

AMERICAN ASSOCIATION OF ENDOCRINE SURGEONS

Twenty-Ninth Annual Meeting

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American Association of Endocrine Surgeons
<http://www.endocrinesurgery.org>

AAES FUTURE MEETINGS

May 2-5, 2009
Madison, Wisconsin
Herbert Chen, MD

April 18-20, 2010
Pittsburgh, Pennsylvania
Sally E. Carty, MD

April 10-12, 2011
Houston, Texas
Nancy D. Perrier, MD

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OFFICERS, COUNCIL AND COMMITTEES

Officers

Geoffrey B. Thompson, President
Michael J. Demeure, President-Elect
Terry C. Lairmore, Vice President
Sally E. Carty, Secretary-Treasurer
Douglas B. Evans, Recorder

Council

Herbert Chen
Alan P.B. Dackiw
Thomas J. Fahey, III
Richard A. Hodin
John S. Kukora
Steven K. Libutti
Christopher R. McHenry
Bradford K. Mitchell
Robert Udelsman

Local Arrangements Chair

Quan-Yang Duh

Publication and Program Committee

Julie Ann Sosa, Chair
David R. Farley
Carmen C. Solarzano
Sonia L. Sugg
Sally E. Carty
Douglas B. Evans
Geoffrey B. Thompson

Membership Committee

Herbert Chen, Chair
Thomas J. Fahey, III
Bradford K. Mitchell

Committee on Education and Research

Steven K. Libutti, Chair
Alan P. B. Dackiw
Richard A. Hodin
Electron Kebebew
Sarah Parangi
Nancy D. Perrier
Melanie L. Richards

Fellowship Committee

Allan B. Siperstein, Chair
Gerard M. Doherty
Steven K. Libutti
John Porterfield
Richard A. Prinz
Sanziana Roman
Sally E. Carty

ESC Representative

Sonia L. Sugg

AACE Representative

Martha A. Zeiger

SOAC Representative to ABS

Richard A. Prinz

Paul LoGerfo Committee

Jack M. Monchik, Chair
John A. Chabot

Ad Hoc Ethics Committee

Peter Angelos, Chair
Robert Udelsman
John S. Kukora
Paul G. Gauger

Nominating Committee

Geoffrey B. Thompson
Christopher R. McHenry
Robert Udelsman

PAST OFFICERS

1980-1981

Norman W. Thompson.....President
Orlo H. Clark.....Vice President
John M. Monchik.....Secretary-Treasurer

1981-1982

Norman W. Thompson.....President
Orlo H. Clark.....Vice President
John M. Monchik.....Secretary-Treasurer

1982-1983

Edwin L. Kaplan.....President
Blake CadyVice President
John M. Monchik Secretary-Treasurer

1983-1984

Stanley R. Friesen..... President
John A. PalmerVice President
John M. Monchik Secretary-Treasurer

1984-1985

Leonard Rosoff.....President
John M. Monchik.....Vice President
Stuart D. Wilson.....Secretary-Treasurer

1985-1986

Chiu-An Wang.....President
Edward Paloyan.....Vice President
Stuart D. Wilson.....Secretary-Treasurer

1986-1987

Oliver Beahrs.....President
Robert C. Hickey.....Vice President
Stuart D. Wilson.....Secretary-Treasurer

1987-1988

Edward Paloyan.....President
Caldwell B. Esselstyn.....Vice President
Stuart D. Wilson.....Secretary-Treasurer
Jon A. van Heerden.....Recorder

1988-1989

John R. Brooks.....President
Melvin A. Block.....Vice President
Richard A. Prinz.....Secretary-Treasurer
Jon A. van Heerden.....Recorder

1989-1990

Colin G. Thomas, Jr.....President
Carl R. Feind.....Vice President
Richard A. Prinz.....Secretary-Treasurer
Jon A. van Heerden.....Recorder

1990-1991

Caldwell B. Esselstyn.....President
Brown M. Dobyns.....Vice President
Richard A. Prinz.....Secretary-Treasurer
Robert D. Croom, III.....Recorder

1991-1992

Stuart D. Wilson.....President
Joseph N. Attie.....Vice President
Blake Cady.....Secretary-Treasurer
Robert D. Croom, III.....Recorder

1992-1993

Robert C. Hickey.....President
Patricia J. Numann.....Vice President
Blake Cady.....Secretary-Treasurer
Robert D. Croom, III.....Recorder

1993-1994

Orlo H. Clark.....President
Glen W. Geelhoed.....Vice President
Blake Cady.....Secretary-Treasurer
George L. Irvin, III.....Recorder

1994-1995

John M. Monchik.....President
Jon A. van Heerden.....Vice President
Jay K. Harness.....Secretary-Treasurer
George L. Irvin, III.....Recorder

1995-1996

Richard A. Prinz.....President
Jeffrey A. Norton.....Vice President
Jay K. Harness.....Secretary-Treasurer
George L. Irvin, III.....Recorder

1996-1997

Jon A. van Heerden.....President
George L. Irvin, III.....Vice President
Jay K. Harness.....Secretary-Treasurer
Quan-Yang Duh.....Recorder

1997-1998

Blake Cady.....President
E. Christopher Ellison.....Vice President
Paul LoGerfo.....Secretary-Treasurer
Quan-Yang Duh.....Recorder

1998-1999

George L. Irvin, III.....President
Barbara K. Kinder.....Vice President
Paul LoGerfo.....Secretary-Treasurer
Quan-Yang Duh.....Recorder

1999-2000

Jay K. Harness.....President
John Kukora.....Vice-President
Paul LoGerfo.....Secretary-Treasurer
Michael J. Demeure.....Recorder

2000-2001

Barbara K. Kinder.....President
Martha A. Zeiger.....Vice-President
Christopher R. McHenry.....Secretary-Treasurer
Michael J. Demeure.....Recorder

2001-2002

Clive S. Grant.....President
Miguel F. Herrera.....Vice-President
Christopher R. McHenry.....Secretary-Treasurer
Michael J. Demeure.....Recorder

2002-2003

Quan-Yang Duh.....President
Gary B. Talpos.....Vice-President
Christopher R. McHenry.....Secretary-Treasurer
Geoffrey B. Thompson.....Recorder

2003-2004

Paul LoGerfo.....President
Ashok R. Shaha.....Vice-President
Janice L. Pasieka.....Secretary-Treasurer
Geoffrey B. Thompson.....Recorder

2004-2005

John Kukora.....President
Andrew Saxe.....Vice-President
Janice L. Pasieka.....Secretary-Treasurer
Geoffrey B. Thompson.....Recorder

2005-2006

Robert Udelsman.....President
Collin J. Weber.....Vice-President
Janice L. Pasiaka..... Secretary-Treasurer
Douglas B. Evans.....Recorder

2006-2007

Christopher R. McHenry.....President
John B. Hanks.....Vice-President
Sally E. Carty.....Secretary-Treasurer
Douglas B. Evans.....Recorder

2007-2008

Geoffrey B. Thompson.....President
Terry C. Lairmore.....Vice-President
Sally E. Carty.....Secretary-Treasurer
Douglas B. Evans.....Recorder

THE OLIVER COPE MERITORIOUS ACHIEVEMENT AWARD

In April of 1984 at the American Association of Endocrine Surgeons Meeting in Kansas City, Drs. Edward Kaplan, Jack Monchik, Leonard Rosoff, Norm Thompson and Stuart Wilson proposed to the Council a new achievement award. The award honors a member of the AAES in recognition for contributions in the field of endocrine surgery as an investigator, teacher and clinical surgeon. It is not an annual award but is to be given to members of our Association who truly aspire to the spirit of this award.

On April 15th, 1985 at the annual meeting of the AAES in Toronto, our President Leonard Rosoff announced the first member to receive this award, Dr. Oliver Cope. In giving this award to Dr. Cope the decision of the Council was that from this day forward the award would be known as the Oliver Cope Meritorious Achievement Award for the American Association of Endocrine Surgeons.



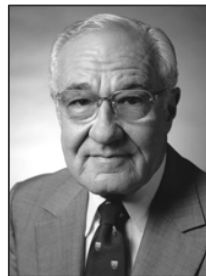
Stanley R. Friesen, MD, PhD

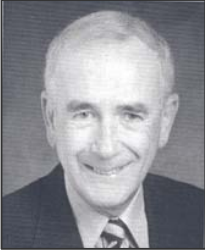
Professor of Surgery, University of Kansas
Awarded in Detroit, MI. in April 1994.

Dr. Friesen served as the President of our
Association in 1983.

Oliver Cope, MD

Professor of Surgery,
Harvard University and the
Massachusetts General Hospital
Awarded in Toronto in April 1985.





Norman W. Thompson, MD
Henry King Ransom Professor of Surgery, University of Michigan. Awarded in Atlanta, GA in April 2001. Dr. Thompson served as our inaugural President in 1980 and 1981.

Jon A. van Heerden MD

Professor of Surgery Mayo Clinic, Rochester, MN.
Awarded in Charlottesville NC in April 2004.
Dr. van Heerden served as our Recorder from 1987-89, as our Vice-President in 1994, and as President in 1996.



Orlo H. Clark MD

Professor of Surgery, UCSF Mount Zion Medical Center.
Awarded in New York, New York in May 2006.
Dr. Clark served as our Inaugural Vice President in 1980 and 1981, and as President in 1993.



HONORARY MEMBERS

Individuals who have made outstanding contributions to the
discipline of Endocrine Surgical Disease

John L. Doppman	Radiologist
J. Aidan Carney	Pathologist
Stuart D. Flynn	Pathologist
Ian D. Hay	Endocrinologist
Virginia A. LiVolsi	Pathologist
Ronald H. Nishiyama	Pathologist
A. G. E. "Ace" Pearse	Endocrinologist
Thomas S. Reeve	Endocrine Surgeon
F. John Service	Endocrinologist
Britt Skogseid	Endocrinologist
William F. Young	Endocrinologist

RESIDENT/FELLOW RESEARCH AWARD WINNERS & POSTER COMPETITION WINNERS

The AAES Resident/Fellow Research Award was established in 1990 to encourage interest in endocrine surgery by those training as students and residents in general surgery. Presented work may be honored in either the Clinical or Basic Research categories.

The AAES Poster Competition was established in 2007.

1990

Michael J. Demeure San Francisco, California
"Actin architecture of cultured human thyroid cancer cells:
Predictor of differentiation?"

Gerard M. Doherty Bethesda, MD
"Time to recovery of the hypothalamic-pituitary-adrenal axis
after curative resection of adrenal tumors in patients with
Cushing's syndrome"

1996

Jennifer Meko St. Louis, Missouri
"Evaluation of Somatostating Receptor Scintigraphy in Detecting
Neuroendocrine Tumors"

Beth A. Ditkoff New York, NY
"Detection of Circulating Thyroid cells in Peripheral Blood"

1997

Herb Chen Baltimore, MD
"Implanted Programmable Insulin Pumps: 153 Patient Years of
Surgical Experience"

K. Michael Barry Rochester, MN
"Is Familial Hyperparathyroidism a Unique Disease?"

1998

Julie Ann Sosa Johns Hopkins
"Cost Implications of the different management strategies for primary hyperparathyroidism in the US"

David Litvak Galveston, TX
"A novel cytotoxic agent for human carcinoid"

1999

Andrew Feldman National Institutes of Health
"Results of Heterotrophic Parathyroid Autotransplantation: A 13 Year Experience"

Alan Dackiw Houston, TX
"Screening for MEN1 Mutations in Patients with Atypical Multiple Endocrine Neoplasia"

2000

Electron Kebebew San Francisco, California
"ID1 proteins expressed in Medullary Thyroid Cancer"

2001

Nestor F. Esnaola Houston, Texas
"Optimal treatment strategy in patients with papillary thyroid cancer: A decision analysis"

Katherine T. Morris Portland, Oregon
"High dehydroepiandrosterone-sulfate predicts breast cancer progression during new aromatase inhibitor therapy and stimulates breast cancer cell growth in tissue culture: A renewed role for adrenalectomy"

2002

Rasa Zarnegar University of California, San Francisco
"Increasing the Effectiveness of Radioactive Iodine Therapy in the Treatment of Thyroid Cancer Using Trichostatin A (TSA), A Histone Deacetylase (HDAC)"

Denise M. Carneiro Miami, Florida
"Rapid Insulin Assay for Intraoperative Confirmation of Complete
Resection of Insulinomas"

2003

Petra Musholt Hanover, Germany
"*RET*Rearrangements in Archival Oxyphilic Thyroid Tumors: New
Insights in Tumorigenesis and Classification of Hürthle Cell
Carcinoma"

Tina Yen Houston, Texas
"Medullary Thyroid Carcinoma: Results of a Standardized
Surgical Approach in a Contemporary Series of 79 Consecutive
Patients from the University of Texas, MD Anderson Cancer
Center in Houston"

2004

Rebecca Sippel University of Wisconsin
"Does Propofol Anesthesia Affect Intra-Operative Parathyroid
Hormone Levels During Parathyroidectomy?: A Randomized
Prospective Trial"

David Finley Cornell University
"Molecular Analysis of Hürthle Cell Neoplasms by Gene Profiling"

2005

Mark Cohen Washington University
"Long-Term Functionality of Cryopreserved Parathyroid
Autografts: A 13-Year Prospective Analysis"

Kepal N. Patel Memorial Sloan-Kettering Cancer Center
"MUC1 Plays a Role in Tumor Maintenance in Aggressive Thyroid
Carcinomas"

2006

Kyle Zanocco Northwestern University
"Cost-Effectiveness Analysis of Minimally Invasive Parathyroid-
ectomy for Asymptomatic Primary Hyperparathyroidism"

Ashley Kappes University of Wisconsin
"Lithium Ions: a Novel Agent for the Treatment of
Pheochromocytomas and Paragangliomas"

2007

Tracy S. Wang Yale University
"How Many Endocrine Surgeons Do We Need?"

Poster: David Yu Greenblatt University of Wisconsin
"Valproic Acid Activates Notch1 Signaling and Inhibits Growth in
Medullary Thyroid Cancer Cells"

2007 NEW MEMBERS

Active/Standard Members

John Allendorf
New York, NY

Beth H. Sutton
Wichita Falls, TX

David L. Bartlett
Pittsburgh PA

Ronald D. Wenger
Madison, WI

Geeta Lal
Iowa City, IA

Scott M. Wilhelm
Cleveland, OH

Jonathan S. Lokey
Greenville, SC

Robert A. Underwood
Marietta, GA

Randall P. Owen
Bronx, NY

Douglas E. Politz
Tampa, FL

Christopher D. Raeburn
Denver, CO

David G. Sheldon
Danville, PA

Cord Sturgeon
Chicago IL

Corresponding Members

Akira Miyauchi
Kobe, Japan

Pablo Moreno Llorente
Barcelona, Spain

Stan Sidhu
St. Leonards, Australia

2007-08 CONTRIBUTORS TO THE PAUL LoGERFO EDUCATIONAL RESEARCH FUND

Dr. Paul LoGerfo passed away September 16, 2003 during his tenure as President of the AAES. Dr. LoGerfo was very interested in education and clinical research, and in his honor the AAES established the Educational Research Fund to support educational and research activities of the Membership. As of press time, the following members and organizations contributed in 2007-08:

Goran Akerstrom	Barbara Kinder
John Allendorf	Jeffrey Lee
John Bowlin	Steven Libutti
L. Michael Brunt	Jonathan Lokey
Samuel Bugis	Dougald MacGillivray
Blake Cady	David McAneny
W. Bradford Carter	Bradford Mitchell
Sally Carty	Jack Monchik
John Chabot	Leigh Neumayer
Herbert Chen	Bruno Niederle
Steven DeJong	Ronald Nishiyama
Mete Duren	Shiro Noguchi
Douglas Evans	Patricia Numann
David Farley	Takao Obara
William Farrar	Randall Owen
Douglas Fraker	Edward Paloyan
Allan Fredland	Doris Quintana
Clive Grant	Melanie Richards
Richard Harding	S. Michael Roe
Jay Harness	Irving Rosen
Ian Hay	Frederic Sebag
Richard Hodin	Ashok Shaha
Mark Horattas	Dietmar Simon
Ted Humble	Britt Skogseid
George Irvin	William Snyder
Edwin Kaplan	Carmen Solorzano

Kathryn Spanknebel
Cord Sturgeon
SURGERY
Beth Sutton
T. Serdar Tezelman
Colin Thomas
Geoffrey Thompson
Norman Thompson

Douglas Trostle
Kristen Wagner
Ronald Wenger
Jon van Heerden
Martha Zeiger



PAST MEETINGS

- 1980 **Ann Arbor, Michigan**
Local Arrangements Chair: Norman Thompson
- 1981 **Washington, DC**
Local Arrangements Chair: Glenn Geelhoed
- 1982 **Houston, Texas**
Local Arrangements Chair: Robert Hickey
- 1983 **San Francisco, California**
Local Arrangements Chair: Orlo Clark
- 1984 **Kansas City, Kansas**
Local Arrangements Chair: Stanley Friesen
- 1985 **Toronto, Ontario, Canada**
Local Arrangements Chair: Irving Rosen
- 1986 **Rochester, Minnesota**
Local Arrangements Chair: Jon van Heerden
- 1987 **Chicago, Illinois**
Local Arrangements Chair: Ed Kaplan
- 1988 **Boston, Massachusetts**
Local Arrangements Chair: Blake Cady
- 1989 **Chapel Hill, North Carolina**
Local Arrangements Chair: Robert D. Croom
- 1990 **Cleveland, Ohio**
Local Arrangements Chair: Caldwell B. Esselstyn
- 1991 **San Jose, California**
Local Arrangements Chair: Maria Allo

- 1992 **Miami, Florida**
Local Arrangements Chair: George L. Irvin
- 1993 **Williamsburg, Virginia**
Local Arrangements Chair: H. Heber Newsome
- 1994 **Detroit, Michigan**
Local Arrangements Chair: Gary B. Talpos
- 1995 **Philadelphia, Pennsylvania**
Local Arrangements Chair: John Kukora
- 1996 **Napa, California**
Local Arrangements Chair: Quan-Yang Duh
- 1997 **Baltimore, Maryland**
Local Arrangements Chair: Robert Udelsman
- 1998 **Orlando, Florida**
Local Arrangements Chair: Peter J. Fabri
- 1999 **New Haven, Connecticut**
Local Arrangements Chair: Barbara Kinder
- 2000 **Joint Meeting: London, United Kingdom/Lille, France**
Local Arrangements Chair: John Monchik
- 2001 **Atlanta, Georgia**
Local Arrangements Chair: Collin Weber
- 2002 **Banff, Alberta, Canada**
Local Arrangements Chair: Janice L. Pasioka
- 2003 **San Diego, California**
Local Arrangements Chair: Jay K. Harness/John Kukora
- 2004 **Charlottesville, Virginia**
Local Arrangements Chair: John B. Hanks

2005 **Cancun, Mexico**
Local Arrangements Chair: Miguel F. Herrera

2006 **New York, New York**
Local Arrangements Chair: Ashok R. Shaha

2007 **Tucson, Arizona**
Local Arrangements Chair: Michael J. Demeure

INVITED LECTURERS AT RECENT MEETINGS

1991 - Gregory B. Bulkley MD, Johns Hopkins University,
Baltimore, Maryland *Endothelial Xanthine Oxidase: a Radical
Transducer of Signals and Injury*

1992 - Donald Coffey, PhD, Johns Hopkins University, Baltimore
New Concepts Concerning Cancer

1993 - John L. Doppman MD, National Institutes of Health,
Bethesda, Maryland *Recent Advances in Endocrinologic Imaging*

1994 - Gordon J. Strewler MD, San Francisco, California
*The Parathyroid Hormone Related Protein: Clinical and Basic
Studies of a Polyfunctional Protein*

1995 - Ivor M.D. Jackson MD, Providence, Rhode Island
*Regulation of TSH Secretion: Implications for Disorders of the
Thyroid Function*

1996 - Victor E. Gould MD, Rush-Presbyterian-Medical Centre,
Chicago, Illinois *The Diffuse Neuroendocrine System:
Evolution of the Concept and Impact on Surgery*

1997 - Bertil Hamberger, Karolinska Institute, Stockholm
The Nobel Prize

1998 - Susan Leeman PhD, Boston University, Boston MA
The NeuroPeptides: Substance P and Neurotensin

1999 - James Hurley MD - Cornell University, New York, New York
Post-Operative Management of Differentiated Thyroid Cancer

2000 - James Shapiro MD, University of Alberta, Edmonton,
Alberta *Pancreatic Islet Cell Transplantation*

2001 - Andrew F. Stewart MD, University of Pittsburgh,
Pittsburgh, Pennsylvania
*Parathyroid Hormone-Related Protein: From Hypercalcemia of
Malignancy to Gene Therapy from Diabetes*

2002 - William F. Young Jr. MD, Mayo Clinic, Rochester, MN
Adrenal-Dependent Hypertension: Diagnostic Testing Insights

2003 - Sissy M. Jhiang, MD, Ohio State University,
Columbus, Ohio
Lessons From Thyroid Cancer: Genetics and Gene Therapy

2004 - Edward R. Laws Jr, MD, University of Virginia,
Charlottesville, Virginia
The Diagnosis and Management of Cushing's Disease

2005 - David Duick, MD, Phoenix, Arizona
*Thyroid Nodules and Mild Primary Hyperparathyroidism:
examples of clinical perplexities or unresolvable conundrums*

2006 - Michael Bliss MD, University of Toronto, Toronto
Harvey Cushing and Endo-Criminology

2007 - Virginia A. Livolsi MD, University of Pennsylvania,
Philadelphia, Pennsylvania *Thyroid Nodule FNA and Frozen
Section: Partners or Adversaries*

**CONFERENCE
INFORMATION**

Objectives

This program is designed for all surgeons seeking the latest developments in endocrine surgical technique and its related research. Through participation in discussions, attendees will be able to explain current developments in the science and clinical practice of endocrine surgery. Members and guests will be able to explain practical new approaches and solutions to relevant concepts and problems in endocrine surgical care.

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 sponsorship of the American College of Surgeons and the American Association of Endocrine Surgeons. The American College of Surgeons is accredited by the ACCME to provide continuing medical education for physicians.

AMA PRA Category 1 Credits™

The American College of Surgeons designates this educational activity for a maximum of **16 AMA PRA Category 1 Credits™**. Physicians should only claim credit commensurate with the extent of their participation in the activity.



Division of Education
American College of Surgeons

Registration

The Twenty-Ninth Annual Meeting of the AAES will take place at the Monterey Plaza Resort & Spa in Monterey California. Registration fees are (postmarked before March 3, 2008): \$545 for AAES members, \$595 for non-members, \$395 for residents and fellows, and \$295 for spouses/guests. To register, visit the AAES Website at endocrinesurgery.org. You may either register online, or download and fax the completed registration form to ACS Management Services, fax: 800-682-0252 (US only) or 312-202-5003 (all other locations.) The registration fee covers all scientific and social functions, except the Monday luncheon which is not covered for spouses/guests. For on-site registration, an additional \$25 per person will be assessed.

For the convenience of AAES members and guests we have reserved more rooms than ever at the Monterey Plaza Resort. However, it is very important to make your hotel reservation early in order to assure yourself of availability. Lodging reservations may be made by calling the Resort directly at (831) 656-0439.

Meeting Format

The 2008 meeting will use the "standard" AAES meeting format. However since we are at a resort area the dress code for the meeting will be resort casual, except for the Banquet. On Sunday afternoon the **Interesting Case Presentations** and **Welcome Reception** will take place, as well as 2 new workshop **Symposia** beginning at 1 pm. The Scientific Sessions will commence Monday morning and extend through Tuesday noon, and the **Banquet** will be on Monday evening. The **Poster Competition** will take place Tuesday morning.

The **AAES Golf Tournament** will be held Saturday afternoon at the Poppy Hill golf course in Pebble Beach; you must pre-register for the Tournament before March 1 2008 by contacting Ms. Melissa Martin at martin@surgery.wisc.edu.

Air Travel

Monterey Peninsula Airport (MRJ) is about 10 minutes from the Monterey Plaza. Taxi service is available from the airport. You can also fly into San Jose International Airport (SJC) or San Francisco International Airport (SFO) and then rent a car to drive to Monterey. The Monterey Airbus offers shuttle service from SFO or SJC and takes about 2.5 hours each way.

Driving from San Francisco/ San Jose to Monterey: From San Francisco International Airport it is 112 miles (about 2 hours if traffic permits) and from San Jose International Airport it is 100 miles (about 1 hour and 45 min). Traffic can be heavy at rush hour. Take highway 101 south (towards Los Angeles) and remain on 101 until the Monterey Peninsula Exit- Highway 156. Highway 156 will become Highway 1. Drive south on Highway 1 approx. 20 miles to the Pacific Grove/Del Monte exit. Travel on Del Monte for 2 miles. Proceed through the tunnel, and Del Monte will become Lighthouse Avenue. Take the first right (veer) after the tunnel, off Lighthouse Avenue onto Foam Street. At the second stop light, turn right on Reeside Ave, proceed to the end of the street, and turn left on Cannery Row. The Hotel is on the right (seaward) side of this street at 400 Cannery Row. Directions for a more scenic drive south from San Francisco, and for other activities, drives and beauty in the Monterey area, can be found at endocrinesurgery.org under: *Greetings from Dr. Duh.*

Contacts

Dr. Quan-Yang Duh
Local Arrangements Chair
Assistant Ms. Lunetta Rogers
Phone: (415) 750-2131
Fax: (415) 750-2181
Email: quan-yang.duh@med.va.gov

**American Association of Endocrine Surgeons
Twenty-Ninth Annual Meeting
PROGRAM OVERVIEW**

Saturday, April 5, 2008

1300-1900 **Annual AAES Golf Tournament**
Poppy Hills
Enroll by March 1, 2008

Sunday, April 6, 2008

0800-1200 **AAES Council Meeting**
(Council and Guests only)
Ocean Club & Foyer

1200-1700 **Office/Speaker**
Fairway Hospitality
Industry Exhibits
Big Sur 1,2,3

1200-1700 **Registration**
Foyer of Fairway Hospitality

1300-1430 **Endocrine Surgery Fellowship**
Program Director's Meeting
(Current & Future Directors, Council,
Education Committee)
Ocean Club & Foyer

1300-1430 **Workshop: ENDOCRINE SURGERY**
PRACTICE DEVELOPMENT
Nancy D. Perrier & Co-Moderators
Cypress Ballroom

1400-1600 **Coffee Served**
Cypress PF

- 1430-1600** **Workshop: MANAGEMENT & MONITORING OF THE RLN**
Peter Angelos & Co-Moderators
 Cypress Ballroom
- 1600-1800** **Interesting Case Presentations**
Terry C. Lairmore, Vice President
 Cypress Ballroom
- 1800-1830** **New Members Reception**
(by Invitation only)
 Ocean Club & Foyer
- 1900-2100** **AAES Welcome Reception**
MONTEREY BAY AQUARIUM
 Outer Bay Wing

Monday April 7, 2008

- 0730-1700** **Registration and Office/Speaker**
 Fairway Hospitality
Poster Exhibits
 Point Lobos 1,2, & Foyer
Industry Exhibits
 Big Sur 1,2,3
- 0730-0830** **Continental Breakfast**
 Upper Plaza
- 0800-0815** **Welcoming Remarks**
Geoffrey B. Thompson, President
 Cypress Ballroom
- Introduction of New Members**
Quan-Yang Duh, Local
Arrangements Chair

0815-1000	Scientific Session I Papers #1-#7 (Resident/Fellow Competition)
1000-1030	Coffee Break Cypress PF
1030-1200	Scientific Session II Papers #8-#13 (Resident/Fellow Competition)
1200-1300	AAES Luncheon Upper Plaza
1300-1400	Presidential Address Geoffrey B. Thompson MD Introduction by Dr. Terry Lairmore
1400-1500	Scientific Session III Papers #14-#17 (Resident/Fellow Competition)
1500-1530	Coffee Break Cypress PF
1530-1630	Invited Lecturer F. John Service MD PhD "Hypoglycemia in Adults- 80th Anniversary of Hyperinsulinism" Introduction by Dr. Geoff Thompson
1630-1800	Business Meeting (AAES Members only)
1830-2000	Gala Reception and Dinner Resident/Fellow Research Awards Dolphins Ballrooms & Foyer

Tuesday April 8, 2008

- | | |
|------------------|--|
| 0730-1200 | Registration and Office/Speaker
Fairway Hospitality
Industry Exhibits
Big Sur 1,2,3 |
| 0730-0830 | Continental Breakfast
Upper Plaza |
| 0730-0830 | AAES POSTER COMPETITION
(Presenters, Judging Panel,
Members, Guests)
Point Lobos 1, 2, & Foyer |
| 0830-1015 | Scientific Session IV
Papers #18-#24
Cypress Ballroom |
| 1015-1045 | Coffee Break
Cypress PF |
| 1045-1215 | Scientific Session V
Papers #25-#30 |
| 1215 | Best Poster Award
Adjournment |

**AAES 29th ANNUAL MEETING
SCIENTIFIC PROGRAM**

SUNDAY, APRIL 6, 2008

**1300-1430 Workshop: ENDOCRINE SURGERY
 PRACTICE DEVELOPMENT**

Nancy D. Perrier
Robert C. McIntyre, Jr.
Cord Sturgeon
Michael Yeh
Kathleen Crews Williams

**1430-1600 Workshop: MANAGEMENT AND
 MONITORING OF THE RLN**

Peter Angelos
Alan P. B. Dackiw
Henning Dralle
Gregory W. Randolph

1600-1800 Interesting Case Presentations

Terry C. Lairmore

MONDAY, APRIL 7, 2008

Scientific Session I

Moderator: Geoffrey B. Thompson

***Denotes Resident/Fellow Paper**

0815 Paper 1*

**PREOPERATIVE VITAMIN D (VitD) REPLACEMENT
THERAPY IN PRIMARY HYPERPARATHYROIDISM
(PHPT): SAFE BUT BENEFICIAL?**

**Elizabeth G. Grubbs, Jeff E. Lee, Safia Rafeeq, Robert
F. Gagel, Camilo Jiminez, Lei Feng, Nancy D. Perrier. *Univ-
ersity of Texas MD Anderson Cancer Center, Houston***

- 0830 Paper 2***
EVALUATION FOR CONCOMITANT THYROID
NODULES AND PRIMARY HYPERPARATHYROIDISM IN
PATIENTS UNDERGOING PARATHYROIDECTOMY OR
THYROIDECTOMY
Shane Y. Morita, Helina Somervell, Christopher B.
Umbricht, Alan P. B. Dackiw, Martha A. Zeiger.
The Johns Hopkins Medical Institutions, Baltimore
- 0845 Paper 3***
PEDIATRIC ENDOCRINE SURGERY: WHO IS
OPERATING ON OUR CHILDREN?
Charles Tuggle, Sanziana Roman, Leon Boudourakis, Daniel
Thomas, Robert Udelsman, Julie Ann Sosa.
Yale University School of Medicine, New Haven
- 0900 Paper 4***
THE UTILITY OF ROUTINE TRANSCERVICAL
THYMECTOMY (TCT) FOR MEN1 RELATED
HYPERPARATHYROIDISM
Anathea C. Powell, H. Richard Alexander, James F.
Pingpank, Monica Skarulis, David L. Bartlett, Craig
Cochran, Geoffrey Seidel, Douglas Fraker, Robert T.
Jenson, Stephen Marx, Steven K. Libutti.
National Institutes of Health, Bethesda
- 0915 Paper 5***
HEPATIC ARTERY CHEMOINFUSION WITH
EMBOLIZATION FOR NEUROENDOCRINE CANCER
WITH PROGRESSIVE HEPATIC METASTASES DESPITE
OCTREOTIDE THERAPY
Dara Christante, S.J. Pommier, Baback Givi, R. Pommier.
Oregon Health & Science University, Portland
- 0930 Paper 6***
AVOIDABLE REOPERATIONS FOR THYROID AND
PARATHYROID SURGERY: EFFECT OF HOSPITAL
VOLUME

Jamie C. Mitchell, Mira Milas, Mira, German Barbosa,
Jazmine Sutton, Eren Berber, Allan Siperstein.
Cleveland Clinic, Cleveland

0945 Paper 7*

MITOGEN-INDUCIBLE GENE-6 EXPRESSION
CORRELATES WITH SURVIVAL AND IS AN
INDEPENDENT PREDICTOR OF RECURRENCE IN
BRAF^{V600E} POSITIVE PAPILLARY THYROID CANCERS

Daniel T. Ruan, Jacob Moalem, Ann C. Griffin, Wen Shen,
Quan-Yang Duh, Robert S. Warren., David B. Donner, Orlo
H. Clark, Electron Kebebew.
University of California, San Francisco

1000-1030 Coffee Break

Scientific Session II

Moderator: Michael J. Demeure

***Denotes Resident/Fellow Paper**

1030 Paper 8*

EFFECT OF PARATHYROIDECTOMY ON ANEMIA IN
END-STAGE RENAL DISEASE PATIENTS WITH
HYPERPARATHYROIDISM

Joseph A. Trunzo, Christopher R. McHenry, James A.
Schulak, Scott M. Wilhelm
*University Hospitals Case Medical Center and
MetroHealth Medical Center, Cleveland*

1045 Paper 9*

REGULATION OF ADHERENS JUNCTIONS AND THE
METASTATIC PHENOTYPE OF MEDULLARY THYROID
CARCINOMA BY THE RAF-1MEK/ERK PATHWAY

Li Ning, Muthusamy Kunnimalaiyaan, Herbert Chen
University of Wisconsin, Madison

1100 Paper 10*

THE ROLE OF RADIOLOGIC STUDIES IN THE
EVALUATION AND MANAGEMENT OF PRIMARY
HYPERALDOSTERONISM

Matthew L. White, Paul G. Gauger, Gerard M. Doherty,
Kyung J. Cho, Barbra S. Miller.
University of Michigan, Ann Arbor

1115 Paper 11*

THE POTENTIAL CLINICAL RELEVANCE OF SERUM
VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF)
AND VEGF-C IN RECURRENT PAPILLARY THYROID
CARCINOMA

Xiao-Min Yu, Chung-Yau Lo, Alfred K. Lam, Pauline Leung,
John M. Luk. *University of Hong Kong Medical Center
and Queen Mary Hospital, Hong Kong, China; and Griffith
University, Gold Coast, Australia*

1130 Paper 12*

EXTRATHYROIDAL EXTENSION IS NOT ALL EQUAL:
IMPLICATIONS OF MACROSCOPIC VS. MICROSCOPIC
EXTENT IN PAPILLARY THYROID CARCINOMA

Nimmi Arora, Harma Turbendian, Theresa Scognamiglio,
Rasa Zarnegar, Patrick L. Wagner, Stanley J. Goldsmith,
Thomas J. Fahey.
New York Presbyterian Hospital-Cornell, New York

1145 Paper 13*

SHOULD BILATERAL LATERAL LYMPH NODE
DISSECTION BE ROUTINE IN MEDULLARY THYROID
CANCER?

Julie Giordano, Melwyn Sequeira, Laurent Arnalsteen,
Isaac Cranshaw, Haitham Alfalah, Emmanuelle Leteurtre,
Christine Do Cao, Jean Louis Wemeau, Francois Pattou,
Bruno Carnaille.
University Hospital, Lille, France

1200-1300 Luncheon

1300-1400 **Presidential Address**
Geoffrey B. Thompson MD
Professor of Surgery
College of Medicine, Mayo Clinic
"ON THE WINGS OF EAGLES-
LEST WE FORGET"
Introduction by Dr. Terry C. Lairmore

Scientific Session III

Moderator: Julie Ann Sosa

*Denotes Resident/Fellow Paper

- 1400 **Paper 14***
LOSS OF HETEROZYGOSITY OF SELECTED TUMOR SUPPRESSOR GENES IN PARATHYROID CARCINOMA
Linwah Yip, Raja R. Seethala, Marina N. Nikiforova, Yuri E. Nikiforov, Jennifer B. Ogilvie, Sally E. Carty, John H. Yim.
University of Pittsburgh, Pittsburgh
- 1415 **Paper 15***
HISTONE DEACETYLASE INHIBITORS UPREGULATE NOTCH-1 AND INHIBIT GROWTH IN PHEOCHROMOCYTOMA CELLS
Joel T. Adler, Daniel G. Hottinger, Muthusamy Kunnimalaiyaan, Herbert Chen.
University of Wisconsin, Madison
- 1430 **Paper 16***
RELIABILITY OF BENIGN FINE NEEDLE ASPIRATION CYTOLOGY OF LARGE THYROID NODULES
John R. Porterfield, Clive S. Grant, Diana S. Dean, Geoffrey B. Thompson, David R. Farley, Melanie L. Richards, Carl C. Reading, J. William Charboneau, Brenda K. Vollrath, Thomas J. Sebo. *Mayo Clinic, Rochester*
- 1445 **Paper 17***
COMPUTED TOMOGRAPHY CAN GUIDE FOCUSED

EXPLORATION IN SELECT PATIENTS WITH PRIMARY
HYPERPARATHYROIDISM AND NEGATIVE SESTAMIBI
SCANNING

Avital Harari, Rasa Zarnegar, James Lee, Elias Kazam,
William B. Inabnet, Thomas J. Fahey.

Columbia University and Cornell University, New York

1500-1530 Coffee Break

1530-1630 Invited Lecturer

F. John Service MD PhD

First McDonough Professor of Medicine

Mayo Clinic College of Medicine

"HYPOGLYCEMIA IN ADULTS-80th

ANNIVERSARY OF HYPERINSULINISM"

Introduction by Dr. *Geoffrey B. Thompson*

1630-1800 Business Meeting

TUESDAY APRIL 8, 2008

0730-0830 *Poster Competition*

Scientific Session IV

Moderator: *Sonia L. Sugg*

0830 Paper 18

PAPILLARY THYROID MICROCARCINOMA: A STUDY
OF 900 CASES TREATED AT ONE INSTITUTION
DURING A 60-YEAR PERIOD

Ian D. Hay, Maeve E. Hutchinson, Megan S. Reinalda,
Clive S. Grant, Brian McIver, *Geoffrey B. Thompson*,
Thomas Sebo, John R. Goellner. *Mayo Clinic, Rochester*

- 0845 Paper 19**
LONG-TERM OUTCOME OF PATIENTS WITHOUT IOPTH DECREASE TO NORMAL RANGE DURING PARATHYROIDECTOMY
Denise Carneiro-Pla, Carmen C. Solorzano, John I. Lew, George L. Irvin III. *Medical University of South Carolina, Charleston; University of Miami, Miami*
- 0900 Paper 20**
PROSPECTIVE EVALUATION OF ROBOTIC-ASSISTED UNILATERAL ADRENALECTOMY
Laurent Brunard, Ahmet Ayav, Rasa Zarnegar, Antony Rouers, Patrick Boissel, Laurent Bresler.
CHU Nancy Brabois, University of Nancy, France
- 0915 Paper 21**
IDENTIFICATION OF MEN1 IN PATIENTS WITH APPARENT SPORADIC PRIMARY HYPERPARATHYROIDISM
Linwah Yip, Jennifer B. Ogilvie, Susan M. Challinor, Rose A. Salata, John H. Yim, Sally E. Carty.
University of Pittsburgh, Pittsburgh
- 0930 Paper 22**
ENDOSCOPIC ADRENALECTOMY: IS THERE AN OPTIMAL APPROACH? RESULTS OF A SINGLE CENTER CASE CONTROL STUDY
Rocco Bellantone, Marco Raffaelli, Carmela De Crea, Liliana Sollazzi, Valter Perilli, Maria T. Cazzato, Celestino Lombardi. *Universita Cattolica del S. Cuore, Rome, Italy*
- 0945 Paper 23**
A RANDOMIZED CONTROLLED TRIAL OF MINIMALLY INVASIVE THYROIDECTOMY USING THE LATERAL DIRECT APPROACH VERSUS CONVENTIONAL HEMI-THYROIDECTOMY FOR THE MANAGEMENT OF ATYPICAL THYROID NODULES

Mark S. Sywak, Michael Yeh, Todd McMullen, Hubert Low, Stan Sidhu, Leigh W. Delbridge.
University of Sydney, St. Leonards NSW, Australia

1000 Paper 24

AFRICAN AMERICANS PRESENT WITH MORE SEVERE PRIMARY HYPERPARATHYROIDISM THAN NON-AFRICAN AMERICANS.

Emad Kandil, Hua Ling Tsai, Helina Somervell, Alan P. B. Dackiw, Ralph P. Tufano, Anthony P. Tufaro, Jeanne Kowalski, Martha A. Zeiger.
Johns Hopkins Medical Institutions, Baltimore

1015-1045 Coffee Break

Scientific Session V

Moderator: Carmen C. Solarzano

1045 Paper 25

RISK FACTORS FOR MALIGNANCY IN SURGICALLY TREATED PATIENTS FOR BASEDOW GRAVES DISEASE, TOXIC MULTINODULAR GOITER AND TOXIC ADENOMA

Yasemin Giles, Fatih Tunca, Harika Boztepe, Yersu Kapran, Tarik Terzioglu, Serdar Tezelman.
Istanbul Medical Faculty, Istanbul, Turkey

1100 Paper 26

INCREASING INCIDENCE OF THYROID CANCER IS DUE TO INCREASED PATHOLOGIC DETECTION

Simon Grodski, Tani Brown, Stan Sidhu, Anthony Gill, Bruce Robinson, Diana Learoyd, Mark Sywak, Tom Reeve, Leigh Delbridge.
University of Sydney, Sydney, Australia

- 1115 Paper 27**
MEN 2B RELATED SYMPTOMS IN PATIENTS WITH A DE NOVO M918T GERMLINE MUTATION IN THE RET PROTOONCOGENE DURING THE FIRST YEAR OF LIFE
Michael Brauckhoff, Oliver Gimm, Katrin Brauckhoff, Henning Dralle.
Martin-Luther-University, Halle-Wittenberg, Germany
- 1130 Paper 28**
WAITING FOR CHANGE: SYMPTOM RESOLUTION AFTER ADRENALECTOMY FOR CUSHING'S SYNDROME
Rebecca S. Sippel, Dina M. Elaraj, Electron Kebebew, Sheila Lindsay, Blake Tyrrell, Quan-Yang Duh.
University of Wisconsin, Madison; University of California, San Francisco
- 1145 Paper 29**
IS NODULE SIZE AN INDEPENDENT PREDICTOR OF THYROID MALIGNANCY?
ES Huh, RN Machenko, **CR McHenry**.
MetroHealth Medical Center and Case Western Reserve University, Cleveland
- 1200 Paper 30**
LYMPH NODE INVOLVEMENT NEGATIVELY IMPACTS SURVIVAL IN PATIENTS WITH WELL-DIFFERENTIATED THYROID CARCINOMA
Victor Zaydfudim, Irene D. Feurer, Marie Griffin, John E. Phay.
Vanderbilt University, Nashville

ABSTRACTS

* Denotes Resident/Fellow Research Paper

Paper 1* (0815)

PREOPERATIVE VITAMIN D (VITD) REPLACEMENT THERAPY IN PRIMARY HYPERPARATHYROIDISM (PHPT): SAFE BUT BENEFICIAL?

Elizabeth G. Grubbs, Jeff E. Lee, Safia Rafeeq, Robert F. Gagel, Camilo Jiminez, Lei Feng and Nancy D. Perrier

University of Texas MD Anderson Cancer Center, Houston TX

Background: The physiologic significance of VitD deficiency in the setting of PHPT remains unclear. While the postoperative outcome of patients with VitD deficiency who underwent parathyroidectomy has generated recent discussion, the safety and value of *preoperative* VitD replacement has yet to be determined. **Methods:** A prospective endocrine database was queried to identify patients who underwent parathyroidectomy between 2004-2007. Biochemical parameters were reviewed at preoperative presentation, following VitD replacement (when performed), intraoperatively, and postoperatively at short-(1month) and long-term (6month) time-points. Preoperative VitD deficiency was defined as $25\text{OHVitD} < 30\text{ng/ml}$. Patients were divided into three groups: baseline normal ($>30\text{ng/ml}$); deficient/replaced; deficient/non-replaced. Replacement therapy consisted of *preoperative* oral ergocalciferol. Following replacement, the diagnosis of PHPT was confirmed with inappropriately elevated parathyroid hormone (PTH).

Results: Of the 307 consecutive patients 118(38%) had a $\text{VitD} \geq 30\text{ng/ml}$; 112(36%) were deficient and replaced; 77(25%) were deficient and non-replaced. Median replacement interval was 28 days (range:3-210) and median dose of ergocalciferol was 400,000U. Of the 112 patients who underwent replacement, serum calcium remained unchanged or slightly decreased in 91(81%)[pre-replacement median 10.8mg/dL , post-replacement median 10.6mg/dL], was not available in 15(13%), and increased in only 6(5%)[pre-replacement median 10.1mg/dL , post-replacement median 10.8mg/dL]. There was no difference in the IOPTH decline or postoperative calcium among the 3 groups($p=0.75/0.75$). The short and long-term postoperative PTH values in the baseline normal group were significantly lower than the other two groups($p=0.05;0.009$) with no differences seen between the depleted replaced and non-replaced groups. Within the replaced group, those that responded with a preoperative increase in serum calcium had the greatest IOPTH decline($p=0.03$) and the lowest short-term PTH($p=0.007$). **Conclusions:** In patients with documented PHPT and VitD deficiency, preoperative replacement with ergocalciferol is safe and doesn't increase serum calcium in a clinically significant manner. However, patients with replaced VitD deficiency had no difference in their short or long-term PTH values from those who were unreplaced, leaving uncertainty as to the benefit of

preoperative replacement. Serum calcium response to VitD replacement may predict greater IOPTH declines and lower postoperative PTH values.

Notes:

Paper 2* (0830)

EVALUATION FOR CONCOMITANT THYROID NODULES AND
PRIMARY HYPERPARATHYROIDISM IN PATIENTS UNDERGOING
PARATHYROIDECTOMY OR THYROIDECTOMY

Shane Y. Morita, Helina Somervell, Christopher B. Umbricht, Alan P.B.
Dackiw and Martha A. Zeiger

Johns Hopkins Medical Institutions, Baltimore MD

Background: Previous investigators have reported concomitant thyroid nodules and primary hyperparathyroidism in patients undergoing parathyroidectomy or thyroidectomy, respectively, but no authors have reported the incidence for both. Given the potential clinical sequelae of reoperative neck surgery, thyroid cancer, or untreated primary hyperparathyroidism it is important that these entities be diagnosed prior to surgical intervention. We therefore chose to determine the incidence of thyroid disease in patients presenting with primary hyperparathyroidism and the incidence of primary hyperparathyroidism in patients with thyroid disease. **Methods:** Data collected with IRB approval on patients who underwent thyroidectomy or parathyroidectomy at a tertiary academic institution from May 2006 through October 2007 were examined. Patients who presented for thyroid surgery had serum total calcium with intact parathyroid hormone levels measured; patients who presented with primary hyperparathyroidism underwent thyroid ultrasound. Fine needle aspiration (FNA) was performed when indicated. **Results:** Of the 288 patients who presented for surgical consultation with thyroid disease or primary hyperparathyroidism, 173 with primary hyperparathyroidism underwent thyroid ultrasound and 115 with thyroid disease had serum total calcium and intact parathyroid hormone levels measured. Of the 173 patients who had a thyroid ultrasound, 90/173 (52.0%) had thyroid nodules detected and 43/90 (47.8%) required FNA for further evaluation. Eleven of the 43 (25.6%) FNA results were, indeterminate/suspicious, cancerous, or non-diagnostic. Ten of these 11 (91%) patients required a thyroidectomy and 5 of them (50%) had papillary thyroid cancer on final histopathology. Incidental primary hyperparathyroidism was detected in 6/115 (5.2%) of patients with thyroid disease. **Conclusions:** Twenty five percent of patients with primary hyperparathyroidism will have thyroid nodules requiring further evaluation; of these 25% will require surgical intervention and of these, 50% will harbor an unsuspected thyroid cancer. Five percent of patients with thyroid disease will have unsuspected primary hyperparathyroidism. Screening for concomitant thyroid and parathyroid disease may prevent morbidity by avoiding re-operative neck surgery and, detect unsuspected

thyroid cancer and, thus is recommended in all patients who present for surgical consultation.

Notes:

PEDIATRIC ENDOCRINE SURGERY: WHO IS OPERATING
ON OUR CHILDREN?

Charles Tuggle, Sanziana Roman, Leon Boudourakis, Daniel Thomas,
Robert Udelsman and Julie Ann Sosa

Yale University School of Medicine, New Haven CT

Background: High surgeon volume is associated with improved adult patient outcomes in endocrine surgery. Few studies have evaluated the relationship between surgeon specialty/volume and pediatric outcomes. This is the first population-based study of clinical and economic outcomes following thyroidectomy and parathyroidectomy in children.

Methods: Cross-sectional analyses were performed using 1999-2005 HCUP-NIS data evaluating the relationship between surgeon specialty/volume and pediatric outcomes following thyroidectomy and parathyroidectomy. Outcomes included complications, length-of-stay (LOS), and costs; independent variables were patient demographic and clinical information, as well as surgeon/hospital characteristics. *High-volume* surgeons performed >30 cervical endocrine procedures/yr in adults and children combined; *pediatric* surgeons restricted >90% of their practices to patients ≤17years; *other* surgeons fell into neither category. Bivariate and multivariate regression analyses were performed.

Results: 1,199 patients were included. 76% of patients were female; 70% were white, 14% Hispanic, and 8% black. 71% were 13-17yrs of age, 22% 7-12yrs, and 7% <7yrs. 51% of procedures were partial- and 40% total-thyroidectomies; 9% were parathyroidectomies. 21% of surgeons were high-volume, 27% pediatric, and 52% other. High-volume surgeons had the lowest LOS (1.5 days vs. 2.0 other and 2.3 pediatric, $p=.01$), costs (\$12,098 vs \$13,374 other and \$18,237 pediatric, $p<.001$), and complications (6% vs 10% other and 11% pediatric, NS). High-volume surgeons were not in the South (18% vs. 40% other and 57% pediatric, $p<.001$); they tended to operate on patients with private insurance (82% private/HMO and 9% Medicaid vs. 70%/22% other and 69%/24% pediatric, NS), and less often on minority children (13% of practice vs. 26% other and 27% pediatric, NS). In multivariate analyses, surgeon specialty was an independent predictor of LOS and costs.

Conclusion: High-volume surgeons have significantly better outcomes following thyroidectomy and parathyroidectomy in children, compared to pediatric and other surgeons. Surgeon experience was an independent predictor of LOS and costs. Access to high-volume endocrine surgeons is associated with patient demographics and geography. High-volume endocrine and pediatric surgeons could combine their expertise to improve children's outcomes.

Notes:

Paper 4* (0900)

**THE UTILITY OF ROUTINE TRANSCERVICAL THYMECTOMY (TCT)
FOR MEN1 RELATED HYPERPARATHYROIDISM**

Anathea C. Powell, H. Richard Alexander, James F. Pingpank, Monica Skarulis, David L. Bartlett, Craig Cochran, Geoffrey Seidel, Douglas Fraker, Robert T. Jensen, Stephen Marx and Steven K. Libutti
National Institutes of Health, Bethesda MD

Background: Operation for MEN1 related HPT includes a neck exploration with a 3.5 or 4 gland resection and TCT. We reviewed our experience with initial operation for MEN1 HPT to determine the utility of routine TCT.

Methods: Patients with MEN1 who underwent initial exploration with TCT from 1993 - 2007 under an IRB-approved protocol were reviewed. We defined MEN1 HPT as occurring in a known MEN1 kindred or in a patient with synchronous pancreatic and/or pituitary lesions. Data included demographics, symptoms, pre- and post-op calcium and parathyroid hormone (PTH), operation performed, pathology, and follow-up.

Results: We identified 66 patients with MEN1 HPT; 35 (53%) were female (overall mean age 33 ± 12 yrs); 59 (89%) were symptomatic. In 34 patients, all 4 glands were found and 3.5 gland resection was performed. Two of 34 (5.8%) had additional intra-thymic parathyroid tissue on permanent pathology. Of the 32 patients where fewer than 4 glands were found, 10 patients (29%) had additional intra-thymic parathyroid tissue on final pathology. In only 7 of the 32, all 4 glands were accounted for following TCT intra-operatively. In 25 patients, all 4 glands were still unaccounted for after completion of TCT. No thymic carcinoid tissue was found in the 66 patients. Sixty four patients (97%) were hypocalcemic or normocalcemic post-operatively. Follow-up data were available for 41 patients (62%) (mean 5.8 ± 0.6 yrs). Of the 34 patients in whom all 4 glands were found, 22 had follow-up data and 6 recurred (27%); of the 32 patients in whom fewer than 4 glands were found, 19 had follow-up data and 8 recurred (42%).

Conclusions: There was low yield of intra-thymic parathyroid tissue within patients with all 4 glands identified (5.8%). The yield (29%) was higher in patients with fewer than 4 glands identified. No carcinoid tumor or tissue was found in any patient. These data highlight the importance of performing a transcervical thymectomy when less than 4 glands are found at first operation.

Notes:

Paper 5* (0915)

HEPATIC ARTERY CHEMOINFUSION WITH EMBOLIZATION FOR
NEUROENDOCRINE CANCER WITH PROGRESSIVE HEPATIC
METASTASES DESPITE OCTREOTIDE THERAPY

Dara Christante, SJ Pommier, Babak Givi and R Pommier
Oregon Health & Science University, Portland OR

Background: Hepatic metastasis from neuroendocrine cancer dramatically reduces survival and thereby introduces an important opportunity for intervention. Several treatment regimens have been examined, but an optimal evidence-based approach to hepatic metastasis has been difficult to define, and the advent of octreotide alters the interpretation of earlier therapeutic interventions. We evaluated a protocol for patients with disease not amenable to cytoreduction who were already receiving maximized octreotide therapy that combines hepatic artery chemoinfusion with embolization. **Methods:** Patients with neuroendocrine cancer and diffuse hepatic metastasis were treated with a hepatic artery chemoinfusion and embolization protocol when they demonstrated radiological progression of disease despite optimized octreotide therapy. The protocol consisted of four monthly 5-day cycles of high-dose 5-fluorouracil via hepatic artery infusion with embolization after the final 2 cycles. Patients were excluded from embolization if they had overwhelming liver tumor burden. Response was defined by radiological regression on CT or symptomatic improvement. Progression-free and disease-specific survival rates were calculated using the Kaplan-Meier method. **Results:** Seventy-seven patients were treated with 13 receiving only chemoinfusion. Median follow-up time from the date of diagnosis was 57 months. Thirty-day mortality rate was 6.5%. Regression was observed in 58% and stabilization in 24%, for an overall response rate of 82%. Median progression-free survival was 19 months. Median disease-specific survival from the date of diagnosis was 74 months and was 34 months from the first treatment. One-year survival from the initiation of therapy was 78%, 2-year survival was 62% and 5-year survival was 24%. Overall disease-specific survival from the date of diagnosis was 88% at 2 years and 59% at 5 years. **Conclusions:** This protocol yielded over 2.5 years of survival for the majority and 5 years of survival for nearly a quarter of patients who had progression of extensive hepatic disease despite octreotide. The addition of hepatic chemoinfusion to embolization offers a high probability of clinical benefit to a group of patients who otherwise have severely limited therapeutic options and dismal survival.

Notes:

Paper 6* (0930)

AVOIDABLE REOPERATIONS FOR THYROID AND PARATHYROID SURGERY; EFFECT OF HOSPITAL VOLUME

Jamie C. Mitchell, Mira Milas, German Barbosa, Jazmine Sutton,
Eren Berber and Allan Siperstein
Cleveland Clinic, Cleveland OH

Background: Hospital volume for thyroid and parathyroid surgery inversely correlates with peri-operative complications, most of which are self-limited. This correlation has not been made regarding the need for re-operative surgery that may have greater cost and long-term morbidity for the patient.

Methods: 351 patients undergoing re-operative thyroid (TR) and parathyroid (PR) surgery at a tertiary care hospital from 1999-2007 were retrospectively analyzed. Using objective criteria based on currently accepted standards of care, re-operations were classified as avoidable vs. unavoidable. Publicly-available discharge data was used to classify hospitals as low volume centers (LVC, <20 cases/yr) and high volume centers (HVC, ≥ 20 cases/yr). Chi-square analysis determined statistical significance.

Results: Of 351 re-operations, 129 (37%) were categorized as avoidable and 222 (63%) as unavoidable. Hyperparathyroidism (HPT), thyroid cancer, and recurrent goiter each accounted for a third of re-operations. Of avoidable cases, 60% were parathyroid, while of unavoidable cases, 68% were thyroid. For 237 cases (67%) with available hospital data, 112 (47%) were avoidable and 125 (53%) unavoidable. 78% of PR from LVC were avoidable vs. 62% from HVC ($p < 0.001$). 54% of TR from LVC were avoidable vs. 13% from HVC ($p < 0.001$). Operations for both HPT and thyroid cancer led to avoidable re-operations more frequently if performed at LVC ($p < 0.001$). Operative volume at LVC averaged 2 cases/yr and generated 2 referrals over the study period; for HVC, this was 86 cases/yr and 3 referrals. LVC had 86% true-positive sestamibi scans, with most glands removed from a normal anatomic location; in contrast, 11% rates from HVC suggest higher patient complexity.

Conclusions: By objective criteria, a significant number of thyroid and parathyroid re-operations are avoidable. Most originate from LVC. Except for cancer, thyroid re-operations tend to be unavoidable. Most parathyroid re-operations are avoidable at all centers, although those from HVC may be more complex. In addition to decreasing complication rates, thyroid and parathyroid surgery performed at HVC would also decrease the need for patients to undergo re-operative procedures.

Notes:

Paper 7* (0945)

MITROGEN-INDUCIBLE GEN-6 EXPRESSION CORRELATES WITH SURVIVAL AND IS AN INDEPENDENT PREDICTOR OF RECURRENCE IN BRAF^{V600E} POSITIVE PAPILLARY THYROID CANCERS

Daniel T. Ruan, Jacob Moalem, Ann C. Griffin, Wen Shen, Quan-Yang Duh, Robert S. Warren, David B. Donner, Orlo H. Clark, Electron Kebebew
University of California, San Francisco CA

BACKGROUND: Mitogen-inducible gene-6 (mig-6) is an immediate early response gene that negatively regulates EGFR signaling. EGFR is an important regulator of papillary thyroid cancer (PTC) growth. The purpose of this investigation is to determine if mig-6 expression is associated with BRAF mutational status or surgical outcomes in patients with PTC. **METHODS:** We determined mig-6 transcript levels from an Affymetrix GeneChip microarray on 19 patients with PTC that underwent thyroidectomy. Relative expression levels were confirmed by quantitative RT-PCR. Patients were stratified by mig-6 expression and a maximally selected cutoff was established to discriminate Kaplan-Meier survival estimates by log-rank testing. To cross-validate this finding, we performed quantitative RT-PCR on resected tumors from an additional 106 patients with PTC for mig-6 and EGFR mRNA levels. Kaplan-Meier survival estimates of patients in the cross-validation group above and below the mig-6 expression cutoff were compared by log-rank testing. Sequencing was performed to determine BRAF^{V600E} mutational status.

RESULTS: Mig-6 expression above the maximally selected cutoff of $1.10(2^{-dCt[mig6-GUS]})$ was associated with improved survival in the microarray test group ($p=0.008$). When this cutoff was applied to the cross-validation group, mig-6 expression above the cutoff was also associated with improved survival ($p=0.03$). While patients with mig-6 expression above this cutoff had longer disease-free survival, this was not significant by log-rank testing ($p=0.07$). Mig-6 and EGFR mRNA levels were directly correlated, with a Pearson correlation coefficient of 0.55 ($p<0.0001$). Patients with BRAF^{V600E} mutation had significantly lower levels of mig-6 mRNA expression than those without the mutation ($p=0.04$). Furthermore, in BRAF^{V600E} patients, mig-6 expression was independently predictive of disease-free survival in multivariate analysis.

CONCLUSIONS: High mig-6 expression is associated with improved survival after thyroidectomy for PTC and is an independent predictor of improved disease-free survival in patients with BRAF^{V600E} mutation. Mig-6 represents a novel tumor suppressor and an attractive candidate for targeted cancer therapeutics in patients with PTC refractory to conventional therapy.

Notes:

Paper 8* (1030)

EFFECT OF PARATHYROIDECTOMY ON ANEMIA IN END-STAGE
RENAL DISEASE PATIENTS WITH HYPERPARATHYROIDISM

Joseph A. Trunzo, Christopher R. McHenry, James A. Schulak and
Scott M. Wilhelm

*University Hospitals Case Medical Center and
MetroHealth Medical Center, Cleveland OH*

Introduction: Development of secondary and tertiary hyperparathyroidism (HPT) is a well known sequela of end-stage renal disease (ESRD). It has been suggested that parathyroidectomy for HPT in ESRD patients may result in improvement in anemia and improved response to erythropoietic stimulating drugs. Our goal was to examine the effect of parathyroidectomy on EPO dosing requirements and anemia in our ESRD patients.

Methods: A retrospective review was conducted using electronic hospital and local dialysis unit database records to obtain pre-operative and post-operative laboratory values. Patients were included if pre-operative and 1 year post-operative hemoglobin (HB) and hematocrit (HCT) levels were available and excluded if they received a kidney transplant or had failure of parathyroidectomy during the 1 year follow up. Lab values were obtained pre-operatively and at 1, 2, and 12 months post-operatively. HB and HCT levels were averaged over 3 months prior to surgery and again at 9 to 12 month post surgery. Erythropoietin (EPO) dose, calcium (CA), phosphorus (PH), alkaline phosphatase (AP), albumin (ALB), and parathyroid hormone (PTH) were also obtained during these times.

Results: Thirty-seven patients met inclusion criteria. Surgical therapy resulted in decreased PTH from 1871 ± 236 (mean \pm SEM) to 167 ± 29 pg/mL ($P < 0.001$) at 1 year. EPO dosing requirement showed a profound decline from $10,086 \pm 1721$ to $3,514 \pm 620$ units/treatment ($p = 0.004$). HB and HCT levels showed an upward trend at 1 year (11.4 ± 0.3 to 12.1 ± 0.2 g/dL and 35.7 ± 1.0 to $37.1 \pm 0.6\%$, respectively), though neither were statistically significant. AP levels dropped from 476 ± 65 to 103 ± 51 U/L ($p < 0.001$). CA, PH, and ALB levels showed no difference.

Conclusion: In ESRD, parathyroidectomy for HPT improves anemia of chronic disease and statistically lowers exogenous erythropoietin requirements. This suggests either increased endogenous EPO production or improved response at lower dosing levels. As a result, we propose refractory renal anemia as a secondary indication for surgical resection in this population.

Notes:

Paper 9* (1045)

REGULATION OF ADHERENS JUNCTIONS AND THE METASTATIC PHENOTYPE OF MEDULLARY THYROID CARCINOMA BY THE RAF-1/MEK/ERK PATHWAY

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Background: Medullary thyroid carcinoma (MTC) is highly metastatic. We have recently reported that activation of the Raf-1/MEK/ERK signaling pathway in MTC cells results in morphologic changes. We hypothesized that these Raf-1-induced morphologic changes could be associated with alterations in adhesion molecules thereby affecting cell-cell contacts and altering metastatic potential.

Methods: An estrogen (E2)-inducible Raf-1 MTC cell line (TT-raf) was utilized in this study. Western blot analysis was used to confirm Raf-1/MEK/ERK pathway activation and measure levels of essential cell-cell contact regulators and adhesion molecules. Transwell assays were performed to measure the cell invasion and migration activity.

Results: E2 treatment of TT-raf cells resulted in Raf-1/MEK/ERK pathway activation as evidenced by increased levels of phospho-MEK and ERK1/2. This resulted in significant reductions in levels of adhesion molecules including E-cadherin, Beta-catenin, and Occludin. Importantly, activation of the Raf-1/MEK/ERK pathway and the associated decrease in adhesion molecules dramatically inhibited the invasion and migration ability of MTC cells. Furthermore, treatment of raf-1 activated cells with U0126, a specific inhibitor of MEK, abrogated these Raf-1-mediated reductions in adhesion, invasion, and migration indicating that the suppression of the metastatic phenotype in MTC cells is MEK-dependent.

Conclusions: These data suggest that the Raf-1/MEK/ERK pathway regulates the adherens junctions and metastatic phenotype of MTC cells. Thus, these findings provide further insight into the key steps in the metastatic progression of MTC. Therefore, activation of the Raf-1/MEK/ERK signaling pathway may be an attractive and novel target for the treatment of advanced MTC.

Notes:

Paper 10* (1100)

THE ROLE OF RADIOLOGIC STUDIES IN THE EVALUATION AND
MANAGEMENT OF PRIMARY HYPERALDOSTERONISM

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Background: Surgical treatment of primary hyperaldosteronism (PHA) requires demonstration of unilateral adrenal hypersecretion. In this study we assessed our experience with radiologic studies in the evaluation and treatment of PHA patients.

Methods: We reviewed the records of 106 patients treated for biochemically confirmed PHA from 1996-2007. Seventy-eight patients (mean age 50 years, 44 men) had adequate data for analysis. All 78 patients underwent CT scan, 45 (57.7%) underwent adrenal vein sampling (AVS), and 29 (37.2%) underwent NP-59 scintigraphy.

Results: At diagnosis of PHA, the median systolic and diastolic blood pressures were 150 mmHg and 86 mmHg; patients were being treated with a median of 3 antihypertensive medications. The median initial serum potassium was 3.1 mmol/L, and 69.2% of patients initially required potassium. The median initial plasma aldosterone concentration (PAC) was 31.3 ng/dL; median initial plasma renin activity (PRA) was 0.4 ng/mL/h; median aldosterone-renin ratio was 107.0. During AVS, both adrenals were catheterized in 42 of 45 patients (93.3%); 2 failures were right-sided. Operative patients remained on fewer antihypertensive medications (1 vs. 3) ($p < 0.001$) than medically managed patients. Median systolic blood pressure was lower in operative patients (130 vs. 146 mmHg), but did not reach statistical significance ($p = 0.115$). No operative patient required postoperative potassium, although 2 patients remained on spironolactone or eplerenone. Forty-two successful AVS procedures changed the management of 15 patients (35.7%); based on CT scan alone, 7 patients would have been inappropriately excluded from operative treatment, and 8 patients would have had an inappropriate operation. Based on positive clinical response after operation, AVS accurately differentiated unilateral from bilateral aldosterone hypersecretion in 28 patients (96.6%); NP-59 scintigraphy accurately identified 23 patients (85.2%).

Conclusion: Adrenal vein sampling is the best radiologic procedure to discriminate between unilateral and bilateral aldosterone hypersecretion.

Notes:

Paper 11* (1115)

THE POTENTIAL CLINICAL RELEVANCE OF SERUM VASCULAR
ENDOTHELIAL GROWTH FACTOR (VEGF) AND VEGF-C IN
RECURRENT PAPILLARY THYROID CARCINOMA

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Background: Vascular endothelial growth factor (VEGF) promotes tumor angiogenesis while VEGF-C is a potent lymphangiogenic factor. Tissue and serum VEGF-C has been shown to be correlated with the presence of nodal metastases in papillary thyroid carcinoma but the correlation of VEGF level with distant metastases remains uncertain. The present study aims at validating the role of serum VEGF and VEGF-C levels in recurrent PTC patients.

Methods: Serum samples were collected preoperatively from 148 patients, including 85 primary PTC patients, 44 control subjects with benign thyroid diseases and 19 patients with recurrent PTC. Serum VEGF and VEGF-C levels were measured by enzyme-linked immunosorbent assay.

Results: All patients with recurrent PTC had locoregional metastases confirmed histologically by reoperations. Twelve had locoregional recurrence only while 7 patients had additional distant metastases confirmed by imaging and thyroglobulin assay. Cervical lymph nodes recurrence occurred in 16 (84%) patients. Patients with primary or recurrent PTC had no significant difference in serum VEGF and VEGF-C levels. Patients with recurrent PTC had a significantly higher serum VEGF (432 vs. 263 pg/mL, $p=0.004$) and VEGF-C (6433 vs. 5289 pg/mL, $p=0.006$) levels compared with those benign control subjects. Serum VEGF level was significantly elevated in patients with additional distant metastases compared with those with local recurrences only (580 vs. 345 pg/mL, $p=0.037$) while there was no significant difference of serum VEGF-C level in both subgroup of patients with recurrence (6266 vs. 6721 pg/mL, $p=0.5$).

Conclusions: Both serum VEGF and VEGF-C levels were elevated in patients with recurrent PTC. In addition, serum VEGF was significantly elevated in patients with distant metastases compared with those with locoregional recurrence only. The clinical relevance of serum VEGF and VEGF-C in monitoring recurrence and predicting the type of recurrence needs further evaluation.

Notes:

Paper 12* (1130)

EXTRATHYROIDAL EXTENSION IS NOT ALL EQUAL:
IMPLICATIONS OF MACROSCOPIC VS. MICROSCOPIC EXTENT IN
PAPILLARY THYROID CARCINOMA

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Background: Extrathyroidal extension (ETE) is a well-established risk factor for disease recurrence in patients with papillary thyroid carcinoma (PTC). Though the initial data establishing ETE as a risk factor for recurrence was based on gross ETE noted at time of surgery, current treatment regimens group patients with microscopic ETE—extension identified only on histopathology—similarly to those with macroscopic (gross) ETE. This study was designed to assess whether microscopic ETE is equivalent to macroscopic ETE as a risk factor for recurrence. **Methods:** A retrospective analysis of 198 patients who underwent thyroidectomy for PTC between 1995-2004 and had a minimum 3-year follow-up was conducted. Patients with macroscopic ETE based on operative findings and confirmed by pathology report were compared to patients with microscopic ETE identified only on histopathologic review. **Results:** Eighty-one patients (41%) had ETE and 117 patients (59%) with PTC had no ETE. Of the 81 patients with ETE, 23 (28%) had macroscopic ETE and 58 (72%) had microscopic ETE. Presence of lymph node metastasis was not significantly different between the two groups, but there was a higher rate of extranodal disease in patients with macroscopic ETE compared to microscopic ETE (43% and 10%, respectively, $p < 0.005$). Fifty-seven percent (13/23) of patients with macroscopic ETE had disease recurrence compared to 19% (11/58) with microscopic ETE ($p < 0.005$). Patients with microscopic ETE were as likely as patients with macroscopic ETE to receive adjuvant radioactive iodine therapy and received similar doses. Even after adjusting for patient age, tumor size, lymph node and distant metastasis, extranodal extension, and completeness of resection, patients with macroscopic ETE were more likely than patients with microscopic ETE to have disease recurrence (Odds Ratio=5.6, 95% Confidence Interval=1.9-15.9, $p < 0.05$). **Conclusions:** Macroscopic ETE is associated with a higher incidence of disease recurrence than microscopic ETE. The data indicate that ETE found at surgery is more ominous than ETE identified solely on histologic review and implies that they should be considered separately when devising adjuvant treatment regimens.

Notes:

Paper 13* (1145)

SHOULD BILATERAL LATERAL LYMPH NODE DISSECTION BE
ROUTINE IN MEDULLARY THYROID CANCER?

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Background: total thyroidectomy with bilateral lateral and central compartments lymph node dissection (LND) is standard treatment for patients with medullary thyroid carcinoma (MTC), given the high incidence of lymph node involvement (up to 80%). This procedure has a significant morbidity. On the other hand, LN metastases contralateral to the primary tumor and/or in the mediastinum are considered evidence of systemic spread of the disease. Surgery is rarely curative under these circumstances. The aim of our study was to ascertain if bilateral lateral LND is adequate therapy for MTC.

Methods: we retrospectively reviewed the data of the patients who underwent a bilateral LND for MTC over the period 1977-2004. Only patients operated on primarily, with a curative intent were included. Patients with regional disease or systemic spreads were excluded. The primary end point was a biochemical cure (basal and/or stimulated serum calcitonin). Adequate LND was defined as a biochemical cure in patients with positive LN metastases in both lateral compartments.

Results: A total of 76 patients were identified. 34 with advanced disease were excluded. 42 patients were analyzed (mean age 45 years, M:F ratio 2:3). The median follow up was 60 months [range 4-240]. LND contained a mean of 33 nodes [range 8-73], with a mean of 3 positive nodes [range 0-32]. 26 patients were biochemically cured, none of whom had more than ipsilateral LN involvement. 16 patients were not cured despite extensive LND.

Conclusion: routine bilateral lateral LND is not adequate for MTC. Patients achieving biochemical cure could have benefited from less extensive and aggressive LND. Those with bilateral LN involvement were not cured after an aggressive palliative procedure.

Notes:

LOSS OF HETEROZYGOSITY OF SELECTED TUMOR SUPPRESSOR GENES IN PARATHYROID CARCINOMA

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Background: The histological diagnosis of parathyroid carcinoma (PC) is challenging, and does not always correlate with operative findings. Molecular markers have helped to better differentiate PC from benign parathyroid neoplasms. An initial study of 5 patients with PC found more genetic instability compared to parathyroid adenomas as characterized by loss of heterozygosity (LOH) across a broad tumor suppressor gene panel (*Am J Surg Pathol* 2005;29:1049-1055). We evaluated a larger series of PC for LOH of selected tumor suppressor genes implicated in parathyroid carcinogenesis with correlation to pathologic characteristics.

Methods: From 1970-2007, 59 cases with intraoperative findings suspicious for PC were retrieved from a prospectively collected database of 2238 patients explored for primary hyperparathyroidism (PHP). Cytoarchitectural parameters were reviewed by one pathologist independent of the original diagnosis. PC was definitively diagnosed when ≥ 1 of the following were present: extracapsular, thyroidal, perineural, or angiolymphatic invasion, atypical mitoses, or metastasis. LOH for a panel of 16 tumor suppressor gene loci was determined for 15 patients with available paraffin blocks. Fractional allelic loss (FAL) was calculated as the percentage of loci with LOH divided by the number of informative loci.

Results: PC was confirmed histologically in 18/2238 (0.8%) PHP patients. One patient (5.6%) presented with a palpable neck mass and 2 patients (11.1%) had hypercalcemia (>14 mg/dL). The most common histologic criteria present were angiolymphatic invasion (12/18, 66.7%) and soft tissue invasion (9/18, 50%). The mean number of informative loci was 11/16. FAL ranged from 0-87.5% (mean 33.0%). Among informative cases, PC was associated with loss of ≥ 1 marker at chromosome 1q (*HRPT2* locus) in 8/14 (57.1%), chromosome 10q (*PTEN* locus) in 7/13 (53.8%), and chromosome 13q (*Rb* locus) in 5/14 (35.7%). Among PC cases with evaluation of markers at chromosome 11q (*MEN1* locus), loss was seen in 3/5 (60%).

Conclusions: In PC diagnosed using clear-cut histologic criteria, LOH is quite frequent and exhibits a characteristic pattern of loss at the *HRPT2*, *MEN1*, and *PTEN* gene loci.

Notes:

Paper 15* (1415)

HISTONE DEACETYLASE INHIBITORS UPREGULATE NOTCH-1 AND
INHIBIT GROWTH IN PHEOCHROMOCYTOMA CELLS

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BACKGROUND: Operative resection is the only curative treatment for pheochromocytomas. Activation of the Notch-1 signaling pathway has been shown to limit growth and suppress hormonal secretion in neuroendocrine (NE) tumors. Recently, the histone deacetylase (HDAC) inhibitors valproic acid (VPA) and suberoyl bis-hydroxamic acid (SBHA) have been demonstrated to be strong Notch-1 activators. We hypothesized that HDAC inhibition with these compounds would be an effective strategy to activate the Notch-1 pathway and inhibit growth and hormonal secretion in pheochromocytoma cells.

METHODS: Pheochromocytoma PC-12 cells were treated with up to 8 mM VPA or 40 μ M SBHA for 48 hours. NE tumor markers achaete-scute complex-like 1 (ASCL-1) and chromogranin A (CgA) were measured by Western analysis. Growth was assessed by a methylthiazolyldiphenyl-tetrazolium (MTT) bromide cellular proliferation assay, and Western analysis was then used to determine the mechanism of growth regulation.

RESULTS: Treatment with both HDAC inhibitors caused a dose-dependent decrease in ASCL-1 and CgA. Furthermore, both VPA and SBHA increased the amount of Notch-1 protein. The MTT growth assay showed decreased cellular proliferation with both drugs. With treatment, cleavage of the apoptotic markers caspase 3 and PARP was observed.

CONCLUSIONS: VPA and SBHA effectively upregulate Notch-1, suppress NE tumor markers, and decrease growth via apoptosis of pheochromocytoma cells *in vitro*. Activation of the Notch-1 signaling pathway with HDAC inhibitors may represent a new strategy to treat pheochromocytomas.

Notes:

Paper 16* (1430)

RELIABILITY OF BENIGN FINE NEEDLE ASPIRATION CYTOLOGY
OF LARGE THYROID NODULES

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Background: In recent reports, the reliability of fine needle aspiration (FNA) cytology of large, benign, thyroid nodules has been questioned. Because of false negative rates >10%, the recommendation has been made that "thyroid nodules ≥ 4 cm should be considered for diagnostic lobectomy regardless of FNA cytology results." (*Surgery* 2007, in press). These errors must derive from 1) inaccurate sampling, 2) mistaken cytology interpretation, or 3) the FNA sample from a large nodule does not accurately represent the true pathology. We present a contemporaneous series of benign thyroid nodules, ≥ 3 cm, precisely measured and biopsied by high-resolution, ultrasound-guided FNA, and cytologically assessed according to strict criteria.

Methods: A retrospective chart review was performed of all patients undergoing ultrasound guided fine needle aspiration at our institution from January 2002 through December 2006.

Results: From 6921 ultrasound-guided FNA thyroid biopsies, 742 were for benign nodules ≥ 3 cm. There were 552 women and 190 men ranging in age from 15 to 90 years (median 57). A definitive histologic diagnosis was available for 145 patients who underwent thyroid resection; 144 were benign whereas 1 was falsely negative—a follicular variant of papillary thyroid carcinoma. The 144 patients with benign lesions were subclassified: dominant adenomatous nodules in 67 (46%), follicular adenomas in 43 (30%), nodular adenomatous hyperplasia in 33 (23%), and Hurthle cell adenoma in 1 (1%). The one patient with cancer was operated due to a highly suspicious ultrasound appearance. No malignancies were identified in follow-up of 597 non-operated patients with benign FNA cytology (mean = 2.1 years; range: 0.1 - 5.8).

Conclusions: A benign diagnosis of thyroid nodules ≥ 3 cm by US-guided FNA is highly reliable. The perception that accurately acquired FNA aspirates from a large nodule do not reflect the histology of the entire nodule is invalid. Therefore, with precise ultrasound-guided aspiration and strict cytologic analysis, FNA is sufficiently reliable to distinguish benign from malignant thyroid nodules. Thus, surgical resection for diagnosis is not necessary.

Notes:

Paper 17* (1445)

COMPUTED TOMOGRAPHY CAN GUIDE FOCUSED EXPLORATION IN SELECT PATIENTS WITH PRIMARY HYPERPARATHYROIDISM AND NEGATIVE SESTAMIBI SCANNING

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Background: In patients with primary hyperparathyroidism (PHPT) and negative sestamibi scanning, the incidence of multigland disease and operative failure is higher compared to patients with positive sestamibi localization. The aim of this study was to analyze the utility of thin cut (2.5 mm) computed tomography (CT) scanning in patients with PHPT and negative sestamibi scans.

Methods: A retrospective review of patients with primary PHPT was conducted from the prospective parathyroid registries of two tertiary referral centers. Of 482 patients, 64 with negative sestamibi scanning underwent thin cut 2.5 mm CT scans of the neck and were included in the final analysis. All CT scans were read by the same radiologist who specializes in parathyroid imaging.

Results: 82% of CT scans predicted correct lateralization to one or both sides of the neck, and 55% correlated exactly with diseased parathyroid gland location(s). CT scanning was 85% sensitive and 94% specific for correctly lateralizing the side(s) of diseased glands and 66% sensitive and 89% specific for exactly predicting intra-operative location of diseased glands. 64% of patients underwent focused explorations compared to 25% who had bilateral explorations. 9% of the cases were converted from focused to bilateral explorations. One patient (2%) had a substernal exploration. 87% of patients had local anesthesia; 10% had general; and 3% converted from local to general. Pathology revealed a single adenoma in 84%, double adenomas in 5%, hyperplasia/multigland disease in 8%, and normal pathology in 3%. Average operative time was 74 minutes. However, the mean operative time decreased to 55 minutes in patients with precise CT localization ($p = .02$).

Conclusion: Thin cut CT scanning is a helpful adjunct to pre-operative workup in PHPT patients who have negative sestamibi localization and may permit a focused neck exploration in a high percentage of those patients.

Notes:

Paper 18 (0830)

PAPILLARY THYROID MICROCARCINOMA: A STUDY OF 900 CASES TREATED AT ONE INSTITUTION DURING A 60-YEAR PERIOD

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Background. The study aims were to characterize patients with papillary thyroid microcarcinoma (PTM) and to provide data on outcome after surgical therapy.

Methods. 900 consecutive patients with papillary microcarcinoma (tumor size 1cm or less) had treatment at our center from 1945 to 2004. Follow-up extended to 54 years. Mean follow-up time for 638 survivors was 13.5 years. Recurrence and mortality details were derived from a computerized cancer database.

Results. Median tumor size was 7 mm. 99% of tumors were histologic grade 1; 98% were not locally invasive. 30% of patients had nodal metastases at presentation. Only three (0.3%) had distant spread at diagnosis. Eighty five percent of patients underwent bilateral lobar resection. Regional nodes were removed by either "node picking" (27%) or an appropriate compartmental dissection (33%). Tumor resection was incomplete in only five cases (0.6%). Radioiodine remnant ablation was performed in 155 patients (17%). All-causes survival did not differ from expected ($P=0.08$); three patients (0.3%), to date, have died of PTM. None of 892 patients with initial complete tumor resection had distant spread during 20 postoperative years. No localized tumor in a female patient was fatal, and no male patient died of PTM in the first 30 postoperative years. Twenty-year and 40-year tumor recurrence rates were 6% and 9%. Eighty one percent of postoperative recurrences, to date, have been in regional neck nodes. Higher recurrence rates were seen with multifocal tumors ($P=0.002$) and node-positive patients ($P<0.001$), but not after unilateral lobectomy ($P=0.49$). Tumor recurrence rates did not appear to be significantly improved by radioiodine remnant ablation ($P=0.093$).

Conclusions. These results reaffirm that papillary microcarcinoma has an excellent prognosis, if primary tumor is completely resected. More than 99% of PTM patients are not threatened by the risks of distant spread or cancer mortality. Neither the performance of a total thyroidectomy, nor the administration of postoperative remnant ablation, improved outcome during 40 postoperative years, in terms of either tumor recurrence (any site) or cause-specific mortality.

Notes:

LONG-TERM OUTCOME OF PATIENTS WITHOUT IOPTH DECREASE
TO NORMAL RANGE DURING PARATHYROIDECTOMY

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Background: The intraoperative criterion that requires a PTH drop >50% from the highest, pre-incision or pre-excision level, 10 minutes after excision of an abnormal gland predicts postoperative eucalcemia with 98% accuracy and identifies MGD with low FP (0.9%) and FN (2.6%) rates. The purpose of this study is to correlate the intraoperative PTH (IOPTH) dynamics with the incidence of postoperative eucalcemia with PTH elevation and recurrent hyperparathyroidism (HPT) in successfully treated patients.

Methods: 372 consecutive patients with parathyroidectomy guided by intraoperative PTH monitoring (IPM) using the above criterion were followed >6 months. Calcium and PTH levels were measured postoperatively for an average of 50(6-162) months. Patients were divided in 2 groups: Group 1, 292 patients had IOPTH levels decrease to normal range (NR); and Group 2, 80 patients had >50% IOPTH decrease that did not reach NR. The incidence of postoperative eucalcemia with PTH elevation and recurrent HPT was evaluated in both groups. Elevated postoperative PTH was defined as a parathormone level above NR at last follow-up.

Results: Overall, eucalcemia with PTH elevation was found in 17% (61/362) and recurrent HPT in 3% (10/372) of the successfully treated patients followed 4 years. In Group 1, 17% (48/286) of the patients had eucalcemia with elevated PTH while in Group 2, 30% (23/76) had normal calcium levels with high PTH at last follow-up ($p=0.009$). However, only 2% (6/292) of patients in Group 1 and 5% (4/80) in Group 2 developed recurrent HPT ($p=0.15$). Conversely, 73% (57/80) of patients in Group 2 were eucalcemic with normal PTH at 5 years while 16% (48/292) of Group 1 patients had high PTH at 3 years.

Conclusion: Although postoperative eucalcemia with PTH elevation was significantly higher in patients where IOPTH levels did not drop to NR, the incidence of recurrent HPT was not increased. The majority of patients in whom IOPTH did not drop to NR continue to be biochemically normal at an average follow-up of 5 years.

Notes:

Paper 20 (0900)

PROSPECTIVE EVALUATION OF ROBOTIC-ASSISTED
UNILATERAL ADRENALECTOMY

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Sponsor: Quan-Yang Duh

Background: Robotic surgery has gained increased acceptance in the past 5 years and has been proposed to perform adrenalectomy. However, most previous studies on robotic adrenalectomy are small and retrospective. We aimed to determine the learning curve for robotic adrenalectomy and factors that influence operative time, and cost.

Methods : A prospective evaluation of 100 consecutive patients that underwent robotic unilateral transperitoneal adrenalectomy (Da Vinci system) between November 2001 and November 2007. Univariate and multivariate analysis were performed. A cost analysis of robotic and laparoscopic adrenalectomy using cost centers in our hospital was also performed.

Results : Mean operative time for robotic-assisted adrenalectomy was 95 ± 27 min. Pathology was aldosteronoma (n=39), pheochromocytoma (n=24), non-functional adenoma (n=24), Cushing's adenoma (n=11), and cyst (n=2). Morbidity and mortality rates were 8% and 0% respectively. Conversion rate was 5% (4 patients to open adrenalectomy and 1 to laparoscopic adrenalectomy). Mean operative time decreased by one minute every 10 cases (operative time = $105 - (0.103 \times \text{cases})$). Operative time improved more significantly for junior surgeons (123 to 97 min, 21% decrease) than for senior surgeons (90 to 81 min, 9% decrease)($p=0.006$), after the first 50 cases. By multiple regression analysis, surgeon's experience (-18.9 ± 5.5 ; $p<0.001$), resident training level (-7.8 ± 3.2 ; $p<0.001$) and tumor size (3 ± 1.4 ; $p<0.001$) were independent predictors of operative time. Body mass index and tumor type did not affect operative time. Costs evaluation showed that the robotic procedure was 2.3 times more costly than lateral transperitoneal laparoscopic adrenalectomy (4155 versus 1799 Euros).

Conclusions: Surgeon's experience, resident training level and tumor size are important variables for robotic-assisted unilateral adrenalectomy and should be taken into account when this approach is evaluated. Controlled studies have to be performed to show potential relevant clinical benefits that could balance costs.

Notes:

IDENTIFICATION OF MEN1 IN PATIENTS WITH APPARENT
SPORADIC PRIMARY HYPERPARATHYROIDISM

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Background: In the evaluation of patients with apparent sporadic primary hyperparathyroidism (PHP), specific query for a family history of MEN1 (FHx) is widely recommended. Because responses are rarely positive, we instituted a 6-question panel (6Q) to routinely screen for MEN1 in all patients presenting for surgical management. Preoperative identification of MEN1 is essential to providing definitive operative management.

Methods: The data of 950 patients operated upon for PHP by one surgeon from 6/92-11/07 were reviewed for presenting diagnosis, FHx and 6Q responses, demographics, biochemical testing results, anatomic findings, results of mutational analysis, and final diagnosis of MEN1 versus sporadic PHP. MEN1 was diagnosed using the 2001 Consensus guidelines (*J Clin Endocrinol Metab* 86:5658-5671). Accuracy of FHx and 6Q for identification of MEN1 were compared using Chi-square and nonparametric analysis.

Results: In patients undergoing parathyroid exploration for PHP at a tertiary center, the rate of MEN1 was 41/950 (4.3%). Three of 41 MEN1 patients (7.3%) were African-American. Compared to those with sporadic PHP, patients with MEN1 were more often male (20.3% vs. 43.9%, $p < 0.001$) and young (age < 45) (9.9% vs. 24.4%, $p < 0.001$). Among all patients found to have 4-gland hyperplasia on exploration, the likelihood of MEN1 was 18.6%. At presentation for surgery, 27/41 patients carried the diagnosis of MEN1. In these patients FHx was positive in 16/27 (59%) and 6Q was positive in 20/27 (74%). Among the 923 patients referred for apparent sporadic PHP, MEN1 was first identified or diagnosed by the surgeon in 14 patients, for whom FHx was positive in 2/14 (14.3%) and 6Q was positive in 12/14 (85.7%) ($p < 0.0006$). In 2/14 MEN1 patients both FHx and 6Q screening produced false negative results and the disorder was identified postoperatively.

Conclusions: In patients undergoing surgery for primary hyperparathyroidism, MEN1 occurs relatively often and can be missed. Systematic use of a simple 6-question panel helps to identify MEN1 prior to parathyroid exploration. MEN1 should be considered in young male patients with parathyroid hyperplasia.

Notes:

ENDOSCOPIC ADRENALECTOMY: IS THERE AN OPTIMAL APPROACH? RESULTS OF SINGLE CENTER CASE CONTROL STUDY

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BACKGROUND. Endoscopic adrenalectomy represents the treatment of choice for small (<6cm) benign adrenal tumors. Most endocrine surgical centers adopted the lateral transabdominal laparoscopic (TLA) or the posterior retroperitoneoscopic (RA) approaches. The choice in between these procedures is usually based on surgeons preference and experience. We compared TLA and PRA in terms of intraoperative and postoperative outcome, to determine whether there is an optimal and preferable approach.

METHODS. Between July 2003 and April 2007, 38 consecutive patients successfully underwent RA for adrenal tumors ≤ 6 cm. A case-control study including 38 patients who successfully underwent TLA between October 1999 and April 2007 was performed. The controls were matched for age, sex, preoperative diagnosis and lesion size. Operative time, intraoperative ventilatory parameters (VCO_2 , pCO_2 and paO_2), final histology, complications, postoperative stay, analgesic requirement, time to return to normal bowel function and to work were registered. Patients who underwent TLA were compared with those who underwent RA.

RESULTS. The groups were well matched for age, sex, preoperative diagnosis and lesion size ($P=NS$). No significant difference was found concerning operative time, analgesic requirement, time to first flatus, complications rate, postoperative stay and final histology ($P=NS$). Patients of TLA group showed significantly lower pCO_2 (40.7 ± 4.4 Vs 50.0 ± 3.1 mmHg), paO_2 (111.0 ± 27.0 Vs 243.0 ± 19.0 mmHg) and VCO_2 (155.5 ± 30.9 Vs 220.8 ± 13.8 l/min) at the end of the operation ($P < 0.001$). Patients of RA group experienced a faster return to work (57 ± 21 Vs 25 ± 17 days).

CONCLUSIONS. Despite RA is characterized by higher CO_2 absorption, better patients oxygenation (higher paO_2) and faster return to work, no procedure can be considered the preferable one overall. In case of bilateral adrenalectomy and previous abdominal surgery RA may offer some advantages. Surgeons preference and experience will continue to guide the choice.

Notes:

Paper 23 (0945)

A RANDOMIZED CONTROLLED TRIAL OF MINIMALLY INVASIVE THYROIDECTOMY USING THE LATERAL DIRECT APPROACH VERSUS CONVENTIONAL HEMITHYROIDECTOMY FOR THE MANAGEMENT OF ATYPICAL THYROID NODULES

Mark S. Sywak, Michael Yeh, Todd McMullen, Hubert Low, Stan B. Sidhu and Leigh Delbridge
University of Sydney, St. Leonards NSW, Australia

Background: Few studies have examined the benefits of minimally invasive thyroid surgery (MITS) prospectively. The aim of this study is to compare the outcomes of MITS using the direct approach through a lateral 2.5cm incision with conventional hemithyroidectomy (CHT) for the management of small atypical thyroid nodules or follicular lesions.

Methods: A prospective, single-blinded, randomized controlled trial involving patients presenting with atypical thyroid nodules of 3cm diameter or less was performed. Patients were randomized to direct MITS through a lateral 2.5cm incision or CHT through a traditional 5-8cm cervicotomy. Fibre-optic laryngoscopy was performed before and after surgery. Pain was measured using a visual analog scale on the first and tenth postoperative days. Serum C-reactive protein was measured on days one and ten. Satisfaction with cosmetic outcome was measured at 3months.

Results: Eighty patients were randomized to undergo MITS or CHT. The two groups were equivalent in terms of age and thyroid nodule size. Mean operative times were longer for the MITS group (56 versus 45 minutes, $p=0.002$). Pain scores were significantly lower in the MITS group on the first postoperative day (2.6 versus 3.5, $p=0.035$). Pain scores at 10 days were equivalent between the groups (1.5 versus 1.8, $p=0.36$). Serum C-reactive protein levels were equivalent on day one (17.0 versus 16.2 mg/L $p=0.85$) and day 10 (3.98 versus 5.2, $p=0.67$). At 3 months, patients undergoing MITS reported a significantly higher cosmetic satisfaction score (6.3 versus 5.0, $p=0.002$). Incision lengths measured at 3 months were 2.51cm for MITS and 5.1cm for CHT group, $p<0.001$. There were no cases of permanent vocal cord injury or postoperative hematoma in either group.

Conclusions: In the management of small atypical thyroid nodules, minimally invasive thyroidectomy through a direct lateral approach results in less early postoperative pain and superior long term cosmetic results when compared with conventional thyroidectomy.

Notes:

Paper 24 (1000)

AFRICAN AMERICANS PRESENT WITH MORE SEVERE PRIMARY HYPERPARATHYROIDISM THAN NON-AFRICAN AMERICANS
Emad Kandil, Hua Ling Tsai, Helina Somervell, Alan P.B. Dackiw, Ralph P. Tufano, Anthony P. Tufaro, Jeanne Kowalski and Martha A. Zeiger
Johns Hopkins Medical Institutions, Baltimore MD

Background: Similar to other disease states, we postulated that African American patients present with more severe signs of primary hyperparathyroidism than non- African Americans. To test this hypothesis we compared, with IRB approval, relevant preoperative laboratory values, sestamibi scan results, and intraoperative findings between African American and non-African American patients with primary hyperparathyroidism who underwent parathyroidectomy between January 2002 and May 2007. Patients with familial hyperparathyroidism were excluded.

Methods: A total of 593 patients were included, 113 (19%), African American and 480 (81%), non-African American (440 white, 16 Asian, 24 other). A linear model was used to examine the effect of race with respect to mean differences in serum calcium, 25-hydroxyvitamin D [25(OH)D], intact parathyroid hormone (iPTH), alkaline phosphatase (ALKP) levels, gland weight, presence of double adenomas and, sestamibi scan sensitivity.

Results: Among the 593 patients, the mean age was 59.87 (SD=13.33), with 27% (n=158) male and 73% female (n=431). Adjusted for age and gender, African Americans exhibited significantly higher mean iPTH (standard deviation) [178.67 (166.03) vs. 131.17 (73.22) pg/mL, $p < 0.001$]; ALKP [101 (57.86) vs. 90.5 (29.78) units, $p=0.003$] and calcium [11.36 (0.91) vs. 11.06 (0.72) mg/dL $p<0.001$]; levels compared to non-African Americans. They exhibited significantly lower mean serum 25(OH) D [14 (9.36) vs. 23 (12.16) ng/mL, $p < 0.001$]; greater gland weight[6.46 (1.17) vs 6.18 (1.07)($p<0.001$); a higher probability of double adenomas [Odds Ratio=2.83, 95% CI (1.36-5.88)], and a higher probability of presenting with a positive (vs. indeterminate or negative) sestamibi scan [Odds Ratio= 4.99, 95% CI (2.44-10.19)].

Conclusion: African Americans present with more advanced signs of primary hyperparathyroidism than non-African Americans. These results may reflect less access to healthcare, less likelihood of seeking surgical consultation, or other unidentified factors. These highly significant findings, however, warrant further investigation.

Notes:

Paper 25 (1045)

THE RISK FACTORS FOR MALIGNANCY IN SURGICALLY TREATED PATIENTS FOR BASEDOW GRAVES DISEASE, TOXIC MULTINODULAR GOITER AND TOXIC ADENOMA

Yasemin Giles (Senyurek), Fatih Tunca, Harika Boztepe, Yersu Kapran
Tarik Terzioglu and Serdar Tezelman
Istanbul Medical Faculty, Istanbul Turkey

Background: Cold nodules in Basedow Graves disease (BG) is considered to increase the frequency of thyroid carcinoma, but the impact of cold nodules coexisting with toxic multinodular goiter (TMG), and toxic adenoma (TA) is not clear.

The aim of the study is to investigate the impact of age, gender and coexistent cold nodules on the frequency of thyroid carcinoma in hyperthyroid patients in an endemic region.

Methods: The medical records of 817 patients operated for BG disease (n=342), TMG (n=299) and TA (n=176) between January 1988 and April 2006 were reviewed. Demographic data, initial physical examination, Tc-99m thyroid scintigraphy, thyroid ultrasonography and histopathologic examination results were evaluated.

Results: Of 817 patients, 675 (82.6 %) were female and 142 (17.4 %) male with a mean age of 44.0 ± 13.4 years. Coexistent palpable solitary or dominant cold nodules were present in 116 (14.2 %). The overall incidence of thyroid carcinoma was 6.5 % . The frequency of carcinoma in BG disease was 3.8 %, in MTG 6.4 %, and in TA 12.0 %. Gender was not a significant risk factor for carcinoma ($p=0.7$). The age of patients with carcinoma was significantly higher than the patients with benign pathology (51.1 ± 12.6 vs 43.4 ± 13.3 years, $p=0.001$). The frequency of carcinoma in patients age ≥ 50 years was higher than in younger patients (10.2 vs 4.3 %, $p=0.001$). The incidence of carcinoma in patients with palpable solitary or dominant cold nodules was significantly higher than in patients without such nodules (13.7 % vs 5.3 %, $p=0.001$). The presence of palpable solitary or dominant cold nodules increased the probability of thyroid carcinoma 6.1, 7.9 and 7.1 folds in BG disease, MTG and TA respectively ($p=0.001$).

Conclusion: Age > 50 years and coexistent solitary or dominant cold nodules are significant risk factors for malignancy in patients with hyperthyroidism. Surgical treatment might be the choice of treatment in those particular patients if malignancy can not be excluded.

Notes:

INCREASING INCIDENCE OF THYROID CANCER IS DUE TO
INCREASED PATHOLOGIC DETECTION

Simon Grodski, Tani Brown, Stan Sidhu, Anthony Gill, Bruce Robinson,
Diana Learoyd, Mark Sywak, Tom Reeve and Leigh Delbridge
University of Sydney, Sydney Australia

Background: There has been a marked increase in the incidence of thyroid cancer in both the USA and Australia over recent decades. It is unclear however whether this is a real phenomenon or simply due to increased surveillance. Patients with retrosternal goiter (RSG) are not generally picked up by surveillance such as ultrasound. The aim of this project was to study the incidence of thyroid cancer in patients where the confounding role of surveillance had been removed, in order to determine if there was any real increase in incidence of thyroid cancer.

Methods: This is a retrospective cohort study. Documented were patient demographics as well as the size, type and numbers of thyroid cancers, as well as the number of routine histologic blocks examined in the different time periods.

Results: Within a cohort of 13,793 thyroid procedures performed over a 40 year period to January 2006, there were 2,260 patients (14%) who underwent surgery for RSG. The percentage of patients with RSG containing thyroid carcinoma of any type increased from 3.6% to 7.5% ($P<0.05$) over that period. However once papillary microcarcinomas (PMC) ($\leq 10\text{mm}$) were excluded there was absolutely no increase in cancer incidence (3.4% to 3.5%, $P=0.9$). The increase in the number of PMC's diagnosed correlated with the increase in the routine number of blocks sampled from each specimen over the corresponding time period ($P<0.01$).

Conclusion: This study has confirmed an increase in the incidence of thyroid cancer over four decades. However that increase is largely attributable to an increase in the diagnosis of PMC associated with increased sampling of resected specimens by pathologists, raising the possibility that the current epidemic of thyroid cancer may be largely manmade.

Notes:

Paper 27 (1115)

**MEN 2B RELATED SYMPTOMS IN PATIENTS WITH A DE NOVO
M918T GERMLINE MUTATION IN THE RET PROTOONCOGENE
DURING THE FIRST YEAR OF LIFE**

Michael Brauckhoff, Oliver Gimm, Katrin Brauckhoff and Henning Dralle
Martin-Luther University, Halle- Wittenberg, Germany

Background:

About 90% of patients with typical Multiple Endocrine Neoplasia type 2B (MEN 2B) have a de novo M918T germline mutation in the RET protooncogene which contradicts genetic screening.

Methods

The parents of 20 patients with de novo M918T RET germline mutation operated on at our department were asked for MEN 2B related symptoms during the first year of life in their children using a questionnaire.

Results

At the time of syndrome diagnosis (mean age 14.2 (0.7-31) years), oral manifestations, ocular disorders, intestinal dysfunction musculoskeletal dysfunction, and pheochromocytoma were found in 85%, 85%, 75%, 80, and 15% of the patients, respectively. All patients had MTC (incurable in 17 patients). During the first year of life, however, MEN 2B related symptoms were found in a different pattern when compared to the age of syndrome diagnosis. Problems during pregnancy 15% (n=3), problems during birth 20% (n=4), abnormal development 15% (n=3), oral neuroma in no patient, bumby lips 15% (n=3), red eyes 25% (n=5), no tears 95% (n=19), constipation 85% (n=17), and feet abnormalities 55% (n=11), respectively.

Conclusions

During the first year of life, expression of typical MEN 2B related symptoms is very unusual. However, dry eyes, conjunctivitis sicca, constipation, and feet abnormalities seem to be common in infants harbouring M918T germline mutation. In particular in infants who could no cry tears, MEN 2B should be excluded by genetic testing.

Notes:

WAITING FOR CHANGE: SYMPTOM RESOLUTION AFTER
ADRENALECTOMY FOR CUSHING'S SYNDROME

Rebecca S. Sippel, Dina M. Elaraj, Electron Kebebew, Sheila Lindsay,
Blake Tyrrell and Quan-Yang Duh

*University of Wisconsin, Madison, Wisconsin and University of
California, San Francisco, California*

BACKGROUND: Patients with Cushing's syndrome suffer from debilitating symptoms due to cortisol excess. These symptoms and physical changes develop gradually and while some symptoms ultimately resolve after surgical treatment, which symptoms and the time course to resolution is not well established.

METHODS: Between 02/1995 and 05/2007, 60 patients underwent adrenalectomy for the treatment of Cushing's syndrome. Pre-operative and operative variables were collected from a prospective database. Long-term follow-up was obtained via patient survey.

RESULTS: Unilateral adrenalectomy was performed in 53% of patients, while 47% had a bilateral adrenalectomy (Cushing's disease (n=16), ectopic ACTH (n=10), hyperplasia (n=5)). Median time to diagnosis was 24 months (range 1-384). The mean length of stay was 2.5 ± 0.3 days. Five percent had intra-operative complications, and 28% developed post-operative complications, including 3 Addisonian crises. Steroids were required post-operatively for a median of 30 months after unilateral adrenalectomy (range 0-96). At a median follow-up of 3.7 yrs (range 0-13.3), 83% of patients are still alive. The majority of the physical changes resolved after adrenalectomy (moon facies 94%, facial plethora 93%, buffalo hump 85%). Diabetes was cured in 78% of patients. Hypertension improved dramatically or was cured in 67%. Body weight decreased an average of 20 ± 10 lbs ($p < 0.001$). However, central obesity resolved in only 56% of patients and osteoporosis in only 38%. The time to symptom resolution varied from a few weeks to up to four years. Most of the physical changes resolved by a mean of 7-9 months after surgery. However, weakness, hyperpigmentation, and osteoporosis each took >1 year to resolve. Quality of life improved in 81% of patients, with 71% improving dramatically ($p < 0.001$).

CONCLUSIONS: Adrenalectomy can provide excellent palliation of the symptoms of cortisol excess and can dramatically improve patient quality of life, but both patients and physicians must know that these changes do not happen immediately. It may take years for the changes to resolve and for the patients to no longer require steroid replacement.

Notes:

IS NODULE SIZE AN INDEPENDENT PREDICTOR OF THYROID MALIGNANCY?

ES Huh, RN Machenko and CR McHenry

MetroHealth Medical Center and

Case Western Reserve University, Cleveland OH

Background: A decision to proceed with operative therapy or perform more extensive thyroidectomy based on nodule size alone is controversial. It was our hypothesis that larger nodules are more likely to be malignant, and, as a result, nodule size may be useful for guiding clinical and operative decision making.

Methods: Data was obtained from a prospectively-maintained database consisting of consecutive patients evaluated for nodular thyroid disease from 1990-2007. Logistic regression analysis was performed to determine if there was a significant relationship between nodule size and thyroid malignancy based on the results of final pathology. The relationship of nodule size and malignancy was further evaluated based on the diagnostic category of fine needle aspiration biopsy (FNAB).

Results: 1,023 patients were evaluated for nodular thyroid disease and 677 underwent thyroidectomy. Seven patients had no documented nodule size and were excluded. Mean nodule size was 4.4±2.4 cm for benign and 3.3±2.2 cm for malignant nodules (<0.05). The mean size of benign and malignant nodules, as a function of FNAB, was not significantly different except in those nodules not evaluated by FNAB (table). 267 patients with benign FNAB and mean nodule size of 3.0±1.5 cm were not operated on and are being followed clinically (mean follow up = 2.9±3.2 years).

FNAB:	None (n=121)	Benign (n=177)	Non-diagnostic (n=61)	Indeterminate (n=196)	Suspicious for Papillary Cancer (n=65)	Malignant (n=50)
Benign:	4.6±2.5cm (n=92)	5.2±2.4cm (n=170)	4.0±2.4cm (n=52)	3.8±2.2cm (n=160)	3.6±1.9cm (n=37)	(n=0)
Malignant:	2.1±1.9cm (n=29)	3.7±1.6cm (n=7)	4.6±1.7cm (n=9)	3.7±2.7cm (n=36)	3.6±2.0cm (n=28)	3.2±2.0cm (n=50)
p-value:	<0.05	0.073	0.074	0.76	0.84	NA

NA=Not applicable

Conclusion: Increasing nodule size was not predictive of thyroid malignancy and thus should not be used in lieu of FNAB for therapeutic decision making.

Notes:

Paper 30 (1200)

LYMPH NODE INVOLVEMENT NEGATIVELY IMPACTS SURVIVAL IN PATIENTS WITH WELL-DIFFERENTIATED THYROID CARCINOMA

Victor Zaydfudim, Irene D. Feurer, Marie R. Griffin, John E. Phay,
Vanderbilt University Medical Center, Nashville TN

BACKGROUND: The role of cervical lymph node metastases in well-differentiated thyroid carcinoma remains controversial. Previous population-based studies reached conflicting conclusions on prognostic implications of tumor positive cervical lymph nodes. We investigated whether lymph node involvement represents an independent risk factor for death in patients with well-differentiated thyroid carcinoma.

METHODS: We conducted a retrospective, population-based cohort analysis of the Surveillance Epidemiology and End Results (SEER) database for patients who underwent surgical resection for papillary and follicular thyroid carcinoma between 1988 and 2003. Cases were stratified by age (</≥45 years) and pathology (papillary/follicular), and four separate Cox proportional hazard regression models were developed to test the effects of age, sex, race, ethnicity, radiation treatment, tumor size, lymph node involvement, and distant metastases on survival.

RESULTS: 35,378 patients with papillary or follicular carcinoma were identified. 32,571 patients (49% ≥45 years) had papillary carcinoma and 2807 patients (56% ≥45 years) had follicular carcinoma. Age and distant metastases had significant independent effects on survival in all four models (all $p < 0.001$), but the effect of cervical lymph node metastases varied among the models. 7481 patients (23%) with papillary carcinoma had lymph node metastases, while only 71 patients (3%) with follicular carcinoma had lymph node disease. In patients with papillary carcinoma <45 years, lymph node disease was not associated with increased risk of death (HR=1.21, CI: 0.89-1.64, $p=0.23$); while in patients ≥45 years, lymph node involvement was associated with 68% increased risk of death (HR=1.68, CI: 1.51-1.88, $p < 0.001$). In patients with follicular carcinoma presence of lymph node metastases was associated with increased risk of death in both age groups (<45 years, HR=18.1, CI: 5.1-63.7; ≥45 years, HR=2.62, CI: 1.78-3.88; both $p < 0.001$). Effects of other covariates varied between models.

CONCLUSIONS:

Presence of cervical lymph node metastases conferred an independent increased risk of death in patients with papillary carcinoma ≥45 years and in all patients with follicular carcinoma. Presence of lymph node disease in patients with papillary carcinoma <45 years did not affect survival.

Notes:

POSTERS

Tuesday April 8, 2008
0730-0830

1. LUPEOL, A NATURALLY OCCURRING TRITERPENE, SUPPRESSES NEUROENDOCRINE TUMOR GROWTH IN VITRO AND IN VIVO

Muthusamy Kunnimalaiyaan, Mary A. Ndiaye, Li Ning and Herbert Chen, University of Wisconsin, Madison, WI

2. DEFINING A MOLECULAR PHENOTYPE IN PARATHYROID TUMORS FROM PARATHYROID ADENOMA AND HYPERPLASIA TO ATYPICAL PARATHYROID ADENOMA, PARATHYROID CARCINOMA AND PARATHYROMATOSIS

Gustavo G. Fernandez-Ranvier, Elham Khanafshar, David Tacha, Mariwil Wong, Electron Kebebew, Quan-Yang Duh and Orlo H. Clark, University of California, San Francisco

3. A NOVEL TECHNIQUE FOR THE INTRAOPERATIVE DETECTION OF PARATHYROID GLANDS

Lisa M. White, Jennifer G. Whisenant, Nicole C. Gasparino, Elizabeth M. Kanter, Matt D. Keller, Anita Mahadevan-Jansen, John Phay, Vanderbilt University, Nashville, TN

4. CENTRAL LYMPH NODE DISSECTION AS A SECONDARY PROCEDURE FOR DIFFERENTIATED THYROID CANCER: IS THERE ADDED MORBIDITY?

Raul B. Alvarado, Mark S. Sywak, Leigh W. Delbridge, Stan B. Sidhu, University of Sidney, St. Leonards, Australia

5. DOES THE RISK OF COMPRESSIVE HEMATOMA AFTER THYROIDECTOMY AUTHORISE ONE-DAY SURGERY

Pierre Leyre, Thibault Desurmont, Louis Lacoste, Charalambos Charalambous, Helene Gibelin, Bertrand Debaene, **Jean-Louis Kraimps**, Jean Bernard Hospital, Poitiers, CEDEX France

6. THE EVOLUTIONARY CONSERVED GENE DCUN1D3 IS DYSREGULATED IN HURTHLE CELL NEOPLASIA

Claire C. Bommelje, Hang-Seok Chang, Sarina Bains, Nicholas D. Socci, Y. Ramanathan, Bhuvanesh Singh Memorial Sloan-Kettering Cancer Center, New York, NY

7. INCIDENTAL THYROID PETOMAS: CLINICAL SIGNIFICANCE AND NOVEL DESCRIPTION OF THE SELF-RESOLVING VARIANT OF FOCAL FDG-PET THYROID UPTAKE

Hidefumi Nishimori, Roger Tabah, Marc Hickeys, Jacques How, McGill University, Montreal, Canada

8. IS IT NECESSARY TO AUTO-TRANSPLANT DISCOLORED PARATHYROID GLANDS AND PRESERVE THE MARGINAL BRANCH OF THE INFERIOR THYROID ARTERY?

Toyone Kikumori, Masataka Sawaki, Yatsuka Hibi, Tsuneo Imai, Nagoya University and Fujita Health University, Showaku Nagoya, Japan

9. THE MANAGEMENT OF THYROID NODULES DISCOVERED DURING PREOPERATIVE LOCALIZATION FOR PARATHYROIDECTOMY

Tracy S. Wang, Elizabeth A. Krzywda, Stuart D. Wilson, Tina Yen, Medical College of Wisconsin, Milwaukee, WI

10. RANDOMIZED CLINICAL TRIAL OF UNILATERAL OR BILATERAL THYROIDECTOMY IN ASYMMETRICAL MULTINODULAR GOITERS

Juan J. Sancho, C. Ribera, E. Larranaga, A. Larad, Rosa M. Prieto, A. Goday, A. Sitges-Serra Hospital Universitari del Mar, Barcelona, Spain

11. SETTING THE BAR FOR LAPAROSCOPIC RESECTION OF SPORADIC INSULINOMA
Melanie L. Richards, Geoffrey B. Thompson, David R. Farley, Michael L. Kendrick, F. John Service, Adrian Vella, Clive Grant, Mayo Clinic, Rochester, MN

12. ADRENAL BIOPSY IS UNHELPFUL IN THE EVALUATION OF ADRENAL INCIDENTALOMA: A DECADE OF EXPERIENCE
Peter J. Mazzaglia, Jack M. Monchik, Warren Alpert School of Medicine at Brown University, Providence, RI

13. PANCREATIC INSULINOMA: A SURGICAL EXPERIENCE
Maria Nayvi Espana-Gomez, J.P. Pantoja, M. Sierra, D. Velasquez-Fernandez, M.F. Herrera, Tlalpan, Mexico

14. XANTHINE OXIDOREDUCTASE EXPRESSION IN THYROID NEOPLASMS AND ITS ROLE IN TUMOR CELL PROLIFERATION
X. Xu, G. Rao, H. G. Ding, P. Gattuso, R. A. Prinz, Rush University, Chicago IL

15. OPTIMAL PREOPERATIVE LOCALIZATION FOR RE-OPERATIVE PARATHYROIDECTOMY
Barbra S. Miller, Paul G. Gauger, Richard E. Burney, Gerard M. Doherty, University of Michigan, Ann Arbor MI

BYLAWS OF
THE AMERICAN ASSOCIATION OF ENDOCRINE
SURGEONS

I
CORPORATION

1.1 NAME. The name of the corporation is The American Association of Endocrine Surgeons.

1.2 PURPOSES. The purposes for which the corporation is organized are as follows:

The corporation is organized exclusively for the purposes set forth in Sections 501(c)(3) of the Internal Revenue Code of 1986 (or the corresponding provision of any future United States Internal Revenue law) (the "Code"), including, for such purposes, making of distributions to organizations that qualify as exempt organizations under Section 501(c)(3) of the Code. The objects of the corporation shall include: (1) advancement of the science and art of endocrine surgery and (2) maintenance of high standards in the practice and art of endocrine surgery; and doing anything reasonably in furtherance of, or incidental to, the foregoing purposes as the Council may determine to be appropriate and as are not forbidden by Section 501(c)(3) of the Code, with all the power conferred on nonprofit corporations under the laws of the State of Illinois.

1.3 NONPROFIT OPERATION. The corporation shall be operated exclusively for scientific, literary and educational purposes within the meaning of Section 501(c)(3) of the Code as a nonprofit corporation. No Councilor or member of the corporation shall have any title to or interest in the corporate property or earnings in his or her individual or private capacity and no part of the net earnings of the corporation shall inure to the benefit of any Councilor, member, officer or any individual. No substantial part of the activities of the corporation shall consist of carrying on propaganda or otherwise attempting to influence legislation, nor shall the corporation participate in or intervene in any political campaign on behalf of (or in opposition to) any candidate for public office.

II
MEMBERSHIP

2.1 MEMBERSHIP.

A. Membership in this Association shall be limited to surgeons of good professional standing, who have a major interest and devote significant portions of their practice or research to endocrine surgery, and who are certified by the American Board of Surgery or its equivalent in Canada, Central America, Mexico, and South America. In addition, membership

shall be limited to fellows of the American College of Surgeons or its international equivalent.

B. Types of Members. There shall be four types of members: Active, Senior, Honorary, and Corresponding.

1. **Active members** shall consist of original charter members and all members subsequently elected until they become eligible for senior membership. The number of active members shall not be limited.

1a. The candidates for active membership would have attended at least one annual meeting (hereinafter “assembly”) of the American Association of Endocrine Surgeons prior to their application;

1b. The candidates for active membership should be able to provide evidence of special interest in endocrine surgery;

1c. The candidates who are applying for active membership, who have completed their Endocrine Surgical Fellowship should be in practice at least for one year with special emphasis in endocrine operative surgery.

2. **Senior members** shall consist of active members who have reached the age of 65 years or who have retired from active practice. Senior members shall have all the responsibilities and privileges of active members, excepting those regarding attendance at assemblies. Senior members are not required to pay dues.

3. **Honorary members** shall consist of individuals who have made outstanding contributions to the discipline of endocrine surgery. They shall have no voting privileges, are not eligible for election as officers, and are not subject to assessment for dues.

4. **Corresponding members** shall consist of individuals who meet all the same qualifications in their respective countries as active members. They shall have no voting privileges, are not eligible for election as officers, shall not have attendance requirements, but may be subject to dues at a reduced amount.

C. Election of New Members

1. Physicians fulfilling the requirements for active membership stated in paragraphs 2.1A and 2.1B of these bylaws who reside in the United States, Canada, Central America, Mexico or South America may be eligible for active membership.

2. Application forms for active or corresponding membership shall be provided by the Secretary-Treasurer.

Completed application forms signed by the proposed member, one sponsor, and two endorsees shall be delivered to the Secretary-Treasurer at least four months before the annual assembly. Completed applications shall be reviewed by Council, which has the right to accept or reject any application for membership in the Association. Names of prospective members recommended for election by the Council shall be submitted to the membership at the annual assembly. Election shall be made by secret ballot, by a three-fourths affirmative vote of the members present. A prospective member who fails to be elected at one assembly may be considered at the next two annual assemblies of the Association. If election fails a third time, the prospective member's application may be resubmitted after a two year interval.

3. Prospective members for honorary membership shall be proposed in writing to the Council through the Secretary-Treasurer. Prospective members approved by the Council will be elected by three-fourths affirmative vote of the Council and officers present.

4. Active members in good standing who subsequently take up practice in geographic areas outside of the United States, Canada, Central America, Mexico, or South America shall be changed to corresponding members of the Association.

D. Dues

Dues and assessments shall be levied by the Council and approved by the membership at the annual assembly.

E. Resignations / Expulsions

1. Resignations of members otherwise in good standing shall be accepted by majority vote of the Council.

2. Charges of unprofessional or unethical conduct against any member of the Association must be submitted in writing to Council. The Council's concurrence or disallowance of the charges shall be presented to the membership at the annual assembly executive session. A three-fourths affirmative vote of the members present shall be required for expulsion.

3. Any active member who is absent from three consecutive annual assemblies without adequate explanation of this absence made in writing to the Secretary-Treasurer shall be dropped from membership in the Association by vote of the Council. Membership may be reinstated by vote of the Council.

4. Any member whose dues remain unpaid for a period of one (1) year shall be dropped from membership, provided that notification of such a lapse beginning at least three (3) months

prior to its effective date. The member may be reinstated following payment of the dues in arrears on approval of the Council.

- 2.2 PLACE OF ASSEMBLIES.** Annual and special assemblies of the members shall be held at such time and place as shall be determined by the Council.
- 2.3 ANNUAL ASSEMBLY.** The annual assembly of the members of the corporation for election of Officers and Councilors and for such other business as may come before the assembly shall be held on such date and hour as shall have been determined by the members (or if the members have not acted, by the Council or the Chairperson), and stated in the notice of the assembly. If for any reason the annual assembly is not held on the determined date of any year, any business which could have been conducted at an annual assembly may be conducted at any subsequent special or annual assembly or by consent resolution.
- A. During the annual assembly, there shall be an AAES Business Meeting of the membership. The business of the association shall be conducted at this time. The report of the nominating committee shall be presented to the membership during the AAES Business Meeting. Nominations may be made from the floor. Officers of the Association and Council members shall be elected by majority vote of the active and senior members during the AAES Business Meeting.
- B. Any member of the Association may invite one or more guests to attend the annual assembly.
- C. Abstracts for consideration for presentation must be authored or sponsored by a member.
- 2.4 SPECIAL ASSEMBLIES.** Special assemblies of the members of the corporation may be called by the Council or the President and shall be called by the President or the Secretary-Treasurer at the written request of any 30 members of the corporation. No business may be transacted at a special assembly except the business specified in the notice of the assembly.
- 2.5 NOTICE OF ASSEMBLIES OF MEMBERS.** Except as otherwise provided by statute, written notice of the place, day, and hour of the assembly and in the case of a special assembly, the purpose or purposes for which the assembly of the members of the corporation is called, shall be given not less than five (5) nor more than sixty (60) days before the date of the assembly to each member, either personally or by mailing such notice to each member at the address designated by the member for such purpose or, if none is designated, at the member's last known address.
- 2.6 WAIVER OF NOTICE.** Whenever any notice whatever is required to be given under the provisions of the Illinois Not for Profit Corporation Act of 1986 ("the Act") or under the provisions of the articles of incorporation or bylaws of this corporation, a waiver thereof in writing signed by the person

or persons entitled to such notice, whether before or after the time stated therein, shall be deemed equivalent to the giving of such notice. Attendance at any meeting shall constitute waiver of notice thereof unless the person at the meeting objects to the holding of the meeting because proper notice was not given.

- 2.7 QUORUM OF MEMBERS ENTITLED TO VOTE.** A minimum of thirty (30) members eligible to vote shall constitute a quorum at the annual assembly to effect changes in the bylaws of the Association, to make assessments, to authorize appropriations or expenditures of money other than those required in the routine business of the Association, to elect officers, Council members and members, and to expel members. For the transaction of other business, the members entitled to vote present at any annual assembly shall constitute a quorum.

III COUNCIL

- 3.1 COUNCIL.** The business and affairs of the corporation shall be managed by or under the direction of a Council which is the governing body of the corporation. The Council shall meet as often as necessary to conduct the business of the corporation.
- 3.2 NUMBER AND SELECTION OF COUNCIL.** The Council shall consist of the officers of the Association, the three immediate past Presidents, and six other Council members, as the membership shall from time to time determine. The Council shall be elected by majority vote of the Active and Senior membership during the AAES Business Meeting at its annual assembly and vacancies shall be filled in the manner specified in Section 3.4 below. Councilors (other than those elected to fill vacancies) shall serve for three (3) year terms, with two (2) Councilors being elected annually so as to provide overlapping terms.
- 3.3 REMOVAL.** Any Councilor may be removed from office with cause at any annual or special assembly of the members. No Councilor may be removed except as follows: (1) A Councilor may be removed by the affirmative vote of two-thirds of the votes present and voted, either in person or by proxy (2) No Councilor shall be removed at a meeting of members entitled to vote unless the written notice of such meeting is delivered to all members entitled to vote on removal of Councilors. Such notice shall state that a purpose of the meeting is to vote upon the removal of one or more Councilors named in the notice. Only the named Councilor or Councilors may be removed at such meeting. If the vote of Councilors is to take place at a special assembly of Councilors, written notice of the proposed removal shall be delivered to all Councilors no less than twenty (20) days prior to such assembly. Written notice for removal must include the purpose of the assembly (i.e., removal) and the particular Councilor to be removed.
- 3.4 VACANCIES.** Vacancies occurring in the Council by reason of death, resignation, removal or other inability to serve shall be filled by the

affirmative vote of a majority of the remaining Councilors although less than a quorum of the Council. A Councilor elected by the Council to fill a vacancy shall serve until the next annual assembly of the membership. At such annual assembly, the members shall elect a person to the Council who shall serve for the remaining portion of the term.

- 3.5 ANNUAL ASSEMBLY.** The annual assembly of the Council shall be held at such place, date and hour as the Council may determine from time to time. At the annual assembly, the Council shall consider such business as may properly be brought before the assembly. If less than a quorum of the Councilors appear for such an annual assembly of the Council, the holding of such annual assembly shall not be required and matters which might have been taken up at the annual assembly may be taken up at any later regular, special or annual assembly or by consent resolution.
- 3.6 REGULAR AND SPECIAL ASSEMBLIES.** Regular assemblies of the Council may be held at such times and places as the Councilors may from time to time determine at a prior assembly or as shall be directed or approved by the vote or written consent of all the Councilors. Special assemblies of the Council may be called by the President or the Secretary-Treasurer, and shall be called by the President or the Secretary-Treasurer upon the written request of any two (2) Councilors.
- 3.7 NOTICE OF ASSEMBLIES OF THE COUNCIL.** Written notice of the time and place of all assemblies of the Council shall be given to each Councilor at least 10 days before the day of the assembly, either personally or by mailing such notice to each Councilor at the address designated by the Councilor for such purposes, or if none is designated, at the Councilor's last known address. Notices of special assemblies shall state the purpose or purposes of the assembly, and no business may be conducted at a special assembly except the business specified in the notice of the assembly. Notice of any assembly of the Council may be waived in writing before or after the assembly.
- 3.8 ACTION WITHOUT AN ASSEMBLY.** Any action required or permitted at any assembly of the Council or a committee thereof may be taken without an assembly, without prior notice and without a vote, if a consent in writing, setting forth the action so taken, shall be signed by all of the Councilors and all of any non-Councilor committee members entitled to vote with respect to the subject matter thereof, or by all the members of such committee, as the case may be. The consent shall be evidenced by one or more written approvals, each of which sets forth the action taken and bears the signature of one or more Councilors or committee members. All the approvals evidencing the consent shall be delivered to the Secretary-Treasurer to be filed in the corporate records. The action taken shall be effective when all the Councilors or the committee members, as the case may be, have approved the consent unless the consent specifies a different effective date. Any such consent signed by all Councilors or all the committee members, as the case may be, shall have the same effect as a unanimous

vote and may be stated as such in any document filed with the Secretary of State under the Illinois General Not for Profit Corporation Act.

- 3.9 QUORUM AND VOTING REQUIREMENTS.** A majority of the Councilors then in office and a majority of any committee appointed by the Council constitutes a quorum for the transaction of business. The vote of a majority of the Councilors or committee members present at any assembly at which there is a quorum shall be the acts of the Council or the committee, except as a larger vote may be required by the laws of the State of Illinois, these bylaws or the Articles of Incorporation. A member of the Council or of a committee may participate in an assembly by conference telephone or similar communications equipment by means of which all persons participating in the assembly can hear one another and communicate with each other. Participation in an assembly in this manner constitutes presence in person at the assembly. No Councilor may act by proxy on any matter.
- 3.10 POWERS OF THE COUNCILORS.** The Councilors shall have charge, control and management of the business, property, personnel, affairs and funds of the corporation and shall have the power and authority to do and perform all acts and functions permitted for an organization described in Section 501(c)(3) of the Code not inconsistent with these bylaws, the Articles of Incorporation or the laws of the State of Illinois. In addition to and not in limitation of all powers, express or implied, now or hereafter conferred upon Boards of Directors of nonprofit corporations, and in addition to the powers mentioned in and implied from Section 1.3, the Councilors shall have the power to borrow or raise money for corporate purposes, to issue bonds, notes or debentures, to secure such obligations by mortgage or other lien upon any and all of the property of the corporation, whether at the time owned or thereafter acquired, and to guarantee the debt of any affiliated or subsidiary corporation or other entity, whenever the same shall be in the best interests of the corporation and in furtherance of its purposes.
- 3.11 COMPENSATION.** Councilors shall receive no compensation for their services on the Council. The preceding shall not, however, prevent the corporation from purchasing insurance as provided in Section 5.1 nor shall it prevent the Council from providing reasonable compensation to a Councilor for services which are beyond the scope of his or her duties as Councilor or from reimbursing any Councilor for expenses actually and necessarily incurred in the performance of his or her duties as a Councilor.

IV OFFICERS

- 4.1 OFFICERS.** The officers shall be a President, a President-Elect, a Vice President, a Secretary-Treasurer, and a Recorder.

- 4.2 ELECTION AND TERM OF OFFICE.** The President, President-Elect, and Vice President of the Association shall be elected for terms of one year each. The Secretary-Treasurer and Recorder shall be elected for three year terms. Officers of the Association shall be elected by majority vote of the active and senior members during the AAES Business Meeting.
- 4.3 REMOVAL.** Any officer or agent may be removed with or without cause by the Council or other persons authorized to elect or appoint such officer or agent but such removal shall be without prejudice to the contract rights, if any, of the person so removed. Election or appointment of an officer or agent shall not of itself create any contract rights.
- 4.4 PRESIDENT.** The President shall preside at Council assemblies and the annual members' assembly. The President shall appoint members to all standing and ad hoc committees and shall serve as an ex-officio member of each. Successors to vacated offices of the Association shall be appointed by the President until the position is filled at the next annual assembly. The President shall prepare an address to the annual assembly of the Association.
- 4.5 PRESIDENT-ELECT.** The President-Elect, in the absence or incapacity of the President, shall perform the duties of the President's office.
- 4.6 VICE PRESIDENT.** In the absence or incapacity of both the President and the President-Elect, the chair shall be assumed by the Vice President
- 4.7 SECRETARY-TREASURER.** The Secretary-Treasurer shall keep minutes of the Association and the Council, receive and care for all records belonging to the Association, and conduct the correspondence of the Association. This office will issue to all members a written report of the preceding year's transactions to be read to the Council and membership at the annual assembly. The Secretary-Treasurer will prepare an annual report for audit. The Secretary-Treasurer shall have the authority to certify the bylaws, resolutions of the members and Council and committees thereof, and other documents of the corporation as true and correct copies thereof.
- 4.8 RECORDER.** The Recorder shall receive the manuscripts and edition of the discussions. The Recorder shall be custodian for the transactions of the Association.

V INDEMNIFICATION

- 5.1 INDEMNIFICATION.** Each person who is or was a Councilor, member, officer or member of a committee of the corporation and each person who serves or has served at the request of the corporation, as a Councilor, officer, partner, employee or agent of any other corporation, partnership,

joint venture, trust or other enterprise may be indemnified by the corporation to the fullest extent permitted by the corporation laws of the State of Illinois as they may be in effect from time to time. The corporation may purchase and maintain insurance on behalf of any such person against any liability asserted against and incurred by such person in any such capacity or arising out of his status as such, whether or not the corporation would have power to indemnify such person against such liability under the preceding sentence. The corporation may, to the extent authorized from time to time by the Council, grant rights to indemnification to any employee or agent of the corporation to the fullest extent provided under the laws of the State of Illinois as they may be in effect from time to time.

VI COMMITTEES

- 6.1 COMMITTEES.** A majority of the Council may establish such committees from time to time as it shall deem appropriate and shall define the powers and responsibilities of such committees. The Council may establish one or more executive committees and determine the powers and duties of such executive committee or committees within the limits prescribed by law.
- A. Standing committees of the Association shall consist of the Membership committee (composed of the Council), Publication and Program committee, and Education and Research committee.
 - B. The Nominating committee shall consist of the President and two immediate past Presidents. The most senior past President is chairman of the committee.
 - C. All committees shall be chaired by members appointed by the President with the advice of the Council.
- 6.2 COMMITTEES OF COUNCILORS.** Unless the appointment by the Council requires a greater number, a majority of any committee shall constitute a quorum, and a majority of committee members present and voting at a meeting at which a quorum is present is necessary for committee action. A committee may act by unanimous consent in writing without a meeting and, subject to the provisions of the bylaws for action by the Council, the committee by majority vote of its members shall determine the time and place of meetings and the notice required thereof.
- To the extent specified by the Council or in the articles of incorporation or bylaws, each committee may exercise the authority of the Council under Section 108.05 of the Act; provided, however, a committee may not:

- A. Adopt a plan for the distribution of the assets of the corporation, or for dissolution;
- B. Approve or recommend to members any act the Act requires to be approved by members, except that committees appointed by the Council or otherwise authorized by the bylaws relating to the election, nomination, qualification, or credentials of Councilors or other committees involved in the process of electing Councilors may make recommendations to the members relating to electing Councilors;
- C. Fill vacancies on the Council or on any of its committees;
- D. Elect, appoint, or remove any officer or Councilor or member of any committee, or fix the compensation of any member of a committee;
- E. Adopt, amend, or repeal the bylaws or the articles of incorporation;
- F. Adopt a plan of merger or adopt a plan of consolidation with another corporation, or authorize the sale, lease, exchange or mortgage of all or substantially all of the property or assets of the corporation; or
- G. Amend, alter, repeal, or take action inconsistent with any resolution or action of the Council when the resolution or action of the Council provides by its terms that it shall not be amended, altered, or repealed by action of a committee.

VII AMENDMENTS

- 7.1 **AMENDMENTS.** These bylaws may be amended at the annual assembly of the membership provided a notice setting forth the amendment or a summary of the changes to be effected thereby is given to each member entitled to vote thereon in the manner and within the time provided in these bylaws for notice of the assembly. These bylaws may be amended at the annual assembly by a two-thirds affirmative vote of the members present. No amendment inconsistent with the Articles of Incorporation shall be effective prior to amendment of the Articles of Incorporation.

VIII BOOKS AND RECORDS

- 8.1 **BOOKS AND RECORDS.** The corporation shall keep correct and complete books and records of account and shall also keep minutes of the proceedings of its members, Council and committees having any of the authority of the Council, and shall keep at the registered or principal office a record giving the names and addresses of the Council and members

entitled to vote. All books and records of the corporation may be inspected by any Councilor or member entitled to vote, or his or her agent or attorney for any proper purpose at any reasonable time.

**IX
PARLIAMENTARY AUTHORITY**

- 9.1** **PARLIAMENTARY AUTHORITY.** The rules of parliamentary procedure in "Robert's Rules of Order, Revised", shall govern the proceedings of the assemblies of this corporation, subject to all other rules contained in the Articles of Incorporation and Bylaws and except that proxy voting shall be allowed in accordance with the Illinois General Not for Profit Corporation Act of 1986

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SEVERABILITY**

- 10.1** **SEVERABILITY.** Each of the sections, subsections and provisions hereof shall be deemed and considered separate and severable so that if any section, subsection or provision is deemed or declared to be invalid or unenforceable, this shall have no effect on the validity or enforceability of any of the other sections, subsections or provisions.

**AAES MEMBERS
GEOGRAPHICAL LISTING**

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Alberto S. Molinari, MD

SAO PAULO

Frederico Aun, MD

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Earl F. Wolfman, Jr., MD
HILLSBOROUGH
Robert C. Lim, Jr., MD
LA JOLLA
Michael Bouvet, MD
Arthur Sanford, MD
Stephen Smith, MD
LOS ALTOS
Maria Allo, MD
LOS ANGELES
Philip Haigh, MD
Oscar Joe Hines, MD
NORTHSTAR
Lawrence Danto, MD
ORANGE
Jay K. Harness, MD
PLEASANT HILL
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Ralph S. Greco, MD
Jeffrey Allen Norton, MD
SYLMAR
Lionel Zuckerbraun, MD
COLORADO
AURORA
Robert McIntrye, MD
Christopher Raeburn, MD
BOULDER
Dennistoun Brown, MD
DENVER
R. Dale Liechty, MD
CONNECTICUT
NEW HAVEN
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Sanziana Roman, MD
Julie Ann Sosa, MD
Robert Udelsman, MD
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Subhash Patel, MD

Jack Pickleman, MD

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Sang Hann, MD

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Jean-Francois Henry, MD

POITIERS

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STRASBOURG

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