODS: A retrospective analysis performed on a database of 250 PSM patients identified 20 procedures that were performed on patients over the age of 70. We reviewed the charts for sites of tumor site, histology, LOS, PCI, number of organs resected, perioperative complications, mortality, PFS, and OS.

RESULTS: The median age was 75, and 70% of patients were female. Tumor histology included 35% PMP, 10% HG-appy, 30% Ovarian, 5% CRC, 10% Mesothelioma, and 10% other. There were no post-operative deaths, and major complications occurred in 5%. Median PCI was 24, and R1/R2a resections were performed in 75% of the cases with a median number of organs resected of 5. The median LOS was 13 days. Ninety percent of patients were discharged to home with only two transferred to rehab facilities. With a median post-HIPEC follow-up of 30 months, 42% of patients are alive with no evidence of disease and the other 21% having recurred.

CONCLUSION: CRS/HIPEC was safely performed in elderly patients including 2 octogenarians. The LOS and complications are not increased in the elderly. Age alone should not be a deterrent in the selection of patients for CRS/HIPEC.
36. USE OF EPIDURALS IN ESOPHAGECTOMY PATIENTS: DO EPIDURALS CONTRIBUTE TO ANASTOMOTIC LEAKS?
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BACKGROUND: Anastomotic leak after a transhiatal esophagectomy (THE) is a significant cause of morbidity, resulting in increased length of hospital stay and cost. Patients are also dissatisfied due to delays in being able to eat. Cervical anastomoses have higher leak rates compared to those in the chest possibly due to the need of a longer conduit to reach the neck, causing increased tension at the anastomosis. Multiple comorbid, intraoperative and perioperative risk factors have been shown to predispose patients to an anastomotic leak. Epidurals are frequently used for post-op pain control, but often cause perioperative hypotension, which may compromise blood flow to an already tenuous anastomosis, possibly further elevating leak rates.

METHODS: We performed a retrospective review of esophagectomies preformed at the University of Kansas Medical Center between 10/1/2008 and 1/31/2014. A total of 110 patients were identified. Although various esophagectomy techniques were utilized, 37 patients were identified who underwent a THE by two surgical oncologist, working together using a consistent standard technique. A vast majority of these patients received neoadjuvant chemoradiation. Patients were entered into a REDCap database. Patients who received an epidural for post-op pain control (n=24) were compared to those patients who did not receive an epidural (n=13). The pre-op mean arterial pressure (MAP) was compared to the MAP 1-hour post-op and at 0400 on post-op day 1. T-Test analysis was used to compare the data sets. The rate of anastomotic leak was also obtained for both patient populations and compared using a Chi2 test.

RESULTS: At 1-hour post-op, patients receiving an epidural experienced an average decrease in MAP of 3.93. Patients who did not receive an epidural experienced an average decrease in MAP of 5.00. At 0400 post-op day 1, patients receiving an epidural experienced an average decrease in MAP of 13.90. Patients who did not receive an epidural experienced an average decrease in MAP of 10.36. The rate of anastomotic leak for the patient population who received an epidural and those who did not was 12% and 23% respectively (p = 0.40).

CONCLUSION: A known side effect of epidural administration is hypotension. We hypothesized that hypotension during the post-op period following THE may cause decreased perfusion of the anastomotic site, resulting in higher rates of anastomotic leak. This relationship was not observed in our study. Isolated episodes of hypotension are often experienced with the use of an epidural. Despite this, we observed no reduction in anastomotic leak rates in the study group that did not receive an epidural. To prevent post-op hypotension, alternative analgesia methods should be considered, but not with the intention of preventing anastomotic leaks. Although our data does not demonstrate a decrease in the rate of leaks when an epidural is deferred, the power of our study is low. The results of this study warrant continued investigation.
37. INVASIVE FUNGAL SOFT TISSUE INFECTIONS: SMALL ORGANISM, GIANT PROBLEM
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San Antonio, TX

BACKGROUND: Invasive fungal soft tissue infection carries high morbidity and mortality. These infections are rare in occurrence but highly fatal. The majority of the literature and practice experience are derived from war wounds. Patients in civilian hospitals sustain different mechanisms of injury. The characteristics of the wounds, their management, and outcome need to be evaluated as the literature in this area is sparse.

METHODS: Nine patients with biopsy proven invasive fungal infections were retrospectively evaluated. These patients presented over two different time periods, Group A [1998 - 1999] and Group B [2011 - 2014]. The identification of the first 4 patients led to the development of a protocol for treatment of patients suspected to have invasive fungal soft tissue infection at our institution. Over the last 4 years, another cluster of patients were identified and treated based on the protocol. The outcomes of the patients treated with our protocol were analyzed.

RESULTS: There were a total of nine patients, four in Group A and five in Group B. Three of the four patients in Group A were involved in motor vehicle collisions with high injury severity scores. One patient in Group A sustained penetrating trauma to the chest during a natural disaster. All died as a result of invasive fungal soft tissue infection. Group B consisted of five patients ages two to eighty-two. There were two deaths in Group B. One was a forty-eight year old poly-trauma patient who was struck by a motor vehicle and the other was the eighty-two year old who sustained dog bites to all four extremities. There were three survivors in Group B, age ranged from two to thirty-three. These survivors were identified with invasive fungal soft tissue infection involving the extremities with zygomycetes as the primary organism cultured. All three patients were treated with aggressive surgical debridement and intravenous amphotericin B.

CONCLUSION: Invasive fungal infection carries high morbidity and mortality. Early diagnosis is key to improved survival. Children and younger adults with extremity infections have 100% survival using our institutional protocol. A multidisciplinary clinical protocol with a heightened clinical suspicion help aid in early recognition and treatment of this highly fatal disease. In our experience, a protocol involving initial diagnosis by excisional biopsy, aggressive surgical debridement along with intravenous amphotericin B can be highly successful in limb salvage and can decrease mortality. A multidisciplinary approach of care involving surgeons, infectious disease clinicians, and surgical pathology can improve the outcome of a highly fatal disease process in critically ill patients.
38. IMPACT OF OBESITY ON CESAREAN SECTION OUTCOMES
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La Crosse, WI

BACKGROUND: The rate of cesarean deliveries has increased by 53% from 1996 to 2007. Previous data has reported an increased rate of cesarean deliveries in rural vs. urban areas (267 vs. 248 per 1,000 births). In these areas where delivery services may be limited, general surgeons may be called upon to perform cesarean sections. In most cases, critical access hospitals require general surgeons to maintain cesarean section privileges.

METHODS: After receiving institutional review board approval, we retrospectively reviewed all patients who underwent cesarean section within our health system between January 2010 and May 2014. Variables included postoperative maternal and fetal outcomes, demographics, past medical history, preoperative complications, and perioperative data (suture for fascial closure and type of skin closure). Patients were grouped by prenatal BMI. Patients with a BMI ≥30 kg/m² were considered obese, and those <30 kg/m² were considered non-obese. Patients were excluded if no prenatal BMI was available.

RESULTS: Overall, 1026 cesarean deliveries were reviewed; 55 were excluded. There were 432 patients (44%) with a BMI ≥30 kg/m². Obese patients were more likely to have had a previous cesarean section (48.8% vs. 41.2%; P=0.017), have polycystic ovarian syndrome (7.6% vs. 0.6%; P=0.017) or diabetes mellitus (6.7% vs. 0.2%; P<0.001). No difference in tobacco usage was observed (P=0.250). During pregnancy, obese patients were more likely to have gestational diabetes (15.3% vs. 5.8%; P<0.001) and require induction of labor. Incidence of pre-eclampsia was similar (7.9% vs. 5.0%; P=0.068). For patients requiring cesarean section, obese patients were more likely to have their fascia closed with polydioxanone (PDS) than polyglactin suture (P=0.006) and more likely to have their skin stapled closed versus sutured (P<0.001). Postoperatively, an increased incidence of surgical site infections (8.1% vs. 2.4%; P<0.001), yeast infections (2.8% vs. 0.2%; P<0.001), and seromas (2.8% vs. 0.4%; P=0.002) were observed in the obese vs. non-obese groups, respectively. The surgical site infection rate was highest in those with a BMI ≥40 kg/m². Using a multivariate logistic regression model, obesity was found to be an independent predictor of a surgical site infection (adjusted OR 3.42, 95%CI 1.78-6.57; P<0.001) regardless of wound closure. Obese patients were more likely to give birth to a macrosomic infant (25% vs. 15.2%; P<0.001).

CONCLUSION: Obesity was associated with higher rates of gestational diabetes, diabetes mellitus, polycystic ovarian syndrome, previous cesarean section, macrosomia, yeast infection, and seroma formation following cesarean section. Surgical site infections were more prevalent in obese patients regardless of the type of fascial closure. As the obesity rate continues to rise and medical care becomes more accessible, general surgeons, particularly in rural areas, should be aware of the impact of obesity on cesarean section outcomes.
39. HIGH VOLUME CHOLECYSTECTOMY PROMOTES EXTREMELY LOW CONVERSION RATE
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San Antonio, TX

BACKGROUND: Conversion from laparoscopic cholecystectomy to open operation occurs in 5 – 10% of cases and may be secondary to multiple different factors. We studied a large cohort of patients undergoing cholecystectomy at our tertiary care center over the past decade (2004-2013) and compared it to an earlier series at the same facility (1991-2001) to identify any changes in indications or frequencies.

METHODS: Data from all patients undergoing a cholecystectomy from 1/1/2004 to 12/31/2014 were prospectively collected and retrospectively reviewed and then compared to our previously reported initial series. Results were analyzed by chi-squared test, (P < 0.05).

RESULTS: When compared to the previous report, the number of patients undergoing a cholecystectomy during the recent decade had increased (P<.001) by 12% (6896 vs 7726). Similarly, the percentage of patients having either an initial OC (15 vs 1.8%) or an LC converted to OC (5.8 vs 2.2%) as well as the percentage of all patients having an open cholecystectomy (OC or LC $\chi_OC$) (19 vs 4%) had significantly (P<.001) decreased when the last decade was compared with the first decade. In addition, there was a significant (P<.001) decrease in the percentage of patients undergoing conversion for bleeding (14 vs 5.3%) and CBD injury (7.8 vs 4.7%), and an increase (P=NS) in the percentage of patients converted for severe inflammation (40.6 vs 69.4%) and dense adhesions (6.1 vs 18.2%). Two surgeons with 23 years experience including more than 2000 laparoscopic cholecystectomies each during this recent decade had a conversion rate of 1.7% compared to 2.9% for another five faculty surgeons with 1 ½ years’ experience and an average of 125 procedures for the same time period.

CONCLUSION: 1. The rate of open cholecystectomy (OC and LC $\chi_OC$) in the most recent decade was reduced by five-fold when compared to our previously reported experience. This rate is lower than a national sample from the ACS NSQIP database (4% vs 10.9%) for 65,511 patients over four years.
2. The recent conversion rate (LC to OC) was reduced by 62% over the previous decade even though more patients presented with acute inflammation and/or had adhesions from a prior laparotomy. This rate is lower than the range reported most in other studies (2.2% vs 5-10%).
3. The most experienced surgeons in our study had a significantly lower conversion rate than their junior colleagues (1.7% vs 2.9%). This suggests that case volume and total experience can have a meaningful impact.
4. Further improvements in these outcomes will likely depend on earlier clinical presentation and a more aggressive strategy in patients with advanced biliary disease.
40. IS VERTEBRAL AUGMENTATION IN THE ELDERLY TRAUMA PATIENT COST EFFECTIVE?
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Dallas, TX

BACKGROUND: Background. Vertebral compression fractures represent an increasingly significant public health problem. Occurring in as many as 1.5 million Americans each year, they are most commonly seen in osteoporotic females, malignancy, and trauma. Frequently located in the thoracolumbar junction, they can be a source of great disability.

A consensus treatment approach for these fractures without neurologic compromise has not been established. Both nonoperative and operative options exist. Among these are kyphoplasty and vertebroplasty, which are referred to as vertebral augmentation (VA). A large body of literature supported these interventions as effective treatment modalities prior to 2009. In August 2009, two randomized trials in the New England Journal of Medicine demonstrated no benefit to VA versus a sham procedure.

There is minimal data on vertebral compression fracture treatment in the elderly trauma population. Although some studies have focused on pain relief, we wanted to look at economic data such as length of stay (LOS). As the population continues aging, cost of elderly trauma care will come under closer focus.

METHODS: Methods.
All trauma admissions from May 2009 through April of 2014 were reviewed. Patients aged 60 and up were identified who suffered vertebral compression fractures without a burst component. The demographics of these patients were collected including age, mechanism, intervention, and LOS. Institution specific charges were analyzed for VA procedures.

RESULTS: Results.
There were 964 blunt trauma admissions affecting the spinal column during that period, of which 127 met inclusion criteria. Fractures were managed nonoperatively (NO) in 97 patients, while 30 were managed with vertebral augmentation (VA). The age range and average ages were 60-96, and 76.4 in the NO patients vs 62-94, and 77.1 in the VA group. Injuries were most commonly due to falls (71.1% NO vs 83.3% VA), followed by motor vehicle collision (16.5% NO vs 13.3% VA), followed by auto-pedestrian/other mechanisms (6.1% NO vs 3.3% VA). Patients in the VA group stayed in the hospital longer (5.53 days VA vs 4.80 days NO). Average hospital charges for VA procedures were $25,000.

CONCLUSION: Conclusion.
Vertebral augmentation increased the cost of vertebral column fracture related admissions by $25,000, and added to the hospital length of stay. The additional cost related to these procedures may preclude their utility in the acute setting.
41. ROBOTIC SINGLE-SITE ADRENALECTOMY: A CASE SERIES
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BACKGROUND: Technological advances have brought about robotic single-site (RSS) cholecystectomy and hysterectomy. The application of RSS to additional procedures requires careful assessment of the learning curve, the technological limitations, patient selection criteria and outcomes. This series of RSS for adrenalectomy (RSS-A) will help define its role and set the stage for other innovative applications.

METHODS: Data from a single surgeon RSS-A experience was prospectively collected and retrospectively reviewed. Demographics, indications, tumor size, operative times, EBL, length of stay (LOS) and complications were assessed.

RESULTS: 33 patients underwent RSS-A by a single surgeon with 49% being male (mean age 55, BMI 33; range 22-54). There were 18 left, 10 right, and 5 bilateral for a total of 38 adrenal glands removed. There were 11 (33%) aldosteronomas, 11 (33%) cortisol-secreting, 6 non-functioning neoplasms and 5 (15%) pheochromocytomas (mean size 3.2; range 7mm-10 cm). There were 5 conversions (15%) to a conventional laparoscopic approach for bleeding (1), adhesions (1), limited visualization (2) and poor port placement (1). Two (6%) procedures were converted to open for bleeding, one required a nephrectomy. The need for conversion was increased with higher BMI (32 vs 37, p=0.04). It was not associated with age, size, side or pathology (p>0.05). Average EBL in all patients was 393mL (range 5-6140), two had a transfusion. Higher EBL was associated with conversion (p=0.006) with a mean EBL 135ml RSS-A, 380ml laparoscopic and 3770ml in open. Operative times and LOS were longer with a conversion (mean 127 vs 272 min, p=0.001, LOS 2.4 vs 4 days, p=0.009). The operative time was not related to patient age, BMI or tumor size (p>0.05). The patients who underwent successful unilateral RSS-A had a mean age 56, BMI 32 (range 22-42), tumor size 3 cm and an OP time of 129 min. Pain scores were < 4 (10pt scale) in 73%. There was an avg of 37 morphine equivalents given in the first 24 hrs. The average LOS was 2.4 days (range 2-7) with the operative day counting as day 1. 73% of patients were discharged on POD 1 and 96% discharged by POD 2. Differences in operative times, postop pain and LOS were not associated with the pathology or BMI. The 30-day morbidity was 9% with complications of ileus (1 pt) and two readmissions for adrenal insufficiency. An assessment of the quartile learning curve in patients undergoing unilateral RSS-A showed OP times decreased from a mean of 130 min to 103 min after 21 cases. The risks of bleeding and conversion did not change over time.

CONCLUSION: RSS-A is comparable to our reported conventional laparoscopic technique in operative time, outcomes and LOS. Patients may benefit from a reduction in narcotics compared to our historic controls. Patients with functioning and non-functioning tumors, along with those with obesity can safely be treated with RSS-A. The learning curve was associated with shortened operative times and not increased complication rates.
42. EXTRACORPOREAL MEMBRANOUS OXYGENATION FOLLOWING THORACIC SURGERY: A SINGLE CENTER EXPERIENCE
AA Melin DO, A Siddique MD, R Lackner MD, KP Trujillo MD
Omaha, NE

BACKGROUND: Refractory respiratory failure following thoracic surgery often results in poor outcomes. Extracorporeal membrane oxygenation (ECMO) has emerged as a possible treatment option. ECMO is a rescue option that allows for protective mechanical ventilation. Veno-venous (VV) ECMO provides gas exchange when the native lung function cannot and a bridge until the patient recovers from their underlying respiratory failure. The exact role of ECMO is still evolving however, there are a few published reports describing the use of ECMO as rescue therapy for respiratory failure after thoracic surgery.

METHODS: Four thoracic patients with refractory respiratory failure were placed on ECMO. We present these patients to discuss our experience with ECMO and thoracic surgery at our institution.

RESULTS: A 61 year-old male with non-small cell carcinoma of his left upper lobe received chemoradiation an underwent lobectomy. On post-operative day (POD) 2 he had increased secretions and was intubated. His respiratory status worsened and he remained hypercarbic failing maximal mechanical ventilation. He was placed on VV ECMO on POD 7 for 13 days. His oxygenation improved and he was successfully decannulated and weaned from the ventilator. Three years later he continues to do well at home.

A 74 year-old female with metastatic leiomyosarcoma to her left hilum underwent a left pneumonectomy. On POD 2 she experienced respiratory distress requiring intubation. She had worsening hypercarbic respiratory failure despite conventional treatment. She was placed on VV ECMO on POD 5. She remained on ECMO for 5 days during which her lung function improved. She was discharged to a nursing facility and was successfully rehabilitated.

A 39 year-old male with non-small cell carcinoma underwent chemoradiation followed by a right upper lobectomy. He developed respiratory distress on POD 3 requiring intubation. His support was maximized and was placed on VV ECMO for 10 days. He continued to wean from the ventilator. Days later his respiratory and hemodynamic status decompensated and family requested to discontinue resuscitation and he expired.

A 60 year-old male with squamous cell carcinoma of the esophagus underwent chemoradiation and a minimally invasive esophagectomy. On POD 5, he had increased respiratory distress requiring intubation. With maximum support, he continued to have persistent hypoxia. He was placed on VV ECMO on POD 9. He remained on ECMO for 15 days during which he had pulmonary recovery. He was transferred to a rehabilitation facility. He continues recover and no longer requires respiratory support.

CONCLUSION: Our experience with ECMO and thoracic surgery provided examples of patients who otherwise may have succumbed to their severe respiratory compromise. ECMO provided supportive therapy when other conventional methods were exhausted. In appropriate patients, ECMO may be a conceivable option to aid patients and provide meaningful recovery.
43. HYPERTHERMIC INTRAPERITONEAL CHEMOTHERAPY OUTCOMES IN ADVANCED OVARIAN CANCER AT INDEX SURGERY, SALVAGE, AND PALLIATIVE CYTOREDUCTIVE SURGERY PLUS HYPERTHERMIC INTRAPERITONEAL CHEMOTHERAPY
RL Sleightholm, DC Watley, JM Foster MD
Omaha, NE

BACKGROUND: The role of HIPEC in the management of advanced ovarian cancer (OEC) continues to be debated. In the absence of prospective RCT, retrospective experience provides important insight into the benefit of HIPEC. One major question is the timing of HIPEC. Specifically, can CRS/HIPEC be offered at index CRS, salvage therapy, and in the setting of palliation? At our PSM-HIPEC program, OEC represents 10% of PM treated with HIPEC. We retrospectively explored outcomes in these three treatment settings.

METHODS: Retrospective analysis was performed on forty patients with ovarian cancer treated between 2008-2012. Twenty-four patients who received neoadjuvant carboplatin were treated with CRS/HIPEC: 8 Stage IV patients at index surgery, 8 salvage cases due to chemotherapy intolerance and/or progression, and 8 palliative cases with symptomatic disease. We calculated median LOS, PFS, and overall survival for each treatment setting, as well as PCI and level of cytoreduction achieved as R-score.

RESULTS:

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<td>R0/R1=4</td>
<td></td>
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<td></td>
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<td>R2a=2</td>
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<td></td>
<td></td>
<td>R2b/R2c=3</td>
<td>5.8</td>
<td>10</td>
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<tr>
<td>Palliation</td>
<td>18</td>
<td>R0/R1=2</td>
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<td>R2a=3</td>
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<td></td>
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<td>R2b/R2c=3</td>
<td>11</td>
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</table>

*Median survival not reached, 6/8 patient still alive, and OS from diagnosis= 42 months

CONCLUSION: HIPEC was safe in all three treatment settings. HIPEC resulted in significant PFS & OS benefit when performed at index CRS. In the salvage setting, observed OS exceeded 2 years. The palliative group had the least survival benefit, but 100% achieved symptom resolution. HIPEC provided benefit in OEC and clinical trials will further define best timing.
45. PREVENTING FARM EQUIPMENT RELATED INJURY ON OUR ROADWAYS: WHERE ARE WE NOW?
GE Lavik MD, DC Borgstrom MD
Cooperstown, NY

BACKGROUND: While motor vehicle accidents involving farm equipment make up less than 1% of accidents on public roads in most states, they are five times more likely to have associated mortality, and greater than half of these accidents result in serious injury. When analyzed on a “per vehicle miles/day traveled” basis, the risk of a farm vehicle being involved in a motor vehicle accident was more than twice that of the general public. Sharing the road with farm equipment is a public health issue not only to those who work and live on farms, but also to those living in or traveling through rural communities. This study focuses on prevention of farm equipment related accidents on our roadways, and specifically to implementation of laws in our state intended to decrease injury and mortality associated with these accidents. Laws were put in place in our state intended to decrease injury associated with farm vehicle related crashes, and as trauma surgeons we sought to evaluate the effect of these changes.

METHODS: Data was extracted from previously collected data by the State Department of Health Crash Outcome Data Evaluation System (CODES) database from January 1 2007- December 31 2011. Crash data was collected including type of vehicles involved, time of day, road conditions, weather conditions, and associated injury severity.

RESULTS: No significant differences were seen when comparing the incidence of and variables associated with farm related accidents before and after January 1st 2009 when the new laws went into effect.

CONCLUSION: Lighting and signage requirements implemented by our state have not had a statistically significant impact on the number of farm equipment related accidents on our public roadways. This may show that current standards in lighting and signage for slow moving vehicles are not sufficient to prevent these accidents. Recommendations are made by the authors to improve safety related to farm vehicles traveling on public roads including regulations compliant with the American Society of Agricultural and Biological Engineers guidelines. Changes are needed to increase comprehensibility and consistency of signage, education of the public, and increasing compliance with existing regulations.
46. EXPERIENCE AND LESSONS LEARNED FROM A TRANSITION TO PRACTICE PROGRAM
CM Loh MD, TH Cogbill MD, M Bintz MD, BT Jarman MD, SB Shapiro MD
La Crosse, WI

BACKGROUND: There is a perceived lack of preparedness among recent surgery residency graduates to enter practice immediately after residency. To address this issue, the American College of Surgeons (ACS) created a 1 year Transition To Practice (TTP) program designed for residency graduates contemplating general surgery practice. The goal of this non-ACGME program was to provide an individualized, autonomous experience and mentorship in general surgery to facilitate the transition from trainee to independent practitioner. We describe the experience of the first TTP associate in one of the first TTP programs in the US, focusing on the individual’s perspectives and the challenges faced by the program in achieving these goals.

METHODS: The TTP associate graduated from an ACGME accredited surgery residency, achieved ABS certification with first-time passing of the written and oral examinations and practiced for 3 years in Kenya. She was attracted to the TTP program because of a perceived lack of confidence to operate independently and need for additional subspecialty skills. An intake assessment of prior operative experience was completed by the TTP program director and the associate and matched to the desired goal of working in an underserved community. The overall structure was 6 months at the main teaching campus and 6 months at 2 rural locations. Rotations during the 1st half of the year included general surgery, acute care/trauma, OB/GYN, endoscopy, and hand/plastic surgery. The associate kept a weekly schedule of 2 outpatient clinic days, 1 OR day, 1 general surgery call night, and 1 endoscopic procedure day. Attending supervision was always available. The final 6 months were spent working with teams of 3 rural general surgeons at two locations within our integrated health system.

RESULTS: TTP program challenges included difficulty in achieving buy-in from the myriad surgical specialty departments involved in this complex curriculum and schedule and providing a diverse experience without adversely affecting the case volume of surgery residents in an institution committed to general surgery preparation. TTP associate challenges included a steep learning curve in a new health system with unfamiliar electronic health records and care pathways. Case variety was excellent, and included ventral/inguinal herniorrhaphy, laparoscopic appendectomy and cholecystectomy, open and laparoscopic colectomy, emergency general surgery operations, cesarean section, and endoscopy.

CONCLUSION: Curriculum planning is critical to protect the experience of other learners and optimally involve subspecialty faculty. The time needed to learn a new system of care is significant for the TTP associate. A single faculty mentor in the first month could improve this transition. The operative experience is rich with ample autonomy. While the ACS-TTP program is nascent, it has provided a young surgeon with the time and place to gain independence and confidence.
47. INGUINOSCROTAL HERNIATION OF THE URETER: A CASE SERIES
ES Allam MD, DY Johnson MD, SG Grewal MD, FE Johnson MD
St. Louis, MO

BACKGROUND: Anomalous descent of the distal ureter into the inguinal canal or scrotum is rare and undoubtedly underreported. Most reported cases were noted at the time of surgical exploration for inguinal hernia repair or as a result of an operative injury.

METHODS: We carried out a comprehensive literature review to identify previous reports. We reviewed the records of five patients with inguinal hernias containing a segment of the ureter. These five cases were encountered over five years at three hospitals in our city. We evaluated the entire ureteral course via abdominal-pelvic CT in all five cases.

RESULTS: In our first case, there was inadvertent injury to the displaced ureter at the time of hernia repair, resulting in loss of renal function. In the second case, there was severe hydronephrosis associated with the deviated curlicue ureter. Resection of the redundant ureter at the time of herniorrhaphy allowed return of normal renal function. In our third case, there was chronic hydronephrosis associated with the displaced ureter and the kidney was non-functional. The ureter was intentionally ligated at the time of inguinal hernia repair. In the fourth case, the aberrant ureter was temporarily stented prior to inguinal hernia repair to decrease the risk of ureteral injury. In the fifth case, the ureter was entrapped and obstructed within the inguinal hernia sac. A percutaneous nephrostomy was performed prior to hernia repair.

CONCLUSION: Our five cases had markedly different outcomes. All these cases occurred in very obese adult males. Efforts to better estimate prevalence are indicated. A sign on abdominal CT that accompanied this pelvic ureteral anomaly was identified, with the affected ureter displaced anteriorly from the psoas muscle by greater than 1 cm at the level of L4 in all five cases.
48. DOES THE HISPANIC PARADOX STILL EXIST? DEMONSTRATING HIGHER INCIDENCE OF ADVANCED BREAST MALIGNANCIES IN OUR YOUNG HISPANIC POPULATION
AL Klein MD, M Villareal, B Goodgame MD, A Sadia MPH, A Clark BA, J Uecker MD
Austin, TX

BACKGROUND: Historically, the Hispanic population in the United States has had a lower incidence of cancer than the matched non-Hispanic population, despite disparities in access to health care, screening, and prevention. This has been termed the “Hispanic Paradox.” However, our experience has been different. Over the past decade, we have seen a disproportionate amount of young Hispanic patients with advanced malignancies. Most notable was the number of advanced breast cancers in young Hispanic ladies. The aim of this study was to compare the incidence of advanced (Stage 3 and 4) breast malignancies among the Hispanic population with non-Hispanic patients, and specifically look at the population less than fifty years of age.

METHODS: We performed a retrospective study of all breast cancer patients at our institution over a ten year period (2003-2013) of all newly diagnosed breast cancer patients over the age of sixteen. Data was collected from the cancer registry and electronic medical records. Patients were divided into two groups: Hispanic descent versus Non-Hispanic descent. There were two subgroups as well: Hispanic patients less than fifty years of age and non-Hispanic patients less than 50 years of age. Primary outcome was the incidence of advanced cancers (Stage 3 or 4) as defined by the National Cancer Institute’s guidelines. Secondary outcomes included mortality and the insurance status of the patient.

RESULTS: There were a total of 3968 breast cancer patients seen in our Shivers Cancer center from 2003 to 2013, with an overall incidence of advanced (stage 3/4) breast cancer of 11.5%. There were 1217 patients under 50 years of age and 174 of these had stage 3 or 4 breast cancer (14.2%). Of the 1217 patients under fifty, 220 were classified as Hispanic and 47 of them had advanced malignancies (21.3%). The remaining 937 patients were non-Hispanic and 127 of them had advanced malignancies (13.5%), p=0.002. There are 68 non-Hispanic patients under 50 who are deceased (6.8%) and 18 Hispanic patients (8.1%), p=0.48. Forty two of non-Hispanic patients under 50 were uninsured (4.2%) while 46 Hispanic patients were uninsured (20.9%), p<0.0001. However, being uninsured was not shown to be an independent risk factor for developing advanced breast malignancies when less than 50 years of age (OR 1.3, CI 0.73-2.4, p=0.37), while being Hispanic was (OR 1.7, CI 1.1-2.5, p=0.01).

CONCLUSION: Here in Austin, Texas we have found a higher overall incidence of advanced breast cancer in younger Hispanic women less than fifty years of age. This experience is distinctly different than the “Hispanic Paradox” previously reported. This is important to recognize as more efforts may be required to increase screening and health care access to this population. Additionally, this data may initiate epidemiologic investigation to identify any potential genetic or environmental causes for the increase in advanced malignancies in the young Hispanic population.
49. LESSONS LEARNED FROM IMPLEMENTATION OF AN ELECTRONIC MEDICAL RECORD IN A LARGE MULTIDISCIPLINARY DEPARTMENT OF SURGERY
L Harmon MD, RC Frazee MD, D Jupiter Phd, E Bird MD, H Papaconstantinou MD
Temple, TX

BACKGROUND: The American Recovery and Reinvestment Act mandates “meaningful use” of an electronic medical record (EMR) to receive current financial incentives and to avoid future financial penalties.

METHODS: For 6 months preceding EMR implementation, instruction on its use was provided utilizing on-line self-study video modules, classes taught by industry personnel, classes taught by clinicians already experienced in the EMR, and through self-paced practice sessions with fictitious patients. Three months after EMR implementation, a Likert scale survey (strongly disagree-1 to strongly agree-5) was sent to residents and senior staff of the Department of Surgery to evaluate the perceived training effectiveness. Comparisons were made between end of training and 3 months into EMR use; and between different methods of training. Patient volumes were monitored until return to pre-EMR values.

RESULTS:

Fifty-nine surveys were received from 24 senior staff and 35 surgical residents.
Confident in EMR use at the end of training: 2.6
Confident in EMR after 3 months: 4.2 *
Video modules were useful: 2.1
Classes taught by industry personnel were helpful: 2.3
Classes taught by experienced clinicians were helpful: 3.7 *
Practice sessions with fictitious patients were helpful: 3.0
Use of previously developed templates was helpful: 4.1
My training was efficient and maximized the use of my time: 1.7
* p<0.05

Daily patient visits numbered 393 in the month prior to implementation, decreased to 331 in the first month of EMR use, and returned to 397 the month after implementation.

CONCLUSION: Three months after implementation, surgeons were confident in their use of an EMR, and returned to pre-implementation volumes of patient care. The most effective training was from other surgeons already experienced in use of the EMR. The use of previously developed templates assisted in the adoption of the EMR in clinical use. Focused training by clinicians offers the maximum benefit for adoption of an EMR.
50. DERMATOFIBROSARCOMA PROTUBERANS: INSTITUTIONAL EXPERIENCE WITH A RARE SOFT TISSUE MALIGNANCY
W Guerrero MD, G Munene MD, PV Dickson MD, MD Fleming MD, JL Deneve DO
Memphis, TN

BACKGROUND: Dermatofibrosarcoma protuberans (DFSP) is a rare soft tissue malignancy accounting for less than 5% of soft tissue tumors. Metastasis is rare, but local recurrence may be both common and functionally devastating without proper initial surgical intervention. We present our institutional experience with this soft tissue malignancy.

METHODS: After IRB approval, a retrospective review was performed for patients treated for DFSP from 2004-2013. All patients underwent treatment by multiple surgeons in a community setting. Demographic and clinicopathologic variables were recorded and long-term outcomes described.

RESULTS: Nineteen patients were treated for DFSP between 2004 and 2013. The mean age at diagnosis was 44.4 years. Men were more frequently affected than women: 58% vs 42% respectively. Fifty-eight % of these were African American, followed by Caucasian (37%) and Latino (5%). Tumors were most frequently found on the trunk (42%), the groin and upper limb (16% each), the head/neck and lower limb (11% each) and the gluteal region (5%). Of those samples that were tested for CD-34, all were positive (N=11); 9% of these were also positive for smooth muscle actin and BCL-2. The remainder (N=8) were diagnosed on H&E stain. All patients underwent wide local excision with negative margins at the time of definitive resection. The median margin of excision was 0.94 cm (range, 0.1-3.5 cm) as determined by the final pathology report. The majority of our patients had defects amenable to primary closure (63%); the remainder were managed with skin grafting or advancement flap closure. With a median follow up of 42 months (range, 1-268 months). There were no local recurrences and no distant metastases.

CONCLUSION: DFSP is a rare soft tissue malignancy in which excellent local control can be achieved with surgical resection alone. Given adherence to published guidelines, long-term outcomes may be achieved in a underserved, community setting mirroring those reported at more specialized centers.
51. DOES AGE MATTER IN THE ACUTE TRAUMA SETTING?
SE Long MD, TB Coopwood, MD, JD Aydelotte MD, CV Brown MD
Austin, TX

BACKGROUND: Protocols for triaging trauma patients have been the subject of ongoing debate across trauma centers for many years. In May of 2009, our institution decided to include age over 70 a part of the upgrade criteria to a category 1 designation for a patient who would have otherwise been a category 2 based on their clinical presentation. We wanted to see whether or not there was data to support this increased utilization of hospital personnel and resources.

METHODS: We accessed the Brackenridge Hospital Trauma Registry, looking at all trauma admissions from May of 2009 until June 2014. We specifically looked at both Category 1 and Category 2 blunt force trauma patients. After excluding patients between 70-89 years of age who presented to the ED with a GSC < 9, a SBP < 90, or a respiratory rate < 10 or > 29, we compared that same age range of patients who were now deemed Category 1 to a control group of Category 2 patients between 18-69 years of age. In total, there were 5596 patients, 144 in the Category 1 70-89 age group, and 5452 in the age 18-69 group. We then looked at a number of important clinical parameters and compared the percentage of occurrence in each of these two groups.

RESULTS: Patients in the over 70 age group were much more likely to require intubation (23% to 5%, p <.0001) and be admitted to the ICU (31% vs. 9%, p<.0001) from the emergency department. We found that they typically had longer ICU stays (3+/− 6 vs 1+/− 2, p<.0001), and needed more time to be weaned off of the ventilator (1.7 +/-5.3 vs 0.24 +/-1.5, p<.0001). Moreover, over the course of their hospitalization, these patients also had higher rates of pulmonary complications (10% vs 2%, p<.0001), cardiac complications (9% vs 1%), and overall infections (13% to 3%). Finally, the mortality rate was much higher in the age>70 group as opposed to the 18-69 age group (8% vs 0.62%, p<.0001).

CONCLUSION: Age > 70 is an independent risk factor for poor outcomes following blunt force trauma. Our research shows that regardless of initial presentation, elderly patients are more prone to develop complications over the course of their hospital admission and have an overall mortality rate that is much higher than a triage related control. Thus, the decision to include this as part of the criteria for earlier evaluation by a trauma surgeon is warranted and is supported by our clinical data.
52. CYTOREDUCTIVE SURGERY (CRS) AND HYPERTHERMIC INTRAPERITONEAL CHEMOTHERAPY (HIPEC) FOR PATIENTS WITH PERITONEAL CARCINOMATOSIS: INTERMEDIATE TERM OUTCOMES FROM THE MAYO CLINIC

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Phoenix, AZ

BACKGROUND: Peritoneal carcinomatosis (PC) is a fatal disease with a median survival of 6 months. Cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) is being increasingly employed with both palliative and curative intent for PC. We report on our intermediate term outcomes with the technique.

METHODS: A retrospective review was conducted of 48 patients undergoing CRS and HIPEC at our institutions in Arizona and Florida from December 2010 to October 2014. Recurrence free survival (RFS) defined as alive with no evidence of disease was the primary endpoint.

RESULTS: The median age was 58 years, equally split between males and females, and the majority were White (n=43, 89.6%). The most common primary tumor was mucinous adenocarcinoma of the appendix (n=27, 56.3%) followed by colorectal adenocarcinoma (n=15, 31.3%). The majority of tumors were low grade (n=29, 60.4%) with equal numbers of high and intermediate grade (n=6, 12.5%). Systemic therapy was given to 22/48 (45.8%) of patients prior to CRS and HIPEC. The majority of operations were performed with curative intent (n=39, 81.3%). The mean and median peritoneal carcinomatosis index score (PCI) was 15.4 and 13 (range 1-35). A completeness of cytoreduction score of CC0/CC1 was obtained in 25/39 (64.1%) of patients operated on with curative intent. There was no 30 day postoperative mortality and 29/48 (60.4%) of patients developed a post-operative complication, of which 8 (34.4%) were grade IV. With a median follow up of 12 months, 23 (47.9%) patients have no evidence of disease, 14 (29.2%) are alive with disease, 9 (18.8%) have died of disease and 1 patient (2.1%) has died of other causes. For all patients, median RFS was 19.3 months and 19% at 2 years. For the 39/48 patients undergoing surgery with curative intent, median RFS was 23 months and 25% at 2 years.

CONCLUSION: In selected patients, CRS and HIPEC is a treatment option for PC from appendiceal and colorectal cancer. Intermediate term survival outcomes are similar to those seen for metastasectomy for hepatic metastases from colon cancer, albeit with significant peri-operative morbidity. With increasing experience and refinement of selection criteria, we hope to improve on these initial outcomes.
53. GRAFT VERSUS HOST DISEASE AFTER LIVER TRANSPLANTATION: A CASE SERIES
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Dallas, TX

BACKGROUND: Graft versus host disease (GvHD) is a rare (0.1-2%) but highly lethal event (75-91.6%) that can be observed after liver transplantation. Clinical findings often include skin rash, fever, diarrhea, and pancytopenia. Patients usually succumb to complications of multi-organ failure, sepsis, and/or bleeding. Optimal treatment has not been determined but can include steroids, increase/decrease/changes in immunosuppression, antibodies against lymphocytes, intravenous immunoglobulins (IVIG), and antibiotics/antifungals. Risk factors have been shown to include close HLA matching, recipient age greater than 65, age difference between donor-recipient greater than 40, and immunosuppressive treatment prior to transplantation, among others. We hereby present a series of six GvHD cases seen at our institution and report on patient/donor characteristics, treatment, and outcomes.

METHODS: Retrospective chart review was conducted to identify patients that develop GvHD after liver transplantation. Diagnosis was made based on the typical clinical presentation, skin biopsy, and presence of donor/recipient chimerism. From these identified cases, age of donor/recipient, etiology of liver disease, MELD scores, clinical presentation, treatment, and outcome data was extracted.

RESULTS: Since 2003, there have been 6 recognized cases of GvHD after liver transplantation with an incidence of 1.1% (6/570). The first five cases occurred within a four year period from 2006 to 2009. The most recent case was in 2014. Most patients presented in the classic manner with skin rash, fever, diarrhea, and pancytopenia (Table 1). Consistent with the high mortality rate quoted in the literature, five of the patients expired from complications related to GvHD for a mortality of 83%. All patients were treated with steroids and a combination of tacrolimus, thymoglobulin, or OKT3. The one survivor was treated with OKT3 in addition to steroids. This patient was noted to go from 99% donor T cells to undetectable levels four days after initiation of OKT3.

CONCLUSION: GvHD after liver transplantation is a rare event that carries a high mortality risk. Optimal treatment has yet to be determined. The relatively higher incidence observed from 2006-2009 led to changes in the immunosuppression regimen used at our institution in an attempt to decrease the incidence of GvHD. The use of mycophenolate mofetil (MMF) in immunosuppression was suspected to be related. Hence, the use of MMF was decreased or avoided altogether if possible while maintaining adequate levels of immunosuppression. Since this change was instituted the incidence dropped significantly. We believe this lower incidence may be related to the change in immunosuppression regimen. Patients with GvHD are so few in numbers that adequate research to determine prevention/treatment strategies is difficult. These patients will therefore continue to be a challenge to manage in the future and additional research is needed in this area.
54. OUTCOMES FOLLOWING TRAUMATIC GRAIN ELEVATOR INJURIES
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Wichita, KS

BACKGROUND: Hazards associated with the operation of grain elevators include suffocation following entrapment, burns, crush injuries, and falls. While infrequent, these injury mechanisms often result in significant injury and death, however outcomes are underreported in literature. The purpose of this study was to compare hospital outcomes between patients who sustained traumatic injuries associated with industrial grain elevators (GE) versus those on a farm (FE).

METHODS: A retrospective review was conducted of all patients ages 0 to 89 presenting with grain elevator-related injuries at an ACS-verified Level 1 trauma center between 1/1/2003 and 12/31/2013. Data collected included: demographics, mechanism of injury, injury severity and patterns, treatments required, hospitalization details, and discharge disposition. Data were summarized and comparisons made between the GE and FE groups.

RESULTS: All patients (N=18) included in the study were male, with a mean age of 37.3 (SD 17.3, range=17 to 69) years. The incident rate of grain elevator is 6.6 per 100,000. The majority of injuries occurred in the GE group (n=15, 83.3%). There were no injury-related deaths in either group. The most common mechanism of injury was falls (n=6, 33.3%), followed by machinery (n=5, 27.7%), entrapment (n=4, 22.2%), explosion (n=2, 11.1%), and crush (n=1, 5.5%). Most patients were transported by land ambulance (n=12), followed by private vehicle (n=3), helicopter (n=2), and fixed-wing airplane (n=1). Among those patients where time from injury was available, mean time to admission was 161.9 ± 92.2 minutes for the GE group and 212 ± 122.1 minutes in the FE group. Mean ISSs were 6.9 ± 4.2 and 7 ± 5.6 between the GE and FE groups respectively. Extremity injuries and rib fractures were the most common injuries observed (50.0% and 33.3%, respectively). Traumatic brain injuries (TBI) were suffered by 22.2% of patients (n=4), 1 of whom (5.5%) had a skull fracture and 3 (16.7%) who had a concussion. Two-thirds (n=12, 66.7%) of patients required at least one surgical or procedural intervention. Average H-LOS in the FE group (7.67 ± 9.07 days) was more than double that of the GE group (3.3 ± 3.0 days). A single patient in the GE group required one day of mechanical ventilation. The majority of patients (n=15, 83.3%) were discharged to home, and 2 (11.1%) were discharged to a rehabilitation facility. The oldest patient (69y) suffered a farm injury, experienced the second longest transit time (353min), longest hospital stay (18d), I-LOS was 4 days, required blood, and was the only patient to be discharged to a skilled nursing unit.

CONCLUSION: Literature reports entrapment as the most common mechanism of injury among grain elevator accidents. Surprising, we found the most common grain elevator-associated injuries were falls, which all occurred in the GE group. This suggests a greater emphasis should be placed on fall prevention in the industrial environment while maintaining machinery safety measures.
55. ELECTRIC WHEELCHAIRS AND TRAUMATIC INJURY: AN UNRECOGNIZED SOURCE OF MORBIDITY IN THE ELDERLY
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Temple, TX

BACKGROUND: One out of three older adults, (>65 yrs) falls yearly with significant social and economic cost. With the desire to maintain mobility and continued independence in this age group, there has been an exponential growth in the electric wheelchairs (EW) industry, often referred to as a RascalTM. Millions of Americans utilize EW on a daily basis to ambulate. However, the use of an electric wheelchair at home or in the community can place the user at increased risk of injury. This is true when the electric wheelchair is used on public roadways, as the wheelchair is difficult to see by other motorists and wheelchair users often do not heed traffic rules and warnings. Although examined at a basic level by surveys and injury surveillance databases, no specific analysis of injuries due to electric wheelchairs presenting and admitted to a level 1 trauma center has been reported.

METHODS: We conducted a retrospective review of the trauma registry at our ACS-verified level 1 trauma center of all admitted injuries associated with use of an electric wheelchair. All injuries were between the years 2006 and 2013. Age, sex, ISS, injury mechanism, injury type and disposition were collected for all patients identified.

RESULTS: Over the 7-year period, 12 patients were identified as being admitted due to injury associated with electric wheelchair use. 75% were male, average age was 61.5 years, and average ISS was 11.5 (5-22). 50% of the injuries were due to collisions with moving automobiles, 33.3% were caused by striking immobile objects, and 16.7% were due to the electric wheelchair tipping over. Orthopedic injuries accounted for 75% of the morbidity; tibia and fibula fractures accounting for 40% of the overall orthopedic injuries. Traumatic brain injury was seen in 17% of the patients and in instances lead to prolonged intensive care management. Average hospital length of stay was 7 days (1-17 days). 17% of patients were under the influence of alcohol, illicit drugs or both at the time of admission. And while the majority of patient initially evaluated resided at home, 50% required placement in a skilled nursing facility for rehabilitation and recovery from the injury.

CONCLUSION: With the increasing use of electric wheelchairs throughout society and on roadways in our local communities, we must be vigilant of the potential dangers they pose to the users and their surroundings. Others have postulated as to the etiology of these accidents to include willful testing of traffic (defiance), hubris, and depression leading to a death wish. This data points to the need for further education of the elderly regarding safety and possibly the need for proficiency tests on an ongoing basis. In addition, healthcare providers must be more acutely aware of the magnitude of injury that can be sustained by seemingly innocuous mechanism in this rising patient population. Greater injury prevention and education efforts aimed towards addressing this problem in our communities are mandatory.
56. ANTICOAGULATION OPTIONS FOR PATIENTS WITH HEPARIN INDUCED THROMBOCYTOPENIA UNDERGOING CARDIOPULMONARY BYPASS: CURRENT LITERATURE REVIEW

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Houston, TX

BACKGROUND: Heparin Induced thrombocytopenia (HIT) with or without thrombosis can be a life threatening condition for patients receiving heparin. Traditionally Heparin is used as the anticoagulant of choice for patients in cardiac surgery to suppress contact activation of blood clotting via contact with the bypass circuit. If patients with HIT receive Heparin it can lead to catastrophic consequences including widespread thrombosis and loss of life. It is prudent for every team undertaking care of these patients to be familiar with alternative strategies to anticoagulate these patients in a setting of HIT.

METHODS: We reviewed the available literature on heparin alternatives to suggest the most favorable approach and one with the greatest experience with direct thrombin inhibitors. We studied the typical dosing of these agents for Cardiopulmonary bypass and tabulated that for easy access for future users.

RESULTS: Direct Thrombin inhibitors are a useful option to anti-coagulate these patients. These fall into two categories: 1) Hirudin like substances/analogues-- such as Bivalirudin and Lepirudin; and 2) Argatroban -- a synthetic derivative of Arginine that inhibits thrombin by binding it’s catalytic site. The specific choice is contingent upon the presence of active HIT. In type 2 HIT, treatment with Thrombin inhibitors is recommended and heparin is contraindicated. The typical Activated Clotting Time (ACT) used to monitor effect is 2.5 times the baseline ACT. The largest data exist for Bivalirudin in literature for bypass and was reviewed.

Bivalirudin is a bivalent thrombin inhibitor, has a plasma half life of approximately 25 minutes and its elimination is independent of specific organ metabolism. The recommended dose of Bivalirudin in one trial of 150 patients was 1mg/kg IV bolus followed by an infusion at 2.5mg/kg IV or higher. Bivalirudin was discontinued at the termination of bypass or 30 minutes prior. Argatroban has been used for this application; however, a greater variability with ACT levels was reported including many bleeding complications.

CONCLUSION: Management of anti-coagulation for Cardio Pulmonary bypass in patients with a diagnosis of HIT requires familiarity with alternative drug regimens and dosing. We recommend utilizing Bivalirudin as the drug of choice given the greatest amount of trial data in this utilization amongst Thrombin inhibitors. Whereas other agents have also been used, their bleeding and clotting profiles post bypass are not as predictable as with Bivalirudin. If surgery is elective it should be delayed and hematological consultation obtained. If urgent then the above approach provides a viable strategy with the best safety record amongst the heparin alternatives.
57. A DESCRIPTIVE ANALYSIS OF LIVER TRANSPLANT RECIPIENTS AT A MAJOR TEACHING HOSPITAL
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Little Rock, AR

BACKGROUND: To describe outcomes of patients with End-Stage Liver Disease (ESLD) who underwent liver transplant at a major academic center and compare them to the Scientific Registry of Transplant Recipients (SRTR).

METHODS: We retrospectively analyzed 62 consecutive adult liver transplants performed between October 2012 and July 2014. Baseline recipient features were summarized using basic frequencies to obtain descriptive information such as age, sex, race, comorbidities, and pretransplant MELD scores. Continuous variables were expressed as mean ± standard deviation. Categorical features were expressed in percentages. Short-term outcomes such as length of stay (LOS), 30-day perioperative medical and surgical complications and mortality rate were analyzed. Finally, patient survival was estimated using Kaplan-Meier curves.

RESULTS: Most patients were male and Caucasian. The median (IQR) age at time of transplant was 57.4 (53.3-59.5) years. The mean MELD score at transplant was 24 ± 6. Risk factors such as smoking (65%) and alcohol consumption (57%) were common. Preoperative comorbidities were frequent in this patient population. The comorbidities that were more clinically relevant were: Hypertension (40%), Diabetes Mellitus (21%), and Chronic Kidney Disease (6%). Of note 64% of the patients had a BMI ≥ 25 kg/m2 (obesity was present in 40%). The most common primary cause of ESLD was Hepatitis C virus infection (39%), non-alcoholic steatohepatitis (18%), and ethanol abuse (15%). Final pathology of the explant demonstrated Hepatocellular carcinoma (HCC) in 14 patients (23%). Twelve of these 14 patients were known to have HCC prior to transplant, whereas the remaining 2 cases were incidental HCC. Side-to-side cava to cava anastomosis (Piggyback technique) was performed in 92% of patients. End-to-end biliary anastomosis was done in 97% of patients. Portosystemic bypass was utilized in 18% of patients. A second surgery was required in 11 patients. Seven of these reoperations were performed to treat post-operative complications. The mean LOS was 9.7 days. The morbidity rate was 77%. Acute kidney injury (AKI) was the most frequent medical complication (61%). Most patients developed grade I AKI (40%) and no significant intervention was required. Two patients required renal replacement therapy; one of them recovered and no further intervention were required, the second one died as a result of multiorgan failure. At 1 year 48% of patients have been readmitted at least once. This is very similar to the national average (52%). The most common reasons of readmission were: Infectious (28%), Metabolic (19%), and Biliary (15%). The 1-year patient survival was 90%. This is equivalent to the SRTR national average.

CONCLUSION: When compared to SRTR, our patients are more likely to be overweight/obese while having similar readmission rates. Our 1-year patient survival is also on par with other centers in the United States.
59. SILICONE CUP: ENTEROVAGINAL FISTULA CONTROL  
KW Russell MD, MC Mone BSE, RE Robinson, CA Marshall, CS Scaife MD  
Salt Lake City, UT

BACKGROUND: Development of enterovaginal or vesicovaginal fistula are dreadful consequences seen with diseases (i.e. Crohn’s, cancer), obstetric trauma, pelvic surgery, and treatments such as focused radiation and chemotherapy. Symptoms include vaginal discharge of succus, stool or urine that can lead to ascending infections, perineal excoriation, and sepsis. The psychological distress experienced by patients is often profound. Surgery is the gold standard and complexity is dependent on fistula location. Options for symptom control prior to surgery are limited. In some, surgery may not be an option making symptom control the priority. Vaginal discharge is most commonly managed with tampons and pads, but often this is far from optimal. The goal was to improve management for these patients.

METHODS: A silicone vaginal cup is a reusable device designed to control menstrual drainage. The cup is inserted into the vagina and emptied as needed. The cup was prescribed for two patients in order to control fistula discharge and reduce perineal excoriation.

Case 1: A 60-year-old female with stage IV sigmoid adenocarcinoma underwent sigmoidectomy. After surgery for a pelvic recurrence, the patient developed a rectovaginal fistula, requiring a third surgery with end colostomy. Chemotherapy and radiation were given and one year later the patient returned with an enterovaginal fistula. She was prescribed use of a silicone cup to assist with drainage control, which per the patient provided good control prior to undergoing successful fistula resection.

Case 2: A 54-year-old female with stage IV mucinous adenocarcinoma of the appendix underwent hyperthermic intraoperative peritoneal chemotherapy treatment and later developed both an enterovaginal and enterocutaneous fistula. Given a diagnosis of pulmonary metastases and recent surgery within 2 months, surgical fistulae repair was not undertaken. Despite being NPO, frequent tampon changes, various topical medication use, the peritoneal excoriation and related pain were uncontrollable for the patient. At the surgical consult, use of the silicone cup was prescribed. Based on the need for frequent cup changes the surgical team fashioned a down drain system that per the patient completely alleviated her pain and skin breakdown. This system was used for a year until she eventually succumbed to disease.

RESULTS: Both patients tolerated the product very well and preferred this management to traditional supplies. The second patient had a high output enterovaginal fistula and needed long-term management, for which a custom design was created specifically for this patient allowing for continuous down drain.

CONCLUSION: Enterovaginal fistulae and their associated symptoms related to the type and amount of drainage can be extremely difficult to manage for patients. We found that using this reusable device, was adaptable and very successful in diverting fistula drainage and preventing associated complications with significant patient satisfaction.
60. A PERIPHERAL IV LEADING TO ECMO; SEPTIC THROMBOPHLEBITIS WITH NECROTIZING PNEUMONIA.
SF Hassan, SE Nicholson, JC Pamplin, JW Cannon, DL Dent, DL Mueller
San Antonio, TX

CASE REPORT: Septic thrombophlebitis is associated with a very high mortality rate if left untreated. The endovascular nature of this infection results in secondary metastatic disease, including pneumonia, endocarditis, and/or arthritis due to septic embolization and/or hematogenous bacterial spread. An immunocompetent 24 year old female status post Motor Vehicle Collision with minor injuries was re-admitted to our institution one week after her initial injury with septic shock and severe respiratory distress. The patient was found to have a severe necrotizing pneumonia secondary to a left upper extremity septic thrombophlebitis from a previous peripheral IV catheter. The patient underwent surgical excision of the thrombosed vein. Tissue, blood cultures, and bronchoalveolar lavage were all positive for methicillin susceptible staphylococcus aureus (MSSA). The patient progressed rapidly to severe ARDS (acute respiratory distress syndrome). Refractory hypoxemia despite optimal conventional management led to the utilization of ECMO (extracorporeal membrane oxygenation) support for sixteen days. This is the first case report of MSSA peripheral septic thrombophlebitis leading to necrotizing pneumonia and ARDS requiring ECMO. Septic thrombophlebitis can be fatal and a high index of suspicion with rapid treatment is required to control this potentially devastating infection.
61. A NOVEL TECHNIQUE TO MANAGE CHRONIC CAROLI’S DISEASE
BC Bredbeck BS, CC Burlew MD, B Cook MD, CC Barnett MD
Aurora, CO

BACKGROUND: Caroli’s disease is characterized by congenital segmental dilation of the intrahepatic biliary tree, causing bile stasis and intrahepatic lithiasis. Patients present with recurring cholangitis early in life and average life expectancy after the first episode is 5-10 years. Not only is morbidity and mortality due to recurrent sepsis high, but patients are also at increased risk for cholangiocarcinoma. Definitive treatment for this disease is resection of the affected hepatic lobe in isolated disease or orthotopic liver transplant in bilobar disease. Internal drainage procedures (PTC) are palliative and facilitate access to the bile ducts for imaging, drainage, or biopsy. Controversy exists regarding the long term benefit of internal drainage procedures, citing stricture as the most common complication. We describe a unique palliative technique that may be used to prevent recurrent cholangitis.

METHODS: A case report on the management of a patient with Caroli’s disease.

RESULTS: Fifteen years ago, a 62 year-old Moroccan woman presented with classic signs of cholecystitis; she was incidentally discovered to have Caroli’s disease. At that time she underwent cholecystectomy, segmental common bile duct resection, and an end to side Roux en Y hepaticojejunostomy. She presented to our facility in 2014 with severe sepsis presumptively due to cholangitis. After ERCP failed to access the biliary tree, percutaneous access to the intrahepatic bile ducts was accomplished. Imaging revealed a stricture at the hepaticojejunostomy and multiple intrahepatic stones not amenable to percutaneous treatment. After resuscitation from sepsis, the patient was taken to the operating room with the plan to clear her intrahepatic stones, perform a stricturoplasty on the hepaticojejunostomy, and provide access to the biliary tree so that stones and debris could be cleared via endoscope in the future. A vertical hepaticodochotomy extending into a left hepatotomy was performed, through which stones and debris were cleared from the intrahepatic bile ducts. Intraoperatively her 8 Fr PTC was upsized to a 16 Fr PTC which was extended 15 cm into the Roux limb. The vertical incision was closed horizontally and a side to side anastomosis was created between the Roux limb and the antrum of the stomach for future endoscopy. The 16-French tube that was within the hepatic duct was exchanged at 6 weeks and removed at 12 weeks postoperatively; at that time the patient had no evidence of stricture on imaging and no intrahepatic debris.

CONCLUSION: Caroli’s disease is a rare cause of recurrent cholangitis that is characterized by early mortality due to recurrent sepsis or cholangiocarcinoma. Patients who are not immediately eligible for resection or orthotopic liver transplant may benefit from surgical measures that allow for clearance of intrahepatic biliary debris. We describe a unique procedure that allows endoscopic access to the hepatic ducts as well as wide internal drainage.
62. CONTEMPORARY MANAGEMENT OF RECURRENT DOEGE-POTTER SYNDROME
ES Gillespie DO, EA Vaughn MD, HW Hollis MD
Denver, CO

BACKGROUND: Initially described in 1930, Doege-Potter syndrome is a paraneoplastic syndrome associated with solitary fibrous tumors that secrete a prohormone form of insulin-like growth factor II (IGF-II) resulting in hypoglycemia. Although the tumors are malignant in only 12-13% of cases, the degree of hypoglycemia can be severe and resection is warranted with expectant resolution of the hypoglycemia. Surveillance and management of recurrent disease remains problematic.

METHODS: This report highlights the case of an 87yo female with recurrent benign extra-pleural solitary fibrous tumor associated with severe hypoglycemia. The initial tumor, located in the left suprarenal space was resected and euglycemia was restored. On surveillance the tumor recurred, but she was euglycemic so continued surveillance was maintained. Over time her hypoglycemia again became severe with glucose measurements less than 30mg/dL. A subsequent resection resulted in complete amelioration of symptoms and normalization of her blood glucose. She is being screened annually with ultrasound. A detailed review of current literature from the PubMed database accompanies this report. The discussion focuses on epidemiology and pathophysiology to include management of non-islet-cell tumor hypoglycemia.

RESULTS: Approximately 300 cases of Doege-Potter syndrome have been reported in the past 25 years. Most of the reports detail pleural based tumors but extra-pleural tumors do occur. Surveillance intervals to detect recurrence are not clearly defined, but for pleural based tumors it is recommended to obtain plain films of the chest annually. Management of recurrent disease includes treatment of associated hypoglycemia, possible chemotherapy/embolization and/or radiation, but complete surgical resection remains the most effective method of treatment for both primary and recurrent disease.

CONCLUSION: Doege-Potter syndrome is a rare paraneoplastic syndrome characterized by hypoglycemia from IGF-II prohormone secretion from solitary fibrous tumors. Even though recurrence is not frequent these patients should continue routine radiographic surveillance annually. Management of recurrent disease is multifaceted including glycemic control, oncology consultation, and surgical re-excision.
63. BREAST COCCIDIOIDOMYCOSIS
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Phoenix, AZ

BACKGROUND: Breast fungal infections are rarely reported in the medical literature. The skin is a common site of dissemination for coccidioidomycosis. However, incidence of primary cutaneous coccidioidomycosis, while rare, is increasing in developed countries with immunocompromised patients. Soft tissue coccidioidomycosis is most commonly found in the hilar and mediastinal lymph nodes as a primary site with the supraclavicular and cervical nodes being the sites for extrapulmonary nodal involvement.

METHODS: A retrospective case series was conducted for breast coccidioidomycosis infections.

RESULTS: Case 1: An asymptomatic 42 year-old male with type 2 diabetes and end-stage renal disease who presented during kidney transplant workup with positive titers for coccidioidomycosis indicative of disseminated disease. No other past medical history of immunodeficiency or compromise was noted. He was empirically started on fluconazole. Further transplantation work up included CT scan of the chest, which showed incidental findings of right breast, axillary, and pulmonary nodules. The pulmonary nodules were not felt to be consistent with active infection. Diagnostic mammogram showed a subareolar mass and right axillary lymph node. Ultrasound-guided biopsy of the sites showed necrobiotic granulomatous inflammation. GMS stain showed fungal organisms positive for spherules of Coccidioides immitis in the lymph node, and similar histopathologic findings in the breast, though no organisms were found in the breast. He continues under active treatment at this time.
Case 2: A 73 year-old woman with chronic lymphocytic leukemia presented to an outside institution with noncardiac chest pain and a new left breast lump. She reported a cough for one year and had been treated for pneumonia 8 months prior; however, the cough returned soon after treatment and she declined bronchoscopy at that time. On biopsy, she was found to have necrotic fatty tissue, granulomatous inflammation and fungal spherules and endospores on GMS stain consistent with coccidioidomycosis. Upon examination at our institution she had multiple lesions on the breast, flank, and extremities. She was started on fluconazole treatment and eventually lost to follow up. Other cases will also be presented.

CONCLUSION: Coccidioidomycosis of the breast is a rare finding. While rare, coccidioidomycosis should be on the provider’s differential for breast infections in endemic regions and suspicious lesions should be biopsied and cultured.
**64. LAPAROSCOPIC COMMON HEPATIC DUCT EXPLORATION AFTER FAILED ERCP: A CASE REPORT AND REVIEW OF THE LITERATURE**

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*Sacramento, CA*

**BACKGROUND:** Advances in endoscopic biliary stone retrieval have relegated operative bile duct exploration to an infrequent occurrence on the most challenging cases. We report a case that necessitated operative biliary exploration to highlight the common anatomic characteristics and operative approach in patients who typically fail endoscopic retrograde cholangiopancreatography (ERCP).

**METHODS:** We report a case of a 36 year old man who had a symptomatic common hepatic duct stone that was not amenable to endoscopic removal. A literature review was also conducted in which PubMed was searched using the following terms: “laparoscopic common bile duct exploration” and “laparoscopic common hepatic duct exploration.” Non-randomized small case series were excluded.

**RESULTS:** Our patient did well after his operation, was discharged on post-operative day four and had no post-operative complications. The specific anatomic details that resulted in failure of ERCP and necessitated a laparoscopic trans-ductal (TD) approach were the following: >1 cm diameter stone in the common hepatic duct, narrowed common bile duct (CBD) and acute angulation of the cystic duct. In addition, his ERCP was complicated by severe pancreatitis, making repeat ERCP with lithotripsy prohibitory.

Our literature review identified 34 studies matching our search criteria. Out of which 8 prospective randomized trials were analyzed. From these trials a total of 789 laparoscopic common bile duct explorations were performed. In the studies that differentiated between operative approaches, the most common laparoscopic technique was trans-cystic (TC) in 572 (73%) of cases and trans-ductal (TD) in 217 (27%) of cases. The average diameter stone for the TC approach was 5mm (2-14mm) and for TD 11.5mm (5-30mm). Clearance rates were 76-90% for TC and 58-93% for TD. TD had a higher clearance rate in most studies. Only one paper specifically addressed the question of approach after failed ERCP in which 83% required a TD approach for clearance. T-tubes use ranged from 3-37%.

**CONCLUSION:** Complex biliary duct stones can be managed laparoscopically. The majority of failed ERCP interventions will need to be approached via a choledochotomy. Our recommended algorithm for the approach to laparoscopic biliary duct exploration is to attempt extraction using a TC approach prior to TD. Factors that would support a TD approach include stone size (> 8-10 mm), hepatic duct stone and failed ERCP.
65. ENDOVASCULAR REPAIR OF LONG STANDING ILIAC-ILIAC TRAUMATIC ARTERIOVENOUS FISTULA
S Casillas MD, J Jacob MD & J Jen MD
Abington, PA

BACKGROUND: We present the case of a 38 year old male with history of traumatic left hip fracture treated operatively with plates and screws in 1994. He had previously been evaluated multiple times for left lower extremity edema as well as left ankle skin ulcerations likely as a result of chronic venous stasis. He had a left greater saphenous vein ablation in 2013 in an attempt to correct the venous insufficiency in the extremity. His symptoms improved transiently and this year his left lower extremity edema and ankle ulcerations had recurred.

METHODS: Due to an abdominal bruit detected on physical exam he had a CT scan of the abdomen and pelvis with IV contrast yielding equivocal results but suspicious for an arteriovenous fistula in the left internal iliac artery-vein.

The patient was then admitted to our vascular surgery service for a diagnostic angiogram revealing the presence of an external iliac artery to vein fistula, that same day the angiographic findings were confirmed via CT angiogram. The patient was scheduled for a femoral cut down and repeat angiography the next day, an external iliac arteriovenous fistula was again demonstrated. A 12 Fr dry seal was inserted at the level of the left common femoral artery and a 16 X 12 X 7 cm covered stent was deployed successfully ablating the fistulous opening in the arterial site. Post deployment aortogram was performed revealing a complete seal between the iliac vessels. The patient was transferred then to the surgical floor, serial vascular exams were performed and the patient was discharged home on POD 2 recovering well from the intervention.

RESULTS: On follow up visit to the vascular clinic the patient presented marked improvement in the ankle ulcers as well as the lower extremity edema.

CONCLUSION: Traumatic arteriovenous fistulas are often unrecognized until the patient presents with complications consequence of the vascular injury. In our patient, the persistent lower extremity venous disease was initially thought to arise from intrinsic venous insufficiency leading to treatment that proved to be futile. Aggressive assessment measures, including a detail history, an accurate physical exam and the utilization of diagnostic tools such as vascular Doppler/ duplex, CT angiography and ultimately, angiography are proven to be accurate in terms of diagnosis and also provide a tool to treat the AVF, such as angiography with stenting, ultimately an open operative approach may also be indicated. It is of paramount importance to detect these conditions in order to prevent its complications short term such as vessel thrombosis and ischemia, hemorrhage and arterial dissection and long term such as venous congestion and thrombosis, venous embolism and high output cardiac failure.
66. ENDOVASCULAR REPAIR OF TRAUMATIC INJURY TO THE COMMON ILIAC ARTERY FROM SEAT BELT: CASE REPORT AND REVIEW OF LITERATURE
Y Sun MD, B Troop MD
Saint Louis, MO

BACKGROUND: Common iliac injury from blunt trauma caused by restraining seat belt is rare. Only 5 cases have been reported in the past. Previously this type of injuries were only repaired through open surgery. We present the first case of endovascular repair of a left common iliac injury from blunt trauma associated with seat belt.

METHODS: The patient is a 21 year-old man, restrained driver involved in a motor vehicle crash identified to have ischemic left leg. CT angiogram showed evidence of occlusion of the left common iliac artery without contrast extravasation or retroperitoneal hematoma. In addition, the patient was identified to have significant intra-abdominal injury that would require exploration following restoration of flow to his leg. Because of concerns about potential of the intraperitoneal soilage, he underwent a transfemoral endovascular repair with stent to treat this problem in order to avoid placement of potential prosthetic graft in a contaminated field.

RESULTS: The patient successfully underwent a left femoral cut down, mechanical thrombectomy with Fogarty Catheter and trans-catheter deployment of 10 mm X 4 cm self-expanding stent across the area of intimal disruption. Subsequently, the patient underwent exploratory laparotomy, resection of injured colon and colostomy creation. His iliac stent remained patent on subsequent follow up.

CONCLUSION: Endovascular repair of the iliac artery can be an effective approach in treating injuries resulted from blunt trauma by the seat belt. We recommend endovascular approach to be the preferred method in treating this type of injuries, especially in the setting of poly-trauma involving contaminated operative field from bowel perforation.
67. A DELAYED SUBCLAVIAN ARTERY INJURY AFTER BLUNT TRAUMA
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Johnstown, PA

BACKGROUND: Injury to the subclavian artery is uncommon in patients with blunt trauma and often fatal. Delayed presentation is rare and not well described in the literature.

METHODS: This case presents a 34yo male who presented after a motorcycle accident. Imaging demonstrated a distal third clavicle fracture with moderate displacement and multiple rib fractures and was non-operative management was planned. Patient did well clinically and was to be discharged on post trauma day four. Before the discharge was achieved, the patient experience a syncopal episode after coughing. He was tachycardic, hypotensive and chest radiography demonstrating left white out of the lungs. Hgb was 4.6. Computed tomography demonstrated massive hemothorax with mass effect and emergent operative evacuation and exploration took place.

RESULTS: The patient underwent an emergent left thoracotomy, ligation of left subclavian artery, evacuation of hemothorax and ultimately underwent a carotid subclavian bypass and clavicle plating. He clinically progressed and was discharged on post trauma day twenty eight neurovascularly intact.

CONCLUSION: This case presents a delayed hemorrhage secondary to unstable clavicle and highlights the potential advantage of orthopedic plate stabilization.
68. TREATMENT STRATEGY OF METASTATIC GASTROINTESTINAL STROMAL TUMOR IN PREGNANCY
N Ikoma MD, D Lesslie MD
Houston, TX

BACKGROUND: Gastrointestinal stromal tumor (GIST) is the most common mesenchymal tumor of the gastrointestinal tract. GIST treatment was revolutionized by the development of molecular-targeted therapy using tyrosine kinase inhibitors, such as imatinib, which significantly improved the 5-year survival rate. Although the incidence of GIST is increasing, it remains rare in women of child-bearing age. The optimal treatment strategy for metastatic GIST diagnosed during pregnancy is unknown, and the absence of safety data concerning imatinib use during pregnancy further compounds the treatment decision.

METHODS: We experienced a case of metastatic GIST surgically resected during pregnancy with a favorable outcome. We conducted thorough literature review of cases of GIST diagnosed or managed during pregnancy, which yielded five such case reports.

RESULTS: Case description: A healthy 20-year-old who was 16 weeks pregnant presented with severe abdominal pain. Imaging studies revealed a 15-cm complex heterogeneous gastric mass, with a 3 cm metastatic lesion on the left liver. Fine needle aspiration revealed a spindle cell tumor consistent with GIST. At 18 weeks gestation, she underwent en-bloc resection of the tumor by total gastrectomy with a Roux-en-Y reconstruction, distal pancreatectomy, splenectomy, and lateral segment partial hepatectomy. Histological analyses revealed a low-grade GIST with lymph nodes metastasis. She delivered a healthy infant at 37 weeks gestation. Follow-up CT scans were negative for disease recurrence, and she was started on imatinib 400 mg/day for 6 weeks after the delivery. A literature review uncovered 5 previous case reports of GIST in pregnancy (Table 1). Three patients underwent a simple resection without adjuvant therapy, one patient waited until 36 weeks and then underwent simultaneous resection of the tumor and a cesarean section, and one patient was found to be pregnant during treatment with imatinib for metastatic GIST, which was continued throughout the pregnancy. None of these case reports indicated pregnancy complication.

CONCLUSION: On the basis of a literature review, a reasonable treatment strategy for GIST in pregnant patients should include the following: (1) Resection of the primary tumor and metastatic lesions, if feasible, especially if the tumor was diagnosed in the first or second pregnancy; (2) If the tumor is found in the later phase of pregnancy, one should consider waiting until 36 weeks gestation and then resect the tumor after or simultaneously with delivery; (3) Adjuvant imatinib administration should be considered for high-risk tumors, and should be started after child-birth; (4) For non-resectable metastatic GIST, continuation of the pregnancy and/or imatinib treatment should be cautiously discussed with patients with collaboration from the multidisciplinary team.
BACKGROUND: Short bowel syndrome (SBS) is a serious condition that results in loss of intestinal function. In adults, residual jejunum of less than 200cm poses a risk of short bowel syndrome and those with less than 60cm of jejunum generally require intermittent to full dependence on parenteral nutrition (PN). Less than twenty percent of patients receiving PN are able to achieve parenteral independence. Early enteral feeding in animal models has demonstrated improved small bowel adaption and decreased villous atrophy in SBS subjects. We present a patient with SBS who received early enteral nutrition and was successfully weaned from PN.

METHODS: We present a case study to demonstrate the effects of early enteral feeding in the setting of short bowel syndrome.

RESULTS: L.A is a 54 year old female who presented with Type B aortic dissection resulting in acute mesenteric ischemia requiring emergent operation. During her index operation over 180cm of small bowel was resected and she underwent a common iliac artery to superior mesenteric artery bypass. She was left with 10cm of small bowel distal to the ligament of trietz and 65cm proximal to the ileocecal valve. At planned subsequent laparotomy an additional 8cm of distal small bowel was resected and she underwent primary anastomosis. TPN was started within 24 hours post operatively and a low residue, high protein, low fat diet was initiated on post-operative day 10. High dose PPI, anti-motility agents, and cholestyramine were used to control GI motility. The patient was discharged to home on full PN support and an oral diet and was seen in regular outpatient follow up. She continued to tolerate an oral diet and while maintaining stable nutrition parameters, adequate hydration and weight, was able to be weaned from PN completely after nine months.

CONCLUSION: Early enteral nutrition and pharmacologic adjuncts allowed our patient to gain parenteral independence in 9 months with only 67cm of functional small bowel remaining. This mechanism is likely related to early facilitation of small bowel adaption limiting villous atrophy. Early feeding in the setting of SBS in pediatric and animal subjects is well-represented in the literature. Adult patients at risk for SBS should be considered for early enteral nutrition in the immediate post operative period. Further research in the adult population is warranted.
POSTER ABSTRACTS (cont.)

70. SUPERIOR GLUTEAL AND INFERIOR GLUTEAL ARTERY PSEUDOANEURYSMS FOLLOWING BLUNT TRAUMATIC PELVIC RING DISRUPTION
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Dallas, TX

BACKGROUND: Background: Pseudoaneurysm of the superior or inferior gluteal artery is uncommon and overwhelmingly related to penetrating trauma. There are few case reports of isolated gluteal artery pseudoaneurysm after blunt trauma. Even rarer are concomitant superior and inferior gluteal pseudoaneurysms, none of which have been discussed in the existing literature. The preferred treatment is transcatheter angiographic embolization (TAE). Unfortunately, gluteal muscle necrosis may be a significant and fatal complication of this procedure. We present a case of pseudoaneurysm of both the superior and inferior gluteal arteries after blunt trauma with subsequent gluteal necrosis after TAE.

METHODS: Methods: A 30-year old male presented to our emergency department after sustaining a severe crush injury to the pelvis. Imaging revealed an acetabular fracture with significant protrusion and pelvic ring disruption. Staged open reduction and internal fixation was undertaken without any intraoperative complication. Delayed pelvic hemorrhage with hemodynamic instability three weeks post-injury led to computed tomography diagnosis of pseudoaneurysm of the left superior and inferior gluteal artery.

RESULTS: Results: Angiography revealed active extravasation of contrast with collateral flow to buttocks and coil embolization of the gluteal arteries was performed. Poor wound healing and gluteal muscle necrosis was identified during post-operative care and treated with serial debridements. The patient was discharged home with continued local wound care.

CONCLUSION: Conclusion: Combined superior and inferior gluteal pseudoaneurysms are a rare but important entity. Trans-catheter angiographic embolization is the treatment of choice. This can result in gluteal necrosis with significant morbidity and mortality. High clinical suspicion and careful attention are advised after significant blunt pelvic trauma and subsequent TAE of the gluteal arteries.
CONSTITUTION
AND
BYLAWS
CONSTITUTION

ARTICLE I: NAME
The name of the organization shall be The Southwestern Surgical Congress. It shall be incorporated as a non-profit organization under the laws of the state of Oklahoma unless otherwise directed by action of the members of the Congress. It shall have no capital stock or shareholders.

ARTICLE II: MISSION STATEMENT
The Southwestern Surgical Congress is an organization that promotes the advancement of General Surgery by representing the interests of academic, community and rural surgeons, surgical residents and medical students through education, advocacy, research and innovation. The goal of the Congress is to promote excellence in patient care and professional development.

ARTICLE III: MEMBERS
The members shall be known as Fellows of The Southwestern Surgical Congress. They shall be reputable surgeons and allied specialists residing in the states comprising this Congress, and other areas as approved by the Council of the Congress. Physicians shall be elected to membership according to the Constitution and these Bylaws. When the membership of any Fellow in the Congress terminates by resignation, death, or any other manner, all of his or her rights and privileges in the Congress terminate. None of the assets or privileges may be used to benefit such person or the representatives of his or her estate.

ARTICLE IV: COUNCIL
There shall be an Executive Committee of the Council composed of the President, the President-Elect, the Secretary-Treasurer, the Vice-President, the Recorder and the two most recent Past Presidents of the Congress.

There shall be a Council of the Congress consisting of the President, President-Elect, Vice-President, Secretary-Treasurer, Recorder, the two most recent Past Presidents, Chairman of the Program Committee, Associate Fellow Representative and all councilors from each of the states comprising the Congress area. State Councilors and the Associate Fellow Representative shall be appointed by the President-Elect with the approval of the Council of the Congress at the Annual Executive Session. The term of office of each Councilor shall be three years. A Councilor shall not serve more than two consecutive terms.
ARTICLE V: OFFICERS
The officers of the Congress shall consist of a President, a President-Elect, a Vice-President, a Secretary-Treasurer and a Recorder who are active Fellows of The Southwestern Surgical Congress.

The President-Elect shall be elected at the Annual Congress Business Meeting to serve for one year. At the expiration of that year, he or she shall become President and shall serve for one year or until his/her successor is elected and installed. If the President-Elect dies, resigns or becomes otherwise unable to complete the term and succeed to President, the Vice President shall assume the position and responsibilities of the President-Elect. The Congress shall elect both a Vice-President and President-Elect at the next Annual Congress Business Meeting.

All other officers shall be elected at the Annual Congress Business Meeting to serve for one year, except for the Recorder and the Secretary Treasurer who shall each be elected to serve for a term of 3 years, with a limit of no more than two terms.

ARTICLE VI: MEETINGS
Meetings of The Southwestern Surgical Congress shall be held and designated as follows:

1. A Fall Council meeting at a site and date designated by the President.
2. The Annual Council Meeting which is held immediately prior to the Annual Scientific Meeting.
3. The Annual Scientific Meeting for presentation of the education program.
4. The Annual Congress Business meeting during the Annual Scientific Meeting.
5. The Council Executive Committee Meeting, held at the Annual Scientific Meeting and additionally as needed.

ARTICLE VII: RULES OF CONDUCT
The parliamentary conduct of the Congress and its component committees shall be governed by Robert's Rules of Order (most recent edition).

ARTICLE VIII: FUNDS AND EXPENSES
Funds may be raised by annual dues and voluntary contributions or in any manner approved by the Council of the Congress. Funds may be appropriated by the Council to defray the expenses of the Congress, to carry on its work and for any other purpose approved by the Council in accordance with 501c3 requirements.
ARTICLE IX: AMENDMENTS

The Congress, at any Annual Congress Business Meeting of the Fellows, may amend any Article of this Constitution by a 60% vote of the members present, provided that a copy of the proposed Amendment has been furnished for each Active and Senior Fellow at least thirty days in advance of the Annual Congress Business Meeting.

ARTICLE X: DISSOLUTION CLAUSE

In the event of the dissolution of this organization for any cause, the Council of the Congress shall, after satisfying claims, direct the distribution of all funds and assets of The Southwestern Surgical Congress to such scientific, educational, or charitable organizations or purposes as two-thirds of the Council approves. No part of the assets or funds shall be given to any member or other individual.
SECTION 1. The Council shall judge the qualifications of its applicants for Fellowship. Every reputable and legally-qualified surgeon or allied specialist who has attained certification by his/her appropriate Specialty Board may be eligible for Fellowship. Membership shall not be denied because of race, creed, color or sex. The Membership shall consist of Fellows recommended by the Council from the following states: Arizona, Arkansas, California, Colorado, Hawaii, Idaho, Kansas, Missouri, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah, Wisconsin and Wyoming.

Qualified and reputable surgeons residing in areas other than those included in The Southwestern Surgical Congress area who express a desire to become a member may request an application form from one of the State Councilors who will present the application to the Council for special consideration for membership. Fellows who have paid their dues and now reside in states outside of the area comprising the Congress may continue as Fellows with all duties and privileges.

Domestic: Every reputable and legally-qualified surgeon or allied specialist who has attained certification by his or her appropriate American Surgical Specialty Board (which is a member of the American Board of Medical Specialties) and who has graduated from a Medical School acceptable to The Southwestern Surgical Congress may be eligible for membership.

Foreign: Surgeons requesting membership in The Southwestern Surgical Congress who are foreign medical graduates are eligible if they possess the following qualifications: a) they are able to speak and write English. Application and supporting materials must be completed in English. b) Graduation from a Medical School acceptable to The Southwestern Surgical Congress. c) Certification appropriate to the applicant’s specialty practice by an American Specialty Board acceptable to The Southwestern Surgical Congress or appropriate specialty board certification by the Royal College of Physicians and Surgeons of Canada or documented proof of the completion of a minimum of five years of formal post-doctoral surgical education. d) A full and unrestricted license to practice medicine in the country and in the state or province where they are in practice.

SECTION 2. New states will be admitted to membership in The Southwestern Surgical Congress in the following manner: A surgeon who meets all of the qualifications for membership in The Southwestern Surgical Congress shall submit an application for the state he/she wishes to have included in The Southwestern Surgical Congress. He/she shall include with his/her application the name of surgeons who meet the qualifications and wish to become active members of the Congress. This application shall be submitted to the Council, and if approved, shall be presented to the Fellows of the Congress at the Annual Congress Business Meeting where a majority vote shall be required for inclusion as a new state.

SECTION 3. A candidate for Fellowship shall make application in writing on a form
provided by the Congress. The application form shall contain all specific information deemed important and pertinent by the Council. The requirement for an accompanying initiation fee is limited to application for active fellowship. The application must be approved and signed by the applicants State Councilor before consideration by the Council of the Congress.

Section 4. The Council shall have the right to accept or reject any application for Fellowship in the Congress. If approved by the Council, each application shall be signed by the Chairman of the Membership Committee of the Congress. If disapproved, the initiation fees will be returned.

Section 5. The membership of this Congress shall be designated as Active, Associate, Honorary, Senior and Inactive Fellows.

(A) Active Fellows
Active Fellowship may be conferred upon physicians who have been actively engaged in the practice of surgery for at least one year following the completion of an approved surgical training program, who are of good moral character and professional standing, duly licensed and who are certified by the American Board of Surgery or other appropriate Specialty Board. Extraordinary exceptions to these membership requirements may be recommended by the State Councilor and considered for approval by the Council of the Congress, after careful and complete review and approval by the Membership Committee.

(B) Associate Fellows
Associate Fellowship may be conferred upon physicians who are at any level of an ACGME approved surgical training program, who are of good moral character and professional standing and are duly licensed. Associate Fellowship will be limited to five years. Upon completion of Board Certification, the Associate Fellow is eligible for Active Fellowship, after 1 year of practice. Associate Fellows will be entitled to the same privileges as Active Fellows except the privileges of voting and holding office. Associate Fellows will pay no initiation fee but will pay a reduced membership fee as set by the Council and regular membership meeting registration fees. Associate Fellows who apply for Active Fellowship will have the initiation fee waived and pay the standard membership dues at that time.

(C) Honorary Fellows
Honorary Fellowship may be conferred by the Council upon surgeons who have distinguished themselves by outstanding achievement. Honorary Fellowship may be conferred upon surgeons living in states outside those included in The Southwestern Surgical Congress or upon surgeons living in countries other than the United States. Honorary Fellows shall pay no dues or initiation fees and may not vote or hold elective office. They may receive the official Journal upon payment of the members’ subscription fee.

(D) Senior Fellows
Upon the recommendation of the State Councilor, the Membership Committee and subsequent approval of the Council, an Active Fellow in good standing who has attained the age of 65 years and remains in active practice may continue as an Active Fellow with all the rights and responsibilities or may request change to senior status by applying to the Council. An Active Fellow in good standing who has retired from practice regardless of reason or age and is not using his/her professional credentials for employment shall be granted Senior Fellowship. Senior Fellows may receive the official Journal upon payment of the member's subscription fee.

(E) Senior Fellows for Life:
Senior Fellow for Life status may be conferred by the Council upon surgeons who have retired from active practice and have held Senior Fellow membership status for at least one year. This status is intended for surgeons who wish to retire completely from the association but remain listed in the membership directory. Senior Fellows for Life may neither vote nor hold elective office.

(F) Inactive Fellowship
Inactive Fellowship may be granted by the Council upon request from Active Fellows while they are serving military duty, while engaged in full time post-graduate training, while actively engaged in missionary service or for other valid reasons as accepted by the Council. Upon conclusion of this period the member may resume his/her previous status of Active Fellow. Inactive Fellows are not required to pay membership dues but they may receive the official Journal upon payment of the members' subscription fee. They may not vote or hold elective office. Inactive Fellows must inform the Central Office annually concerning their current status. Active members while serving active duty will continue to receive the Journal without a fee and interruption.

Section 6. Fellows shall be certified by the Congress and their certificates shall be signed by the President and the Secretary-Treasurer of the Congress.

Section 7. The privilege of holding any elective office and voting in the Congress shall be restricted to Active Fellows and Senior Fellows in good standing. Honorary, Inactive, Associate Fellows and Senior Fellows for Life shall not vote or hold office.

Section 8. Any member who is suspended from his/her local or state Medical Society, the American College of Surgeons, or who otherwise may be disqualified from fellowship in this Congress for any good or sufficient cause may have his/her membership in the Congress terminated, following review and agreement by the Council.
CHAPTER 2: MEETINGS

Section 1. The Congress shall hold an Annual Scientific Meeting. The time, place, and length of the meeting shall be determined by the Council. Appropriate registration fees for the Annual Scientific Meeting will be determined by the Council.

Section 2. Each individual attending the Annual Scientific Meeting shall register and secure a badge from the Secretary-Treasurer or designated representative. This badge is required for admittance to the educational program and all other events at the meeting.

Section 3. During the Annual Scientific Meeting, there shall be an Annual Congress Business Meeting of the Congress in order to elect officers and to transact other business. The time and place of this Business Meeting shall be announced in the Program.

Section 4. Distinguished individuals who are not Fellows of The Southwestern Surgical Congress may be invited by the Program Committee with approval of the Executive Committee to any Annual Scientific Meeting for the purpose of participating in the educational programs.

Section 5. Papers read before the Congress must not have been published or presented at a major regional or national scientific meeting prior to presentation at the Congress, except by arrangement with the Program Committee. The abstract form of such papers shall be completed and submitted to the Program Committee prior to their deadline in order to be considered for the Program. Such papers shall become the property of the Congress and, subject to the approval of both the Publication and Research Committee of the Congress and the Editorial Staff of the contracted Journal. The papers may be published in the Journal serving as the official organ of the Congress.
CHAPTER 3: ELECTION OF OFFICERS

Section 1. At the Annual Congress Business Meeting of the Fellows, the President-Elect and the Vice-President for the forthcoming year shall be elected.

Section 2. The Secretary-Treasurer shall be elected every third year, but if he/she is unable to complete his/her term of office, the Executive Committee may appoint a Secretary-Treasurer to serve on an interim basis until the next Annual Meeting, at which time his/her successor shall be elected for a three-year term.

The successor to the Secretary-Treasurer shall be elected at the Annual Meeting one year in advance of his/her assumption of duties to serve as an understudy to the outgoing Secretary-Treasurer. He/She shall attend all meetings of the Council and the Council Executive Committee without a vote.

Section 3. The Recorder shall be elected every third year, but if he/she is unable to complete his/her term of office, the Executive Committee may appoint a Recorder to serve on an interim basis until the next Annual Meeting, at which time his/her successor shall be elected for a three-year term.

The successor to the Recorder shall be elected at the Annual Meeting one year in advance of his/her assumption of duties to serve as an understudy to the outgoing Recorder. He/She shall attend all meetings of the Council and the Council Executive Committee without a vote.

Section 4. The report of the Nominating Committee shall be presented at the Annual Congress Business Meeting of the Congress. Additional nominations may be made from the floor.

Section 5. Elections shall be held by ballot, voice vote, or standing vote, as decided by the presiding officer. A majority vote of members present shall be necessary for election. In the event no one candidate receives a majority of the votes cast, the one receiving the smallest number of votes shall be dropped, the vote retaken, and the balloting shall proceed in this manner until a candidate receives such majority of the votes cast.
CHAPTER 4: DUTIES OF OFFICERS

Section 1. President

(A) The President shall preside at the Council Meetings, and at the Annual Congress Business Meeting, and shall perform such duties as custom and parliamentary usage may require. During the Annual Scientific Meeting, he/she shall deliver an address on such matters as he/she shall deem of importance to the Fellows of the Congress. He/she shall be Chairman of the Executive Committee of the Council, an ex-officio member of all other Committees, and may preside over Scientific Sessions.

(B) He/she shall appoint special committees, as the need for such committees arises.

(C) At the Annual Congress Business Meeting during the Annual Scientific Meeting, the President assumes his/her duties as President; he/she shall announce the following appointments:

1. Chairman of the Standing Committees as needed.
2. New members to the Standing Committees as needed. The senior member of each Standing Committee retires from the Committee each year, but may be re-appointed.
3. Regular or acting Councilors and Vice-Councilors as heretofore provided.

(D) The President may, at his/her discretion, call a meeting of the Council or any Committee for consideration of such business as may properly be brought before it. If a member of the Council is unable to complete his/her term of office, the President shall appoint a successor. The President may, by and with the advice and consent of the Council, relieve any member of any Committee of his/her duties. When a member appointed to serve on any Committee is unable to complete his/her term of duty, the President shall appoint a successor to complete the term. In the event any member of the Council is unable to attend any Council meeting, the President may appoint an alternate to serve for that meeting.

(E) On the President’s death, disability, resignation, or removal, the President-Elect shall succeed to the Presidency

Section 2. President-Elect

(A) The President-Elect shall serve as a member of the Council of the Congress, and of its Executive Committee and shall assist the President in the performance of his/her duties, and shall preside in his/her absence or at his/her request.

Section 3. Vice-President

The Vice-President shall serve as a member of the Council of the Congress and its Executive Committee.

If the Vice-President is unable to complete his/her term, the President shall appoint his/her successor to serve until the next election.
BYLAWS (cont.)

Section 4. Secretary-Treasurer

(A) The Secretary-Treasurer shall be a member of the Council and a member of the Executive Committee of the Council. He/she is an ex-officio member of all committees except when designated as a regular member of a specific committee. The Secretary-Treasurer shall be elected for a three-year term and may be re-elected to this office. If he/she is unable to complete his/her term of office, the President, with the approval of the Executive Committee or the Council, shall appoint a successor to serve until the next election.

(B) Duties of the Secretary-Treasurer are as follows:

1. Under direction of the Council, he/she shall supervise the activities of the Congress and facilitate the workings of the various standing committees. He/she shall insure that minutes are recorded of Council meetings, Executive Committee meetings, and the annual or special meetings of the members. He/she shall supervise the maintenance of files and records of the Congress. He/she shall perform other duties as are incident to such office or as may be assigned to him/her from time to time by the Council. With the approval of the Council, he/she may delegate to the Business Manager such duties as he/she deems appropriate.

2. Under the direction of the Council, he/she shall supervise the financial affairs of the Congress. He/she shall advise the Business Manager concerning billings and collections and management of all funds received by the Congress. Financial records and bank accounts shall be under the direction of the Business Manager, who shall render an annual report. The Business Manager will provide the Secretary-Treasurer with an annual report for presentation to the membership at the annual business meeting.

Section 5. Recorder

The Recorder shall be a member of Council, the Executive Committee, Chairman of Publication and Research Committee, an ex-officio member of the Program Committee and function as the liaison officer between the SWSC and the official journal of the Congress.

His/her duties will consist of determining with the Chairman of the Program Committee, the maximum number of scientific papers to be submitted for publication, collecting and editing the manuscripts and discussions at the Annual Scientific Meeting and editing them for publication in the official journal of the Congress. In addition, he/she will give a report at both the Council and annual Congress Business meetings regarding the activities of his/her office and of the Publication and Research Committee.
CHAPTER V. GOVERNANCE

Section 1: The Council
(A) The Council is the governing body of The Southwestern Surgical Congress. It shall authorize the purchase of property, stocks, bonds, and securities, make loans, and authorize and supervise the expenditures of the funds of the Congress.

(B) The Council shall meet as prescribed in Article VII of the Constitution, and as often thereafter as may be necessary. It shall be subject to called meetings as prescribed in Chapter 4, Section 1C of these Bylaws or on petition of five members of the Council.

(C) The President of the Congress shall preside at all meetings of the Council. In his/her absence, the President Elect shall preside. In the absence of the President and President Elect, the Vice-President shall preside. In the event of the absence of the President and President-Elect and Vice President, the Council shall elect a presiding officer. Seven members of the Council shall constitute a quorum.

Section 2. Council Executive Committee
The Executive Committee shall study the long-range goals of the Congress and formulate specific recommendations for future operations. This Committee shall represent the Council whenever a full meeting of the Council would not be possible, to consider and act upon such matters as would come before the Council, and report its findings and conclusions to the Council.

The Chairman for the Council Executive Committee shall be the President or the President-Elect in the President’s absence, or any member elected by a majority vote of the members present.

The Council Executive Committee may be called to meet by request of the President or upon written request of three of its members.

Section 3. State Committee
Each State Committee shall be composed of the State Councilor and Vice-Councilors. Each may serve up to two three-year terms. The Councilor for each state will recommend the Vice-Councilors. These appointments will be made by the President-Elect at the Annual Meeting of the Council.

The State Councilor must receive and consider all applications for Fellowship from his/her state, and must sign and approve the applications before they are submitted to the Membership Committee for action and referral to the Council for final approval.

The Vice Councilors are responsible for promoting membership within their region and assisting the State Councilor with his/her duties.
Section 4: Business Manager
The Council shall contract with a Business Manager hereinafter. The Business Manager shall be responsible for the operational management of the affairs of the Congress under the direction of the Executive Committee. The Business Manager may be a member of an association management firm. As primary custodian of the Congress’ funds the Business Manager shall be bonded in an amount sufficient to safeguard the financial assets of the Congress.

CHAPTER 5: STANDING COMMITTEES
The Standing Committees shall each consist of at least three members who may or may not be members of the Council. One member of each Standing Committee, or more as indicated, shall be appointed or reappointed by the President-Elect at the beginning of his/her term of office at the Annual Congress Business Meeting, to serve a three-year term, except for the Program Committee. The Chairman of each Committee shall be designated by the President-Elect for the following year. At least one former member shall remain on each Committee each year to provide continuity of purpose. Membership on a Standing Committee shall be limited to two consecutive terms.

An annual report shall be submitted by each Standing Committee to the Council, in writing and shall become a part of the minutes of that Council Meeting. A summary of the Committee reports shall be presented by the Chairman at the Annual Congress Business Meeting.

Section 1. Program Committee
The duty of the Program Committee is to select and arrange the Educational Program for the Annual Scientific Meeting. The Program Committee shall consist of the President, Recorder and six appointed members. The newly elected Vice President will annually appoint two individuals to serve a three-year term. One of these appointments will be designated to serve as Chairman of the Program Committee when the Vice President serves as President. The other members of the Committee will consist of two members serving their second year, two members serving their third year (one having been selected as Chairman). The Program Committee shall designate a CME Coordinator and obtain CME credit for the annual Congress meeting.
Section 2. Budget and Finance Committee
This Committee will review the financial transactions of the Central Office and suggest any indicated changes to the Council. It will advise the Secretary-Treasurer about financial transactions and investments. It will recommend the amount of the annual membership dues and initiation fees, commensurate with the requirements of the Congress for the ensuing year.

Section 3. Constitution and Bylaws Committee
It shall be the duty of this Committee to annually review the Constitution and Bylaws and to recommend any amendments or revisions as indicated.

Section 4. Publication and Research Committee
This Committee shall review all manuscripts presented at the Annual Scientific Meeting and select those of highest quality or greatest interest to be forwarded to the official journal for publication. Final selection of papers to be published will be determined by the Journal. The Recorder shall be the Chairman of this Committee. Any scientific surveys or research projects of the Congress membership shall be initiated or approved by this Committee.

Section 5. Nominating Committee
The Nominating Committee shall consist of the two living immediate Past Presidents with the most senior acting as Chairman and two members of the Council appointed by the President. They shall nominate candidates for President-Elect, and Vice-President and such other officers as required, and this committee shall report to the Council at the Annual Council Meeting immediately prior to the Annual Congress Business Meeting. Additional nominations may be made from the floor by Active or Senior Fellows during the Annual Congress Business Meeting. The Nominating Committee shall also appoint members to serve in the various Southwestern Surgical Congress representative positions in national organizations.

Section 6. Local Arrangements Committee
The chairman of the Local Arrangements Committee will be appointed by the President.

Section 7. Graduate Medical Education Committee
It shall be the duty of the Graduate Medical Education Committee to encourage the participation of surgical residents in the various programs of the Southwestern Surgical Congress programs. It shall also be the duty of the committee to encourage the participation and involvement of directors of surgical residencies in member states in the Congress and its various programs.
Section 8. Membership Committee
It shall be the duty of the Membership Committee to solicit from qualified general and specialty surgeons in member states of The Southwestern Surgical Congress applications for Fellowship in the Congress. It shall be the responsibility of the committee to evaluate each application for Fellowship to ensure that the surgeon fulfills the requirements for Fellowship as defined in Section 5 of Chapter 1 of these Bylaws. The committee will make its recommendation regarding Fellowship for each applicant to the Council of the Congress. The Graduate Medical Education Chairman shall serve as a member of this committee.

Section 9. State Councilor Committee
The State Councilor Committee shall consist of a State Councilor from each of the states, with both California and Texas having both a North and South representative. It will meet annually at The Southwestern Surgical Congress’ annual meeting. The committee will be responsible for electing the State Councilors-at-Large to serve on the Executive Committee for a two-year term (with a maximum of two consecutive terms allowed to be served). These positions will be staggered to enable one new Councilor-at-Large appointment each year. The Senior Councilor-at-Large shall serve as Chair of the State Committee. The Junior Councilor-at-Large will serve as an assistant. The Congress Vice-President should continue to be available to serve as a resource for this group and attend the State Councilor’s meeting.

Chapter 6: Annual Membership Dues

Section 1. Annual membership dues shall be determined by the Council.

Section 2. Any Fellow whose dues remain unpaid for a period of one year shall have his/her membership discontinued. He/she shall be notified at least two months prior to this action. He/she may be reinstated upon payment of both the current and delinquent dues.

Section 3. Membership dues for each year shall be payable in advance, shall become due on December 31 of the preceding year, and shall become delinquent on January 1 of the year in which they apply.

Section 4. Newly elected Fellows of the Congress shall pay an initiation fee approved by the membership, based upon the recommendations of the Budget and Finance Committee and approved by the Council.
CHAPTER 7: AMENDMENTS

Bylaws may be amended at the Annual Congress Business Meeting by a 60% approval vote of the members present. A copy shall be provided for the voting members at least thirty (30) calendar days in advance.

(Adopted 1949, as amended through March 2012)