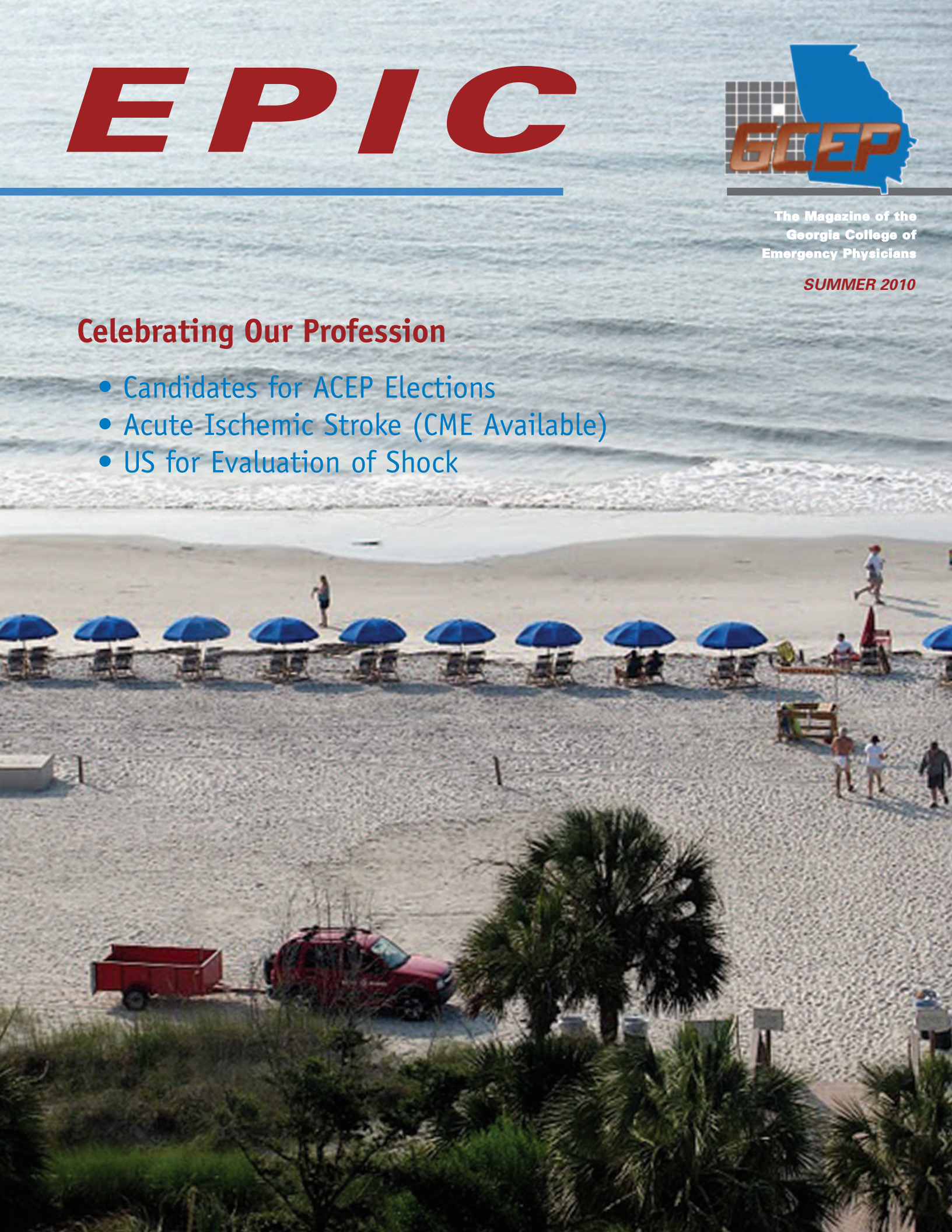
EPIC

The Magazine of the
Georgia College of
Emergency Physicians

SUMMER 2010

Celebrating Our Profession

- Candidates for ACEP Elections
- Acute Ischemic Stroke (CME Available)
- US for Evaluation of Shock



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We welcome your comments or suggestions for future articles. Call or write at:

Georgia College of Emergency Physicians
6134 Poplar Bluff Circle, Suite 101
Norcross, GA 30092
(770) 613-0932 • Fax (305) 422-3327

The national, state, local view

Robert J. Cox, MD, FAAEM, FACEP, President, GCEP

from the president

Since our last *EPIC* was published, the President has signed into law the *Patient Protection and Affordable Care Act*. According to the *Washington Post*, over the next 10 years, the measure will set in motion a complex series of changes to the health insurance market that will translate into the biggest expansion of coverage since Medicare and Medicaid were created in 1965, and the most ambitious effort ever to restrain healthcare costs. It is clear by the polls that Americans wanted some reform of the system but given the content of this legislation and the irregular means by which it was passed, it's not clear that Americans like this bill. Several states have initiated lawsuits and there is a mantra for the upcoming elections for "repeal and replace."

"Obamacare," as it is colloquially termed, has proponents who tout the legislation's expansion of coverage for those who currently do not have insurance as well as contains costs by controlling and the "efficient" use of resources. Realistically, one big concern is that cost containment can only be achieved if access to care is rationed.

For physicians, Obamacare initially offered promises of tort reform, as well as promises to repeal the sustainable growth rate formula that made it so difficult for physicians to predict reimbursement. Neither is in the final legislation. As a result, doctors will continue to practice defensive medicine, and for doing so will face proposed cuts in their Medicare payments.

Recently President Obama signed into law the long-debated "doc fix" that delays for six months a 21.3 percent cut in Medicare reimbursements to physicians and instead provides a 2.2 percent rate increase, retroactive to June 1.

After the signing, CMS immediately started processing claims at the new rate. But CMS had been holding the claims since June 1 in the expectation that the pay cut would be reversed and CMS had been paying them at the reduced rate since June 18 because Congress had not yet passed the measure. CMS stated claims that had already been submitted would be adjusted automatically without physicians having to resubmit them. The legislators dawdling caused unacceptable cash-flow problems for many physicians.

This new "doc fix" expires November 30. New cuts will then be imposed unless Congress reverses them: In December, Medicare reimbursement will be slashed by 23 percent, with the cut increasing to nearly 30 percent in January.

On a happier note, GCEP had a great spring CME meeting in Hilton Head. We're so fortunate to have world class speakers at our conference, some grown locally and some imported from far away lands. Dr. Jay Kaplan, MD, FACEP, a member of the ACEP Board of Directors, came to speak to us about what's happening with national ACEP as well as gave a few pointers on clinical quality and service excellence. Many thanks to the Education Committee for putting together such an excellent program!

In the Georgia legislative news, both the house and senate passed a constitutional amendment which is designed to permanently fund the state's trauma care system via an increase of $10 on annual car tag fees. The funding initiative is scheduled to be put on the November ballot as a referendum.

Gov. Perdue vetoed H.B.321, which would have required third party administrators of self-funded health insurance plans to comply with Georgia's prompt pay statute (i.e., pay providers within 15 days or face fines). The bill was one of GCEP's legislative priorities. A June 8 statement from Gov. Perdue read, "Unfortunately, the bill contains language that likely violates the Employee Retirement Income Security Act (ERISA), a federal law that preempts por-

The view: continued on page 2

Robert J. Cox, MD, FAAEM, FACEP
president@gcep.org

Dr. Cox is a practicing emergency physician.

From the President: continued from page 1

tions of H.B.321 as written. Because the Supremacy Clause of the United States Constitution precludes state law from violating federal law, I will not sign a bill that contravenes ERISA." There is some support by the legislators to override the veto next session. We will be monitoring.

Senator Thomas's seatbelt legislation (SB458) which closes the pickup truck loophole in previous law finally passed and was signed by the Governor. GCEP supported this bill.

In the judicial news, remember the Georgia Supreme Court upheld our language for "clear and convincing evidence of gross negligence" as constitutional. As a result of the ruling, MAG Mutual Insurance Company is reducing medical liability insurance rates for Georgia physicians performing emergency medicine by 20 percent!

In a separate case the Georgia Supreme Court found the caps on non-economic damages unconstitutional. GCEP is partnering with interested parties to create momentum for a constitutional amendment that would allow caps on non-economic damages. Perhaps while we put together that coalition, we could keep the trial lawyers busy by advocating for caps on contingency fees!

GCEP, the Georgia Society of Dermatology, the Georgia Neurological Society, and the Georgia Orthopaedic Society will join MAG as sponsors of the Governor & Lt. Governor Forum that will take place at the Cobb Energy Centre on Saturday, August 28 at 2800 Cobb Galleria Parkway in Atlanta from 1 to 3 p.m. Admission is free.

We continue to advocate for our psychiatric patients and prompt evaluation by the state hospitals. A reporter called for an interview for "an article that they were working on for the Sunday paper." I didn't know it was going to be front page, above the fold! (http://www.ajc.com/news/desperate-psychiatric-patients-wait-553036.html) The paper did a good job of highlighting the problem, we now need to partner with psychiatric patient advocates and state officials to remedy the situation. Also on the radar for this summer is work on balance billing legislation, and the prescription drug monitoring program.

Coming up in September is the Annual ACEP Council meeting and ACEP Scientific Assembly. Look for news of the Council resolutions and let your councilors know of your thoughts regarding the issues.

All in all, I think we had a good year for emergency medicine in Georgia. I want to thank the GCEP Board for all of their hard work and look forward to another great term serving this chapter.

GEMPAC 100% club, join now!

Rob Higgins, MD, FACEP, GEMPAC Chair

As I write this many of you are just getting back from the GCEP summer meeting, where I hope political advocacy played a small role in some of your decisions. I hope you supported the GEMPAC silent auction or thought to donate additional monies to support our PAC. In fact we raised $3,392 dollars at the silent auction and Northside Emergency Associates again matched all monies donated at the meeting, effectively doubling your efforts.

As we see health care issues unfolding in our state we are reminded how important it is for us to elect officials that understand our issues in the ED. Our lobbyist, Tripp Martin, has helped us select and support the election of Georgia candidates who agree with our issues and have voted for public policies that our college supports. In this recent campaign cycle your PAC monies were used to support 91 candidates– 63 republicans and 28 democrats- by donating $45,000 in amounts ranging from $250 to $1,000 to each candidate.

I hope you have taken the time to meet with your elected representative this summer and offered your services as a local expert in emergency medicine issues. Please thank them for tort reform support in the past and the reasons why cap limits on pain and suffering would continue to be good for the people of Georgia and should be reinstituted. It clearly is legal in many states and has been effective in attracting new MD's to that state and keeping malpractice insurance costs affordable. Explain to them the effects of Medicare and Medicaid funding on your patients access to good out patient follow up, how trauma funding is essential to protect the public, how seat belts in trucks save lives too, etc., etc., etc. The list can be as long as you want it. In fact, I'd like our state college to gather more information on your local issues that we can bring to our legislators – so please let me or your board members know what we should be fighting for.

What's our next step in fundraising for our cause—THE GEMPAC 100% CLUB. If you HAVE donated $100 to GEMPAC with your dues statement to ACEP, you have taken the first step. Now please ask to see if everyone in you group has done the same. If so, your group can be recognized as leaders in political advocacy by becoming members of the GEMPAC 100% club. Additionally, if your group members have given to GEMPAC, total the sum and ask the owners for a matching corporate donation. GEMPAC's corporate match allowed us to collect an additional $38,000 last year.

Our GEMPAC office needs your help in recognizing our big supporters. Let us know if your group qualifies for the 100% club and ask your owners to remind us of any GEMPAC corporate matching funds. We would like to honor all our groups that meet this level of giving in our year-end issue of the EPIC. Our total donations in 2009 were $44,430—this year our goal is $100,000. To date we have raised $40,000 and so still have a ways to go. I thank you all personally for your understanding of the importance of our PAC donations and the political process. Many doctors have chosen to ignore these facts until it is too late. Georgia's emergency physicians have not and therefore we have gradually become a strong voice that is listened to at the state capitol. I am getting calls from other state run PAC's asking for our advice. We are a leader and making a difference – thanks to everyone's support. Please be a part of the 100% who give.

Rob Higgins, MD, FACEP
robhiggins@mac.com

Dr. Robert Higgins is the managing partner at Northside Emergency Associates.

Secretary's quarterly message

John Rogers, MD, FACEP

John J. Rogers, MD, FACEP
jrogers@gcep.org

Dr. Rogers is the Secretary-Treasurer of GCEP.

With this issue, the *EPIC* will now offer CME credit. ACEP has given us permission to reprint previous CME articles from *ACEP News* and you may submit your answers to ACEP for credit.

We have converted to a magazine format and increased our content. You will see regular submissions on EKG, ultrasound, risk management, legal issues, financial planning, and others. If you have suggestions or something you wish to be considered for publication please forward to editor@gcep.org.

We are seeking announcements from members about achievements or other news of either a personal or professional nature. If your hospital has a CME/educational meeting that you wish to make GCEP members aware, please let us know. If you wish your hospital to be considered for our hospital spotlight, please let us know.

Annual Meeting

If you missed the annual meeting, you still have an opportunity to review some of the information from the presentations. They can be found on the GCEP website on the 2010 Meeting Announcement under Speaker Presentations and Handouts.

Dr. Jay Kaplan from the ACEP Board of Directors presented an excellent overview of the ACEP accomplishments, activities and the current Board's vision and strategic plan. Then speaking from his experience as a medical director for the Studer Group he reviewed several pearls and pointers for improving overall ED performance.

The proposed Bylaws revision was approved with two amendments: First, the number on the Board of Directors was increased to 13. Second, a provision was made to allow a Fellow from the Pediatric Emergency Medicine Program to represent their group as an ex-officio member of the Board.

The results of the elections are as follows:

Board of Directors:

- Pascal Crosley
Dekalb Medical Center, Dekalb

- Robert Risch
Memorial Medical Center, Savannah

- Stephen Shiver
Medical College of Georgia, Augusta

Councillors:

- D.W. Pettigrew
Past President of GCEP, Athens

- Ralph Griffin
Coliseum Medical Center, Macon

- Mike Hagues
St. Francis Hospital, Columbus

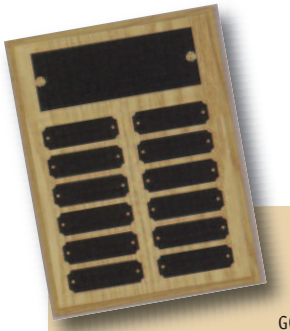
Alternate Councillors:

- Angela Mattke
Rockdale Medical Center, Conyers

- Vida Reklaitis Skandalakis
Northside Hospital, Atlanta

2010-2011 BOD Meeting Schedule

August 31, 2010	MAG Headquarters
December 9, 2010	Location TBA
March 8, 2011	Location TBA
June 9, 2011	Hilton Head



GCEP Recognition for Groups with 100% Membership

GCEP in conjunction with the American College of Emergency Physician wants to honor all practicing emergency physician groups who have demonstrated a commitment to excellence and recognized the importance of maintaining an active membership in their specialty organization. A plaque will be awarded to each group who has 100% membership of all eligible physicians in GCEP/ACEP. A yearly plate will be added for every year that 100% membership is maintained. This can be displayed in your hospital waiting room to make your patient population aware of the high standards of your group.

2010 ACEP Candidates for President Elect

This year at the ACEP Council meeting a new President Elect will be elected. They will serve as President for the 2011 – 2012 term. Below are the candidates and comments they submitted for you to consider. Every member should make their feelings known to their Directors and Councillors.

Kathleen Cowling, DO, MS, FACEP
Vice President, ACEP

First let me thank you, because if you are reading this then you are a GCEP member, and that means you are one of 28,000 members that makes ACEP strong. Second, as ACEP's top advocate, I plan to focus on the needs of the members. Each and every one is valuable to our great College, and we need to help make maintaining membership PRICELESS! As we face huge battles with respect to reimbursement, and on-call specialist issues, we are also facing increased demands from ABMS regarding our maintenance of certification and State licensure requirements. This is an area that we MUST help our members with. By valuing each member and helping make their validation challenges easier; we can make membership in our College invaluable. Join with me in helping tackle the challenges ahead with strength and pride in our great College. After all, we are the problem solvers, here for our patients 24/7, and willing to help anyone, no matter what the circumstances.

Ramon Johnson

Leadership is about service. For over 25 years, I have served ACEP beginning as a committee member, a past state chapter president and currently as a member of the board of directors. At this most exciting time in the history of health care in America, I strongly believe I am the best prepared to be ACEP's next president. My practice environment is one where physicians are treated equitably and share in the rewards of running our own business. There is pride in delivering a quality product to our patients and future fair reimbursement models will support this as an expectation. Having served as a past chair and continuing as a member of the California Commission on Emergency Medical Services for the past 15 years, I have been intimately involved in state leadership debating, reaching consensus on, and authoring regulations on items ranging from trauma systems, pediatric critical care, and paramedic oversight. This experience has taught me the importance of having emergency physicians at the table with regulatory agencies at the state and federal level. Nothing can be more important than having this skill set as healthcare reform moves from the legislative to the regulatory arena over the next few years and beyond. It is a process that is often tedious, lengthy, and often without much recognition or reward but it is a process that all of us must be a part of to preserve our specialty and ACEP must continue to support this effort by investing increasing resources. In the future, emergency medicine will be demanded even more by our patients but without the expectation of meeting our manpower needs. This dictates that ACEP must continue to be the organization that speaks for and represents all practicing emergency physicians. My vision for ACEP is that we must somehow support our mid-level providers of care and be able to represent those physicians that wish to practice emergency medicine without having completed a residency. We must do a better job of collaborating with our colleagues in the house of medicine, our governmental agencies and payors to ensure that we receive fair payment for our services now and in the future. Finally, I recognize the continued need of raising money and will continue to push to become the most influential medical PAC in the country for the benefit of all emergency physicians and our patients.

David Seaberg

I believe in the tenants of service leadership which states that in order to lead, one must first serve. My 24 year career has been dedicated to improving emergency medicine. My practice experience coupled with my extensive academic background gives me a unique perspective into the issues facing emergency medicine. Additionally, over the last three years in my role as Dean of the University of Tennessee College of Medicine Chattanooga, I have developed a nearly 200 physician multi-specialty practice plan that give me credibility, necessary for an ACEP President, in dealing with other specialties and outside organizations. I feel the next several years will be pivotal to the future of emergency medicine. Finding solutions to issues such as ED access, fair payment and liability reform will be crucial for our growth as a specialty. The University of Tennessee has given its full support to my campaign and I have the energy and will create the time to advance emergency medicine as ACEP President. I look forward to discussing these issues with you at the Scientific Assembly in Las Vegas.

2010 ACEP Elections for Board of Directors

At the Council meeting in Las Vegas this fall, four (4) Directors will be elected from the eight (8) Candidates vying for these positions. Every GCEP member should consider these Candidates and make their preferences known to the GCEP Board and Councillors. Comments were solicited from each of them.

Andrew I. Bern, MD, FACEP
INCUMBENT

I am proud of the many contributions I have made during my career as an emergency physician in this organization. Some of those contributions include the creation of sections of membership and the development of the grant center that has helped the college bring in millions of dollars of grants and the generation of non-dues revenues. Over the last three years, I have served as the liaison to the state legislative and regulatory committee and many other committees and task forces including the joint subcommittee with reimbursement developing policy, model legislation, and resources that relate to fare reimbursement and the balance billing issue. I have served on the nominations and awards committees and many task forces. As the board liaison to the section grant task force, we have awarded thousands of dollars of grants to many sections and powering them to do good work for their section and for the membership of the college. Similarly, a state legislative and regulatory committee has processed thousands of dollars of grants to empower state chapters in pursuit of worthy projects affecting medical liability, reimbursement, and many other important issues to the state chapters. I look forward enthusiastically to support from the Georgia chapter at this year's Council meetings.

Jim Cusick, MD, FACEP

ACEP EMS Section Newsletter Editor

ACEP EMS Section Chair-Elect

ACEP EMF Board of Directors

I appreciate the opportunity to tell a little piece of my story. I am a native of Scranton, PA; at the age of 14 I joined a rural volunteer fire department about 20 miles to the northwest. The ambulance was called for my father's first heart attack at the lake when I was 13. I was impressed with there arrival, carrying O2 and stretcher over the bank and down to the lakefront; having left their jobs to help strangers and whisk my dad to a city hospital for definitive care. I later learned that their response was not very quick, their equipment the bare minimum and their training actually very poor. Over time I became a first-aider, delivered my first baby on scene at 16, by age 17 I had become the first of two EMT's in the history of this Volunteer fire/ambulance department and the youngest ambulance commander by 40 years of age in the now ninety years of its history. That same year I spearheaded a fundraising campaign and by the following year we purchased a new $30,000 modular ambulance and refitted the old one for transfers with grant funds. We grew under my watch from two to 24 EMT's, two paramedics and 4 RN's. I went on to become a paramedic, a mobile intensive care medic and then off to medical school and an EMS Medical Director ever since. I have 42 years in EMS, 26 years as an emergency physician and a member of ACEP and though much has changed around me, I am still the same person. I fix things; I am dependable, consistent and friendly. I have a logical thought process, I work hard, I have a great deal of common sense and I am an intense networker. I know the difference between right and wrong, that we are here to care for patients and that we need to care for each other. I understand how to end a long winded conversation and to make an educated decision. I have spoken to many EMT's in the streets, emergency physicians in the ED and to business leaders in the board rooms of now three major corporations. I now understand frustration and why it was so hard to turn the Titanic. We need health care reform, medical liability/tort reform and we need to be a bigger and better social organization for all emergency physicians. In the end, I am back to being an in the trenches emergency doc. I am still a member, though mostly honorary, of that volunteer ambulance company in rural Pennsylvania that I visit once a year for a meeting and to teach a class or two.

Jon Mark Hirshon, MD, FACEP

In our times of rapidly changing health care and economic instability, ACEP must remain involved in the implementation of health care reform. Regardless of one's perspective on the recently passed Health Care Reform bill, it is critical that we remain represented at the table. As a practicing emergency physician boarded in both Emergency Medicine and Preventive Medicine, I will bring a unique understanding to the ACEP Board of Directors of both the clinical and public health impacts of proposed legislative and regulatory changes. This distinctive perspective is vital as rules and regulations are made by the various federal agencies. As a successful National Institutes of Health funded researcher and teacher, I have learned the language of Washington while maintaining a respectful distance from its corroding influences. My public health knowledge, ongoing clinical work, and expertise with the federal bureaucracy, is a distinctive and powerful combination that can help emergency medicine adapt and grow in these times of rapid change.

I am the current President of the Iowa Chapter and an Associate Professor of EM at the University of Iowa. As such I have numerous duties that involve educating Emergency Physicians and nurses statewide and advocating for the proper care of emergency patients at the state and local level. In the future, I see an increased reliance on the Emergency Department as a safety net as the nation's health care system is stretched further toward the breaking point. The combination of less access to care and increased cost of Medicare and Medicaid will eventually force a dramatic political solution.

Hans House, MD, FACEP

Healthcare reform will undoubtedly affect every emergency physician whether employed or independent, academic or private, urban or rural. The next several years will be critical for ACEP to advocate for its members and especially our patients to ensure that there is access to quality emergency care. I believe it is important now, more than ever, to elect experienced leaders that are knowledgeable, insightful, and innovative. During my twenty year emergency medicine career, I have worked in academic and large group settings, and for the past ten years exclusively in managing a single hospital democratic group that relies on fair reimbursement. I was one of the founding chairs of the Young Physician Section of ACEP and have argued for one voice within the house of emergency medicine. I have been President of the California Chapter and for the past three years, Chair of the ACEP State Legislation and Regulatory Committee. I am continuously working on solutions not only in the legislative but also in the regulatory, legal, and business arenas. I also work with colleagues in other organizations to gain consensus and have learned to communicate those ideas effectively to legislators, regulators, and the public. I believe that patient centric advocacy is crucial to our future and our specialty.

Paul Kivela, MD, MBA, FACEP

I am professor and chair of Emergency Medicine at the University of Virginia in Charlottesville. I attended secondary school in Philadelphia, and received his baccalaureate degree from Haverford College, my medical degree from the Medical College of Pennsylvania, and completed my residency training in emergency medicine at the Medical Center of Delaware. I have worked as a clinician for over 20 years and have served as a State EMS Medical director, Department Research director, and Residency Program director. I was principal or co-investigator on over 40 extramural and multi-center funded projects and have presented more than 300 research papers and lectures at local, national, and international research conferences. I have over 100 published manuscripts, co-authored six books and am editor-in-chief of three textbooks including *eMedicine: Emergency Medicine* (an online medical reference www.emedicine.com). He is the Immediate Past President of the National Association of EMS Physicians and Advocates for EMS. My primary research and professional interests are in resuscitation, pre-hospital care and EMS systems.

Robert E. O'Connor, MD, MPH

The privilege of representing the membership of the College as ACEP Board of Directors member has been an excellent experience and a great opportunity to advocate for all of you. My time on the Board has been exceptional. The initial learning curve was smoothed out by the leadership of the College, both Board members and staff, making the transition appear seamless. I think you would all be proud of the commitment, effort, and work product of your Board of Directors, the ACEP staff, and all committee leadership and participants. The challenges we face in the next decade as Health Care Reform transitions from legislation to implementation will be a time of great change, turbulence and opportunity. Strong, active, and engaged membership is essential. Unwavering dedication, leadership, and effective work product is what you should expect from your Board of Directors. I am committed to a second term on the Board and am requesting your support. My interest, energy, and focus have not waivered. The future of the College is dependent on dynamic leadership, membership growth, and a clear strategy. I will do my best to help implement the growth and changes required to support emergency physicians and our patients going forward.

Andrew Sama, MD, FACEP
INCUMBENT

Dr. Jill Mabley honored by EMSMDAC

Robert J. Cox, MD, FAAEM, FACEP 2010-2012 Chair, EMSMDAC

GCEP wants to congratulate Dr. Jill Mabley for her distinguished service as the EMS Medical Directors Advisory Council (EMSMDAC) Chair. For the past six years, Dr. Mabley has led this council to improve and maintain high EMS standards statewide. After her interests in writing for Z-paks and Lortabs as an accomplished emergency physician had waned, she started concentrating on out-of-hospital medicine.

Initially, she worked as a volunteer medical director (still working full time in the ED). After the 9/11 events, she left the private sector and worked full time for Cherokee Fire. We think she was, and still is, the only medical director to complete and graduate from the difficult firefighter training at the Georgia Fire Academy.

Dr. Pat O'Neal, Georgia State EMS Medical Director, presents Dr. Mabley with a plaque to honor her service as the Chair of EMDMDAC from 2004-2010.

Dr. Mabley has been the medical director for Cherokee Co. Fire, Canton FD, and Woodstock FD for the last 10 years. She and her team have taken the county from separate fire and private EMS, with only BLS available on FD equipment to a fully combined/cross trained fire-based EMS with 911 transport services and with all ALS fire engines. She also started and has maintained yearly in-house paramedic, EMT-I, EMT-B, and first responder (for law enforcement) classes.

She's served as the Region 1 EMS medical director which led her to the EMSMDAC.

Over this period, her interest in health care policy and politics as connected to public safety has developed. She said she is looking forward to assisting the State with adoption of the new national guidelines for EMS (and I hope as deputy state EMS medical director!)

Besides her role in medical direction, she has been active in EMS education for several decades. Prior to moving to Georgia in 1997, she worked with the Jackson Hole Ski Patrol and the Grand Teton National Park Climbing/Rescue Rangers. She had experience with out-of-hospital medicine, both as an educator and as a participant in wilderness, alpine and high altitude environments in the western U.S., South America and Asia. She has instructed and directed for the Appalachian tech EMT and paramedic programs and has been a National Registry examiner for 15 years. Except for the two years that she was full time, uniformed, paid with Cherokee Fire, everything else has been as a volunteer!

Congratulating Dr. Mabley (with plaque) at the Georgia Public Safety Training Center in Forsyth are: Dr. Phillip Coule, Vice Chair, EMSMDAC; Billy Watson, EMT-P, Acting State EMS Director; Dr. Pat O'Neal, State EMS Medical Director; Dr. Jeff Linzer; Dr. Robert J. Cox, Chair EMSMDAC; Dr. Earl Grubbs; Dr. Arthur Yancey and Dr. Ralph Griffin.

Evaluating syncopy in the emergency department

Michael J. Bono, MD, FACEP

A 67-year-old black male starts feeling warm and slumps over in church, witnessed by his son, who is an internal medicine physician. There were no jerking movements, and the patient felt slightly "dizzy" before he slumped backwards. The patient remembers feeling warm, then the next thing he remembers are paramedics talking to him. The patient feels fine upon presentation. There was no chest pain, shortness of breath, nausea, vomiting, or abdominal pain. He has a history of coronary artery disease with a recent negative stress echocardiogram. Further history includes prostate cancer; diabetes mellitus type II, (accucheck 120mg/dl) and benign prostatic hypertrophy. Vitals signs are normal and physical exam, including rectal exam, is negative. Labs are unrevealing and ECG shows a sinus mechanism with normal intervals and no ST-T changes. The patient feels fine and wants to go home. Where do we go from here?

Syncope is a transient loss of consciousness accompanied by loss of postural tone. It is a commonly encountered problem in the emergency department and in clinical practice. Syncope accounts for 3% of emergency department visits and 6% of hospital admissions; annual syncope-related health care costs are estimated to be $750 million.

Syncope has a host of possible causes, many of which are benign. Other etiologies, however, are associated with high morbidity and mortality rates. Cardiac-related syncope has 20% to 30% one-year mortality; syncope of unknown cause, a 6% one-year mortality.

The transient nature of syncope complicates the workup. An estimated 40% to 60% of evaluations of patients who have experienced syncope result in a nondiagnostic workup. It is essential to consider everything from associated risk factors to underlying pathophysiology when developing a differential diagnosis and management plan for patients presenting with syncope.

In this article, we will review the various causes of syncope. We will also discuss the key points to keep in mind during the clinical evaluation of the patient.

Underlying Pathophysiology

Unlike coma, syncope only lasts for seconds or minutes and rarely requires resuscitative intervention. Presyncope or near-syncope is an incomplete event in which symptoms resolve before the patient loses consciousness. However, presyncope is often a warning sign of an impending event. Typically dismissed as lightheadedness or simply "feeling dizzy," it involves the same pathophysiology and differential diagnosis as syncope. For this reason, it warrants the same diagnostic approach in the acute setting.

In determining the initial approach to the patient with syncope, it is essential to possess a sound understanding of the underlying pathophysiology. Cerebral blood flow of 55 ml/100 gm of brain tissue is required for adequate supply of oxygen and glucose. If blood flow drops below 20 ml/100 gm, the brain is deprived of its nutrients and oxygen. In 5 to 10 seconds, syncope will occur.

The clinical presentation of decreased cerebral blood flow varies from patient to patient, depending on the degree of compromised blood flow. The patient may experience symptoms of weakness, lightheadedness, blurring or graying of vision, diaphoresis, loss of peripheral visual fields, or tinnitus. He or she may also have lost postural muscle tone and fallen. Loss of consciousness usually lasts approximately 15 to 20 seconds, with cognitive function returning as cerebral perfusion increases after a position change. One exception to this scenario is syncope secondary to cardiac arrhythmias.

It is important to remember that syncope is a symptom of a disease process and not a disease itself. It can indicate a variety of underlying disorders with different mechanisms and prognoses. The two most

Michael J. Bono, MD, FACEP
m.bono@charter.net

Dr. Michael Bono is professor of emergency medicine at Eastern Virginia Medical School.

common types of syncope are reflex-mediated and cardiac-related. Together, these account for almost 50% of all cases of syncope. Orthostatic hypotension, medications, drug and alcohol abuse, and psychiatric and neurologic conditions are other common causes. In the acute setting, it is clear that the clinician's most urgent task is to determine whether the cause of the patient's syncope is most likely benign or potentially life-threatening.

Vasomotor Syncope

Vasomotor syncope, the most common cause of syncope in the general population, represents the failure of the circulatory system to produce or maintain adequate tone. Postural changes, dehydration, physiologic changes, and emotional stress are often implicated as possible causes.

Orthostatic hypotension results from a disruption in the neurogenic feedback loop that under normal physiologic conditions inhibits vagal tone and stimulates the release of catecholamines. This disruption is usually secondary to damaged peripheral nerves, impaired central control of autonomic nerves, or decreased intravascular volume. Orthostatic hypotension is most commonly seen in elderly patients, who typically have decreased baroreceptor sensitivity and decreased cardiac output in response to hypotension, exercise, and postural changes. Peripheral neuropathy, cardiovascular deconditioning, and decreased basal levels of renin and aldosterone, resulting in decreased sodium retention, further exacerbate syncopal episodes in the elderly population. These physiologic changes result in the pooling of up to 700 ml of venous blood and ultimately severe drops in blood pressure, with 5% to 9% of patients experiencing drops of 30 to 40 mm Hg on standing. With such a strong predisposition to falls, elderly patients with syncope may present with further complications such as fractures or even intracranial hemorrhages.

Orthostatic hypotension is rarely a cause of syncope in the younger population. Occasionally, it may occur in this population as a result of pregnancy, physical exhaustion, prolonged recumbency, and patients with a history of partial gastrectomy. Medications can also predispose patients of any age to orthostatic hypotension, particularly the antihypertensives, antidepressants, phenothiazines, sedative-hypnotics, and diuretics.

Vasovagal Syncope

Typically referred to as the faint or swoon in layman's terms, vasovagal syncope has a biphasic pathophysiology often precipitated by noxious stimuli, physical or perceived pain, emotional stimuli, prolonged upright posture, blood loss, or even smell. It has a familial tendency and is experienced by as many as 3% to 17% of blood donors.

Interestingly, vasovagal syncope has an inverse relationship with age. The lower incidence in the elderly is thought to be a result of decreased vagal tone and beta-adrenergic-mediated cardiac contractility. The initial stimulus elicits an anticipatory response, with a catecholamine surge that increases heart rate, blood pressure, and systemic vascular resistance. The increased sympathetic tone and cardiac contractility are perceived by mechanoreceptors in the inferior and posterior walls of the left ventricle, resulting in neural discharges to the medulla. The vasomotor center in the medulla senses these discharges, resulting in increased parasympathetic tone and ultimately a presyncopal or syncopal episode. While these episodes are generally benign, they are often difficult to differentiate from episodes of cardiac origin in the patient who presents with complaints of feeling faint, palpitations, and diaphoresis.

Cariogenic Syncope

Cardiogenic syncope accounts for 18% of all cases of syncope, with arrhythmias accounting for most episodes. With one year mortality as high as 30% (of which 24% of cases are sudden death), it is essential that physicians be able to distinguish between this type of syncope and benign syncope.

Cardiogenic syncope can be secondary to electrical or mechanical disruptions of the heart. These disruptions can decrease cardiac output below the 20 ml/min/100 gm of brain tissue that is required to maintain consciousness. This usually occurs with a systolic blood pressure below 60 mm Hg or a heart rate less than 40 or greater than 150. Associated comorbidities such as heart disease, age, and volume depletion often affect these parameters

Mechanical entities such as coronary artery disease, congenital and valvular disease, and cardiomyopathies can be further broken down into left versus right outflow obstruction. Examples of right outflow obstruction include pulmonary stenosis and pulmonary embolism. Up to 13% of patients with pulmonary embolus report fainting as the initial complaint. Pulmonary stenosis or pulmonary hypertension may restrict right-sided outflow, further exacerbating situations with decreased preload or peripheral vascular resistance.

Outflow obstruction in terms of decreased cardiac output or decreased left ventricular filling pressure will often present as syncope. Dyspnea on exertion, chest pain, and syncope comprise the classic triad of aortic stenosis. Cardiomyopathies and prosthetic aortic valve incompetence will also restrict cardiac outflow. These patients often present with decreased exercise tolerance and syncope on exertion. Syncope in a patient with a prosthetic valve often portends mechanical failure of the valve, requiring emergent surgery. Mitral stenosis, left atrial

myxoma, aortic dissection, and cardiac tamponade can reduce left filling pressures to a level insufficient to maintain cerebral blood flow.

While syncope may result from organic heart disease, arrhythmias account for most cardiogenic syncope. Often presenting as sudden syncope or palpitations, arrhythmias do not usually produce the typical prodrome seen in other syncopal events. Ventricular tachycardia, for example, may present as syncope in a patient without any previous symptoms. Torsades de pointes and supraventricular tachycardia can also produce syncope. The patient with supraventricular tachycardia will often experience palpitations prior to a near-syncopal or syncopal event. In cases of supraventricular tachycardia, syncope results from reduced cardiac output and subsequently decreased cerebral blood flow.

Heart block is a rhythm commonly associated with presyncope or near-syncope. If the ventricular escape rhythm is unable to maintain cerebral perfusion, a syncopal event known as a Stokes-Adams attack will occur. Patients who experience such an attack will often progress to myocardial infarction. Bradyarrhythmias can also cause syncope. Sick sinus syndrome, which often results from ischemia, inflammation, and certain antiarrhythmic medications, may initially present as a lack of predicted response to physiologic stressors. This ultimately may predispose a patient to atrioventricular block and thus bradycardia.

Heart block occurring at or below the atrioventricular node is particularly worrisome in patients who present with syncope. Mobitz type II and third-degree heart block are especially foreboding in the context of syncope. These patients often experience syncope regardless of posture and without any precipitating events.

Prolonged QT interval syndrome, in which prolongation of ventricular repolarization increases the susceptibility of the myocardium to arrhythmias, will frequently present as syncope. Electrolyte disorders such as hypocalcemia, hypomagnesemia, and hypokalemia will predispose the heart to arrhythmias. Medications such as amiodarone, phenothiazines, and tricyclic antidepressants may precipitate syncope by prolonging the QT interval. Certain pathologic or physiologic conditions, including myocardial ischemia and hypothermia, will also delay ventricular repolarization and predispose to syncope.

Disrupted Cerebral Circulation

Disruptions in the cerebral vasculature may also cause syncope. Vertebrobasilar insufficiency, which often induces a transient ischemic attack, will frequently present as presyncope or syncope. Emboli or vascular spasm may temporarily or incompletely occlude the vertebrobasilar arteries, initiating episodic loss of consciousness, often with no residual focal symptoms. Carotid endarterectomy and antiplatelet therapy are potential preventive treatments that may limit progression to full cerebral vascular accidents.

Patients complaining of headache just prior to syncope often suffer from basilar artery spasm. Subclavian steal syndrome, in which blood is shunted from the posterior vertebrobasilar system, can reduce cerebral blood flow and result in syncope. This more commonly occurs with elevation of the left arm, particularly during exercise. Blood pressure will vary by 20 mm Hg in each arm. Angiography ultimately confirms the diagnosis. Subarachnoid hemorrhage presenting as syncope is a particularly ominous sign. Patients will often complain of a severe, abrupt, "thunderclap" headache several days prior to the event. Elevated intracerebral pressure secondary to rupture of an aneurysm will lead to decreased cerebral blood flow and syncope.

Hypoxemia, infection, endocrinopathies, toxic exposures, medications, and psychiatric disorders may also be contributing factors in syncope. Psychiatric disorders account for 2% of all syncopal episodes. The typical psychiatric patient is a young person (usually in the second to fourth decade of life) who faints frequently. Typically, he or she will have multiple symptoms, including nausea, light-headedness, and numbness, and will often express an intense fear or dread. Major depression is most commonly implicated, followed by anxiety disorder and panic disorder. Alcohol dependence is frequently involved in these cases, with an estimated prevalence as high as 9%. Symptoms can often be reproduced with hyperventilation maneuvers and positive tilt testing with normal vital signs.

When evaluating a patient with suspected syncope, it is often difficult to distinguish between syncope and seizure based on history alone. Signs and symptoms more often associated with seizure include tongue biting, frothing at the mouth, a confused and disoriented postictal state, and a bluish color to the face. Syncope usually presents with nausea, diaphoresis, and a pale color to the face (cardiogenic syncope being an exception. A syncopal episode will usually have more of a prodrome, with rapid clearing of cognition, unlike the disoriented postictal state. Syncope and seizure may present concomitantly if a patient who has a syncopal episode is prohibited by body position or bystanders from lying down. Seizure will result because cerebral perfusion cannot equilibrate.

Clinical Evaluation

The clinical evaluation of a patient presenting with syncope begins with a careful history and thorough physical examination. Together, they provide the diagnosis in 50% to 85% of patients and will often differentiate between different types of cardiogenic syncope.

Essential components of the history include events leading up to the syncope, duration of unconsciousness, the time it

took to regain coherence and any associated symptoms such as chest pain, palpitations, and headache. Patient position, the setting in which the event took place, and other prodromal symptoms are crucial to differentiating between such entities as basilar artery spasm and seizure. The prodrome of an aura suggests seizure, whereas the prodrome of a headache suggests vertebral artery spasm. Bystanders, emergency medical system personnel, and family members will often provide key details in the history.

The physical examination should be guided by the information gathered in the history. Close evaluation of the patient's vital signs is essential. Tachycardia should be assessed in the context of volume status. Orthostatic vital signs, skin turgor, and mucous membrane evaluation can often exclude laboratory testing for orthostatic syncope. A thorough neck examination may uncover scars, bruits, or distended neck veins. The carotid pulses should be evaluated for aortic stenosis, indicated by a delay in upstroke. Carotid massage may provoke a sinus pause of more than three seconds or a drop in systolic blood pressure of more than 50 mm Hg, supporting the diagnosis of carotid sinus hypersensitivity. In the elderly or those with known peripheral or cerebral vascular disease, however, this technique should be performed with caution and should be preceded by careful auscultation for carotid bruits.

A cardiac examination should identify arrhythmias or murmurs. Murmurs of aortic stenosis or hypertrophic obstructive cardiomyopathy have a systolic component. Maneuvers such as standing after squatting or the Valsalva maneuver increase blood flow, which will accentuate the murmur of hypertrophic cardiomyopathy. A rectal examination will identify occult gastrointestinal bleeding, while an abdominal examination will reveal possible aortic aneurysm or bruit. A thorough neurologic examination can differentiate between focal neurologic signs suggestive of intracranial processes, such as cerebrovascular accident or hemorrhage, or global changes in mental status indicating an infectious, metabolic, or toxicologic process.

Focused Laboratory Testing

Laboratory testing in the patient with syncope should be guided by the history and clinical findings. Often, the syncopal patient undergoes extensive laboratory and imaging evaluation with no apparent diagnostic direction. A basic metabolic profile (including electrolytes, blood urea nitrogen, creatinine, and glucose), complete blood count (CBC), electrocardiography, dextrose stick, and a cardiac enzyme profile or further imaging studies often comprise the ancillary workup of syncope. It should be pointed out, however, that in syncope studies that included patients with seizures, metabolic abnormalities such as hypoglycemia, hyponatremia, and hypercalcemia were identified in fewer than 3%. Hypoglycemia, in fact, is a very uncommon cause of syncope, with a prevalence of less than 1%. Additionally, the hypoglycemic patient with syncope will not return to baseline without dextrose administration.

Nevertheless, while a basic metabolic profile, CBC, and dextrose stick have a low diagnostic yield in syncope, they are relatively inexpensive, minimally invasive, and reasonable to order. A CBC can serve to confirm clinical suspicions based on the physical examination, such as a positive stool guaiac test. (A urine pregnancy test should be ordered in all women of childbearing age.

An electrocardiogram (ECG) should be ordered for all patients with syncope. It has a diagnostic yield of 2% to 6% and will often identify etiologies such as heart block, sinus bradycardia, bundle branch block, prolonged QT syndrome, or acute myocardial infarction. Left ventricular hypertrophy in the context of hypertrophic cardiomyopathy may predict ventricular tachycardia. The transient nature of certain arrhythmias reinforces the need for cardiac monitoring and further telemetry observation in all syncope patients. A retrospective study of syncope revealed that 12% of patients had an arrhythmia and 3% had an acute myocardial infarction. The average cost of an ECG is $90. Its noninvasive nature, low cost, and relatively high yield support its diagnostic role in syncope.

The utilization of other diagnostic studies in the evaluation of syncope is typically beyond the scope of a patient workup in the acute setting. Echocardiography, Holter monitoring, intracardiac electrophysiologic studies, tilt table testing, and event/loop recorders may all offer further valuable diagnostic information. Echocardiography is particularly useful in patients with known cardiac disease, suspected arrhythmias, or abnormal ECGs. Twenty-four hour Holter monitoring or event/loop recorders are useful in patients with syncope of unexplained cause or when symptoms suggest arrhythmic syncope. While these modalities enhance the diagnostic yield in the evaluation of syncope, they are moderately expensive and may require coordination with a cardiologist

Risk Stratification

The goal in the evaluation of the patient with syncope ultimately lies in risk stratification. Patients with cardiogenic syncope carry the greatest 6- to 12-month mortality rate. Patients with evidence of organic heart disease, chest pain, a history of arrhythmias, physical signs of heart disease, or abnormal ECGs require admission. Relative indications for admission include moderate to severe orthostatic hypotension, suspicion of coronary artery disease or arrhythmia, increased frequency of syn-

copal episodes, and age older than 70. Because the workup of the patient with syncope has a low diagnostic yield, it is the physician's responsibility to stratify patients into these low- and high-risk categories.

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The AAPA, in conjunction with ACEP and SEMPA, are presenting CRASH - a Critical Review And Skills enhancement course, Nov. 11-13, 2010 in Fort Worth, TX. This unique offering is specifically developed for PAs transitioning into emergency medicine and urgent care, providing up-to-date information on a wide variety of emergency management topics.

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A self-induced language barrier: why patients and clients just don't understand

David A. Olson, Attorney at Law, Drew-Eck Farnham

David A. Olson
dolson@deflaw.com

Mr. Olson is an attoney at Drew Eckl & Farnham in Atlanta. He focuses his practice on commercial litigation, general trial practice, general casualty, premises liability, trucking and transportation, civil tort litigation, and more. He is a graduate of the Georgia Institute of Technology and the University of Miami School of Law.

As a lawyer, clients often pose simple questions to scenarios that I just explained. Until recently, I could not figure out why this was. Thankfully, it finally dawned on me that my explanations to the client were invariably laced with legal terms of art and Latin phrases that, I thought, sounded quite intelligent. Typically, I thought "res ipsa loquitur," (the thing speaks for itself).

As a physician, no doubt you have faced a perplexed patient who barely understood the precise manner in which you diagnosed his or her medical problem. I am certain there are some people, including some lawyers, that upon hearing that they suffer from "pleural effusion" from their doctor wonder why the doctor didn't just say "effusions." Doctors and lawyers alike suffer from this language barrier all the time. Sometimes as professionals, we find it difficult to convey professional opinions and conclusions to others who did not go through the same amount of very specific schooling as we did. Day-to-day activities demand efficiency while talking to colleagues, so we use the shortcuts and concise language we learned from school and years of practice. It's almost like the professionals of the world have forgotten how to speak plain English!

Perhaps it's ironic then, that June (the month in which this article was written) is Aphasia Awareness month. The following is probably elementary for the physician-readers, but for the rest of us, aphasia is an acquired communication disorder that impairs a person's ability to process, produce or comprehend spoken or written language, though it does not affect intelligence. There are multiple types and levels of aphasia, and there is no one treatment proven to be effective for all types of aphasia distinguished by the fact that there is no real "cure" available. Typically resulting from stroke, aphasia can also be acquired through head or brain injuries or other neurological complications. It affects an estimated 1 in 250 people in America making it more common than Parkinson's disease, cerebral palsy or muscular dystrophy. Unfortunately, most Americans have never even heard of it.

Not to take anything away from or belittle this very real problem faced by real Americans, but as professionals our "head injury" is years of education and practice resulting in our very own "professionally acquired aphasia." We become so accustomed to our lingo that we risk distancing ourselves from the rest of the world through a lack of effective communication. So, how do we treat our acquired communication deficiency?

Clients and patients do not want their lawyer or doctor to "dumb things down" to a point where it becomes a habit to dumb everything down so that their hired professional cannot operate at the high standards of their profession. We cannot forget plain English, though, and must constantly remind ourselves to communicate effectively with our clients and patients. Communicating effectively means relaying

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It's all about risk

Setu Mazumdar, MD, President and Wealth Manager, Lotus Wealth Solutions

Let's face it: we're masters of risk management. What's the chance this patient has appendicitis? What's the chance I'll be sued if I discharge this patient? What's the chance hospital administration will scold me for not doling out more pain meds? These are common questions each of us face during a typical shift and for the most part we do a remarkable job avoiding blowups. But when it comes to managing risk in our investment portfolios we barely give it a thought. The problem with this approach is that risk is fundamentally related to investment returns. Returns come from risk. They are two sides of the same coin, and they are inseparable. So how much risk should you take in your investments?

The 3 elements of risk

Investment risk assessment involves the evaluation of three different dimensions: the willingness to take risk, the ability to take risk, and the need to take risk. The higher your willingness, ability, and need to take risk, the higher your allocation to riskier investments such as stocks. Unfortunately most physicians completely ignore risk in their portfolios or do not know how to prioritize risk.

NEED to take risk is the single most important (and most often ignored) dimension of risk assessment. Your financial goals are the primary determinant of your investment risk level. Large distant goals such as retirement funding and even some short term goals such as college funding require a higher need to take risk. For example, if your children want an Ivy League education instead of a public university education you will need to take more risk due to the difference in funding requirements. Expenses and lifestyle are probably the largest influence on the need to take risk. If you have low expenses and a moderate lifestyle, you don't need high investment returns to reach your financial goals and therefore don't need to take excessive investment risk. Finally, your portfolio value also alters your need to take risk. Higher portfolio values diminish the psychological value of the next dollar earned. For example, a $10,000 gain on a $100,000 portfolio has more financial and psychological impact than the same gain on a $10 million portfolio. So if you've won the game, why play? Also, any time there are larger than average investment returns your future need to take risk drops. The US stock market, for example, had a cumulative return of over 80 percent from 2003-2007, far higher than historical averages. After that kind of upswing your need to take risk should have dropped. On the other hand the financial meltdown of 2008 probably increased your need to take risk.

Willingness to take risk is purely psychological. It involves your emotional reactions to portfolio losses and market downturns. What percent loss can you tolerate and still be able to sleep at night—10, 30, 50 perecnt or more? Would you sell in a panic or buy more because bargains abound? Did you load up on bank stocks in 2008 or close your bank accounts and stuff money under your mattress? For the stock

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Setu Mazumdar, MD
setu@lotuswealthsolutions.com

Dr. Setu Mazumdar is President and Wealth Manager at Lotus Wealth Solutions, an independent fee-only wealth management firm in Atlanta, GA. Lotus Wealth Solutions provides investment portfolio management and comprehensive financial planning for physicians. Setu received his MD from Johns Hopkins School of Medicine and he is board certified in emergency medicine.

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information to your audience in a way that they will understand it. I firmly believe that patients and clients will not remember the doctor or lawyer that simply fixes their problem and explains what happened and how it was fixed in medical or legal jargon. Those patients will never know what they did that landed them in your office, or emergency department, and will be doomed to repeat the problematic behavior. On the other hand, they will always remember the doctors and lawyers that fixed their problem and took the time to explain it to them in a way they can understand and how to avoid the same problems in the future.

As professionals, we are looked to by the rest of the population to solve their problems. If we continue to suffer from our "professionally acquired aphasia," we risk alienating ourselves from those who we rely upon to hire us to fix their problems. Fortunately, we are all equipped to stop using our jargon and simply converse with a patient or client; in the long run, everyone will be better served. Of course, as physicians, if you continue to fix peoples' ailments and cure horrible disease, you will probably be forgiven the use of medical lingo. It's doubtful lawyers will manage the same.

I encourage everyone to become more familiar with aphasia and how it affects American families. This article will hopefully have a two-fold result: 1) remind us to speak plainly to patients, and 2) increase awareness of aphasia. To learn more, you can start by visiting www.aphasia.org.

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portion of your portfolio, you should be emotionally prepared to accept losses of 50 percent over a few years. From 1973-1974, 2000-2002, and in 2008 the US stock market lost almost 40 percent of its value. It's not enough to determine your reaction to percent losses since higher portfolio values magnify emotional damage. A young physician with a $100,000 stock portfolio took a $37,000 hit in 2008 while a physician nearing retirement with a $2 million stock portfolio suffered a $740,000 loss. How would you feel if your portfolio declines by an amount greater than your house? While the percent loss is the same, the emotional impact of losses in absolute dollar terms is devastating at high portfolio values. Your previous investment experience and knowledge of investment history also influence your willingness to take investment risk. So, if your willingness to take risk is low, then tone down on stocks.

Ability to take risk is a function of your age, income, and career stability. Younger physicians can take more investment risk due to their longer investment time horizon, their ability to withstand inevitable market fluctuations, and their large stream of future earned income. The 2000-2002 and 2008 bear markets were fantastic opportunities for younger physician investors but a calamity for physicians nearing retirement. EPs who work in hospitals with better payer mixes leading to higher income can also take more investment risk. Higher income and higher levels of wealth allow you to invest more money during market downturns to make up for portfolio losses. Demand for emergency services keeps growing and so an EP's career is somewhat shielded from the effects of an economic recession, allowing EPs to take more investment risk than other more cyclical careers. Dual incomes also allow you to take more investment risk due to higher income and lower impact from a potential disability. Similarly, a physician with adequate disability insurance can also take more investment risk.

Since we're already masters at managing medical and professional risk in our careers, doesn't it make sense to manage investment risk? So the next time you look at your portfolio, ask yourself how much risk you really need to take, how able you are to take it, and how well you can sleep at night with it.

Get to know your board of directors

Robert Risch, MD, FACEP

Robert Risch, MD, FACEP

Although his family moved often, Colorado and Mississippi is where he and his family considered home. He graduated high school in Biloxi, completed EMT training in Florida, received his BA in microbiology from the University of Florida and then attended medical school in Tampa at the University of South Florida. During school and summer breaks he worked in the Biochemistry Lab and also in construction. One time he spent a summer in Colorado with a large animal vet.

During medical school at the University of South Florida in Tampa, Bob was not only the President of the Student Council, but President of his Class as well. He became interested in EM during his rotations as a student. However there was no EM residency in Tampa at the time, nor were any of the U of South Florida ED physicians residency trained in EM. So he sought guidance from a trauma surgeon who suggested that he "go learn emergency medicine" and he and another from his class became some of the first from his school to do so.

It was at Tampa that he met his future wife, Beth, who is an accountant. They moved to Charlotte where Bob completed his EM Residency and then they moved to Tupelo where Bob worked at North Mississippi Medical Center for a year. When an opportunity at Memorial Medical Center in Savannah arose, he and Beth decided to make Savannah their home which they have done so for the past 12 years.

They and their four children (ages 12, 10, 9 and 4) are all very active in their community and participate in several outdoor activities. As a bet with their extended family they all participated in a Triathalon one year. Their competitive nature persists and this fall Bob will participate in a Half-Ironman Event in Las Vegas the Sunday before the ACEP SA. The family also is quite active in boating, bicycling, Girl Scouts and swimming. Bob also serves on the Board of Directors of the Oglethorpe Charter School.

In addition to challenging the other members of his hospital EM Group into participating in a triathalon, which they did, he also has challenged them to improve themselves professionally. He instituted a Performance Improvement program that led to a decrease in the ED length of stay by 30 minutes, which means for their 50,000 volume ED, their patients were saved 25,000 hours in the ED. Another successful team building idea was a competitive Karaoke night, which surely proved entertaining. In his spare time, he completed his MBA through the Physician Executive Program at Auburn University in 2005.

"With 4 kids almost every day is soccer, swimming, girl scouts and play dates. We spend a lot of time out on our boat, on the beach or travelling. It is fairly common for us to pile in the car at 3 am and drive 8 - 9 hours for an adventure. Last summer we took a hot air balloon trip in Colorado and often go west in the winter to ski. Beth and I also host many parties for our neighbors and co-workers. All of my kids love crawfish so this spring we hosted a large party for our department and hospital, where I cooked 360 lbs of crawfish, and a 300 lb pig."

Emory emergency medicine update

Phillip Shayne, MD, FACEP

Phillip Shayne, MD, FACEP
pshayne@emory.edu

Dr. Phillip Shayne is Associate Professor, Residency Director and Vice Chair for Education at Emory University School of Medicine.

EMORY UNIVERSITY SCHOOL OF MEDICINE

July 1 is the transition point for academic programs. Like every residency, we are graduating one class, on-boarding another and preparing everyone for a new set of responsibilities. The 19 interns entering the Emory Emergency Medicine program this summer represents our 36th class and will join the 400 Emory graduates who precede them. Graduation for the Class of 2010 was on June 19. These 18 newly minted ER doctors are going out to represent Emory across a broad range of practice opportunities; fellowships, academic and community. Our new interns arrive early allowing for an overlap with the graduates giving us a chance to reflect on the amazing transformation that occurs through residency – from scared medical student to confident physician. This is the vantage point which makes academic medicine wonderful.

The new Class of 2013 brings us amazing talent. We are delighted to welcome: Murtaza Akhter, Northwestern University, The Feinberg School of Medicine; Carli Blomquist, Medical College of Georgia School of Medicine; Ingrid Bloom, University of Virginia School of Medicine; Kyle Brown, University of Kansas School of Medicine-Kansas City; James Cavazuti, University of Florida College of Medicine; Kimberly Clark, Michigan State University College of Human Medicine; Robert Cochran, Howard University College of Medicine; Ashleigh Fay, Indiana University School of Medicine; Nadria Gordon, Emory University School of Medicine; Susanne Hardy, Philadelphia College of Osteopathic Medicine (Gwinnett campus); Keith Haviland, University of Massachusetts Medical School; Stephanie Hill, Northeastern Ohio Universities College of Medicine; Preyasi Kothari, State University of New York Downstate Medical Center College of Medicine; Steven Lindsey, Emory University School of Medicine; Carolyn Maher, Keck School of Medicine of the University of Southern California; Richard McCormick, Morehouse School of Medicine; Nicholas Pitts, Morehouse School of Medicine; Kathryn Seal, Medical College of Georgia School of Medicine; Ryan Stroder, Arizona College of Osteopathic Medicine of Midwestern University

We are pleased to note that we have record 10 women in the class and a record seven who come from Georgia medical schools!

We also welcomed a record class of new fellows. Fellowships at Emory can be either an advanced resident or junior faculty model. This year we have two new ACGME accredited fellows in Medical Toxicology at the Georgia Poison Control Center under Brent Morgan, and our first two Palliative Care fellows who will be based at the Atlanta VA under Tammie Quest. Non-ACGME accredited fellows include our first Education fellow, our first Ultrasound fellow, and our first Brain-Injury Research fellow. Additionally we have an EMS fellow, and an Injury Control fellow. These new recruits join our second year fellows in Toxicology, EMS and International Health.

Another big event since our last EPIC column is the kick-off of PROTECT III, under the direction of David Wright. Backed by a grant from the National Institutes of Health (NIH), the Emory-led, multicenter, randomized, double-blinded study (ProTECT III) will enroll 1,140 patients at 17 medical centers in 15 states. Atlanta's Grady Memorial Hospital will serve as the lead center, led by Emory University School of Medicine faculty researchers, in concert with colleagues from the Morehouse School of Medicine. The initial award will be for three years and a total of approximately $14.5 million, in order to demonstrate target feasibility to conduct the trial. If milestones are met during the first three years, the trial could be extended for three more years with additional funding of approximately $14 million. Finally, Emory University Department of Emergency Medicine faculty members attending the annual Society for Academic Emergency

Medical College of Georgia: emergency medicine residency update

Stephen A. Shiver, M.D., Residency Director

We are in the process of saying goodbye to a great group of seniors and welcoming a new batch of interns. Though it is often said of any graduating class, this year we can definitively say that the graduating senior class is one of the strongest classes that we have ever been privileged to have at MCG. They are outstanding academically and clinically and are in large part responsible for the fact that our program has scored in the top 10 nationally over the past two years on the ABEM in-training examination. It goes without saying that they will be sorely missed! Each of them has a bright future ahead and their future employers are indeed fortunate.

Our 2010 residency graduates and destinations:

- Sean Arbuckle, D.O.
  Panama City Beach, FL
- Eric Greenfield, D.O.
  Huntsville, AL
- Dan Kaminstein, M.D.
  Augusta, GA
- Nick Kimpel, D.O.
  Huntsville, AL
- Clint Palmer, M.D.
  Oak Ridge, TN
- Erik Stamper, D.O.
  Kansas City, MO
- Mary Ann Wilkie, M.D.
  Dothan, AL
- Daren Wooten, M.D.
  Valdosta, GA
- Wakili Yarima, M.B.B.S.
  Humble, TX

All will be entering the private practice arena except for Dr. Kaminstein who will be staying on at MCG as our ultrasound fellow. Best wishes to all!

Of note, we are planning on adding an "alumni" link to our residency homepage. The link will have the names and contact information for our graduates and we hope that it will improve communication, open up job networking opportunities, etc. We are also adding an increasing number of lectures to the website. Please visit at **www.mcg.edu/ems/residency/**.

We welcome any questions or comments you may have concerning our residency program. Our Program Coordinator, Courtney Buckner, may be reached at (706) 721-2613.

Stephen Shiver, MD, FACEP
sshiver@mail.mcg.edu

Dr. Shiver is Associate Professor of Emergency Medicine and Residency Program Director at the Medical College of Georgia. Clinical and research interests include resident education, emergency ultrasound, airway, and trauma. In addition to his emergency medicine training, he completed a general surgery residency at Wake Forest University Baptist Medical Center and is board certified by the American Board of Surgery.

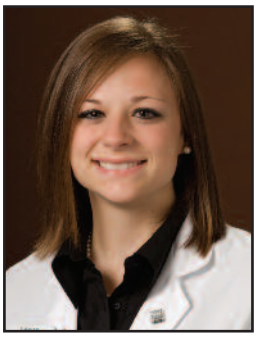
Emory: continued from previous page

Medicine (SAEM) meeting in Phoenix received recognition for numerous organizational leadership roles. Deb Houry, MD, MPH, associate professor, vice chair for research, and director of the Center for Injury Control, has been elected president-elect of the Society for Academic Emergency Medicine. Douglas Ander, MD, associate professor and assistant dean for medical education, has been elected chair of the SAEM Academy of Clerkship Directors in Emergency Medicine (CDEM). And I have been elected to the position of president, Council of Emergency Medicine Residency Directors (CORD).

"These are three outstanding examples of national emergency medicine leadership," says Katherine Heilpern, MD, chair of the Department of Emergency Medicine and past SAEM president. "The incredible thing about this is that three Emory faculty now sit at the helm of the premier research and education society for academic emergency medicine – SAEM, the premier organization representing all emergency medicine residency programs – CORD, and the premier organization representing all School of Medicine emergency medicine clerkships and medical student education initiatives – CDEM," says Heilpern. "No other program in the country has so commanded its specialty at the same point in time – this is historical."

The drug seeking "frequent flyer"

Heidi Hendricker, Medical Student; Delanor D. Doyle, MD, FACEP and Richard L. Elliott, MD, PhD



Heidi Hendricker

Heidi is a fourth year medical student at Mercer University School of Medicine in Macon, GA

Delanor D. Doyle, MD, FACEP

Dr. Doyle is medical director of Emergency services at the Medical Center of Central Georgia.

Richard L. Elliott, MD, PhD

Dr. Elliott is professor and director of Medical Ethics at Mercer University School of Medicine

Case presentation

A 35-year-old woman presented to the emergency center with chest pain that was sudden in onset, midsternal, and sharp and stabbing in quality. The patient rated her pain as "10" on a scale of 10, and stated that her pain had started after she had run out of pain medications the previous day. She was requesting pain medications, and claimed she was allergic to all non-steroidal anti-inflammatory medications and only morphine and hydrocodone were helpful. Her past medical history was significant for a pulmonary embolus (PE) and treatment for narcotic dependence. On examination, the patient was writhing in pain which was reproducible on palpation over the sternum. The remainder of the physical examination, laboratory data, and imaging studies were all unremarkable. The patient was given five Lortab pills and advised to follow-up in the outpatient clinic. Three days later, the patient returned to the emergency center with an identical history. She stated she went to the outpatient clinic but was not given pain medication (although no records of her visit were found in the computerized records). She was examined by a different physician, and, after tests returned normal again, she was sent home with opioid medications. After the patient left the emergency center, a search of old, non-computerized, hospital records revealed that, since her pulmonary embolus in 2005, the patient had been to the emergency center over 30 times, with most of her visits having the chief complaint of chest pain. She had received approximately a dozen CT angiograms and eight VQ scans, none of which showed any pathology. During these visits she also had hundreds of blood tests performed including numerous D-dimer tests and coagulation profiles, all of which were within normal limits. The patient was usually given opioid pain medication at the time she left the EC and advised to be seen as an outpatient.

Commentary

The frustration of dealing with drug-seeking behaviors in "frequent flyer" patients is well known.[1] "Frequent flyers" comprise approximately one percent of the overall population, yet are responsible for almost 18 percent of total emergency center visits and roughly 16 percent of all emergency center expenditures.[2] In California alone, such patients have incurred costs of over $20 million in emergency center visits, over $360 million in inpatient stays, and over $16 million in ambulance services. More than 1,000 of these particular patients incurred costs of over $100,000 each during the course of the year.[3] Patients at greater risk for high EC utilization include the elderly, the poor and underinsured, and those with chronic conditions.

Yet the label "frequent flyer" is not usually applied unless the patient also presents with a condition the staff consider morally unacceptable, e.g., drug seeking behavior, self-injurious behavior, or intoxication. It has been estimated that an emergency department with 75,000 patients per year can expect up to 262 monthly visits from drug-seeking patients who fabricate or exaggerate somatic complaints. Distinguish-ing drug seekers from patients who have bona fide therapeutic needs can be difficult, as with our patient who had a history of PE which can present with sudden onset chest pain. Physicians caring for such patients are then confronted with conflicting ethical duties deriving from the principles of beneficence and nonmaleficence.[4]

The primary duty under these circumstances would seem to be that of acting beneficently, to provide the best care for the patient. Thus there is a duty to provide a medical assessment proportionate to the perceived medical complaints, and, in accordance with JCAHO standards, to treat pain as a fifth vital sign.

However, this duty conflicts with the duty of nonmaleficence, to do no harm. Our patient had received several thorough examinations for identical complaints, all of which revealed no acute medical condition, and, at some point, it becomes reasonable to conclude that the next examination for the same complaint is likely also to be negative. The risks of further testing may then outweigh the benefits. For example, evidence suggests that repeated CT scans may expose patients to unacceptable risks of cancer.[5] Thus, for the assessment of a complaint identical to ones repeatedly found to be non-medical in origin, the principle of nonmaleficence becomes paramount, and, ethical-

ly, should be limited to a brief history and physical examination to determine if new clinical features are present.

The principle of non-maleficence enters also into the practice of prescribing addictive substances which, in the absence of a justifying condition, contributes to the patient's addiction.[6] There are great pressures on the ED physician to "do something" about pain, i.e., prescribe opiate pain medication, and failure to do so often brings about complaints to hospital administration and threats of suits.

Perhaps the best way of addressing these risks is to develop a policy that has administration's support (including risk management), that indicates steps to be taken when patients known to be "frequent flyers" and who exhibit drug-seeking behaviors present to the ED. Such steps might include:

1. Labeling charts of patients who meet predefined criteria for frequent presentations and drug seeking behaviors (e.g., more than six presentations in the past year, and presence of criteria associated with drug seeking).[7] The label is not punitive but indicates that scrutiny of past records might reduce unnecessary and potentially harmful invasive or radiographic procedures.

2. Performing a brief history and physical examination to determine if new clinical features are present. Invasive tests should be avoided in the absence of new clinical features.

3. Seeking a second opinion that, based on medical evidence, a condition is not present which would justify the prescription of a controlled substance, and that the risks of the medication requested outweigh the benefits. Such a second opinion may be met by prior documentation of the assessment of a similar complaint in the patient.

4. Educating the patient on the outcome of the assessment, the risks of the medication, and alternatives available.

5. Documenting the decision to withhold addicting medication and its basis.

6. Sending a letter to the patient and his/her primary care physician that, if the patient presents to the ED with similar complaints in the future, he/she will receive a screening examination, and that, if the physician believes the risk of prescribing an addictive substance outweighs the benefits, the patient will be discharged with an alternative medication (e.g., NSAID) and advised to seek outpatient follow-up.[8] This policy has been found to reduce ED presentations and thus exposure to procedures and radiation.

The presence of such a policy gives support to ED physicians who can then tell patients that their hands are tied by ED policy, which might deflect some of the anger from drug demanding patients.[1] Finally, a committee appointed by the hospital medical director to review, and presumably support, nonnarcotic approaches to caring for such patients may identify additional resources available as alternatives when confronted by the drug-seeking frequent flyer.[9]

Commentary from Dr. Doyle

While I agree with much of what is written above, and no doubt many harried ER physicians will say "Amen" I have several concerns. It is tempting, in our frustration, to append the label "frequent flyer" on the records, and thus the patients, but the risks of doing so must be recognized. Patients such as those described are probably at greater risk of developing serious medical conditions due to risky behaviors such as drug abuse, and due also to iatrogenic complications from excessive medical interventions. Thus the screening examination must be thorough enough not to miss such conditions. Even the "boy who cried wolf" eventually got sick and may have needed narcotic treatment for pain relief. Further, to deny such patients narcotics is not to eliminate risks, but substitutes another set of possible complications, e.g., adverse effects of NSAIDS on the kidney. Finally, the notion of a "justifying condition" is problematic, as pain is subjective and there is little agreement on what would constitute a justifying condition. Our care of such potentially frustrating patients must be tempered always with compassion and with sound medical judgment.

We would be very glad to hear from other approaches to these challenging patients.

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Hospital Spotlight: Emanuel Medical Center

Harry Wingate, MD, FACEP

Harry Wingate, MD, FACEP
wingateh@bellsouth.net

Dr. Wingate is currently Medical Director for four GA EDs (Burke Medical Center, Jefferson Hospital, McDuffie Regional Medical Center, and Elbert Memorial Hospital), Chair of ACEP Section of Rural Emergency Medicine, Regional Director for EPS (Division of EmCare) and Board member of Georgia College of Emergency Physicians.

Emanuel Medical Center (EMC) is a 72-bed acute care hospital and a 49-bed skilled care nursing home located in Swainsboro, Georgia. EMC is typical of the 80+ rural hospitals in Georgia to serve a critical role in meeting the needs of over one million residents. The hospital has one general surgeon and about six active staff primary care physicians. The Emergency department sees approximately 12,000 visits per year with 24-hour single coverage along with two nurses (RNs and LPNs) and one clerk. The transfer rate is less than 3% (typical of rural EDs). The Emergency physicians have a diverse training background from family practice to surgery but none are emergency medicine residency trained. Emergency physicians are required to have emergency medicine experience, ATLS, PALS and be ACLS certified. Practice management services are provided by EmCare Physician Services.

Trauma Training Outreach to Rural Georgia

On April 23 Emanuel Medical Center (EMC) ED staff and EMS personnel participated in the First Rural Trauma Team Development Course (RTTDC) to be given in Georgia. The course was developed by the American College of Surgeons specifically to standardize the approach to the care of the major trauma patient in rural America. Emanuel was chosen as the first site to conduct the course largely through the visionary and persistent efforts of Courtney Terwilliger, director of Emanuel County EMS and in collaboration with Debra Kitchens, RN from the Medical College of Central Georgia (MCCG) in Macon and Regina Madieros, RN from the Medical College of Georgia (MCG).

The course was a big success with over 20 EMC staff attending as well as observers from nearby counties. The course featured teamwork training that is very much needed not only in rural EMs but throughout hospital based medicine. The emphasis on best practices allows us to anticipate the ABCDE assessment steps and to deliver care efficiently while minimizing conflict which can jeopardize patient safety. The day long course was conducted by trauma and emergency medicine faculty from MCG.

Topics covered included: regional and local trauma resources, ABCDE of the Primary Survey, transfer decision algorithm (goal for transfer decision making time is less than 15 minutes after arrival) and the secondary survey if time permits. Performance improvement done in a professional manner for the advancement of learning was emphasized as one of the hall-

marks of a successful program. The afternoon sessions covered team-based learning on IV access, airway management and putting it all together with a moulage simulated major trauma cases.

This is the type of cost effective training that will make a difference in the outcomes for our trauma patients in rural Georgia. Our staff are trained on the principles of trauma care from diverse courses, (i.e. TNCC (nurses), ATLS (physicians) and PHTLS (EMTs) and there are conflicts as well as differing priorities. For some of our nursing staff this was their first formal trauma training of any kind. GCEP and the EMS Region Councils should encourage Georgia Trauma Care Committee to be a part of making this sort of training widely available throughout the State of Georgia. For more information on the RTTDC, go to **www.facs.org/trauma/rttdc**.

Dr. Wingate Finalist for EmCare's Commitment to Care Award

EmCare, a leading provider of facility based physician services recognized Dr. Harry Wingate as a finalist for the Commitment to Care Award.

The Commitment to Care award is presented annually to one of the nearly 4,300 EmCare-affiliated physicians nationwide. The winner is determined based on his or her ability to personify the company's values of commitment, compassion, community service and excellence in patient care.

EMTALA refresher: the capacity and capability yardstick

Joel Moll, MD, FACEP

Joel Moll, MD, FACEP
jlmoll@emory.edu

Dr. Moll is assistant professor and director of Academic and Clinical Integration in the Department of Medicine at Emory University School of Medicine in Atlanta.

I am not a lawyer. But I know a few words attorney's like about the Emergency Medical and Active Labor Act (EMTALA)- capacity and capability. You should know those words too. EMTALA is a subject, like many in the government alphabet soup mix, that can make emergency physicians cringe and at times seem mysterious. However it is basic to the operation of our emergency departments and can empower us to advocate for the patient at critical moments in their care. Therefore at least a basic understanding of the elements of EMTALA is essential for anyone providing emergency care.

Despite the politics and opinions surrounding recent debates on health care reform, the government has been involved in healthcare for decades. In 1946 the congress passed the Hill-Burton Act which was designed to provide federal grants and loans to hospitals to improve hospital systems. In exchange for coveted federal dollars, hospitals who accepted these funds were required to not discriminate, provide charity care, and provide some assurance of financial viability. Over subsequent years this was further defined by court proceedings and additional regulation, including consequences to violating these requirements, but it provided the basis for what was to come.

In the early 1980's several financial stressors affected hospitals that challenged their ability to provide unfunded care. With economic recession a significant increase in the number of uninsured occurred, changes in Medicaid reduced enrollment, and in 1983 a Social Security Amendment created Diagnosis-related groups (DRG's) that set reimbursement for a diagnosis at a set amount and hospitals were thus penalized not rewarded for long stays of Medicare patients. These factors, combined with several well publicized events of diversion of patients due to lack of insurance led to a perception that there was a "patient dumping" crisis in the United States. Visions of ambulances circling around searching for a hospital who would accept a dying uninsured patient or a laboring mother were in some minds. This was the setting in which EMTALA was born. In 1986 the late Senator Edward Kennedy stated "We cannot allow a health care system as advanced as ours to provide emergency care to only those who can pay. This amendment will ensure that hospitals live up to their fundamental responsibilities to the public." As part of the Consolidated Omnibus Budget Reconciliation Act (COBRA) of that year the Emergency Medical Treatment and Active Labor Act was passed into law and signed by President Reagan.

As part of COBRA, EMTALA falls squarely under Title IX Medicare and Medicaid funding. The implications of this are noteworthy in that it, like Hill-Burton in the past, it only applies to facilities that accept the government funding which is tied to the rules. In this case participation in the Medicare and Medicaid program. However if the hospital participates in Medicare, EMTALA must be applied to ALL patients regardless of whether they individually are in the Medicare or Medicaid program. Non-participating institutions and federal agencies like the Veterans Administration are in general exempted from EMTALA. As a practicality, most hospitals and providers in the United States could not be economically viable without participating in Medicare. Almost half of all ED visits are funded by Medicare or Medicaid and Medicare enrollment is projected to grow substantially with baby boomer enrollment. EMTALA's reach is therefore almost universal in terms of regulation and enforcement. Litigation and additional regulations have further defined EMTALA since its inception, and many states have passed legislation similar to EMTALA.

EMTALA's provisions can be broken down into the Medical Screening Exam

(MSE), Stabilization and Treatment of an Emergency Medical Condition, and Transfer if necessary. If a hospital has an emergency department, a Medical Screening Exam must be provided to all patients who come to the ED to determine if they have an emergency medical condition. EMTALA defines an ED as "a specially equipped and staffed area of the hospital used a significant portion of the time for initial evaluation and treatment of outpatients for emergency medical conditions." As such other areas of the hospital may be considered under EMTALA as emergency departments including Labor and Delivery, and Psychiatric intake units. In general EMTALA considers coming to the ED as anywhere on hospital campus. Patients must request treatment for this requirement to apply. This request can be made by the patient, family, friend, bystanders, or prudent layperson assumption of nonverbal cues. The medical screening exam is not defined rigidly as to what it must include but its general requirement is that it must be uniform, nondiscriminatory, and sufficient to reasonable reveal an emergent medical condition. MSE may vary based on condition and past history and with regard to capabilities of ED, both personnel and physical. A medical screening exam can be performed by any individual who has been determined qualified by the hospital bylaws or rules and regulations. It is not required that this be a physician. EMTALA makes it clear that triage, defined as the sorting of patients in what order to be seen, is not sufficient alone to provide a medical screening exam. Some institutions have replaced triage by performing medical screening exams instead. This is allowed under EMTALA as long as it meets the basic requirements and again is uniform, nondiscriminatory, of sufficient breadth to detect the presence of a emergency medical condition, and does not include payer information. Hospitals may not delay required screening or treatment of an emergency condition in order to inquire about method of payment or insurance. But hospitals may continue to follow reasonable registration processes in order to obtain demographics, including insurance information, as long as it doesn't impede delivery of treatment and individuals to whom the procedures apply are treated similarly. The ultimate goal is to determine whether an emergency medical condition exists, defined as "a patient with acute symptoms of sufficient severity (including severe pain) that the absence of immediate medical attention could reasonably be expected to result in placing the individual's health in serious jeopardy, serious impairment to bodily functions, or serious dysfunction of any body organ or part." If no emergency condition exists, EMTALA ends. If an emergency medical condition exists the next requirement is Treatment and Stabilization.

If an emergency medical condition exists and the hospital has active knowledge of it, the hospital must provide treatment and stabilization within its capability or transfer the patient appropriately. Under EMTALA "stabilized means, with respect to an emergency medical condition, that no material deterioration of the condition is likely, within reasonable medical probability, to result from or occur during the transfer of an individual from a facility, or with respect to an emergency medical condition that the woman has delivered (including placenta)." Once the patient's condition has been stabilized by the EMTALA definition, no further obligations apply under federal law. EMTALA mandates that every hospital must provide on call physicians to the ED if the specialty is normally available to the hospital, and that their response to the ED is timely. This is often additionally guided by the hospital bylaws. This aspect of EMTALA is an asset to emergency physicians as it includes hospital consultants in the stabilization and treatment requirements of EMTALA. However once the emergency medical condition no longer exists under EMTALA, consultants have no obligation to see a patient unless required to do so by staff bylaws. Often consultants will request patients sent to their office. If an emergency medical condition exists this should not be done for convenience but may be appropriate for specialty care where equipment is not available in the ED.

If a patient is unable to be stabilized within the capability of the hospital and its personnel, the patient has the right to an appropriate Transfer. The need for transfer is determined by the treating provider who has seen and evaluated the patient, not the accepting physician at a specialty hospital. The patient must request and consent to transfer after being informed both of risk and hospital's obligations under EMTALA to provide additional exam and treatment. A hospital with specialized capabilities may not refuse to accept an appropriate transfer of an individual who requires such specialized capabilities if the hospital has capacity to treat the individual. If you are at a hospital with specialized capabilities and deny a transfer due to lack of capability or capacity this should be carefully documented. If accepted, the provider should secure the name of the accepting physician and hospital, complete transfer certification indicating the benefits of transfer outweigh the risks, provide copies of records, and determine the method of transport for the patient. In general the transferring provider is responsible for the patient during transport. A "qualified medical person" may sign the certification after consultation with a physician, however a physician must eventually countersign certification.

EMTALA no longer applies once the patient no longer has an emergency medical condition. In the case of laboring mothers this is the delivery of the baby and placenta. For psychiatric patients once the patient is prevented from

self harm. Courts have determined that the mere admission of a patient to an inpatient unit does not end the hospital's obligation under EMTALA. Violation of EMTALA risks fines, civil litigation, and participation as a Medicare provider. Clearly the later is the more ominous and concerning to hospital administrators whose facility's viability may depend on Medicare and Medicaid funding. As emergency physicians our ability to find employment would likely be irrevocably terminated in most settings if we were unable to participate in Medicare. This most stringent penalty is very rare. More common are fines against hospitals or providers, up to $50,000 in the latter. These fines may not be covered by the hospital or provider's malpractice insurance. Civil litigation can be filed against hospitals and is filed in federal courts, unlike malpractice which is a state civil tort and may be filed against the hospital and/or provider. EMTALA mandates the reporting of violations for both self and others. Because any transfer beyond the offending one may be reviewed under an EMTALA investigation, many institutions have a process in place to investigate prior to filing a complaint to determine its legitimacy.

One of the major criticisms of EMTALA is it being an unfunded mandate from the federal government since it requires patients who present to the ED requesting treatment to at minimum receive a medical screening exam, and often receive additional stabilizing treatment with no compensation to the hospital or provider for doing so. The Medicare Prescription Drug Act of 2007 did provide $250 million per year for payments to providers of health care to undocumented aliens. However future financial compensation is uncertain. Many also argue that physician's are acting as an agent of the federal government and thus should have sovereign immunity from medical malpractice suits. In Georgia this is recognized by the higher burden of negligence required for claims under EMTALA care, however other state's legislative attempts have had mixed success.

EMTALA is a fact of life for emergency physicians, and affects many aspects of hospital operations even beyond the ED. Understanding key components of Medical Screening Exam, Stabilization and Treatment if an emergency medical condition is found, and appropriate transfer when need outweigh risk and the facilities capabilities are exhausted are essential concepts for every emergency provider. Applying the yardstick of capability and capacity will not only make the lawyers happy, but will guide you in most EMTALA decisions.

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Dead emergency medicine resident running: finding balance while training

Jonathan Heidt, MD

Are you as excited about going to work today as you were on your first day as an intern? When we start residency, we are filled with an incredible amount of energy, involvement, and engagement; however, it seems that for many of us this excitement tends to fade and may be replaced by exhaustion and cynicism. This process does not happen all of a sudden, but is a gradual and insidious process that may take over if we are not aware.

The main culprit in this transition is frequently erosion in the balance in our lives. As physicians, we are trained in a manner that leads almost inevitably to this loss of balance. It is vital to be aware of this transition in order to avoid irreversible consequences. The *ACEP Wellness Book* has a chapter on burnout, which highlights several reasons while physicians are at such great risk for this transformation:

1. Medicine monopolizes our whole identity
2. Establishment of an overdeveloped sense of responsibility
3. Feeling entitlement to respect
4. Expectations not to display vulnerability including sadness
5. Work intensity
6. Disruption of circadian rhythms

The transition from medical school to residency is a time of great excitement and trepidation. As you progress through residency, however, have you noticed a change in your personality or in the personality of your colleagues? As we lose balance in our lives, our personal relationships begin to suffer. One common complaint that residents have is that they miss the time they spent socially with their fellow residents. Instead of viewing their classmates as friends, they begin to see others with mistrust for "using sick call too much" or "refusing to help out by trading that shift."

For residents with families, the relationship with their spouse is also frequently stressed. While you may view the amount of time you spend on residency activities as being your responsibility and commitment towards personal success, your spouse may feel that you have placed work as a priority over family life. The loss of balance in our lives also leads to erosion in our performance at work. As interest in work declines, so goes our performance – no matter the time spent on work activities. The attraction we once felt for residency may be replaced by avoidance, isolation, and dread of working another shift.

What are the consequences of not properly balancing your life? For many residents the answer may be simply a loss of enjoyment in their work. For other residents, more irreversible outcomes such as divorce or inability to complete residency may result. Other residents may turn to alcohol or substance abuse as a means to manage their stress.

Once you recognize that balance has been lost, what should you do? First, it is important to recognize that there are multiple areas in life that require attention:

1. Physical balance – i.e., stay in shape! Physical fatigue can lead to mental and emotional fatigue.
2. Relationship balance – connect with old friends with whom you lost touch during the marathon of your

Resident Life: continues on page 28

Jonathan Heidt, MD
heidtj@wusm.wustl.edu

Dr. Heidt is director-at-large at Washington University, St. Louis, MO

We are given the incredible privilege and responsibility of helping patients when they are at their sickest, but in order to provide the best possible care, we must first be healthy and content.

Apple of my eye

Angela Mattke, MD, FACEP

Angela Mattke, MD, FACEP
amattke@gcep.org

Dr. Mattke is an attending physician at Rockdale Hospital and a member of the GCEP Board of Directors.

You have to understand—I have been a conscientious objector staging my own quiet campaign against Steve Jobs, CEO of Apple. When I was in medical school the Macintosh program, which everyone SWORE was compatible with my PowerPoint presentation over which I had labored to produce a riveting lecture for the Neurosurgery in-service on robotics in Medicine, ate my presentation. Grrrrrr. I would have cheerfully strangled Mr. Jobs with a mouse cord. Then Pixar came along with some of my favorite movies of all time, and my heart began to soften. Macs became cuter and sexier, though they remained expensive and though I cast an occasional appreciative glance at the curves and bright colors, I remained steadfastly a PC person. I loved the modular quality of my PCs and usually did my own maintenance (I am still the Tech Support in our house). Apple had iTunes, a proprietary interface that grated against my do-it-yourselfedness. Then came the iPowner- iPhone. Its meteoric rise caught my attention. Sleek, smooth, and it had all that screen real estate! Tragically, though, it was only available on AT&T. I didn't want to change to a new carrier, and hacking the iPhone to use on T-Mobile seemed more trouble than it was worth. I made do with other phones that I liked well enough, and I was happy. Then a sexy beast arrived on the scene.

The name was terrible—iPad sounded like a feminine hygiene product, and it was nothing more than a glorified iTouch. Or so I thought. I researched, and read one article after another, though took each with a healthy dollop of sodium since the reviewers were usually dazzled by shiny objects of every kind. I heard murmurings that it would revolutionize the notebook, but I did not believe it. So one morning after a particularly rough night shift, I decided to see what all of the fuss was about. I hadn't gotten a decent gadget in a long time.

It was beautiful. Smooth. Clean. The screen was bright, crisp, and the whole thing felt right in the hands. Not too heavy, not too light. Whoa.

Do you remember when the Grinch from the cartoon realized the true meaning of Christmas and his heart grew ten sizes to break open the screen that showed the shriveled thing? The WANT did that in my brain when the sales guy showed me more than I realized was possible. It wouldn't replace my laptop, but it would become my constant companion. I am not ashamed to reveal that I sleep with it.

So for those who are contemplating joining the iCult of iPad, here is a rundown of some of my current favorite apps, in no particular order:

1) Medscape – free, just like the iPhone version, only bigger screen. Lists drugs, interactions, diseases, and procedures

2) ePocrates – free, same as every other ePocrates. Useful drug information

3) MedCalc – free, Medical calculator. Just like it sounds

4) Medical Spanish – Batoul Apps, $4.99. Very good medical Spanish app. It talks!

5) PubMed on Tap – free, easy access to PubMed

6) ECG Book – free, ECG tutorial

7) Facebook – free, rapid access to FB, but no live chat available on the free app (there is a paid app that will do that)

8) Pandora – free, streaming internet radio

9) Netflix – free, app with subscription to the service, and movies that are marked "Watch Now" can be watched on the iPad with internet connection

10) Beat the Traffic – free, and indispensible in Atlanta, where we have actually had a live zebra running on the interstate. I am not making that up. Also helpful for avoiding the bison hazards.

11) iSpy – free, webcam app for those of us with voyeuristic tendencies. Nothing too racy here, but beautiful views from webcams of Red Square, Lyon, Tokyo, etc.

12) Various news outlets, all free, including *WSJ, AP, USA Today, Newsy, NewsPro (Reuters), Bloomberg, BBC News*, etc.

13) StarWalk for iPad – $4.99, my favorite astronomy program. Hold overhead and it will switch to a live view of the skies.

14) iBooks and Free Books – both free, but Free Books is ALL free, and iBooks is a free reader for books that you purchase.

15) The Elements – $13.99, totally worth it for the song alone, but brings the periodic table to life in an eye-popping display. This above all others shows the potential of textbooks on the iPad.

16) Pocket Pond – free, Koi pond. Weird, but cool.

There are hundreds more, and I am sure you will find your own personal favorites. None of these programs include movies (available for rent or own, for a fee, of course) or Podcasts, which have become my new guilty pleasure. My current favorite is Skeptoid, a skeptical look at pop culture. ACEP, EM:Rap, and Annals of Emergency Medicine have podcasts, as do many of the specialist societies. QuackCast deals with medical matters in a gratifyingly snarky fashion. There are many choices, and your mileage may vary.

These are but a few of my favorite things. iPad does all the usual email, pictures, web browsing, and contacts, and it does them beautifully. It doesn't do Flash video, so some web pages won't look right. Another of my favorite things is that my calendar automatically pushes with a subscription to Mobile Me. I can change my schedule on the iPad and it updates my online "cloud", which then automatically updates my PCs. Yes, I still have them. Still a PC person at heart, I still have room for other loves. And you can have my iPad when you pry it out of my sleep-deprived hands.

Resident Life: continued

training. Refocus your attention to your family, including your spouse. Our family members are usually our greatest supporters, and it is important to show them that appreciation.

3. Community balance – remember that there is a world outside of the hospital. Be involved with groups outside of the hospital. Be involved with volunteer activities, church groups, hobbies, etc.
4. Work balance – work towards being the best possible physician you can become, but remember there is a limit to the amount of work that one person can reasonably accomplish.

Residency is a time of great excitement and development. We are given the incredible privilege and responsibility of helping patients when they are at their sickest, but In order to provide the best possible care, we must first be healthy and content.

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Posterior myocardial infarction

Stephen A. Shiver, MD, FACEP
Ben Holton, MD, FACEP

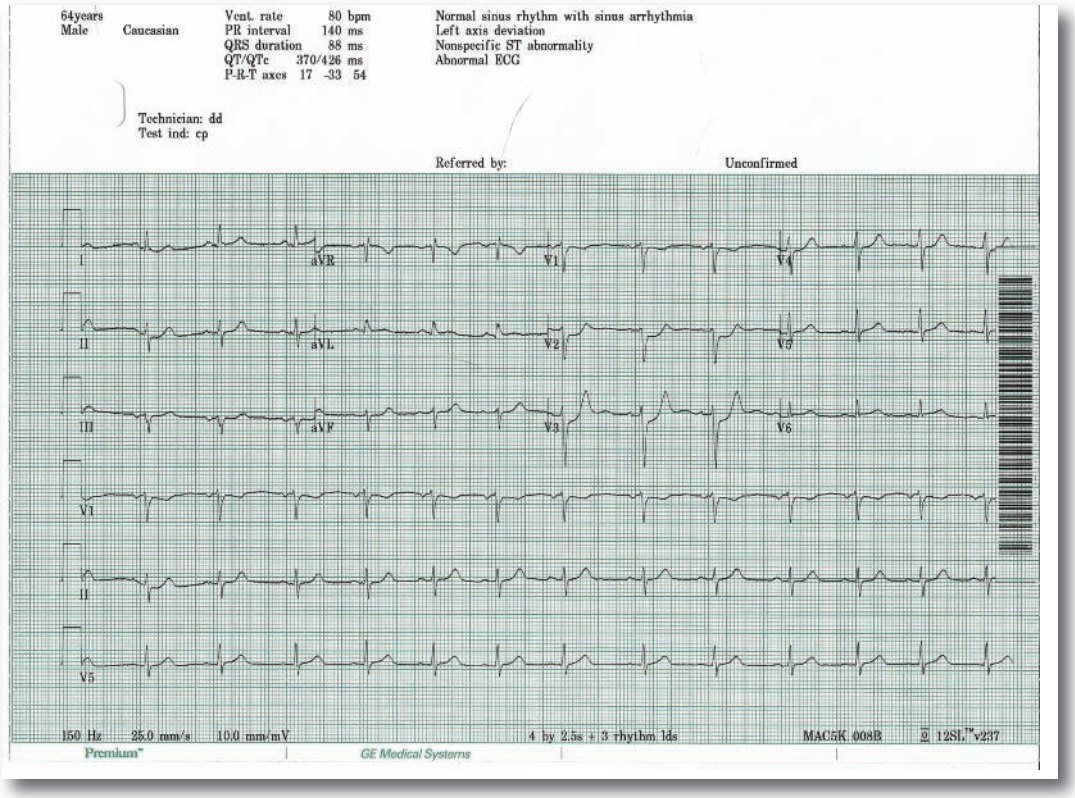
Stephen Shiver, MD, FACEP
sshiver@mail.mcg.edu

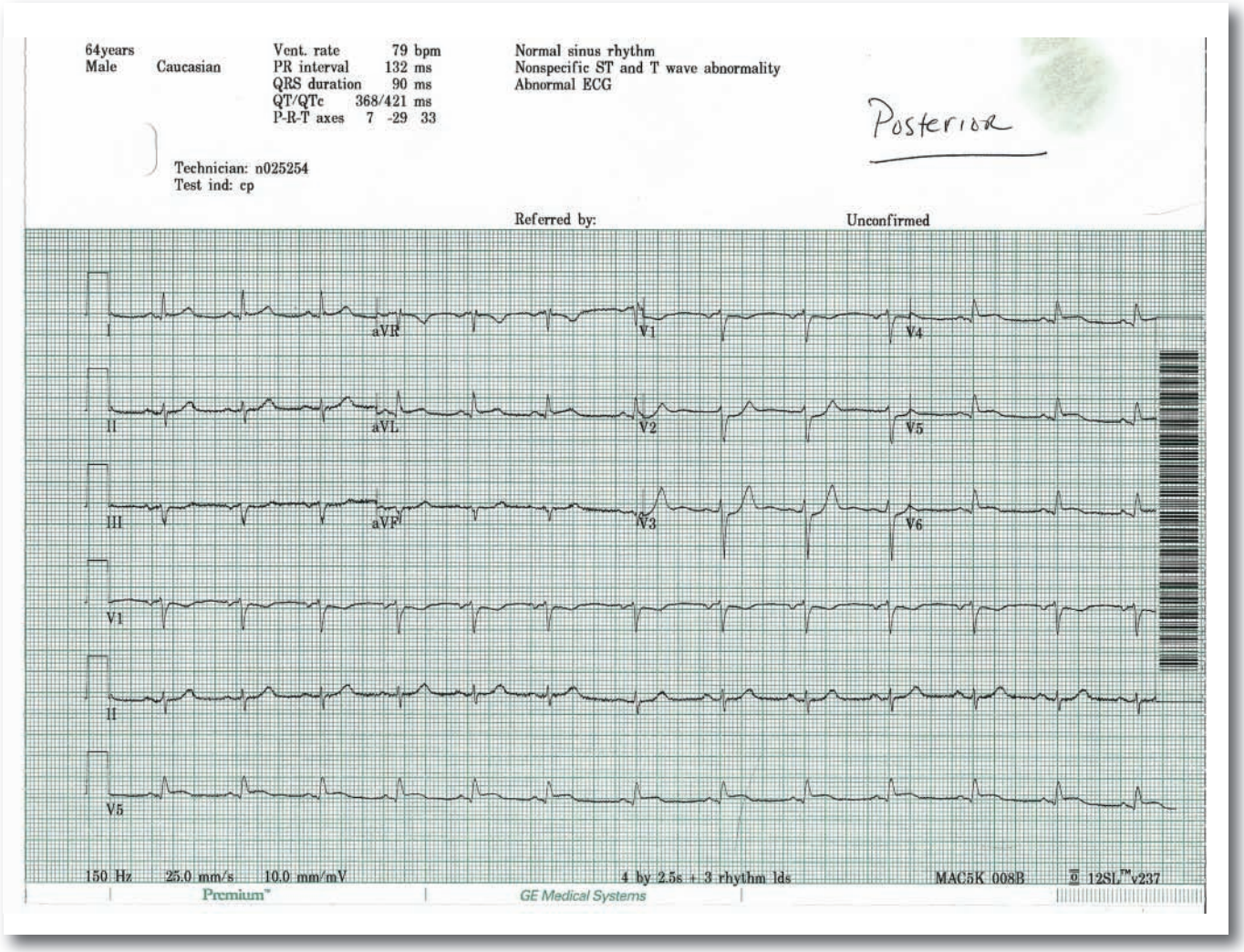
Dr. Shiver is Associate Professor of Emergency Medicine and Residency Program Director at the Medical College of Georgia. Clinical and research interests include resident education, emergency ultrasound, airway, and trauma. In addition to his emergency medicine training, he completed a general surgery residency at Wake Forest University Baptist Medical Center and is board certified by the American Board of Surgery.

Ben Holton, MD, FACEP
bholton@emory.edu

Dr. Ben Holton is a graduate of Vanderbilt University and Emory University Medical School, conducted residency at Carolinas Medical Center in Charlotte, NC, and is on faculty at Emory in the Dept. of Emergency Medicine since 1993. Currently serves as a Society Mentor to medical students under Emory Medical School's new comprehensive redesign of its undergraduate medical education curriculum.

Mr. T, a 64-year-old male with a history of diabetes and high blood pressure, presented to the emergency department with a complaint of chest discomfort. His symptoms began initially three days ago. He described feeling like he had indigestion, with a burning and pressure sensation in his throat. He took Tums and his symptoms eased somewhat. The symptoms resolved spontaneously later that first day. The next day he didn't feel well in general, but had no specific symptoms. One day prior to coming to the emergency department he felt well. However, several hours before coming to the emergency department, his discomfort came back. Again he describes it as indigestion, with a burning/pressure sensation in his throat. Tums did not improve the pain this time. Sitting up did seem to help. He has had no associated shortness of breath, but did feel "hot" with the pain. He had no associated nausea. He has never had discomfort like this before. At the time of initial evaluation in the ED his discomfort had subsided. His past medical history is significant for diabetes, hypertension, and glaucoma. His medications include metformin and lisinopril. He does not smoke but does drink 4-5 drinks a day. Family history is negative for heart problems, but positive for hypertension and stroke. His initial vital signs included a temperature of 36.3, respiratory rate of 14, heart rate of 83, and blood pressure of 105/69. On exam he was well appearing, not in distress. His lungs were clear, and his heart exam showed normal hearts sounds, with no murmurs, rubs or gallops. He had no JVD, and his pulses were present and equal in all four extremities. He had no peripheral edema. His abdominal exam was benign. His initial EKG showed the following:





Discussion:

Mr. T's initial EKG shows a normal sinus rhythm with a rate of 80 with sinus arrhythmia(seen in the rhythm strips as a repeating pattern of slower then faster rate). His axis is -33 degrees, suggesting a slight left axis deviation (QRS is positive in lead I, but negative in leads AvF and II). His intervals are all normal. His ST segments show depression in leads V1 through V3, suggestive of anterior ischemia. However, ST depression in these leads can also be consistent with posterior infarction, particularly when combined with an upright T wave, as in this EKG. Also of concern, the T waves in these leads are symmetric, and symmetric T waves are indicative of ischemia or infarction. There are also small R waves in V2 and V3, which could a mirror image of a posterior Q wave. Another EKG was done with posterior leads (V4, V5, and V6 moved to the left side of the back, see figure above).

Of note, in this EKG you can see small ST elevations in the posterior leads (V4-V6). There are also small Q waves present. This EKG is strong evidence that the patient is having an acute posterior MI. His initial cardiac enzymes came back with a CKMB of 30 with a normal total CPK, and a troponin-I of 1.33. Mr. T underwent emergent cardiac catheterization, which showed an 80% stenosis in his mid left circumflex, and 90% stenosis in the OM2 branch. He also has a 90% stenosis in a non-dominant RCA. Two stents were placed during the catheterization.

Posterior MI is usually caused by stenosis in the circumflex artery. Less commonly it is caused by stenosis in the RCA. Classic EKG criteria for posterior MI include ST-segment depression in leads V1-3, prominent R wave in the same leads, R to S ratio greater than 1 in lead V2, prominent upright T wave in leads V1-3, combination of horizontal ST depression and upright T wave in leads V1-3, ST elevation in posterior leads. Posterior MI often accompanies an inferior or lateral wall MI and indicates a larger area of myocardium is involved. This patient displayed the classic findings of horizontal ST depression, with prominent upright T waves in leads V1-3. He did not have the prominent R wave or R/S ratio > 1 in lead V2. Posterior leads did show ST elevation of at least 1 mm. Catheterization confirmed a circumflex lesion, as well as a RCA lesion. The patient did well after stent placement and was discharged home the next day.

The evaluation of shock using bedside ultrasound

Mary Ann Edens, MD, FACEP and Matt Lyon, MD, FACEP

Mary Ann Edens, MD, FACEP
maedens@bellsouth.net

Dr. Edens is an Assistant Professor of Emergency Medicine at Emory University School of Medicine. She serves as the Director of Emergency Ultrasound Services. She will soon be moving to Shreveport, Louisiana to become the Associate Residency Director and Ultrasound Director for the Emergency Medicine Program at LSU-Shreveport. Dr. Edens has coauthored several ultrasound chapters in Adams' Emergency Medicine.

Matt Lyon, MD, FACEP
mlyon@gcep.org

Dr. Lyon is associate professor of Emergency Medicine at the Medical College of Georgia. He serves as the director of the Section of Emergency and Clinical Ultrasound as well as the director of the Emergency Department Observation Unit. He has significant educational experience, lecturing both nationally and internationally, and has published over 30 peer-reviewed articles on the use of ultrasound in clinical practice.

Bedside ultrasound can be particularly useful in hypotensive patients by quickly classifying the type of shock present, determining the etiology, and guiding therapy. At the GCEP Annual Conference, the ultrasound workshop focused on the use of bedside, clinician-performed ultrasound in the evaluation of the hypotensive patients.

As discussed in a previous *EPIC* article, the inferior vena cava (IVC) can be used as a marker of central venous pressure (CVP). CVP reflects the amount of blood returning to the heart and the ability of the heart to pump the blood into the arterial system. Measurement of the IVC by ultrasound is simple. The probe is placed in the subxiphoid position and rotated to an axial position over to the IVC (see figure 1). The IVC is visualized posterior to the liver as it crosses the diaphragm and joins with the right atrium. Normally, the IVC collapses with inspiration as blood is drawn into the right atrium (the thoracic pump) and dilates during expiration (see figure 1). As CVP increases, the normal collapsibility of the IVC decreases and the size of the IVC approaches its maximum diameter, approximately 2.5 to 3 cm. When the CVP decreases, the IVC diameter decreases and the collapsibility increases. There are several measurements you can use to evaluate the IVC diameter, however, in most situations, gestalt measurements of IVC collapsibility are more than adequate (see table 1).

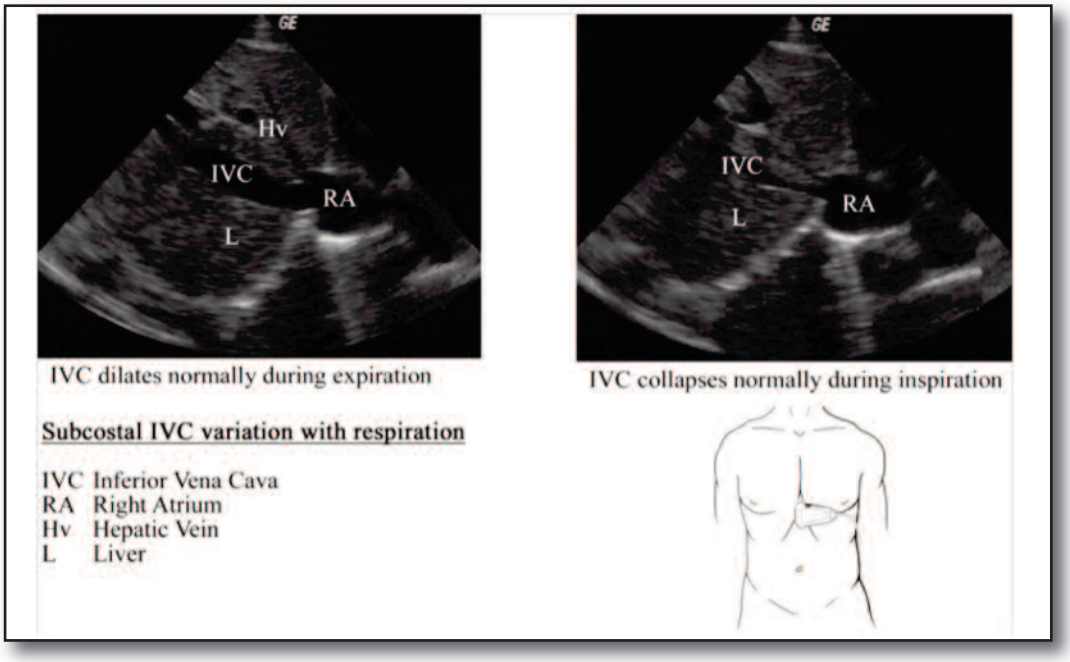


Figure 1: Subcostal IVC Window

IVC expiration	IVC inspiration	CVP (approximate pressure cm H20)
Small/Slit like	Complete Collapse	Very Low (0-4)
Small to normal size	Collapses completely	Low (4-8)
Normal size	Collapses 25 to 75%	Normal (8-12)
Large (approaching 20-25 mm)	Collapses <25%	High (12-18)
Large (maximum size)	No Collapse	Very High (>18 to 20)

Table 1: Approximate Correlation of IVC Diameter to CVP

With some exceptions, the CVP is a good approximation of right atrial pressure, right ventricular end diastolic volume, and circulating blood volume. Thus, measurement of the CVP is a natural starting point in the determination of the type of shock (see table 2).

In order to identify the cause of shock, it is necessary to determine gross cardiac function. The subcostal view of the heart often provides the quickest view of the heart. To obtain the subcostal view of the heart, the ultrasound probe is rotated from an axial direction to a subcostal transverse direction. Figure 2 demonstrates probe position and expected cardiac structures demonstrated by ultrasound. A gross qualitative function of the left ventricle can be estimated by visualizing the endocardial boarder during systole and diastole. A collapse greater than 55 % should be considered hyperdynamic and a collapse less than 45% should be considered hypodynamic. Bedside ultrasound can quickly guide the resuscitation of the hypotensive emergency patient by correlating history, left ventricular cardiac function, and inferior vena cava size/collapsibility. Table 2 explains how these variables change with various shock states. Incorporation of these skills into clinical practice requires both a cognitive as well as skill components. Future *EPIC* articles will further explore the use of this technique.

IVC	CVP	Other Findings	Potential Cause
Small, Complete Collapse	Low	Hx. Vomiting/Diarrhea Hyperdynamic LV	Dehydration
Small, Complete Collapse	Low	Hx. Trauma Positive FAST	Hemorrhage
Small, Complete Collapse	Low	Hx. Fever Hyperdynamic LV	Septic Shock
Dilated, Little Collapse	High	Hx. Pericardial Effusion	Pericardial Tamponade
Dilated, Little Collapse	High	Hx. Chest Pain Hypodynamic LV	Cardiogenic Shock
Dilated,Little Collapse	High	Hx. Acute Dyspnea Dilated RV/RA	Massive PE
Dilated, Little Collapse	High	Hx. ESRD	Volume Overload

Table 2. Correlation of IVC and bedside cardiac exam with potential shock state

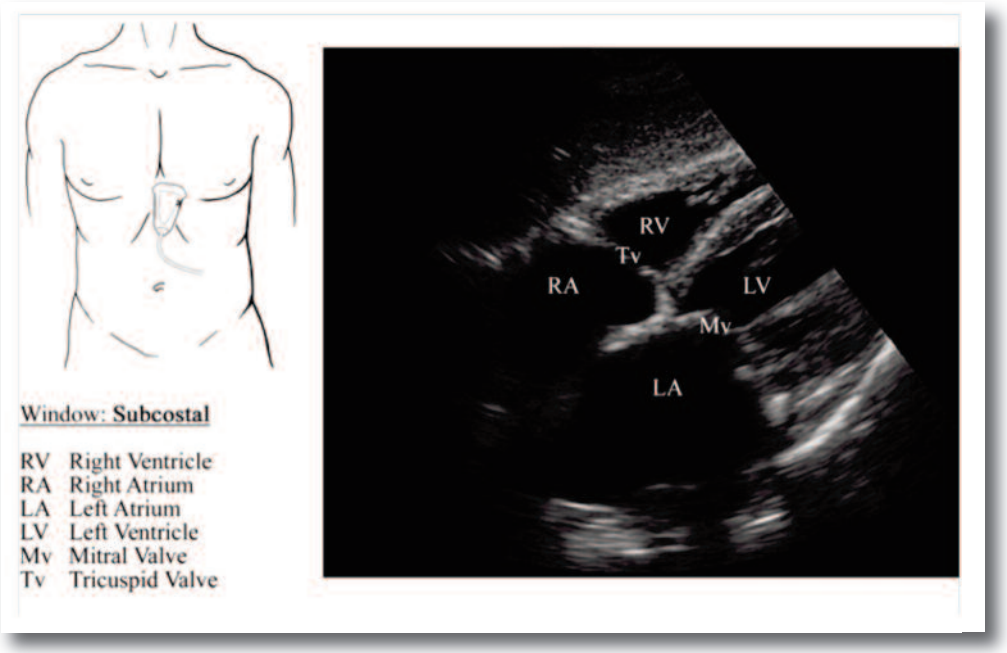


Figure 2. Subcostal Cardiac Window

Focus On: Acute ischemic stroke

Amer Aldeen, MD, Matthew Pirotte, MD and Robert C. Solomon, MD

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CME Available – 1 Hour for $10

Dr. Aldeen is an assistant professor and the assistant residency director in the department of emergency medicine at Northwestern University Feinberg School of Medicine.

Dr. Pirotte is a second-year resident in the department of emergency medicine at Northwestern University Feinberg School of Medicine.

Medical Editor Dr. Robert C. Solomon is an attending emergency physician at Trinity Health System in Steubenville, Ohio, and clinical assistant professor of emergency medicine at the West Virginia School of Osteopathic Medicine.

Learning Objectives

After reading this article, the physician should be able to:

- Identify the management steps in treating patients suspected of having AIS.
- Understand the complex issues that determine appropriate candidates to receive thrombolysis.
- Understand the risks of using rTPA

Acute ischemic stroke (AIS) is defined as permanent brain injury secondary to disruption of blood flow. The incidence of AIS is approximately 700,000 per year, with about 61,000 deaths.[1] Although care of the patient with AIS begins with the public (recognition) and EMS (expeditious transport), the formal evaluation and treatment of AIS occur in the emergency department.[2] The only approved acute pharmacologic intervention for AIS, intravenous alteplase (rTPA), is unique in the emergency department because of its extremely narrow temporal window and strict contraindications.[3] It has been estimated that just 3%-8% of eligible patients with AIS receive rTPA.[4] Because of the potential for benefit from this therapy for AIS, the emergency physician must be competent in clinical recognition, rapid initial management, and specialist consultation early in the diagnostic and treatment process.

Pathogenesis and Etiology

Anything that disrupts the flow of blood to the brain may cause a stroke. Common causes include large vessel atherosclerosis, small vessel disease, and cardioembolic events. More rare causes of stroke include arterial dissection, vasculopathies, hypercoagulable states, hematologic conditions that increase blood viscosity, and septic emboli. Up to 40% of all strokes are cryptogenic.[5]

When blood flow to areas of the brain is reduced, neurons begin to die via direct starvation from lack of glucose, failure of ATP production, membrane depolarization, rises in intracellular calcium, and free radical production. Rising synaptic glutamate concentrations also promote elevations in intracellular calcium levels. Membranes degrade, mitochondria break down, and the cellular cytoskeleton fails.[6]

As with other emergency diagnoses that focus on arterial obstruction, such as acute myocardial infarction and gonadal torsion, "time is tissue."[7] Saver quantified this concept with respect to AIS: Every minute of large-vessel brain ischemia results in the death of 1.9 million neurons and 14 billion synapses. Furthermore, the rate of tissue loss in AIS compared with the normal neuronal decline of aging suggests that brain is "aging" three weeks for every minute of ischemia and 3.6 years for every hour.[8]

Diagnosis

Prompt diagnosis of stroke is essential because of the time-sensitive nature of the only available emergent drug treatment. The National Institute of Neurologic Disorders and Stroke (NINDS) rTPA study group trial showed in 1995 that in a population of 624 patients with AIS, intravenous alteplase administered within three hours of the onset of stroke symptoms resulted in better 3-month outcomes than did placebo.[7]

Multiple trials have confirmed the NINDS trial findings and established that management of AIS hinges on two basic questions: (1) Is this patient having AIS, and (2) is this patient a candidate to receive intravenous thrombolysis?

Is this patient having AIS? An acute, focal neurologic deficit is the hallmark of stroke. Major strokes involve both motor and sensory components. Symptoms may be sudden and maximal at onset (embolic) or intermittent and stuttering (thrombotic).

Findings in stroke syndromes depend on the territory of brain suffering infarction.

Anterior cerebral artery strokes produce contralateral sensory defects and contralateral weakness most profound in the lower extremities, often with urinary incontinence and dysarthria. Middle cerebral artery

strokes produce contralateral sensory loss and weakness and homonymous hemianopsia. Lacunar strokes may produce varied combinations of weakness, sensory deficit, and ataxia.

Vertebrobasilar, or posterior circulation, strokes produce dizziness, vertigo, vomiting, and ataxia, and can cause limb weakness as well. The complaint of isolated dizziness is highly unlikely to be caused by a stroke.[9]

The differential diagnosis of AIS includes intracranial hemorrhage (ICH) or mass lesion, migraine, post-ictal paresis (Todd's paralysis), CNS infection, multiple sclerosis, drug intoxication, hypoglycemia, and conversion disorder.[10]

Is the patient a candidate for rTPA? Time of onset of the focal neurologic deficit is the most important piece of history. The emergency physician should always attempt to answer the following question: When was the exact onset of stroke symptoms or, if this is unknown, when was the patient last observed to be asymptomatic? If onset of stroke symptoms occurred within three hours of evaluation, the goals of immediate management are different from cases that occur outside this window (also see the "Controversies" section below for further clarification).

When patients are seen in the emergency department within three hours of stroke symptoms, evaluation should be extremely rapid in a manner similar to trauma resuscitation, focusing on determining candidacy for rTPA. Findings particularly consistent with AIS include speech disturbance, and unilateral weakness, arm drift, and/or lower facial droop.[11]

After stroke is suspected based on history and physical examination, prompt imaging of the brain with non-contrast computerized tomography (CT) is indicated. The goal of CT is not necessarily to diagnose AIS, but rather to rule out contraindications to the use of rTPA, such as ICH or mass lesion.[12] A more thorough physical examination should never delay performance of the CT, as this may push the patient outside the 3-hour time window where rTPA is considered safe and effective.

The emergency physician should calculate the National Institutes of Health Stroke Scale (NIHSS) score when the history and physical exam strongly suggest AIS and other diagnoses are excluded by CT. The NIHSS will allow the emergency physician both to quantify the stroke in a validated manner and to assist in communication with neurology consultants.[13] The NIHSS is available online at www.strokecenter.org/trials/scales/nihss.html.

Outside of the three-hour symptom window, evaluation should be still be emergent, but can follow the standard protocol of focused history and physical exam followed by diagnostic testing and management based on findings.

Further diagnostic testing. See the inset below for a list of suggested ancillary testing in the evaluation of AIS. A chest x-ray is not considered mandatory. One retrospective review of 435 patients with AIS concluded that the admission chest radiograph altered patient management in just 3.8% of cases, and that more than three quarters of these radiographs were technically poor studies.[14]

Antihypertensives In AIS

- Labetalol: 10-20 mg IV over 1-2 minutes; may repeat x1.
- Nitropaste: 1-2 inches.
- Nicardipine infusion: 5 mg/hour, titrate up by 2.5 mg/hour at 5- to 15-minute intervals, maximum dose 15 mg/hour; when desired blood pressure attained, reduce to 3 mg/hour.

Treatment

Management of the patient with AIS begins in the field. Properly trained EMS providers will recognize the possibility of acute stroke and communicate ahead to the receiving emergency department. Priority actions in the emergency department are listed in the inset below. It is particularly important to rule out hypoglycemia as a cause of a neurological deficit; the blood glucose should be obtained along with the vital signs and corrected as appropriate.

Sequence of Immediate Evaluation in Patients Suspected of AIS (Within 3 hours of symptom onset.)

1. Address airway, breathing, circulation, and vital signs.
2. Obtain IV, draw labs (CBC, chemistry, coagulation profile, cardiac markers, alcohol level) and place on a cardiac monitor.
3. Check rapid glucose level and give IV glucose as needed.
4. Confirm the focal neurologic deficit with a brief exam.
5. Obtain non-contrast CT brain to determine if ICH or mass is present.
6. Calculate National Institute of Health Stroke Scale (NIHSS) score and consult neurologist.
7. Other studies may be obtained later (e.g., EKG, urine drug screen).

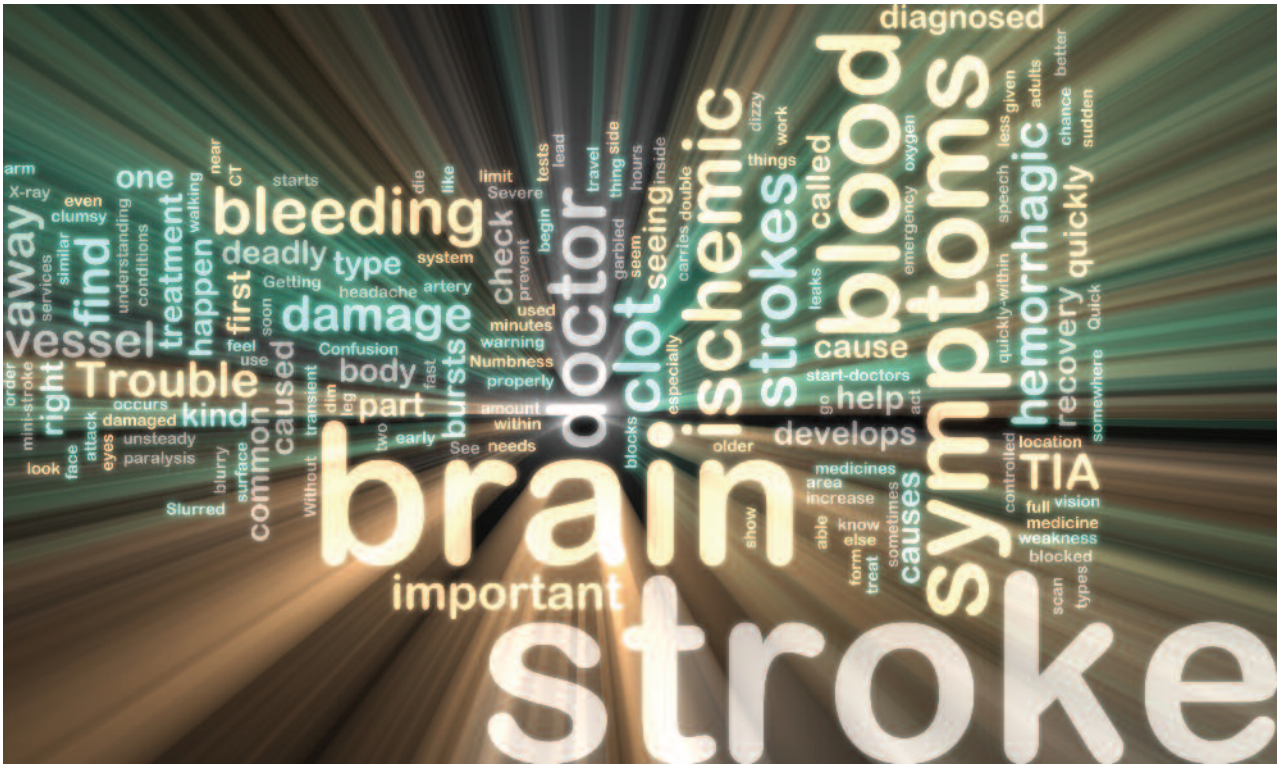
Once the diagnosis of AIS is confirmed, the emergency physician should make the decision to give rTPA in consultation with neurology specialists (see the "Controversies" section). The specific logistics of rTPA administration are beyond the scope of this article. Instead, the articles will address other management issues related to AIS.

Certain coincident (and modifiable) pathologic perturbations have been associated with worse outcomes in AIS. These include fever, hyperglycemia, and hypertension. The American Heart Association (AHA) has issued Class I recommendations that these conditions be evaluated and treated in the stroke patient.

Fever is defined as a core body temperature greater than 37.5° to 38° C. The AHA recommends that fever in stroke should be treated (though without further specific guidelines). The data to treat fever in AIS are based on observations about the effect of fever on infarct size and worse neurological outcome.[15,16,17,18] More formal studies are needed to determine exactly how and when to treat fever in AIS, but it is reasonable to use 1 g of acetaminophen for a temperature greater than 38° C.[19] Fever should also prompt the clinician to consider endocarditis or CNS infection as etiologies of the focal neurological deficit.

Hyperglycemia is defined as blood glucose greater than 140 mg/dL. In both diabetic and nondiabetic patients, it has been associated with more severe stroke and worse neurologic outcome.[20,21] The reasons for this are not entirely clear, but they may involve both metabolic effects of hyperglycemia and the effect of elevated glucose on the development of brain edema.[22] MRI studies of hyperglycemic stroke patients have shown that elevated blood glucose promotes production of lactate in the brain and facilitates conversion of "at risk" tissue at the penumbra of the stroke into actual infarction.[23] The emergency physician should therefore initiate insulin therapy if the blood glucose is above 185 mg/dL with the goal of achieving normoglycemia.[24]

The issue of hypertension in acute stroke is a complex one. It certainly has been demonstrated that arterial hypertension is associated with worse prognosis in AIS.[25,26,27] However, even without pharmacologic intervention, the blood pressure of these patients often will tend to lower spontaneously,[28,29] and it is clear that precipitous falls in blood pressure can lead to worse neurological outcomes.[30,31] Because of these complexities, the AHA guidelines for when to treat hypertension in stroke are set at relatively high blood pressures. In the patient who is a candidate for thrombolysis, blood pressure should not be treated unless greater than 185/110 mmHg. In this case, pharmacologic options for lowering blood pressure are included in the box on page 35. If one of these therapies does not lower the blood pressure appropriately, the patient should no longer be considered a candidate for rTPA. Patients who are not candidates for thrombolysis



should not have blood pressure treated unless greater than 220/120 mmHg.

Although hypotension is rare in AIS, it has been associated with worse outcomes when below 100/70 mmHg.[32] Hypotension should prompt the clinician to search for causes to explain both the neurologic deficit and the low blood pressure, including aortic dissection, hypovolemia, or decreased cardiac output from ischemia or dysrhythmia. Persistent hypotension should be treated with volume expansion with crystalloid and dysrhythmia management.[33]

Patients with stroke should always be admitted to the hospital to a telemetry-monitored unit. Important measures such as carotid duplex ultrasound, echocardiography, and smoking cessation counseling are all more efficiently addressed in the inpatient setting.

Controversies

The third European Cooperative Acute Stroke Study (ECASS III) trial investigated the use of rTPA in AIS up to 4.5 hours from the onset of symptoms.[34] Like NINDS, this trial had as its primary end point an assessment of functional status at 90 days. The investigators found that administration of rTPA within 4.5 hours resulted in better functional outcomes but was associated with a higher risk of symptomatic ICH (2.4%, compared with 0.2% in the placebo group). Furthermore, this trial showed better outcomes in those treated earlier with rTPA. The ultimate conclusion suggested by the authors was that although patients outside the window of three hours may still benefit from thrombolysis, earlier therapy is still preferred.[34]

The NINDS investigators were stroke experts, and questions exist as to whether the results of this group's findings could be extrapolated to the broad practice of community emergency medicine.[35] This is still a controversial issue, although a large validation of the NINDS trial done in Europe specifically included half of its data from centers with little experience in thrombolysis and found similar functional outcomes and rates of ICH.[36] Yet Dubinski and Lai cited higher in-hospital mortality (10.1%, compared with 5.8% in the untreated cohort) among patients treated with rTPA in the community than has been reported in prior studies.[37]

Similar findings were reported in a German study (11.7% vs 4.5% in untreated), which further found that the risk of in-hospital mortality was higher in hospitals performing fewer than five thrombotic treatments per year.38 The implication for the community emergency physician is to reaffirm the importance of early neurologic consultation.

Emergency physician reluctance to use rTPA has been found to be the result both of questions about efficacy and concern for ICH.[39] In the NINDS trial, the treatment arm had a symptomatic ICH risk of 6.4%. Even accounting for this higher risk of bleeding, those treated with rTPA had better functional outcomes. Subsequent studies have shown ICH risks similar to that found by the NINDS group.[40]

A recent study in the Annals of Emergency Medicine found that out of a cohort of 33 malpractice litigation cases involving rTPA, 29 (88%) were initiated because of failure to treat with rTPA rather than for side effects of therapy.[41] Given the potential for litigation, it is appropriate to have—and carefully document—an informed-consent-style discussion of risks and benefits with the patient/family when the patient is a candidate for treatment with rTPA.

Conclusion

AIS is a potentially devastating condition for which treatment is highly time-sensitive and infrequently administered. The emergency physician suspecting AIS should immediately rule out other causes of neurologic deficit, obtain prompt brain imaging, and consider the use of rTPA.

Given the complexity of issues surrounding the selection of appropriate candidates for thrombolysis and the conflicting data about its use in inexperienced centers, expert consultation should be considered mandatory in the care of AIS.

Questionnaire Is Available Online

This educational activity should take approximately 1 hour to complete. **The CME test and the evaluation form are located online at www.ACEP.org/focuson.**

The participant should, in order, review the learning objectives, read the article, and complete the CME post-test/evaluation form to receive 1 ACEP Category 1 credit and 1 AMA/PRA Category 1 credit. You will be able to print your CME certificate immediately.

The credit for this CME activity is available through Sept. 30, 2012.

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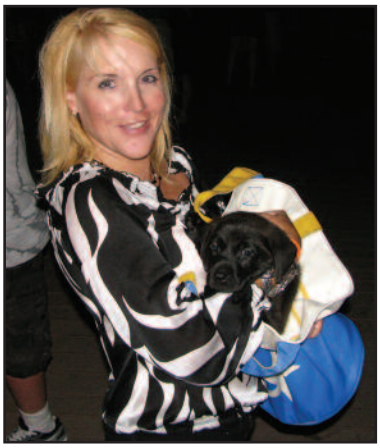
2010 annual spring meeting

If you missed the 2010 Annual Spring Meeting of the Georgia College of Emergency Physicians, you missed a great conference. Now is the perfect time to mark your calendars for the 2011 Annual Meeting to take place June 9-12, 2011 at the beautiful Hilton Head Marriott Resort & Spa.

The new location of the Hilton Head Marriott boosted everyone's excitement about the meeting. The large pool and beautiful beach front location were enjoyed by all. I received so much good feedback and we are excited to return next year. Besides the fantastic location and educational offerings, the GCEP Annual Spring meeting brings so much more for both attendees and their families. This year's main attraction had to be the adorable chocolate lab puppy that was auctioned off as part of the annual GEMPAC Silent Auction. The bidding came down to the wire, but congratulations go out to the Ciamillo family for placing the winning bid and bringing the puppy home. Special thanks go out to Dr. Earl Grubbs for once again serving as the golf tournament coordinator. Despite the heat (and lost balls) a good time was had by all. On Friday evening, GCEP hosted a cocktail party in the exhibit hall giving attendees a chance to peruse the booths in a relaxed atmosphere. Not to leave the little ones out, a "movie night" was hosted down the hall showing the Disney production "Bolt."



The social highlight of each spring meeting is definitely the Saturday night beach party and dinner. GCEP welcomed attendees, families, friends and exhibitors for this annual event. This year's theme was a country/western theme, complete with "wanted" posters of some of the GCEP worst criminals (aka the board of directors). The band "Three Mile Bend" brought the crowd to their feet for the traditional hula hoop and limbo contests. Even though one of the little ones won the limbo, I have to give a shout out to Dr. Tiencia James who always ceases to amaze me with her bendable talent!! Another highlight of the night came with the pie eating contest. We put an untraditional spin on the contest by deeming the winner the first to find 5 hidden Hershey kisses inside the pie. It was a fun, albeit messy event and the perfect photo opportunity for proud parents. While the kids (and kids at heart) hula hooped and ate pies, the adults sat back with cold beverages and enjoyed the band and the company.

So once again, please let me remind you to mark your calendars for the 2011 meeting. Those who attend this meeting on a regular basis know what a great combination it is of educational and social events and we want to spread the word. The GCEP Board, Education Committee and Staff are committed to making this event the best it can be and we are working on new marketing strategies to make sure everyone knows about this great event. If you have any ideas or suggestions for the GCEP Annual Meeting, please make your voice heard. Give us a call or send an email. I look forward to seeing you all next year.

Save the Date for Spring 2011 Meeting!
June 9-12
Hilton Head Marriott Resort & Spa

Work and play at the 2010 annual spring meeting

Georgia College of Emergency Physicians
6134 Poplar Bluff Circle, Suite 101
Norcross, GA 30092