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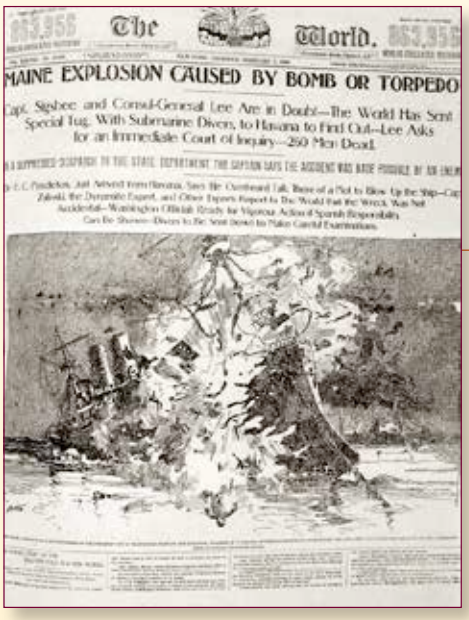

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Rapid diagnosis

JOSEPH H. FRIEDMAN, MD
joseph_friedman@brown.edu

"That other doctor diagnosed me in 30 seconds. All he did was ask me to stand up and walk. I took three steps and he said, 'You have Parkinson's disease.'"

I think all doctors wonder about how we are perceived. Occasionally our patients let us know. Mostly, when they are pleased they say nice things, but sometimes the opposite happens. From time to time I hear a comment like the one above. A patient, commenting on my performing a seemingly meticulous, or at least, lengthy exam, is impressed and compares it to their previous experience, clearly indicating that a diagnosis so serious should merit more than a brief eyeballing. In my mind, though, I sometimes am thinking, why am I doing all this? This person has Parkinson's disease. I knew it as soon as I saw him. What's the point of testing strength, reflexes and a lot of other things? Then I feel guilty, being complimented for doing things that may not be completely necessary.

I always perform a complete exam at the first visit because it is important to identify all neurological problems, whether they're related to the problem for which the patient was referred or not. I assume that all doctors do this. An unexpected reflex asymmetry may point to a stroke or a peripheral nerve problem that the patient may not be aware of. That's important in and of itself, but may also explain an atypical sign that alters the presenting features of Parkinson's disease or other movement disorder. Equally important, the complete exam establishes a baseline so a complaint down the road, like sciatica, where an ankle reflex abnormality is found, will be verifiable as new, indicating a newly pinched nerve to go with new back pain, or old, and therefore unrelated to the new back pain.

While some patients denounce a rapid diagnosis, some embrace it. They extol the doctor who made it. "I went to three doctors who did a zillion tests and couldn't figure out what was wrong with me and Dr. X took one look at me and said, 'You have Parkinson's disease.' He was brilliant." Obviously Dr. X was a star, and the three other doctors were morons. I assume that these patients are less impressed with my exam, and may judge me a yeoman neurologist who plods along, and, having spent a lot of time and examining everything in sight, finally figures out what Dr. X observed in a glance.

How the rapid diagnosis sits with the patient depends on a lot of things. Partly it depends on what follows. If some time is taken to explain how the diagnosis was made, what happens next, what the future will bring, some information about the disease, some indication of caring about the patient, working together for a "team" approach, the doctor enters the pantheon of the gods. If he doesn't do some more examining, and says, "Parkinson's isn't too bad. Take this medication and I'll see you in a month," the reaction is usually not so positive.

When I was in training, the chair of the department, a justifiably renowned neurologist, explained why he became an academic subspecialist. "The very first patient who came into my office clearly had Parkinson's disease. As soon as he entered the room the diagnosis was clear. I wondered what we were going to do for the next hour." He thought general clinical neurology was going to be boring because, for him, the challenge of the diagnosis was important. By becoming an academic researcher, he would see arcane, hence challenging disorders, and maintain scientific interest by trying to solve problems posed by the diseases.

Another renowned neurologist, Houston Merritt, was famous for his highly focused histories and exams. I only observed him examine a few patients and I don't recall any strokes of brilliance, but in his heyday he was known to listen to the history and physical findings of a patient who baffled the neurology house staff and attendings, ask one or two questions, tap one reflex

and make a diagnosis. One famous anecdote was of an enigmatic patient with an unknown diagnosis, in the days before angiograms and CT scans. After hearing the case, asking a question or two, he opined, "Giant basilar aneurysm." "How did you get that?" asked an incredulous neurologist. "What else could it be?" responded Merritt. I never learned if he was correct.

Clinicians are not usually impressed by rapid diagnoses because they typically represent pattern recognition, rather than problem solving. If one has seen a rash or heard a story that fits a syndrome, it is a memory feat, not a diagnostic achievement. There is an apocryphal story of an argument between two eminent clinicians in England in the days before modern imaging. The question at hand was where the brain tumor was located. The neurosurgeon, who would, of course, decide where to focus the operation, chose one location and the neurologist a different one. When the neurosurgeon turned out to be correct, the neurologist, severely chagrined to be bested by a surgeon, said, "I should give up neurology." The neurosurgeon, responded, "On the contrary, my good man, why not take it up?" Since the clinical picture did not fit an identifiable pattern, each clinician had to summon his skills to deduce the tumor's location. It was clearly not a straightforward question. One was better at it than the other in the particular case.

I am not a fan of the rapid diagnosis, unless I'm called in to see a colleague's patient and a complete exam has already been done. Then I'll hone in on the essentials. I never provide a diagnosis until I'm finished with the exam. Sometimes, of course, I may need the help of diagnostic tests. I don't think it pays to try to impress, and one is occasionally surprised when the detailed examination reveals a hidden disorder or the true diagnosis, perhaps masked by an abnormal facial expression or peculiar posture. I would prefer to be considered a careful rather than a brilliant clinician. ❖

Author

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Rhode Island Medical Journal Submissions

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Authors submit an interesting image or series of images (up to 4), with an explanation of no more than 500 words, not including legends for the images.

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An EPIC Adventure

KENNETH S. KORR, MD

Well, EPIC is finally here, at least at Lifespan hospitals. So what's the verdict on this long- anticipated, much-dreaded "enhancement" to our electronic health care system?

First, let me start with the educational process, or EPICschool. In the Lifespan System that involved at least four, four-hour group-training sessions in the months leading up to "Go Live." The first session was a nightmare; I could barely keep up with the multiple ways of accomplishing the same task… like writing a note, Smart sets, smart phrases, .dot phrases, "hover to discover," "left click to pick, right click to stick." By the end of that first session, many of us had a bad headache and the ominous sense that this was going to be painful. But by the fourth session we were getting more comfortable, working independently to set up our own note templates and increasingly more savvy in the new language of EPICspeak, or really EPICclick.

"Go Live"

"Go Live" was another adventure in itself. I started on service for a week at the Miriam. Fortunately we had a lot of onsite trainers and EPIC Superusers – Lifespan docs, residents, nurses and other staff with advanced (ie, 2 more training sessions) skills. On the first day, I could not write a note,write an order or drop a bill without a Superuser at my side. By the end of day 2, I was working pretty independently with only occasional reliance on the Superusers and by the end of the week I was on my own. One could begin to see the potential advantages of viewing all this data with just a few clicks. And the actual writing of the H&P or progress note actually became much easier, just pulling all the data elements together into the note template and *voila*.

There was also a great sense of community; we were all in this struggle together and we taught each other on the fly, sharing little bits of EPIC knowledge as we learned a new skill, like importing lab data in a fishbone diagram into the note or learning to split-screen the X-ray image and view comparative images simultaneously. It was particularly helpful working with medical students and residents who are much more computer savvy. So partnering with a 20-something is a must do.

Fortunately, as an attending I was spared from writing inpatient orders, but for the residents and mid-level providers this was just another onerous task that had to be learned and struggled through. In the near future, as we get more tech savvy, customized Order Sets for specific admission diagnoses should help a lot.

Outpatient office experience

The outpatient office experience that week and since has been slightly more challenging. Each patient visit requires a problem list, med list, allergy list, all of which need to be individually reconciled. Any test, even the routine office visit EKG requires an order, an appropriate diagnostic indication and a reconciliation. When you multiply this to several lab tests, an echo and anything else, it's a lot of clicks. And then there are the medication orders, again diagnosis specific, number of pills/yr. refills, etc. – all with the requisite clicks.

Finally you get to the visit note, which will self-populate the meds, problem list, vital signs and labs if you have previously filled those out correctly. Then all you are left with is typing or dictating the current chief complaint and related symptoms and the conclusion. Fortunately the system works pretty well with Dragon. Once you learn the proper flow the note becomes relatively straightforward. But all of this needs to be completed before you can print the AVS (After Visit Summary) which is given to the patient. And finally you have to drop the bill and route the note to the PCP and other consultants. Pretty slick when it works well but a nightmare if you come up against a dreaded Red Hard Stop. And that's a lot to get done before you can go on to the next patient.

I actually feel pretty good about navigating through the system after the first month and am almost back to a full office panel, although it's bit of a marathon getting through an office day.

The In Basket

The In Basket in another adventure under the heading of "Things I can do

at home" and which can be readily accessed from an iPad (which I prefer) or an iPhone (which is too small to read). Every day (even Saturday and Sunday) you can review lab and other test results, refill RXs and sign charts. Oh joy! Is this a blessing, a work efficiency or just another intrusion into my "free" time? Maybe it's all of these. And it's definitely taking time away from reading the other avalanche of daily information coming through my email. I'm not sure how all this will actually work out in practice. What happens when I am away? Does my In Basket come with me or do I forward it to one of my partners? Right now it seems like information overload, and much of it is redundant.

The Patient Portal

Someday in the very near future, you will be able to respond to patient messages and questions in your In Basket, through the Patient Portal. What you can't answer you can always re-assign to someone else but that goes both ways and a lot can get re-assigned to you, too. I can almost anticipate a CME program on the medical-legal consequences of In Basket management. Right now, I am hoping this will only be for the most computer savvy patients, who fortunately are not many in the age group I care for.

So every EPIC day is another new learning experience. There is still a lot of group sharing and commiserating as we all struggle to find simple solutions to what we used to do quite simply. We are now entering the stage of Post Live sessions for Advanced Personalization and In Basket Management. These are somewhat helpful, like group therapy, with a lot of ah-ha moments: "I can do that?" And there is still a lot of "…we don't have a solution for that yet…" But there is hope.

So EPIC is here, and it's doable, and certainly not the insurmountable obstacle that have led some to hang up their stethoscopes. Ultimately, I think this is going to be OK and actually quite good 1–2 years down the road. Right now, I am still struggling with how to handle the flood of information cluttering my In Basket and requiring attention. I haven't taken EPIC on vacation yet, but that will be another story. ❖

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Can Empathy Be Taught? Reflections from a Medical Student Active-Listening Workshop

LIANNA KARP, MD'16

[Author: *Lianna Karp is a fourth year medical student at Warren Alpert Medical School of Brown University (AMS). She was instrumental in introducing active-listening skills as a crucial part of the first year medical school curriculum. In this article, she shares her thoughts about the workshop based program she developed under the guidance of Sarita Warrier, MD, and the results of the follow up survey of those who participated. Lianna has served on the AMS Student Health Council (SHC) for the past three years. The SHC is modeled after the Rhode Island Medical Society's Physician Health Program and supported by the RIMS Foundation. The RIMS' Physician Health Program's director and Committee Chairperson serve in an advisory and consultative capacity to the SHC.*]

ABSTRACT

Medical students deserve training in active listening and counseling before they encounter patients in distress. At the Alpert Medical School of Brown University we created and evaluated a workshop that trains first-year medical students to assess patients' emotional states and express empathy in an efficient and effective manner. Using second-year students as near-peer facilitators, we integrated the workshop into the existing preclinical first-year curriculum. We found that students' self-reported comfort in counseling a patient experiencing an emotionally challenging situation increased from 27% to 79% after the 90-minute workshop.

KEYWORDS: Empathy, medical students, active listening

Empathy is a critical skill to develop as a physician-in-training. Empathetic care leads to better adherence to treatment and fewer major medical errors,[1] greater health benefits for patients with diabetes[2] and common cold[3] and fewer malpractice lawsuits.[3] Despite the importance of empathy, counseling training and active-listening skill-building are not a required part of medical education. Other organizations, such as volunteer-based suicide prevention hotlines, require up to 60 hours of counseling training prior to allowing volunteers to answer calls. Why is it that medical schools do not require active-listening training?

There are several reasons why this might be the case. There is very limited time in the preclinical curriculum, meaning that time dedicated to building medical knowledge would be sacrificed. Additionally, it has never been a traditional part of medical education so there are no readily adoptable training models. However, the reason that may be most detrimental to the advancement of humanistic medical education is the notion that empathy is an unteachable skill.

Our goal for an empathy workshop was to help people better express empathy, rather than to generate empathy from scratch. It is important to distinguish our objective from the idea that it is possible to teach a person to feel emotions if they have inherent deficits in socio-emotional functioning. The aim of the workshop was to enhance the comfort level of students so that they would be more likely to offer patients opportunities to open up. Additionally, it was meant to provide structure for students' initial responses when patients divulged information distressing to the student.

The workshop was performed for 122 students in a small group format with two faculty members (MD faculty and Social Behavioral Sciences faculty) and one second-year medical student facilitator for each group of eight first-year medical students.

We began the workshop with a written reflection exercise, asking the students to contemplate the difference between empathy and pity, to think about obstacles to empathy, and to articulate a personal opinion about the definition of empathy. We then had the students share their answers with each other and discuss the statistics cited above about the health benefits of having an empathetic provider.

The first skill-based portion of the workshop focused on nonverbal skills such as body language, eye contact, matching tone, and the power of silence. The second skill-based portion focused on verbal skills, first by discussing general guidelines of active listening such as steering away from problem solving and personal information sharing. We encouraged discussion about how problem solving is an inherent part of medical practice and yet it is in direct conflict with the principles of non-directive active listening. We asked students to think about times when it might be more important to listen first before problem solving – when collecting the details of a patient's story prior to making

diagnoses, when elucidating patient-derived goals of care, or when building rapport with a patient in order to create sufficient trust for a patient to follow physician advice.

BATHE technique

The second verbal skill that we introduced was the BATHE technique, a physician-created evidence-based checklist for helping doctors provide brief supportive psychotherapy. The BATHE technique has been shown to improve patient satisfaction[5] without increasing visit length.[6] It consists of five questions: Background (What is going on in your life?); Affect (How has this been affecting you?); Troubling (What is most troubling to you about this?); Handling (How are you handling this?); and Empathetic statement (That sounds very challenging, distressing, or difficult). The BATHE checklist was introduced to the students as something very different than the Review of Systems checklist or CAGE questionnaire – the importance of flexibility in administration was stressed. Each group discussed how the BATHE technique may not apply to all scenarios and that students should feel empowered to select only the questions that they feel comfortable asking.

The final phase of the workshop consisted of role-playing exercises asking the students to practice the skills that had been discussed. They were given patient scenarios, and had time for both individual and group feedback to determine what worked well and what could be changed about their interactions.

Students completed a post-workshop survey using a Likert scale, with 5 representing "strongly agree." After the workshop, 90% of students agreed or strongly agreed that they felt comfortable using the BATHE technique (average 4.23). Seventy-nine percent of students agreed or strongly agreed that they felt comfortable counseling a patient experiencing an emotionally challenging situation after the workshop, compared to 27% of students who agreed or strongly agreed when describing pre-workshop attitudes. Preliminary qualitative analysis of responses to open-ended questions about the workshop's strengths identified the following themes: using second-year students as facilitators, interactive discussion, role-plays, and incorporation of BATHE's structured technique. The major change that students encouraged was a video demonstration prior to the workshop. Limitations include lack of a validated empathy measure pre- and post-workshop.

This transferable 90-minute workshop improved first-year medical students' comfort with counseling and expressions of empathy. Active-listening training should be an integral part of medical education. By using interactive exercises facilitated by second-year students we were able to provide first-year students with valuable skills that they will draw upon as they enter their clinical sites and meet their first patients.

Acknowledgment

The author would like to acknowledge her mentor, Sarita Warrier, MD, who was instrumental in coordinating the workshop. Dr. Warrier directs the Year I Doctoring Program at the Alpert Medical School of Brown University.

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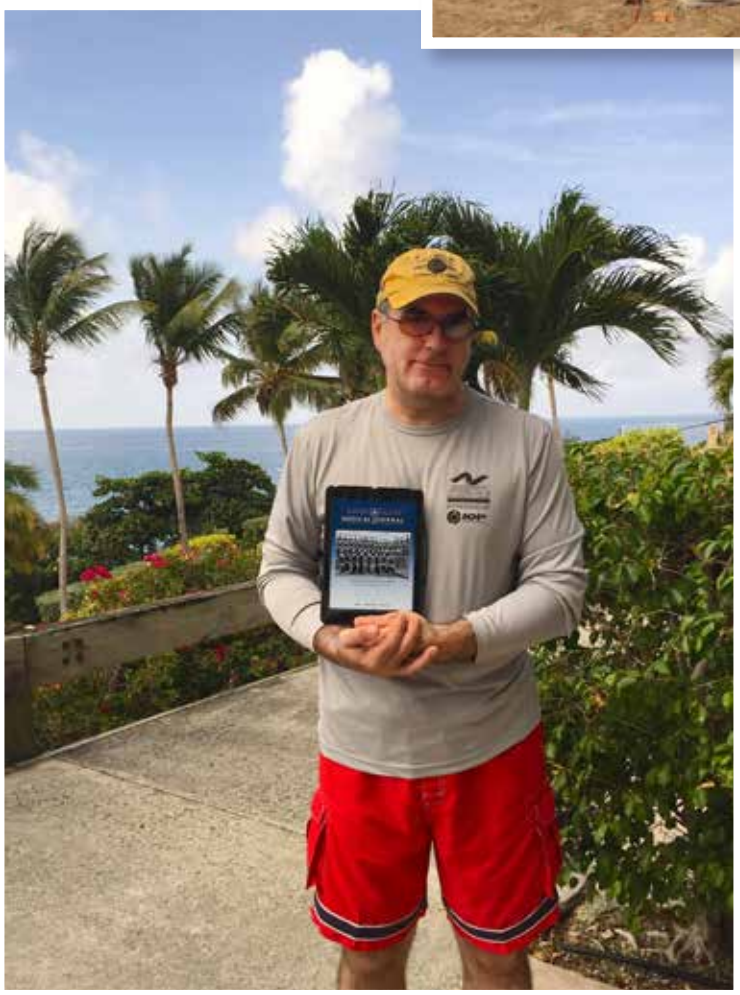
We are read everywhere

URUMQI, CHINA

Jonathan Migliori *(right)* accessed previous "RIMJ Around the World" features, archived on www.rimed.org, while at the Kumtag Desert Scenic Spot, Xinjiang Region, to see whether anyone else has traveled to the Taklamakan Desert in China's western frontier.

ST. THOMAS, US VIRGIN ISLANDS

Michael Migliori, MD *(below)* took a break from the American Society of Ophthalmic Plastic and Resocnstructive Surgery (ASOPRS) conference he was attending to read the May issue. As a member of the Brown Medical School class of 1982, he enjoyed reading the Spotlight article about the med school's founding and its first graduating class in 1975.



BARCELONA, SPAIN

Pausing at the Plaça de Catalunya, **Alison Migliori,** Division Coordinator of Perinatal Pathology at Women & Infants Hospital, was especially interested to read the Heritage article about President Lincoln's final hours and the physicians who tended to him.

Wherever your travels take you, be sure to check the latest edition of RIMJ on your mobile device and send us a photo: **mkorr@rimed.org.**

This Is Not Your Grandfather's Emergency Department

ILSE JENOURI, MD, MBA; GARY BUBLY, MD, FACEP
GUEST EDITORS

Emergency Medicine (EM) is still a relatively young and rapidly evolving specialty. Like many of its elder siblings in the house of medicine, EM is undergoing exponential growth. In fact, it seems strikingly different from when we began practice a mere 16 and 25 years ago, respectively. During those decades we have witnessed the development of a second emergency medicine residency-training program in Rhode Island and several fellowship-training programs within emergency medicine in Pediatric Emergency Medicine, Ultrasound, Injury Prevention, Disaster and Emergency Medical Services, International Emergency Medicine, Simulation, Medical Education and Sex and Gender in Emergency Medicine within the confines of our small state. This issue of the *Rhode Island Medical Journal* (RIJM) contains noteworthy examples illustrating advances in some of these specialized areas within Emergency Medicine. We have also included some administrative pieces on Emergency Department throughput and the utilization of scribes in the ED setting.

Both locally and nationally, emergency department visits are increasing. We believe this is likely to continue as the population ages, the baby boomer demographic reaches retirement and beyond, and healthcare providers feel the impact of the "silver tsunami." The expansion of health insurance to the uninsured through the implementation phase of the Patient Protection and Affordable Care Act, if it parallels the Massachusetts experience, is likely to increase this trend as well. At this writing, we seem to be experiencing slightly increased volume, perhaps due to the Medicaid expansion. The impact of punitively large emergency department co-pays by insurers, expanded access to primary care by providers, and the incentivization of Patient Centered Medical Homes and Accountable Care Organizations (ACOs) arguably may have slowed this rising tide, but clearly has not reversed it. Hindering providers with time-consuming electronic medical records and throwing in other regulatory requirements creates a recipe for inefficiency.

So how do we do it all faster and better?

Ultrasound is one way we can theoretically increase the speed and accuracy of EM providers. The article by Liebmann and Kumar on point-of-care ultrasound use in emergency medicine provides an excellent primer on its evolving applications. From its introduction for central venous catheter insertion to expanding indications, ultrasound's portability, speed of imaging and absence of radiation have helped it gain favor as an important clinical adjunct. This article gives a snapshot view into its common clinical applications. Initially viewed with skepticism, it has been incorporated into EM residency curricula nationwide.

The article by McGregor and Choo on "The Emerging Science of Gender-Specific Emergency Medicine" provides a thought-provoking introduction into one of the newest fellowship and research areas within EM. We are hopeful that this fine-tuning of our clinical practice will lead to more personalized care for everyone.

The article by Chao and Raukar provides a timely review from the EM sports medicine perspective on the evaluation and management of concussion. Do you know which patients to send to the nearest emergency department?

In response to the rising patient volume mentioned earlier, and with the number of emergency departments diminishing nationwide due to hospital closures, emergency departments have been pressured to handle increased patient volume with greater efficiency. Some emergency departments have been fortunate enough to expand and renovate. For some, this challenge has been limited by construction costs and lack of capital, the certificate-of-need process, or sheer lack of space. Others have undergone reevaluation of their patient throughput processes to optimize efficiency without increasing staff. The "Extinction of Triage" article by Graves, Zabbo, et al. describes one facility's efforts to redesign their throughput processes with excellent results.

Finally, Emergency Medicine has been a leader in the use of scribes in the clinical environment to ease the adoption of electronic medical records. Since we are often asked about our scribe program, we have included an article explaining their role and an article giving one scribe's personal perspective on the transition from scribe to medical student.

During this era of seemingly constant change in medicine, we hope you will find these articles helpful in understanding some of the evolution occurring within emergency medicine.

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Emergency Ultrasound: Point-of-care Ultrasound in Emergency Medicine

OTTO LIEBMANN, MD; TOBIAS KUMMER, MD

INTRODUCTION & DEFINITIONS

Ultrasound is a safe and effective form of imaging that utilizes sound waves to examine internal human anatomy for diagnostic purposes and procedure guidance. With the advent of smaller, high quality machines in the 1990s there has been a growth of point-of-care ultrasound – ultrasound that is performed and interpreted by a provider at the patient's bedside in real time – in many medical specialties.[1,2] Many terms in the medical literature are used to describe this unique application of ultrasound (US); these include "bedside," "limited," "focused," and "goal-directed." The favored terminology is clinician-performed *point-of-care ultrasound* often abbreviated as POCUS.

Point-of-care ultrasound has been a part of the specialty of emergency medicine for two decades and is referred to within the specialty as Emergency Ultrasound (EUS). Emergency physicians are confronted with critically ill patients with undifferentiated complaints and must make time-sensitive diagnostic decisions or perform therapeutic interventions based on limited available information. Ultrasound can be performed directly at the time of the physical examination in a matter of minutes and can help to greatly reduce the number active differential diagnoses. These ultrasound examinations are integrated into Emergency Medicine diagnostic and treatment pathways at the point-of-care and seek to answer a specific clinical question. In this manner emergency physician-performed point-of-care ultrasound refines and accelerates bedside diagnosis, clinical decision-making, management, and disposition by providing limited, but directly relevant, clinical information.

History

Since its inception decades ago, EUS has developed into an essential component of emergency medicine practice. EUS competency is a core content requirement for all emergency medicine residents and part of the American Board of Emergency Medicine written and oral board examinations. EUS fellowships provide advanced training and are prevalent throughout the country with over 90 national programs.[3] Comprehensive specialty-specific guidelines for emergency ultrasound were first published over ten years ago by the American College of Emergency Physicians.[4]

Rationale

The emergency department provides a unique physical and clinical environment in which to apply point-of-care ultrasound. Variable ED volume and flow, critically ill patients, and patients with undifferentiated complaints all present unique challenges.

Because of this diversity of illness and illness severity, emergency ultrasound is conceptually divided into five functional categories: Resuscitative (e.g. acute cardiopulmonary resuscitation), Diagnostic (any emergent diagnostic capacity), Symptom/Sign-based (e.g. undifferentiated shock, dyspnea, chest pain), Procedure Guidance (e.g. central venous access, nerve block, peripheral IV, pericardiocentesis) and Monitoring (e.g. inferior vena cava measurements for volume resuscitation). Within each category Emergency Ultrasound can provide rapid assessment at the bedside.

Two brief clinical scenarios reflect challenges present in emergency medicine and highlight the rationale and categories outlined above. In the first clinical scenario, a patient with undifferentiated hypotension (e.g., an elderly patient found down at the side of road with loss of consciousness, mild back pain, but without obvious trauma) has bedside point-of-care cardiac, inferior vena cava, E-FAST (see below), and aorta exams which indicate hypovolemic or distributive shock (not obstructive or cardiogenic) and reveal the presence of a large abdominal aortic aneurysm (AAA). During the initial resuscitation, AAA is the presumed etiology of the patient's hemodynamic instability until proven otherwise, while several other etiologies are lower on the differential diagnosis. This case exemplifies a sign or symptom-based approach to undifferentiated hypotension, the utility of which is well described in the emergency medicine literature (**Table 1**).[5,6]

In a second clinical scenario, a patient with history and exam findings consistent with acute cholecystitis has a bedside point-of-care ultrasound which demonstrates

Table 1. Use of Ultrasound in Undifferentiated Hypotension

	Ultrasound Examination	
Etiology of Shock	**Inferior Vena Cava Findings**	**Cardiac Findings**
Hemorrhagic/ Distributive	Collapsing	Normal to hyperdynamic ejection fraction*
Cardiogenic	Non-collapsing	Decreased ejection fraction
Obstructive	Non-collapsing	Pericardial effusion, right heart strain

* May be decreased in late stage septic cardiomyopathy

gallstones and gallbladder wall thickening. The focused biliary ultrasound confirms the clinical suspicion as well as the diagnosis. A comprehensive right upper quadrant ultrasound performed by a radiology technician in the radiology suite, and interpreted by the radiologist, may include evaluation of the liver parenchyma, measurement of gallbladder width, measurement of intra-hepatic ducts, and often renal evaluation. This additional information may not be immediately relevant in the above mentioned clinical scenario. In the emergency department this is an example of emergency ultrasound as a functionally diagnostic exam. Diagnostic point-of-care ultrasound has also been shown to improve patient flow through the department, a valuable feature for any busy hospital center.[7] In both cases the treating emergency physician correlates the EUS imaging results with the patient's clinical picture within minutes of the patient encounter. If they do not correlate then alternate diagnoses and additional diagnostic studies will be indicated.

While EUS can be an invaluable tool for the emergency physician, it is nevertheless a user-dependent technology requiring technical expertise, image acquisition and interpretation, as well as clinical correlation in real-time at the patient's bedside. As with all such procedures and practices, it is imperative that the caring provider complete training, maintain skills, and understand its specific applications, strengths, and limitation

Specific Core Applications

Selected specific applications from **Table 2** will be discussed here briefly. Relevant clinical application, ultrasound findings, and limitations will be highlighted. Discussion of the technical performance of these exams is beyond the scope of this article.

Trauma

The Extended Focused Assessment with Sonography in Trauma (E-FAST) is an essential tool of the management of unstable trauma patients. The E-FAST evaluates the patient for pneumothorax, hemothorax, free intra-abdominal as well as pericardial fluid (***Image 1, Image 2***). When positive, this exam may dictate management; it has been shown to reduce mortality and time to operative care in critically ill patients.[8,9] It is imperative to understand the limitations of the FAST exam. It is designed to detect free fluid but does not differentiate blood from ascites or urine. Clinical correlation is necessary, especially in cases of patients with liver disease or pelvic trauma. In addition, the test characteristics of the exam are such that it may not detect amounts of free fluid less than 500 milliliters.[10] If clinical suspicion is high in the unstable patient, serial FAST exams have been shown to increase sensitivity. Fortunately, the FAST exam is most accurate in patients with hypotension where the rapid bedside information is most essential.[11] Lung ultrasound, the "Extended" component of the E-FAST, accurately detects traumatic pneumothorax and hemothorax (***Image 3***).[12,13]

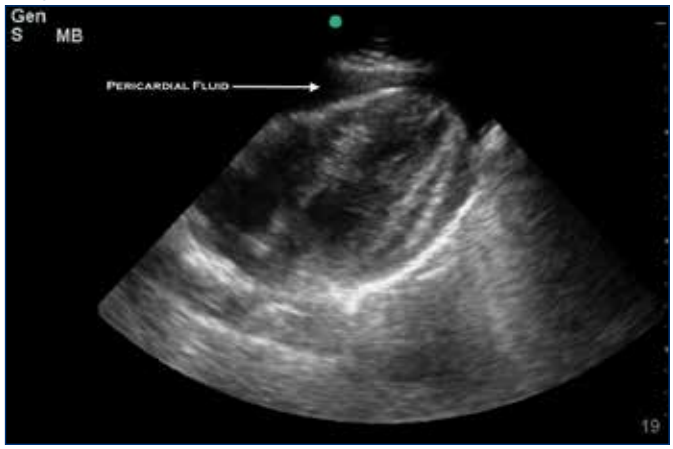
Table 2. Emergency Ultrasound Modalities and their Core Applications

Examination	Selected Clinical Scenarios
E-FAST	Trauma (blunt & penetrating)
Biliary	Right upper quadrant abdominal pain
Pelvic	Suspected ectopic, intrauterine pregnancy
Cardiac	Shock, dyspnea, arrest
Abdominal Aortic Aneurysm	Shock, back pain, abdominal pain
Deep Venous Thrombosis	Suspected deep venous thrombosis
Bladder/Renal	Renal colic
Soft Tissue/Musculoskeletal	Abscess, joint effusion, dislocation
Pulmonary	Dyspnea, shock
Ocular	Retinal detachment
Monitoring	Shock
Procedural	(See Table 3)

E-FAST = Extended Focused Assessment with Sonography in Trauma

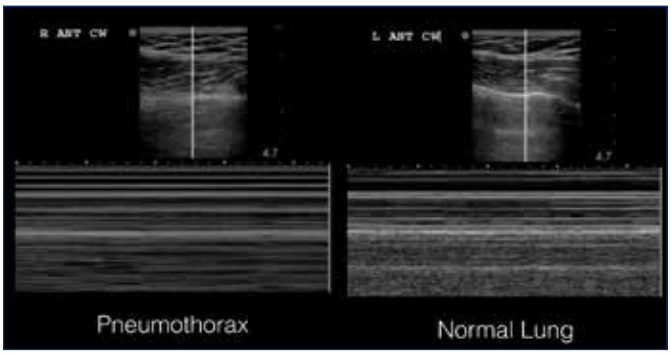
Image 1.

Image 2.



It is of greatest utility in unstable patients where chest radiography is indeterminate and CT imaging is not feasible. Ultimately the E-FAST can accelerate and optimize the emergency physician's care of critically ill trauma patients (e.g., tube thoracostomy, hospital transfer, laparotomy) and save lives by augmenting limited initial information.

Image 3.



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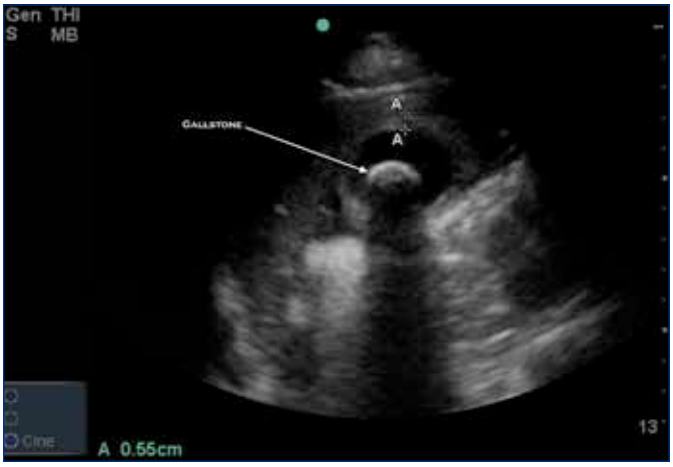

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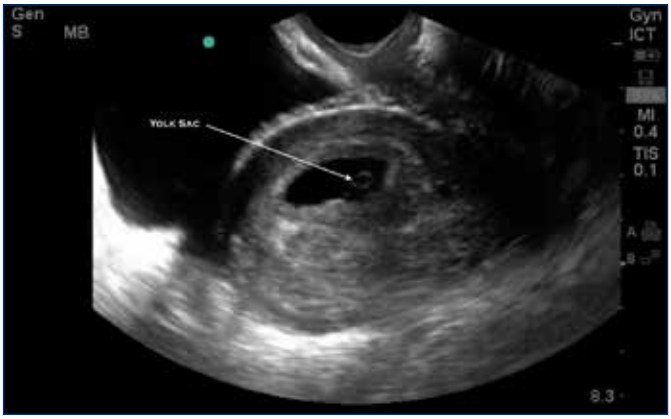


Gallbladder

The gallbladder exam, unlike the E-FAST, is rarely indicated in resuscitation but is particularly useful as a diagnostic exam in patients with suspected cholelithiasis or cholecystitis. The limited gallbladder exam includes evaluation for gallstones, gallbladder wall width, pericholecystic fluid, sonographic Murphy's sign and common bile duct width (***Image 4***). Several features of a comprehensive right upper quadrant ultrasound are omitted from the limited exam (e.g., gallbladder body width, liver parenchyma, intra-hepatic biliary tract). However, in coordination with a clinical evaluation, the limited right upper quadrant exam is well suited to diagnose cholelithiasis and acute cholecystitis.[14] The limited exam can also help determine which subsequent imaging modalities might be required (e.g. abdominal CT, comprehensive right upper quadrant US, or renal ultrasound) especially in the context of a normal point-of-care exam.

Pelvic

Pelvic ultrasound for intrauterine pregnancy (IUP) is used primarily in cases where ectopic pregnancy is suspected. Definitive IUP on limited pelvic ultrasound examination is defined as the presence of a yolk sac, fetal pole, or embryo (***Image 5***). In the unstable patient without definitive IUP the patient is presumed to have an ectopic pregnancy until proven otherwise.[15] The FAST exam, specifically the evaluation of Morrison's pouch in the right upper quadrant, is indicated in this scenario as the presence of free fluid predicts the need for operative management.[16] In the unstable patient with definitive IUP alternate etiologies should be sought for clinical presentation. Naturally, physicians must correlate with historical features (e.g. *In-vitro* fertilization) to determine if comprehensive pelvic ultrasound is indicated for detection of heterotopic pregnancy. In stable patients, point-of-care pelvic ultrasound is used to confirm IUP and to calculate fetal heart rate.

Cardiac

Focused cardiac ultrasound (FOCUS) is used for the rapid assessment of critically ill patients and includes assessment for pericardial effusion, global cardiac systolic function, right and left ventricular enlargement, and intravascular volume.[17] It is used in a variety of diagnostic and symptom and sign-based clinical presentations including undifferentiated hypotension, dyspnea, chest pain, suspected pericardial effusion, trauma and cardiopulmonary arrest. While FOCUS is an integral part of the initial time-sensitive evaluation and management of a critically ill patient, it does not replace the need for a comprehensive echocardiographic evaluation as indicated by the patient's presentation, physical exam findings, or initial diagnostic work-up.

Aorta

Emergency ultrasound accurately detects abdominal aortic aneurysm.[18] Rapid diagnosis of abdominal aortic aneurysm can save lives by shortening time to definitive management (***Image 6***). When the abdominal aorta is normal, alternate diagnoses must be considered based on the patient's chief complaint (e.g. new non-traumatic back pain) or clinical presentation. Ultrasound as a modality does not reliably detect whether or not there is *rupture* of the abdominal aorta, so correlation with the entire clinical picture is essential, and additional imaging is sought if the patient is stable.

Pulmonary

In addition to detection of traumatic pneumothorax and hemothorax (discussed in the E-FAST section), point-of-care

Image 6.

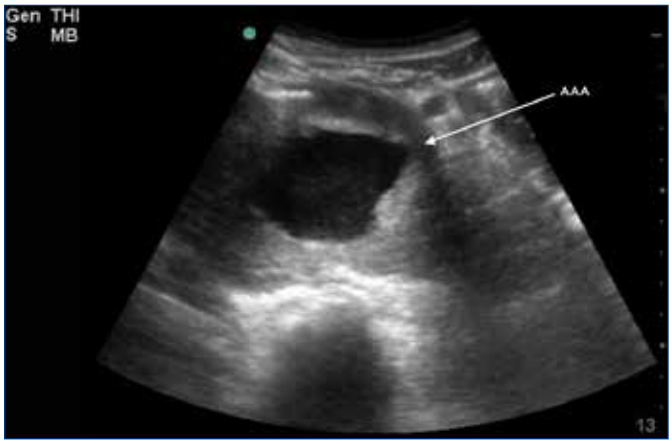


Image 7.

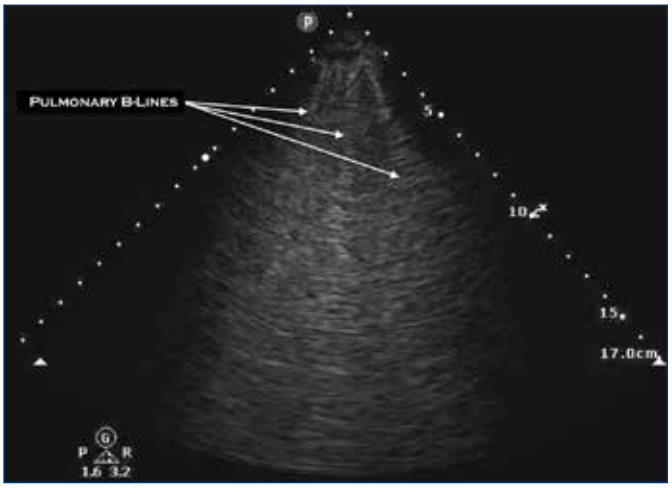


Image 8.

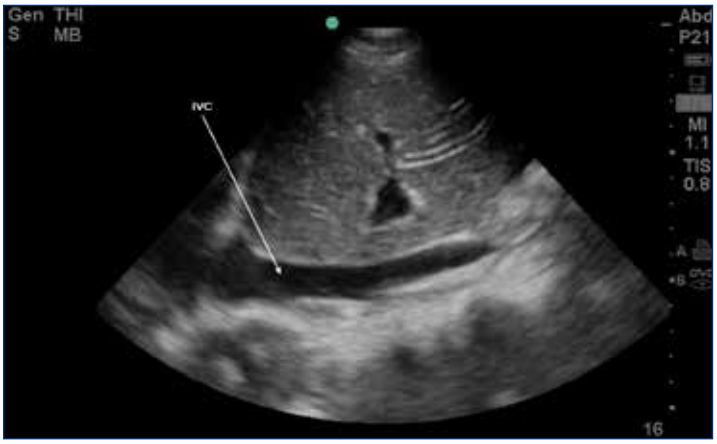
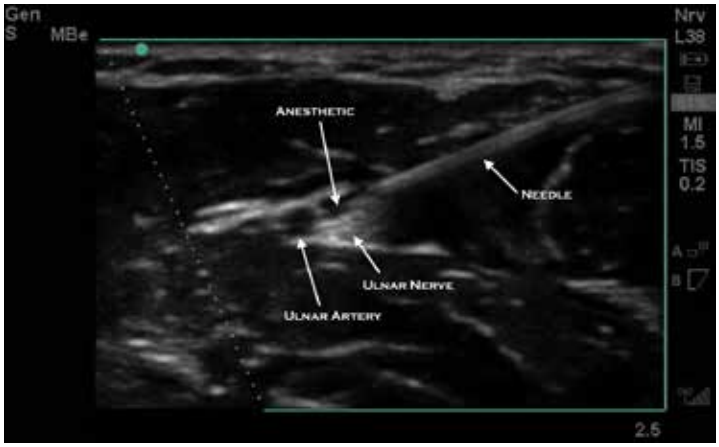


Image 9.



pulmonary ultrasound has a variety of diagnostic and symptom-based applications. It is most frequently applied in the patient presenting with dyspnea, where it can help differentiate COPD exacerbations from acute pulmonary edema as the etiology of the presenting complaint.[19] Specifically, the presence of *ultrasonographic* B-lines on pleural ultrasound reliably detects alveolar interstital edema and adds valuable information to the total clinical assessment (***Image 7***). Point-of-care pulmonary ultrasound and cardiac ultrasound are often combined at the bedside in patients with this chief complaint. Pulmonary ultrasound also aids in the diagnosis and management of non-traumatic pleural effusions.[20]

Monitoring & Resuscitation

The inferior vena cava (IVC) is an easily visualized structure that provides valuable information in the hemodynamically unstable patient (***Image 8***). The amount of collapsibility of the IVC is also associated with specific central venous pressure measurements, and a change in the IVC measurements with fluid boluses predicts hemodynamic fluid responsiveness.[21] Patients with undifferentiated hypotension can be more easily classified as being in cardiogenic/obstructive or distributive/hypovolemic shock. A flat or significantly collapsing IVC is indicative of the latter types of shock and effectively eliminates many cardiogenic and obstructive etiologies of hypotension. In addition, integration of IVC and cardiac ultrasound into the management of sepsis is associated with management changes and improved outcomes.[22]

Procedural

Ultrasound guidance for emergency department procedures directly and significantly improves patient care. In 1999 Agency for Healthcare Research and Quality listed "real-time ultrasound guidance during central line insertion to prevent complications" as one of the twelve most highly rated patient safety practices to decrease medical errors.[23] This recommendation is based on multiple studies that have demonstrated reduced failure rate, reduced number of attempts, and reduced complications as compared with the landmark technique, most profoundly with cannulation of the internal jugular vein and in patients with complex medical conditions.[24] Ultrasound guidance is used in the emergency department to improve success rates and decrease complications in many other procedures (**Table 3**) (***Image 9***).

CONCLUSION

Emergency ultrasound is an essential component of emergency medicine practice and has been integrated into the training and board certification of all emergency physicians. It is performed at the bedside, directly at the time of the physical examination, in a matter of minutes. It has broad utility and serves, in its many functional categories, to aid in the diagnosis, management, and disposition of emergency department patients.

Table 3. Ultrasound Guidance for Procedures

Procedure	Benefits of Ultrasound-Guidance
Central venous catheterization	Improves success rate; reduces complications
Peripheral venous catheterization	Reduces central lines; reduces attempts
Arterial access	Improves success rate
Lumbar puncture	Improves success rate (primarily with increased BMI)
Paracentesis	Improves success rate; reduces complications
Thoracentesis	Improves success rate; reduces complications
Arthrocentesis	Improves success rate; reduces attempts
Regional anaesthesia	Reduces pain; reduces time to completion of procedure
Incision and drainage	Improves success rate; avoids unnecessary procedure
Identification and removal of foreign body	Improves localization
Bladder volume	Reduces unnecessary catheterization

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The Emerging Science of Gender-Specific Emergency Medicine

ALYSON J. McGREGOR, MD, MA; ESTHER K. CHOO, MD, MPH

INTRODUCTION

It is increasingly evident that sex and gender play an important role in disease and response to medical treatment. Accordingly, the National Institutes of Health (NIH) has begun targeting funding and initiatives toward sex- and gender-specific investigations. Although the field of Emergency Medicine (EM) has lagged behind other fields of medicine in its attention to sex and gender factors in research and clinical practice, the specialty has recently poised itself for significant growth in this area. The impetus for this increased attention to sex- and gender-specific medicine lies in the historical approach to gender in medicine in the United States and recognition of the resulting deficiencies in research, clinical practice, and medical education.

VIDEO – Click to watch Dr. McGregor's TEDx Providence talk, "Sex Matters in Emergency Medicine"

Historical Gender Bias in United States Medical Research

Scientific investigators have traditionally concentrated on the male patient for a number of reasons. First, the U.S. Food and Drug Administration (FDA), with the intention of preventing the abuse of women, categorized them as "protected subjects" in human clinical investigations conducted prior to World War II. The fear of harming women was compounded by fears that including women of childbearing age in clinical trials, particularly drug trials, might result in unforeseen teratogenic harm to the fetus. Further, there was uncertainty surrounding women's menstrual cycles, and how the fluctuating hormonal environment might affect comparisons made between subjects. For certain types of studies, hormonal differences might require increased sample size in order to allow investigators to control additionally for "stage of cycle."[1] Compounding considerations of risk, complexity, and cost was the implicit assumption that outcomes in men would be adequate proxies for outcomes in women, despite the fact that physiologic, anatomic, and metabolic differences between the genders argued against this assumption.

By the 1980s, with women's individualism brought to the nation's consciousness by the feminist movement, the concept of sex in human biology was revolutionized. In 1985, the National Institutes of Health (NIH) established a Public Health Service Task Force on Women's Health. Its recommendations for increased attention to women's health issues led to development of specific guidelines regarding the inclusion of women as subjects in NIH-funded extramural research.[2]Subsequently, in 1990, the Office of Research on Women's Health was established to ensure that women's health issues were adequately addressed in research conducted by the NIH and to ensure that women were appropriately represented in all studies supported by the NIH. Further, a Clinical Equity Provision was included in the 1993 NIH Revitalization Act to ensure that the efficacy of treatments for women would be scientifically determined and not extrapolated from data derived from male participants, as had been done previously.[3] This legislation formed the basis for the science of gender-specific research.

The new appreciation that single sex studies fail to provide a complete picture of the distinctions between men's and women's health and morbidity[4] has, simultaneously, raised concerns about women's access to safe, effective clinical treatment.[5] Viewed from a gender lens, modern medicine is predicated on a startling lack of information about how women respond to treatments tested exclusively on men.[3]

Defining Women's Health, Sex and Gender

Initially, the notion of women's health was limited to issues surrounding reproduction: childbearing, menstruation, breast health and menopause. This archaic view has been termed "Bikini Medicine." The conceptualization of women's health has evolved significantly in the past decade and encompasses far more than reproductive issues.[6] As a result of this evolution, women's health is seen to depend on complex interactions between individual biology, health behavior and the socio-economic context of women's lives.[7]

"Sex" refers to biological differences between men and women such as chromosomes (XX or XY), internal and external sex organs and hormonal profiles. "Gender" refers to the socially constructed roles, values and personality traits that vary from society to society and over time. Every cell has a sex. Whether a cell contains an XX or XY chromosome may have an impact on everything from regulation of gene expression in a cell line to efficacy or toxicity of a pharmaceutical in a living human.[8] The Institute of Medicine (IOM) has stated that "Sex, that is being male or female, is an important basic human variable that should be considered when designing and analyzing studies in all areas and at all levels of biomedical and health related research" (IOM 2001, p.3). Sex and gender are interactive. In real life, there is a continuous interaction between the two; women's health is determined by the biology of being female and the social context of gender.

Accordingly, in recent years, there has been a shift away from talking about "women" to talking about "gender." This is evident at institutions of higher education, where "women's studies" are increasingly being replaced with "gender studies." This shift signals the end of the "one size fits all" era, in which there was a male norm in biomedicine.[4] Instead, the concept of sex and gender have now been recognized as determinants of health and disease for both women and men.[10]

While some emphasis on women's health is needed to correct the imbalances created by the historical use of men as the reference point in education, research and health services, this emphasis is not meant to minimize the impact of gender on men's health. Sex- and gender-specific medicine embraces the concept that differences between men and women encompass the entire organism – not just their reproductive biology – and that these differences have significant implications that will improve the precision and quality of healthcare for both men and women.

Incorporating a Gender Perspective into Medicine

As we begin to compare data obtained from the direct study of female patients with those we had gathered from males over the years, the new science of sex- and gender-specific medicine is emerging. We now have over 20 years of research, mandated by Congress to include women. How are we doing in areas of education, research and the clinical aspect of patient care?

Education

Are the doctors of tomorrow still learning the women's health of yesterday? Surveys of medical students and residents entering practice demonstrate that their programs lack education in gender-specific women's health and their examinations are void of questions that bring a women's health perspective into the thought process.[11] A 2003 survey of U.S. medical schools indicated that fewer than half of the respondents reported that they offer a women's health curriculum.[12] While 95% of these schools cover sexual and reproductive function specific to women, only a minority taught about the women's leading causes of death and medical disorders that disproportionately affect women. More recently, a 2006 study reported that 75% of medical schools had women's health courses, but only 7% offered interdisciplinary courses that offer a solid grounding in women's health.[13]

Research

Greater awareness of sex and gender medicine – through the increased attention of government agencies, researchers, and journal editors – has helped stimulate new perspectives on conducting research. For many, gender-based research has come to mean more than simply including women and acknowledging gender as a covariate; indeed, sampling and statistical techniques that simply adjust or control for differences in men and women fail to tell us whether the outcomes are the same for men and women. Ideally, researchers will begin to routinely examine how gender modifies or mediates factors related to disease outcomes.

However, recent evidence suggests that there remain barriers to the acknowledgment of sex and gender in funded and published research. Frequently, even the relatively simple steps of gender inclusion and gender-adjusted analyses are not performed. For example, of clinical trials published in the New England Journal of Medicine (NEJM) between 1994 and 1999, 86% of 120 did not perform gender-specific analyses.[14] In a review of 239 phase I and II clinical trials, two thirds of the trials excluded women entirely, and 90% did not conduct analyses specific to gender.[15] A 2010 Women's Health Research report by the IOM identified multiple gaps in the sex and gender-related content of existing research, such as a lack of studies on the social and environmental determinants of disease in women, few investigations into high-morbidity diseases affecting women, and underrepresentation of socially disadvantaged groups of women. They also noted that study findings were not well communicated to women who might benefit from them. These examples suggest that much progress must be made before clinical research comes near to meeting the new federal recommendations regarding gender.

Clinical

Gender-based medicine can only be translated into routine clinical practice if it is well informed by advances in research and systematically included in medical school and residency curricula. Despite attempts to make women's health curricula easily accessible, recent findings confirm that only a small percentage of healthcare providers incorporate this knowledge into their clinical practices.[16] If the emerging science continues to support the fact that sex and gender is a significant factor in diagnostic reasoning and treatment decisions, all healthcare providers will need to seek a greater understanding of gender-specific research findings in order to provide patients with safe and effective care.

Incorporating a Gender Perspective into Emergency Medicine

EM has come to assume an important role in healthcare in the U.S. EDs receive 120 million visits annually; this number is projected to continue to rise in upcoming years. Like all specialists, EM providers will have to be sensitive to the impact of sex and gender differences on health care delivery; unlike most other health care providers, they must learn to incorporate these considerations in a high-acuity, high-volume care setting. Clearly-articulated information related to the practice of sex and gender medicine will be particularly critical in the practice of EM, where key decisions can lead to large differences in outcome over a short period of time.

Yet to date, the specialty of EM has not been a high performer in inclusion of women in clinical research or analysis of health outcomes by gender. A review of EM literature published in 2011 found that only 2% of the studies reported gender-specific outcomes and only 10% included gender as a covariate or independent variable in the analysis. In 21% of the studies subject gender was not reported.[17] Based on similar reviews of the scientific literature in other fields[3, 18, 19]; EM seems to be underperforming in its attention to the effect of gender on disease.

However, recent activities have suggested that gender-specific science is becoming a priority area of growth within EM. A number of recent publications have drawn attention to sex- and gender-specific topics or gaps in our knowledge about sex- and gender-specific issues.[17] In 2014, *Academic Emergency Medicine (AEM)*, the journal of the Society of Academic Emergency Medicine (SAEM), selected gender-specific emergency medicine research as the focus of its one-day consensus conference, an annual event designed to shed light on a priority area of emergency care-related research. The same journal instituted a policy to require original investigations to report a breakdown of subjects by gender. The SAEM Academy of Women in Academic Medicine (AWAEM) has established as one of its core objectives the advancement of research that relates "to our understanding of the role of sex and gender in emergency illnesses/injuries and emergency care and practice."[20]

Rhode Island is the home of one initiative to expand and sustain knowledge around sex- and gender-specific medicine related to emergency care: in 2011, the Department of Emergency Medicine at The Warren Alpert Medical School at Brown University established a Division of Sex and Gender in Emergency Medicine (SGEM) (formerly called the Division of Women's Health in Emergency Care). The division runs a two-year fellowship-training program in sex- and gender-specific medicine and women's health for EM residency graduates. Division members, who are a multidisciplinary panel of Brown faculty, perform original research focused on sex- and gender-based analyses in a variety of acute care topics including Gender Discrepancies in Time-to-ECG, Chest Pain Unit Stress Test Utilization, and Completion of Resuscitation Bundle in Severe Sepsis and Septic Shock. Educational activities include instruction of residents in a four-week clinical elective that provides rich clinical opportunities, including at the Women's Cardiac Center at The Miriam Hospital and Hasbro Children's Hospital Adolescent Clinic. A fundamental goal of SGEM is to raise regional and national awareness about sex and gender-based health issues and research by establishing a community advisory board and creating educational programs for SAEM. The intent of this division is to bring national attention to the new science of sex and gender research and ultimately contribute to the effective management of women in the acute care setting.

CONCLUSION

Health care providers are beginning to recognize the need to improve outcomes for women and the importance of understanding the role of sex and gender in clinical practice. Continued progress in research with accompanying curricular advances have the opportunity to translate into improved diagnosis and treatment of both male and female patients. The opportunity exists for emergency physicians to inform the study of sex- and gender-specific acute clinical care and translate this new data into lifesaving outcomes. Recent activities have suggested that sex- and gender-specific medicine is becoming a high priority in the field of Emergency Medicine.

For more information: www.rhodeislandhospital.org/sgem

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Concussion: A Primer for the Physician

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Concussions have garnered much attention in recent years and are recognized as having far reaching and potentially permanent consequences. They often cause significant and sustained neuropsychological impairments in information-processing speed, problem solving, planning, and memory, and these impairments are worse with multiple concussions.[1] This is best demonstrated in athletes, a population of patients at greatest risk for repeated head injuries. In fact, concussions are the most common head injury sustained by athletes; 8.9% of all high school sports injuries reported are concussions and account for 19% of all non-fatal injuries in football.[2] The incidence of concussion among American teen athletes has grown from 300,000 incidents annually 10 years ago to upward of three million cases now. The increase is likely due to the increased awareness by the sports community, leading to greater recognition and reporting. It is unclear if changes in rules and protective equipment has changed incidence.

Nonetheless, these figures underestimate the frequency of concussions, as those with minor head injuries are often unlikely to seek care. In a survey by the Associated Press in 2009,[3] it was found that at the professional level, nearly one-fifth of 160 NFL players had hidden or downplayed the effects of their concussions. Athletes fear being removed from play and letting teammates down. Coaches, sideline personnel, and athletes themselves often do not recognize their own symptoms as a concussion. According to a McGill University study, 70.4% of athletes surveyed retrospectively reported experiencing the symptoms of a concussion during the past year, but only 23.4% realized that they had sustained a concussion in real time.[4] The study also found that 84.6% of athletes with a concussion had actually experienced more than one concussion. Part of the dilemma in diagnosing concussions is that the definition itself has been evolving. At this time, the most accepted definition of concussion is a clinical one, introduced in 2001.[5]

> Concussion is defined as a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces. Several common features that incorporate clinical, pathologic and biomechanical injury constructs that may be utilized in defining the nature of a concussive head injury include:
>
> 1. Concussion may be caused either by a direct blow to the head, face, neck or elsewhere on the body with an ''impulsive'' force transmitted to the head.
>
> 2. Concussion typically results in the rapid onset of short-lived impairment of neurologic function that resolves spontaneously.
>
> 3. Concussion may result in neuropathological changes, but the acute clinical symptoms largely reflect a functional disturbance rather than a structural injury.
>
> 4. Concussion results in a graded set of clinical symptoms that may or may not involve loss of consciousness. Resolution of the clinical and cognitive symptoms typically follows a sequential course; however, it is important to note that, in a small percentage of cases, post-concussive symptoms may be prolonged.
>
> 5. No abnormality on standard structural neuroimaging studies is seen in concussion.

Contrary to popular belief, loss of consciousness is not required for the diagnosis of a concussion. In fact fewer than 10% of concussions include a loss of consciousness.

Post-concussive syndrome, a constellation of symptoms seen after a head injury, is defined by the World Health Organization as starting at 3 months after the injury. Until this time, symptoms reported by the athlete are referred to as "concussive symptoms."[6]

SEQUELAE

The most feared complication of a concussion is second impact syndrome. This rare condition occurs when a second impact is sustained before the brain has recovered from the first concussion. This has only been reported in children and can be catastrophic. Those who survive are often left permanently disabled. By 2003, 21 deaths had been attributed to second impact syndrome.[7]

Psychiatric sequelae of mild traumatic brain injury include dementia, depression, and early onset of Alzheimer's and other memory-related diseases.[8] A 2005 UNC Chapel Hill survey of 2,550 retired professional football players found that 61% had experienced at least one concussion during their career, with 24% experiencing at least 3 concussions, and that this population had a significantly earlier onset of Alzheimer's disease than the general male population.[8] Another survey of 1,063 retired NFL players found that 6.1% of players age 50 and older had been diagnosed with a dementia-related condition, while age matched controls had

a rate of 1.2%. They also found that younger players (30 to 49 years) had a rate of 1.9%, 19 times the age matched control rate of 0.1%.[9]

The neuropsychological effects of sports-related concussion have been extensively documented.[6] A study comparing cognitive function and post-concussive symptoms between 183 college athletes with concussions and age-matched control subjects found impaired performance and increased headaches, concentration difficulties, and behavioral problems in the injured group. Furthermore, in a study of boxers, 100% of those studied were found to have impaired concentration, attention, and memory. The degree of cognitive dysfunction was proportional to the boxer's sparring exposure, a finding that supports the concept that multiple concussions have a cumulative adverse effect on cognitive function.[10] Athletes who suffered multiple concussions were found to perform more poorly on neuropsychological tests and were more likely to have prolonged learning difficulties than those with a single or no history of concussion.

Another postulated long-term consequence of mild traumatic brain injury is Chronic Traumatic Encephalopathy (CTE), a disease that develops as a result of multiple concussions and subconcussive blows to the head. It is associated with personality changes, memory impairment, parkinsonism, and speech and gait abnormalities. First described in 1928, it was believed to be a disease that affected only boxers but is now believed to affect a much larger population of contact athletes, military personnel, and others who sustain multiple minor brain traumas.[11]

The result of concussions is cumulative. The forces required to sustain a subsequent concussion need not be as great as those that result in an initial concussion, a finding that persists even after complete recovery. Extrapolating these long-term consequences from the NFL to the college, high school, and Pop Warner athlete is cause for concern. Early identification and proper treatment can help reduce the numbers of some of these complications and educates the athlete on the risks of head injury while playing sports.

PATHOPHYSIOLOGY

Concussions have been recognized to result from a confluence of head acceleration, sheer force, and rotational deformity.[6] The signs and symptoms of concussion are related to a metabolic dysfunction in the inferior parietal, prefrontal, and cingulate cortex. Decreased cerebral blood flow, hypermetabolic state with increases in glycolysis, glutamate-induced excitotoxicity, and abnormal cellular ionic fluxes occurring after a concussion all contribute to the dysfunction.[12] Because a concussion is a functional disturbance rather than a structural one, there are no gross changes on CT and MRI.

DIAGNOSIS AND MANAGEMENT

Acutely, a thorough neurologic exam should be done either on the sideline, in the Emergency Department, or in the primary care office. The history should probe the presence and severity of symptoms commonly seen in concussion, as well as eliciting a brief history of prior head injuries. Symptoms of a concussion usually fall in one or more of six categories: cognitive, physical, emotional, balance and vestibular, visual, and sleep.[6]

The cohort of patients that requires urgent neurologic imaging is not well defined. From the sideline, patients with a concerning physical exam or deteriorating neurologic status should be emergently transported to the Emergency Department. The goal of imaging is not to diagnose a concussion, but rather to exclude more life-threatening brain injuries, including skull fractures, intracranial hemorrhage and parenchymal contusion. The American College of Emergency Physicians has published guidelines to help identify those patients who require imaging after sustaining a blunt head injury. (http://www.acep.org/Clinical---Practice-Management/Revised-Clinical-Policy--Neuroimaging-and-Decisionmaking-in-Adult-Mild-TBI-in-Acute-Settings/)

The management of concussions continues to evolve. To date, there are over 70 definitions and grading scales for concussion, all of which have fallen out of favor. Nevertheless, the initial goal of concussion management is to protect the brain and reduce brain vulnerability. To that end, any athlete who sustains a concussion should not be allowed back on the field the same day. Based on their symptom score and threshold, instructions should recommend individualized programs of physical and cognitive rest, as well as reduced visual stimulation to hasten recovery. Given the natural pathophysiology of concussions, symptoms can worsen within the first 24-48 hours; therefore, the athlete should not be allowed to return to the field and should be observed during this time.[6]

Balance testing (such as Balanced Error Scoring System testing) and computerized neurocognitive testing have been found to be helpful adjuncts in managing the patient with a concussion.[13] For both, baseline testing plays an important role in offering a personalized point of comparison, similar to a baseline EKG. In general, computerized neuropsychological assessment employs a 30-minute online module that includes a symptom checklist and tests of memory, speed and processing time. When a baseline test is available, it can be used as a tool to guide the clinician in deciding when it is safe for a patient to return to activity. However, the computerized testing cannot serve as a substitute for a medical evaluation and is not a stand-alone assessment program.

Once the athlete is asymptomatic and clinical examination, balance and neurocognitive test scores normalize, he or she may be considered for physical reintegration. This involves a graded return to play as described in the Prague/Zurich guidelines.[14] The student athlete represents a special population that also requires cognitive reintegration. No guidelines exist regarding cognitive reintegration and often this is done in collaboration with the athlete, the parents, and the school.

THE LAW

Inspired by Zackery Lystedt, in 2011, Rhode Island, along with all of the other states, enacted a youth sports concussion-related law. While the details vary slightly from state to state, the goal of the law is to treat our high school athletes as formally and aggressively as we do our professional athletes. Patients who will be putting themselves at risk for another head injury, i.e. athletes, require documentation stating that they have recovered from their concussion. Optimally, evaluation and return to learn and play decisions should be managed by an individual with experience in managing sports-related concussions.

In June 2014, the law was expanded requiring school nurses to obtain education regarding the signs and symptoms of a concussion. Because cognitive activity can exacerbate the symptoms of a concussion, school nurses are poised to identify those who have a delayed presentation of their concussion.

For further information, visit the Heads Up program website, an online resource developed by the CDC to help educate medical professionals, coaches and parents about concussions: http://www.cdc.gov/concussion/HeadsUp/youth.html.

FUTURE DIRECTION

The area of concussion research has exploded in Rhode Island and nationally. Please refer to the May 2014 RIMJ to find out about projects being conducted in Rhode Island, available at: http://www.rimed.org/rimedicaljournal/2014/05/2014-05.pdf

Graded return to play protocol: from "Consensus statement on concussion in sport: the 3rd International Conference on Concussion in Sport."[14]

Rehabilitation stage	Functional exercise at each stage of rehabilitation	Objective of each stage
1. No activity	Complete physical and cognitive rest.	Recovery
2.Light aerobic exercise	Walking, swimming or stationary cycling keeping intensity < 70% MPHR No resistance training.	Increase HR
3.Sport-specific exercise	Skating drills in ice hockey, running drills in soccer. No head impact activities.	Add movement
4.Non-contact training drills	Progression to more complex training drills e.g. passing drills in football and ice hockey. May start load progressive resistance training)	Exercise, coordination, and cognitive Restore
5.Full contact practice	Following medical clearance participate in normal training activities	confidence and assess functional skills by coaching staff
6.Return to play	Normal game play	

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The Extinction of Triage

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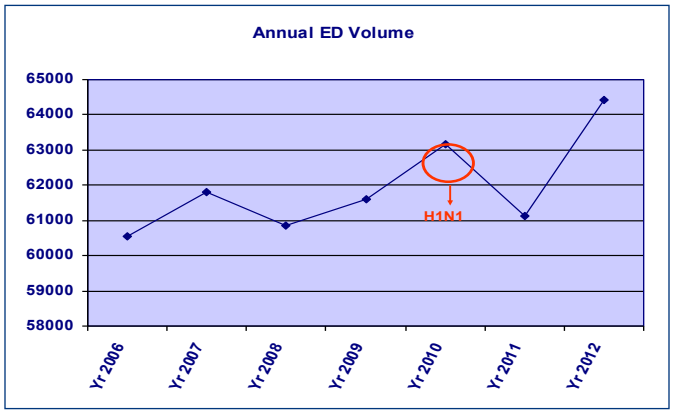
In the past few decades, the volume of patients seeking emergency department care has risen, while the number of hospitals across the U.S. has declined. This means that today's hospitals must evolve to accommodate more patients. Facilities are operating with limited staff and space resources, and seek to optimize their processes to achieve the highest efficiency, without sacrificing quality or safety. Triage is one part of emergency department management that has undergone a critical re-evaluation to enhance efficiency, while following standards of care. We describe the results of our hospital's process redesign.

The concept of triage is believed to have originated in France during the Napoleonic era. Baron Dominique-Jean Larrey, Napoleon's surgeon, was credited with both the creation of a precursor to the modern ambulance unit and a classification system for prioritizing the wounded on the battlefield.1 In its earliest medical origins, military triage placed highest value on those soldiers who could be quickly returned to battle. Arguably, however, it was not until the Vietnam era that military triage principles were brought to American soil and applied to the civilian hospital setting. During this time, civilian helicopter ambulances, paramedic services, and resources to handle mass casualties began to evolve on the home front. As hospital emergency department's grew in volume, size and sophistication, so too did the variety of triage processes nationwide.

The current comprehensive triage goal is to gather enough information about the patient to determine the acuity, or level of severity of the illness, of the patient. This level determines the rapidity of care that needs to be delivered to the patient; i.e. whether that patient has an immediate or urgent potentially life- or limb-threatening illness, or can safely wait for the care that is expected. There are many different examples of triage systems currently in use in the United States; for example, some hospitals use a two-level triage (emergent versus non-emergent), while others use up to a five level triage (Resuscitation, Emergent, Urgent, Non-urgent, Referred). The Emergency Severity Index (ESI), a five-level triage scale developed by Drs. Richard Wuerz and David Eitel, has become the most widely used system in the US.2 The ESI triage system sorts patients based both on their need for medical attention and their anticipated use of resources (lab, imaging, etc) in the emergency department. Many hospitals have developed nursing order protocols or experimented with physician or midlevel providers at triage.

Figure 1. Annual ED volume at Kent Hospital in Warwick, RI. The discrepancy in 2010 can be attributed to the increase in patients due to the H1N1 outbreak.

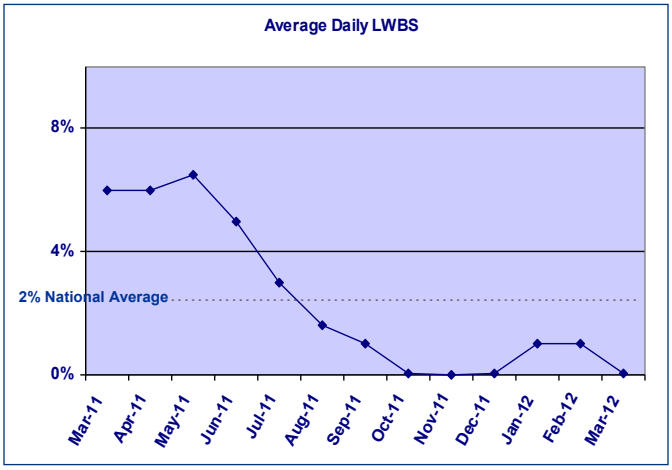


At Kent Hospital, in Warwick, RI, we report on a delivery of care model designed to rapidly and safely bring the appropriate patients to the appropriate area of the emergency department.

Before the process changes in patient triage and evaluation that were implemented in July 2011, the Emergency Department (ED) at Kent Hospital was typical of many larger-than-average-sized community hospitals across the U.S. (**Figure 1**). Patients would present at the ED entrance via private vehicle, ambulance, or other means and would be triaged by a registered nurse. Some patients arriving by ambulance would have this evaluation process completed after being placed in a patient bed. This process would involve the collection of demographic information, vital signs, and a nursing assessment of the patient's presenting complaint and current medical condition. Full registration of the patient was also frequently accomplished in this model. This process would often take 5-15 minutes, and based on the results of this triage evaluation, the patient would be placed in a patient care room where they would subsequently wait for evaluation by a medical provider, or in a chair in the ED waiting room if the patient was deemed to be medically stable and there were no available patient care rooms.

We abandoned this triage process because of its many flaws. Patients would not necessarily have rapid access to medical care, and as a result would often wait for long times before necessary treatment and testing were initiated. At our hospital, and at many emergency departments nationwide, patients would often wait up to several hours before

Figure 2. Average daily percentage of patients left without being seen at kent Hospital in Warwick, RI. The RAA was implemented in July 2011.



being evaluated by an advanced practitioner or physician, and up to ten percent of patients would become frustrated and leave without being seen by a medical provider. This "Left Without Being Seen" metric was substantially higher than the national average of 2% (**Figure 2**). This flow model inevitably created a bottleneck that hindered timely access to care.

As in most hospitals dealing with similar challenges, our hospital administration recognized these deficiencies in addressing the needs of the community. ED Leadership, front line staff, and Hospital Administration worked in collaboration to envision and redesign a new triage model that would reduce the time required to triage patients while maintaining patient safety, reduce the wait time to see a medical provider, enhance the patient experience, and improve overall throughput time to patient discharge from the ED. Typically these types of cultural and process changes are best accomplished with strong administrative support, as well as staff involvement and education.

The new model developed by this team affected clinical space, staff function, and patient flow. At Kent Hospital, the team opted to convert an area of the ED formerly used to treat low acuity patients and a portion of the existing waiting room into a new 10-bed area titled the "Rapid Assessment Area" (RAA), open from 8 AM to 1 AM each day. This model also involved a redistribution of existing nursing staff and medical providers. In the new model the triage process has evolved into a rapid intake process, during which a technician collects only basic demographic patient information and vital signs when a patient presents for care. The goal of this new process is to place every patient in a treatment bay within five minutes. The team leader nurse (TLN) in the RAA is ultimately responsible for all patients presenting to this intake area. Those patients requiring cardiac monitoring will bypass the Rapid Assessment Area and be sent to a monitored bed in the main emergency department under the direction of the TLN. If a patient is deemed appropriate for an unmonitored bed, they are placed in one of the available beds in RAA for evaluation by the nurse and licensed independent provider which may be a physician, physician assistant, or nurse practitioner. Patients arriving by EMS are evaluated by a registered nurse who determines bed placement based on the patient's chief complaint and, if assessed to be stable for evaluation in the RAA, are sent there for further care.

There are infrequent situations where the RAA provider evaluates the patient and determines the patient needs to be moved or "re-triaged" to a cardiac monitored bed, in which case an appropriate hand off communication is given to the treatment team in that area. This early provider evaluation ensures the highest quality of care for these patients. Patients with low acuity complaints have testing and treatment initiated in RAA, and are subsequently moved to a comfortable area to await disposition. Patients deemed appropriate for RAA but requiring more time-consuming testing or treatment are moved to another treatment area where they receive this ongoing care under the continued management of the RAA provider team. This ensures optimal utilization of RAA treatment bays.

The patient care process is further improved by the use of a dedicated diagnostic imaging area in RAA where patients receive basic radiological studies. This area is staffed by a diagnostic-imaging technician during the hours of operation of RAA. Point-of-care testing is done in RAA, and transport personnel dedicated to RAA transport other laboratory specimens to the main laboratory when needed. Lastly, the full registration process is completed only after the patient care process is complete. The registered nurse reviews all discharge instructions, prescriptions, and teaching with the patient. The registrar completes the full registration process in an area adjacent to the RAA next to the main exit from the ED, then provides the patient with all discharge documentation, including prescriptions.

Perhaps most crucial to the success of the entire process was the need to change the culture in which medical care was provided to patients. The traditional triage process had been in place for decades, as had the notion that patients should stay in an ED bed once placed there, as opposed to considering the overall department's need to maintain patient flow when considering where to locate patients during various components of their care. Efforts had been made previously to improve the triage process at Kent with variable success, and the environment was ripe for change. After a number of planning meetings between ED leadership and leadership of all ancillary departments, a plan was developed to include a ten-day "test for change" of the new model of care. Everyone involved in the patient care process, from technicians to nurses to physicians to registrars, needed to reevaluate their mindset about how patient care and patient flow had previously been provided.

The implementation of the Rapid Assessment Area at Kent Hospital clearly shows an improvement in average

Figure 3. Average door to provider time for all patients in minutes at Kent Hospital in Warwick, RI. The rapid assessment was implemented in 2011.

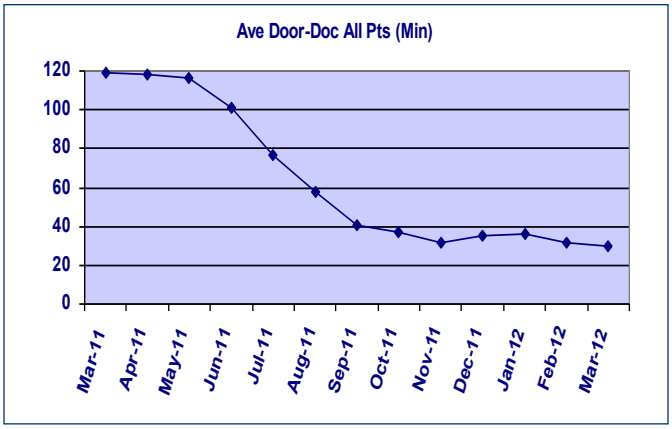


Figure 4. Average turnaround time for all patients in the emergency department at Kent Hospital and average ED daily volume. As one can see, even though the daily volume increased, the turnaround time still decreased.

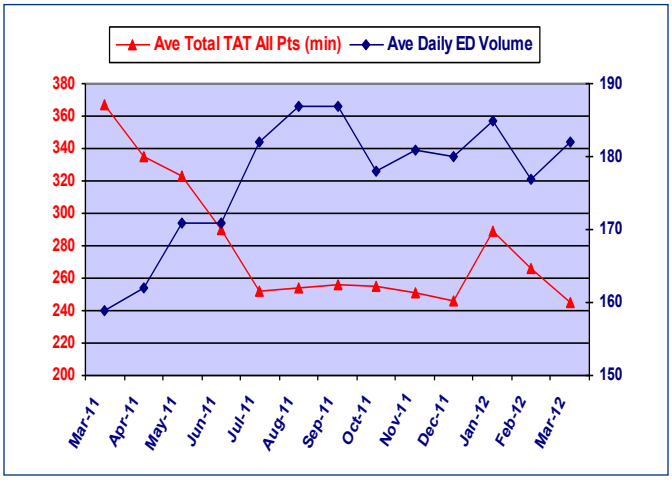
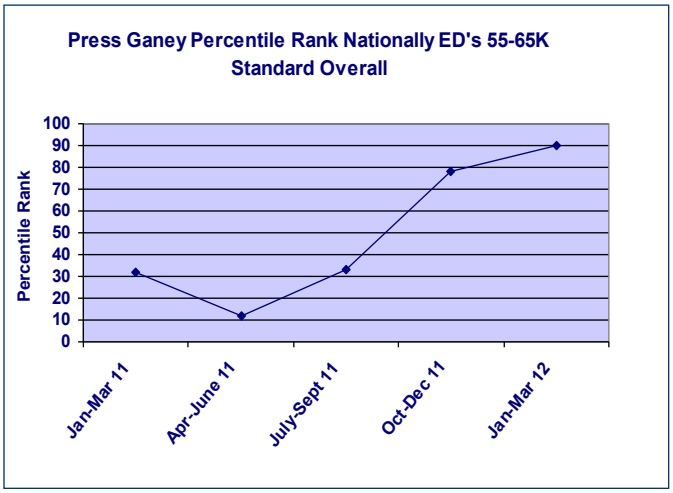


Figure 5. Percentile rank of Press Ganey scores for Kent Hospital in Warwick, RI when compared nationally to similarly sized emergency departments. The RAA was implemented in 2011.



door to doctor time (time from arrival into the ED to being evaluated by a medical provider) (**Figure 3**), a decrease in the percentage of patients leaving without being seen (patients registering to be seen by a medical provider but leaving the ED prior to this evaluation) (Figure 2), and an improvement in the turn-around time (time from arrival to the ED to disposition from the ED) for all patients in the emergency department (**Figure 4**). No additional staff were required for the first year of the process. However, because of the success of the initiative, the hours of operation have subsequently been expanded and additional physician, mid-level provider, and nursing staff has been added to accommodate those hours. Since the inception of the RAA, Kent Hospital has achieved a statistically significant improvement of 4.7 mean score points for Emergency Department Overall Satisfaction (**Figure 5**) on the official January 2012 Press-Ganey report, which is a nationally recognized patient satisfaction survey tool used by over 50% of the hospitals in the U.S.3 The process change we report exemplifies the way emergency departments need to continuously re-evaluate the way in which they deliver care to their communities. Flexibility is crucial to improving throughput. Redesigning care models is best accomplished with hospital administrative support, fostering staff interest and engagement in achieving goals in a data-driven environment.

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Scribes: Letting Doctors Do What They Do Best

BENJAMIN M. MARKS, MATTHEW A. KOPP, MD, FACEP, CPC

Delegating the chore of data entry is not a new idea. In the past, physicians have utilized dictation software and transcriptionists to document patient records. As more and more hospitals and private practitioners are transitioning to an electronic medical record to be in compliance with "meaningful use," a new class of medical professional has emerged to alleviate the burden of documentation. Many Emergency Departments and other high-volume practices have turned to medical scribes, highly trained individuals who document patient encounters and assist in a myriad of nonclinical tasks.

Typically, scribes are graduate or undergraduate students seeking clinical experience in pursuit of a career as a physician or midlevel provider. Many scribes work part-time throughout their college careers while others take advantage of a gap year while concurrently applying to professional schools.

The Joint Commission defines a scribe as an unlicensed person hired to enter health information into the electronic medical record under the direction of a licensed independent practitioner, physician assistant, or registered nurse.[1] Unlike transcriptionists, scribes work alongside physicians and are able to chart and edit the medical record in real time. Moreover, the role of a scribe is not limited to documentation. In addition to documenting the history and physical exam, scribes complete time-consuming forms, discharge paperwork, track test results, and retrieve old medical records and EKGs. They can also gather supplies for procedures and confirm medical information at outside facilities such as nursing homes and pharmacies. Their position is, in actuality, a hybrid between documentation specialist, personal assistant, and communications liaison.

Because scribes are not responsible for providing direct clinical care, they are more readily accessible to patients who rely on them to relay messages to the doctor and other clinical staff. Scribes fulfill a critical role by completing all of the necessary and increasingly tedious tasks mandated by various regulatory agencies. With the use of scribes, doctors are able to focus their attention on providing care while patients enjoy the undivided attention of the medical provider. The scribes equally appreciate this new role as they have an unparalleled experience, gaining invaluable insight into medicine and the cognitive process behind medical decision-making.

Five years ago legislators passed the American Recovery and Reinvestment Act, encouraging eligible providers to adopt an electronic health record (EHR). Incentive programs legislated rewards for early implementers who demonstrated "meaningful use" of the technology. The new laws also imposed penalties for late implementation after 2014. Beginning next year, Medicare reimbursements will decrease 1% annually for providers who are not compliant with the mandate.[2] Many physician practices anticipated negative impacts to revenue and productivity with the implementation of an EHR and subsequently piloted scribe programs to mitigate potential losses and maintain an efficient work place.

There are two practical ways to roll out a scribe program: outsource to an established medical scribe service or develop a program internally. Quotes from outside companies typically range from $20 - $25 per scribe hour,[3] a cost that includes human resources, ongoing training, scheduling and continuous management. Additionally, many companies charge significant initial assessment and start up fees when accommodating larger practices.[4]

Homegrown programs are an alternative to outsourcing and their success depends on three factors: 1) administrative oversight, 2) close proximity to colleges and universities and 3) an effective training program. Under the direction of a "physician champion," trained personnel can provide program oversight, ensure accurate documentation, and evaluate employee performance.[3] Larger practices often utilize their own human resources department to assist with scribe recruitment and hiring. Groups located around institutions of higher learning are uniquely positioned to build their own scribe program because they enjoy a renewable pool of highly qualified applicants. These applicants are typically eager, tech-savvy, and academically accomplished. However, hiring these career-oriented individuals creates an inherent obstacle for these programs; employees often leave after one or two years of service. The high rate of turnover as scribes advance to professional schools necessitates a robust recruitment and training program.

Typically, before working in a clinical setting, trainees complete approximately 100 hours of clinical and didactic training, usually incorporating a review of anatomical and medical terminology, extensive shadowing, and EHR education. Successful programs maintain a strict standard of competency before allowing scribes to work clinically. Scribes must demonstrate an understanding of medical vocabulary, proficiency with documentation software, and an accurate understanding of evaluation and management (E/M) coding.

Both internal and outsourced programs need to meticulously monitor scribe performance to ensure quality documentation and compliance with governmental standards. Metrics from billing and coding organizations provide the necessary data to measure scribe productivity. Scribes routinely attend meetings for billing and compliance updates and are well versed in the medical and legal implications

of the permanent medical record. Physicians often rely on scribes for keeping them abreast of documentation requirements; some programs train scribes to review records in a live clinical setting and alert the physician of potential documentation deficiencies. Although initially viewed with skepticism by regulators, administrators, and even some physicians, the scribe role has demonstrated financial gains and improved efficiency. These benefits, coupled with increases in both provider and patient satisfaction, justify the expenditure of time and resources needed to implement a scribe program.

Although emergency departments most frequently employ scribes, many other specialties have expressed interest and considered the logistics of integrating scribes in their own practice. In one cardiology clinic physicians using scribes saw a 59% increase in patients seen per hour and a 57% increase in relative value units (RVU) per hour.[5] A California community health clinic assessed the quality of patient chart documentation with the use of scribes. The accuracy of the ICD-9 coding increased by 10%, while the accuracy of E/M coding increased by 17%.[6] Another retrospective study of scribes in an emergency department correlated scribe use with an increase of 2.4 RVUs billed per hour.[7] In all three studies cited, scribes generated a positive margin. In addition to improvements in efficiency and accuracy, scribe programs have consistently demonstrated an increase in both physician and patient satisfaction.

Physicians in many fields have expressed frustration in response to the widespread implementation of EHRs. In a study regarding EHR satisfaction, International Data Corporation (IDC) researchers report that up to 58% of users are dissatisfied with the new technology, and providers continue to cope with decreased productivity and impeded workflow.[8] Scribe presence has helped to mitigate much of this dissatisfaction. In one recent study a urology practice saw more than a threefold increase in physician satisfaction when working with scribes.[6] The reasons for the increase in satisfaction become readily apparent when looking at the role of scribes in the ED. It is not uncommon for EM physicians to stay several hours after a shift has ended to complete their unfinished medical records. Working with a scribe can lessen the frequency with which this occurs. Because scribes complete the majority of the chart in real time, most providers make simple adjustments to the record at the end of their shift, attest to what the scribe has written, and leave work on time.

Anecdotally various institutions have reported a positive impact on patient satisfaction with the use of scribes.[6] While patients wait to see a provider, scribes can greet them and begin to document parts of the medical history. E/M guidelines published by the Centers for Medicare and Medicaid Services (CMS) permit scribes to independently obtain a review of systems as well as the past medical, social and family history.[9] Throughout the medical encounter, scribes can continue to gather information, communicate test results, inquire about response to medications, and ensure patient comfort. In this way, scribes act as a liaison between nurses and doctors, relaying patient concerns and communicating changes in the plan.

Until a few years ago, few publications addressed the use of scribes. As more physicians have begun to comply with the EHR mandate, there has been greater interest in utilizing scribes to transition from paper documentation to the use of an electronic record. Recent studies have bolstered anecdotal claims that scribes have a positive impact on overall productivity and patient/provider satisfaction. Until EHRs evolve in speed and simplicity, the use of scribes will allow doctors to do what they do best – care for patients.

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A Scribe's Reflection

KATIE BAIRD, BS, MD'17

Deciding to become a physician is by far the greatest commitment I have ever made. At the end of it all, I will have spent over 20 years in school and several hundred thousand dollars paying for my education only to graduate and spend several more years training rigorously as a resident! Yet, for a field that demands so much from its members, it offers relatively little opportunity for prospective doctors to gain insight into what lies ahead. How many premedical students truly know what they are getting into? I certainly did not. Unlike several of my premedical peers in college, I had no physicians in my family or prior exposure to the field to guide my decision. Throughout my undergraduate career, medicine was on the backburner; I only fulfilled the prerequisites because they were required courses for my biology major. By the time graduation rolled around, however, the idea of applying to medical school started to take shape. Yet I was still not comfortable with how little insight I had into what it really meant to be a physician. Most of my non-premedical friends had spent summers or semesters interning in their respective fields and were graduating into jobs that mirrored their experiences. Yet, for obvious reasons, you cannot let an untrained premed spend a summer interning as a physician! I felt that a gap year or two would be my best option to gain experience in medicine, but I was unsure how to spend this time. Fortuitously I came across the opportunity to work as a scribe and build a new scribe program for my local emergency departments and in return, received the best preparation for medical school I could have imagined.

When I started working in the Emergency Department (ED), I was the only scribe in the state of Rhode Island. To function as a scribe I needed to achieve two main goals: first, to educate myself, I needed a crash course in emergency medicine terminology and coding reimbursement standards in order to even begin to function as a scribe. Second, I hoped to convince our ED physicians that, as a scribe, I could improve the quality and efficiency of their shifts by charting on their behalf. Within a few months I had firmly decided to pursue a career in medicine, but oddly enough it was not just seeing the exciting and rewarding sides of practicing as a physician that had convinced me, but also the struggles of everyday work. Scribing is unique, not just because it gives one a front row perspective into the doctor's daily life, but it also makes one a very active member of the team. I can vividly remember shadowing several physicians while in high school and college, and always feeling as if I was an intruder – watching the healthcare team work as I viewed from the outside in. As a scribe, you are there for it all, working side by side with a physician for eight hours, and within very little time, the walls come down. The realistic perspective I gained of the rewards and the stresses of managing and caring for sick patients was invaluable to me. I was present for exciting and inspiring shifts that showcased the breadth of medical cases managed in the ED – from gunshot wounds and strokes to motor vehicle accidents. I was constantly in awe of the knowledge and skills of the attendings and residents I worked for. One moment they could be stitching up a finger, and the next intubating a new critical patient or running a code. I looked to these physicians as role models on how to deal with my own emotional responses to what I witnessed while working as a scribe. When I first started there were novel and powerful experiences in almost every shift I worked. From the first death to the first successful resuscitation, and the first laceration repair to the first thoracotomy, the nature of emergency medicine is such that no two shifts are alike.

It was not always exhilarating, however. There were also frustrating and disheartening shifts where physicians spent hours dealing with difficult and noncompliant patients, overflowing waiting rooms, conflicts within the healthcare team, and endless paperwork. I have no shame in admitting that I used to harbor a romanticized notion of what it meant to practice as a physician. If I had been asked three years ago what I thought was the greatest challenge in medicine, I would have likely have answered determining a diagnosis. My experience in the emergency department has been eye opening. I now recognize that the socioeconomic barriers to both preventative and curative patient care are an undeniable reality in modern clinical practice. Paradoxically, the more I learned about the challenges present in modern medicine, the more comfortable and confident I felt with my decision to pursue medicine.

The advantages of the experience did not end after entering medical school. Even as I wrap up my first year I can still appreciate how much support and confidence my prior exposure to the field has given me. One of the most significant features has been my comfort with the seemingly impenetrable language of medicine. I remember how, when I first began to work in the ED, I would listen to conversations between the medical staff and struggle to catch every third word. Attaining fluency in medical terminology is

analogous to learning a foreign language — there are vague and conflicting pronunciation rules, acronyms, abbreviations, redundant and overlapping terms, and even slang. Just as the best way to learn a foreign language is to spend time in the country with native speakers, I learned the language of medicine through immersion. My lexicon grew consistently with each shift I worked, with each chart I wrote, and with each patient history I reviewed and summarized. I learned the most by listening in on the conversations between consultants, analyzing how the attending or resident presented the case to their colleagues. While working, I made it a priority to become comfortable with every word I was not familiar with. Throughout shifts, I would make a list of terms to look up, and found that because I remembered the context in which they were spoken, I could learn their meaning with relatively little effort. Having a solid foundation in medical terminology has allowed me to focus just on the content taught in my medical school lectures, without the encumbrance of deciphering the language used. I have quickly learned that as a medical student you have to get used to constantly feeling uncomfortable with your inexperience – whether it is learning physical exams or interviewing patients for the first time. Thanks largely to my scribe experience, I feel confident about the use of appropriate medical language. In my first year doctoring course reading patient histories, writing up case reports, giving oral presentations, and having meaningful and informative conversations with physicians about patients has all been second nature to me because they were integral to my position as a scribe.

I once estimated that during the three years of working fulltime as a scribe I charted on close to 10,000 patients. That's 10,000 histories, chief complaints, physical exams, and diagnoses – thousands of examples I've been able to search through to help me remember the seemingly endless list of diseases and syndromes on my block exams. Scribing has provided a framework for my preclinical studies. For example, in my most recent neuroscience block, I did not struggle to imagine and memorize the sequence of events that occurs when a patient comes in which an acute head bleed and progressive herniation – I was able to draw on personal experience. Now that I am in medical school, I have the opportunity to fortify my observed medical knowledge with academic study. Learning and understanding more about things you have already witnessed is a potent motivator. It is incredibly exciting when I'm sitting in lecture and the professor mentions a disease or diagnosis I can vividly remember reading, seeing, or hearing about. Although scribing exposes you to a breadth of medical knowledge through observation, it only provides a superficial appreciation for the science behind the practice of medicine. As a medical student I have been happily able to flesh out and grasp the knowledge that lies beneath the surface. In a way, compared to the traditional student, I am learning "backwards," but having even a partial grasp on the "big picture" makes the details so much more relevant and rewarding.

Lastly, as I look forward to beginning my clinical rotations in the next few months, I know that scribing has thoroughly exposed me to clinical etiquette. On any given shift I worked as a scribe, I was part of an inter-professional team assigned to a specific treatment area within the emergency department. Effective communication is essential for a productive working environment, and most importantly patient care. Conflict is sometimes unavoidable, but time and time again I have seen that when workplace conflict is handled well, it provides an opportunity for professional growth. There are certain unspoken but critically important approaches that can best be learned from the experience of being a member of any professional team that you simply cannot learn in a classroom. The main responsibility for a medical student during our preclinical years is self-derived – performing well in classes and learning the material. Come third year, however, we transition from an observational to a functional role. We become part of a clinical team whose primary responsibility is external – the care of patients. As medical students we must learn to work cohesively with the entire medical team to accomplish that goal. I have seen firsthand observing medical students on shift while I was scribing, that it can be difficult to strike a balance between being a student whose priority is to learn and being a contributing member of the team. The unofficial mantra for every effective scribe is to "always be there when you need us, but out of your way when you do not." That simple goal was remarkably hard to accomplish in a crowded environment with diverse personalities and ever changing stressors. Yet growing into that role and learning how to be a valuable member of a team enabled me to advance both professionally and personally; I have confidence that it will ease my transition to the wards.

As my second year at the Alpert Medical School of Brown University comes to a close, I truly cannot imagine that I would have decided to go to medical school if not for my experience as a scribe. I am truly grateful.

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Reported Behaviors of Prescription-Drug Misuse and Medication Safety among Students Attending a Rhode Island University

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ABSTRACT

OBJECTIVE: College students are at high risk of illicit drug use, where nonmedical use of prescription medications ranks second behind marijuana. Assessment of college students' behaviors regarding prescription medication storage, disposal and sharing tendencies is needed to provide foundation for medication safety education on campuses.

METHOD: Students (n = 333) completed a prevalence survey assessing prescription medication use, storage and disposal activities upon obtaining prescription at the University pharmacy.

RESULTS: Unsafe student practices of rarely/never storing medications in locked place (77%), improper medication disposal (81%), witnessing (28%) and admitting (27%) medication sharing was reported. Female students were more likely to store medications unlocked ($p < 0.001$). Students living on-campus were more likely to witness sharing of medications ($p = 0.043$), and students living off-campus were more likely to have shared prescription medications ($p = 0.036$).

CONCLUSIONS: Campus education is needed regarding safe medication storage, proper disposal of unused medications, and risks associated with sharing medications.

KEYWORDS: prescription misuse, drug disposal, medication storage

INTRODUCTION

Prescription drug misuse has reached an epidemic level according to Centers of Disease Control.[1,2] In 2013, approximately 6.5 million people or 2.5% of the United States (U.S.) population were current nonmedical users of prescription drugs.[3] The most recent National Survey on Drug Abuse and Health from Substance Abuse and Mental Health Services Administration (SAMHSA) demonstrated college students are at the highest risk of illicit use, where nonmedical use of prescription medications ranks second behind marijuana use. The prevalence of current use of illicit drugs was 22.3% among full-time college students aged 18 to 22 in 2013, and most common medications misused by persons within this age group included pain relievers, tranquilizers, stimulants and sedatives. Of college students, males (26%) were more commonly current users of prescription drugs compared to females (19.2%). Based on SAMHSA data, most common source of prescription medications used for nonmedical purposes continues to be someone known to the person misusing (71.3%). In a recent study, 85% of college students identified their medication source as a friend, however, parents (18%) and other family members (12%) were also reported as sources.[4] Behaviors among college students are inter-related in regards to medication use, diversion and nonmedical use as they divert their medications to peers.[5]

As part of The U.S. Office of National Drug Control Policy, a Prescription Drug Abuse Prevention Plan was released in 2011, addressing four areas of focus: Education, Monitoring, Proper Medication Disposal, and Enforcement.[6] Education of college students is essential in tackling the problem of prescription drug misuse, as well as, education of healthcare professionals providing their care. Distribution of information regarding dangers of misusing prescription medications, proper storage and disposal is needed. Safe and proper disposal programs allow individuals to dispose of unneeded or expired medications in a safe, timely, and environmentally responsible manner. Additionally, secure medication storage in dormitories and off-campus housing is also needed to provide a barrier to prescription drug misuse. The purpose of this exploratory study was to evaluate reported behaviors and knowledge of college students regarding medication storage, disposal and sharing tendencies to provide a foundation for medication safety education for college campuses.

METHODS AND MATERIALS

Upon obtaining a prescription at the University pharmacy, college students were offered the opportunity to participate in the study. Study description, constituting informed consent, was provided. The study was written in English, and participants were required to complete survey of their own accord. Subjects under 18 years of age or not enrolled at the University were excluded. Students completed an anonymous survey assessing knowledge and behaviors regarding medication use, storage, and disposal. Completed surveys were collected at the pharmacy counter in a collection box. Additionally, a web-based link was provided to students who preferred to complete survey electronically. Study duration was 2 months in Fall Semester 2013.

Demographic data included age, gender (i.e., male, female and other), academic year, major field of study, residence location (i.e. on-campus or off-campus), reason for visit to University Health Services, current medical problems or diagnoses, and medication use. Major field of study was further categorized into 3 domains: health science-related, other science-related, or non-science-related field. Medications used were also categorized into controlled substance or non-controlled substance, in accordance with the U.S. Drug Enforcement Administration classification system.[7] Survey items assessing prevalence of activities related to prescription medication use, storage, and disposal are in **Table 1**. Item content was derived from SAMHSA survey statements on drug use and were validated by an University panel representing college students and healthcare professionals to ensure data captured was intended information and confirm clarity of statements.[3] Student-panel members also tested web-based survey link to ensure functionality.

Data analysis was performed using SPSS (version 20, IBM corp). Descriptive statistics were used for demographic variables, and chi-square tests for categorical variables. Spearman correlations and odds ratio with 95% confidence intervals were used for analyzing correlations among study variables and demographics. Institutional Review Board approved study protocol, and voluntary survey completion by students constituted informed consent to participate.

Table 1. Survey Statements

Survey Items on Likert-type Scale
How often will your medications be kept in a locked place (ex. cabinet with a lock)?
How often have you seen people sharing their medications, such as when studying, in the library, dorms, or at a party?
How often have you shared any of your prescription medications with a friend, family member, or someone you didn't know?
How often has a friend, family member, or someone you didn't know, share their prescription medications with you?
Survey Items with Specific Answers
If you don't finish all of the medication you are getting today, what will you do with the rest of it?
If you shared your prescription medications, what was the effect for the person you shared with?
What was your main reason for sharing your prescription medications with someone else?
How did it work for you?*

*to be answered if participant reported that someone had shared a prescription medication with them

Table 2. Study participants compared to campus demographics

		Number of study participants (%)	Number of University students enrolled (%)
Sample size	**N = 333**		**N = 16, 637**
Gender	Male	109 (32.7%)	7455 (44.8%)
	Female	222 (66.7%)	8932 (53.7%)
	Other	0 (0%)	
	No answer	2 (0.6%)	250 (1.5%)
Year in College	Freshman	113 (34.0%)	4392 (26.4%)
	Sophomore	61 (18.3%)	3361 (20.2%)
	Junior	64 (19.2%)	3144 (18.8%)
	Senior	55 (16.5%)	3165 (19.1%)
	5th year	28 (8.4%)	5th year/6th year/
	6th year/other	12 (3.6%)	other/graduate
			2575 (15.5%)
Residence	On campus	206 (61.9%)	7320 (44%)
	Off campus	126 (37.8%)	9317 (56%)
	No answer	1 (0.3%)	
Major Field of Study	Health science	118 (35.5%)	3708 (22%)
	Other science	84 (25.2%)	7092 (43%)
	Non-science/other	131 (39.3%)	5837 (35%)
Controlled Substance Prescription	Yes	29 (8.7%)	(10.6%)*
	No	304 (91.3%)	(89.4%)*

*Percentages of prescriptions filled during academic year 2013–2014

RESULTS

A total of 333 students completed the survey with most using paper-method (98.2 %). Two-thirds (66.7%) of participants were female. Freshman students comprised approximately one-third (34%) of participants accounting for largest proportion of representation among each of the academic years. Most students (61.9%) lived on campus and there was an approximately equal distribution of major fields of study, with 35.5% pursuing a health science-related degree, 25.2% pursuing other science-related degree, and 39.3% pursuing a non-science related degree. Of persons surveyed, 8.7% had a current prescription for a controlled substance, which is a reflection of the larger population at the university as 10.6% of the university health services pharmacy's prescriptions dispensed are controlled substances (**Table 2**).

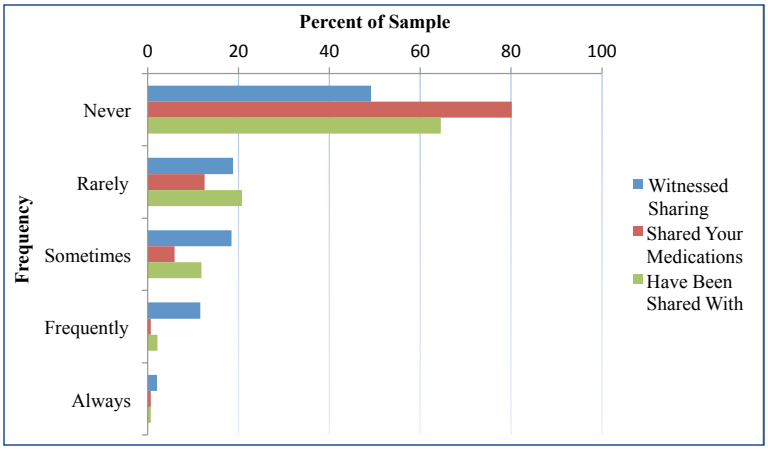
The majority (77%) of students reported they rarely/never kept medications in a safe or locked place. Regarding sharing of pharmaceuticals, 28% reported witnessing sharing of medications once a month or more, and 27% admitted to sharing their medications with someone else. Main reasons cited for sharing medications: 'to help someone with their medical condition' (42.6%) and they 'did not see a reason not to share' (20.4%) with 'no time to go to physician' (14.8%), 'could not afford medication' (4.6%), 'needed money' (2.8%), and 'physician would not provide medication' (0.9%) rounding out additional responses. Forty-one percent reported that

someone else had shared a medication with them, and the most common outcome of this behavior was reported to be alleviation of symptoms. Comprehensive results of medication sharing behaviors are in **Figure 1**.

When asked what they would do with unused medication, 52.5% reported they would save unused medication for another time, rather than disposing of it. Of those who reported they would dispose of unused medication, most common method was throwing away in the trash (81.1%).

Female students were more likely to report never keeping medications stored in locked place (OR 1.564, CI 1.197-2.043, p=0.001). Students who live on campus were more likely to be freshman or lower classmen (Spearman correlation (-0.986, p<0.001), and to have witnessed sharing of medications (57.9% vs. 42.1% off campus, p=0.043). Students who live off campus were more likely to have shared their prescription medications (34.4% vs. 24.4%, p=0.036). No statistically significant differences in drug safety outcomes among groups according to major field of study were observed (p>0.05).

Figure 1. Prevalence of Medication Sharing Behaviors in College Students



DISCUSSION

Use of prescription medications has become increasingly prevalent on college campuses.[8] Increased number of prescriptions equates to more individuals receiving treatment with coinciding rise in medication misuse.[9, 10] Between 1993 and 2005, college students' use of opioids increased by 343 percent, and use of stimulants increased by 93 percent.[10] However, 2013 data from SAMSHA reports nonmedical use of prescription medications in the past year among persons aged 18 to 25 years old has decreased from 2005 (15.1% vs. 12.2%; p < 0.01).[3] Specific pain relievers and stimulant use in persons aged 18 to 25 years old has also decreased since 2005 (12.4% vs. 8.8%; p < 0.01 and 3.8% vs. 3.7%, p = NS, respectively). However, a national college web-based survey of students from 2008-2013 observed no change among nonmedical use of opioids.[11] Though national data among this age group is conflicting, overall percentage of illicit use of prescription medications remains high as does lifetime use (26.6%) in this age group. Furthermore, 2013 national data among persons 18-25 year old in New England reports past year use of 15.5%, which is the highest percentage geographically among this population.

Recent studies completed on college campuses also suggest high rates of misuse.[5, 12] A study completed at a Midwest university observed significant increase in lifetime and past-year prevalence and frequency of nonmedical use of stimulants between 2003 and 2013.[5] Another study at a private liberal arts college in New York reported 36.8% of 303 total students surveyed used prescription drugs nonmedically.[12] This study also found nonmedical use of prescription drugs was higher in upper-classmen compared to freshmen, which is similar to our findings of more upper classmen sharing their medication with others.

Drug diversion of prescription medications is likewise becoming common on campuses. A 2009 study observed one-fourth of college students who were prescribed stimulants admitted to sharing medication with peers, and another recent study reported over 50% of students acknowledged diversion of prescribed stimulants to others.[13, 14] Most recently, McCabe et al. reported similar trends at a Midwest university over past decade of significant increase in stimulant diversion from 1.1% to 2.3%, p < 0.001.[5]

Our study reported similar statistics with 27% admitting to sharing medications with someone else and 28% reporting having witnessed medication sharing once a month or more. Most common reasons for drug diversion were helping to improve another person's medical condition or failing to see a reason not to share. These findings are similar to Stone et al, where college students who were misusers of stimulant medications were found to have positive attitudes in regards to medication seeking, whether giving or selling to friends.[8] Another study observed nonmedical use of stimulants was perceived more acceptable as study aid than other motives such as getting high or losing weight.[15]

To our knowledge, our study is first of its kind to determine college students' behaviors of prescription medication storage and disposal. The majority of students reported never or rarely keeping their medication in a safe or locked place. This finding was not surprising as college dormitories and off-campus housing environments often require shared space among students, particularly kitchens and bathrooms where another's personal items including medications would be accessible. Additionally, disposal programs must be addressed on campuses as over 50% of students surveyed described saving medications to use for another time. If they disposed of unused medications, college students did so improperly by placing them unaltered in the garbage.

It is important to note limitations of this research. Our data were drawn from a sample of students presenting to University pharmacy and as a result may be not generalizable to

other enrolled students. Our sample is only from one New England, public university with females being majority of respondents. These results may not provide similar findings at another university or college with different demographics. A self-report survey was utilized to collect information on prescription medication knowledge and behaviors. Due to voluntary nature and public display of survey, it was impossible to clearly identify the number of students who read survey and opted not to participate. This assessment technique may also have limited accuracy as respondents may have under- or over- reported their behaviors of nonmedical use of prescription drugs. Response bias may exist as participants may be more inclined to respond with what they consider more socially acceptable answers. Lastly, although measures were taken to avoid instrumentation bias during development process, it is possible a small proportion of respondents interpreted survey items in manner other than intended.

SUMMARY

Our findings, along with previous studies, provide support for campus-wide educational directives for appropriate use, secure storage and proper disposal of medications as recommended by The U.S. Office of National Drug Control Policy.[6] An educational campaign for both college students and healthcare professionals providing their care would increase awareness of risks associated with misuse of prescription medications. Future initiatives directed at healthcare providers could address prescribing medications in manner that limits excess or unused supplies. Although this study was not designed to assess students' knowledge regarding specific disposal of medications, based on our findings, it would seem logical educational initiatives addressing proper disposal of unused or unwanted medications would be warranted. Assessment of need in dormitories for secure storage such as combination safe, locked cabinet or drawer in each room, as well as, campus access to proper disposal mechanisms are also warranted for alignment with national policy for medication safety. Overall, data collection at the college level can help guide education of illicit substance abuse at individual universities, as unique trends of misuse may differ from national findings.

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Dyspnea on Daptomycin: Eosinophilic Pneumonia

ANN WOJTASZCZYK, MD; MATTHEW JANKOWICH, MD

ABSTRACT

We present a case of drug-induced acute eosinophilic pneumonia with characteristic imaging and bronchioloaveolar lavage (BAL) findings. Although not a common diagnosis, it is important to consider in the right clinical scenario, including a patient with presumed pneumonia that does not respond to typical treatment. Diagnosis is confirmed by bronchoscopy with BAL. For drug-induced types, treatment includes removal of the offending agent. Corticosteroids are used if symptoms are severe and can result in rapid clinical improvement.

KEYWORDS: Daptomycin, eosinophilic pneumonia, adverse drug event

CASE REPORT

A 76-year-old man presented to an academic community hospital with complaints of worsening dyspnea on exertion, cough, subjective fevers, nausea and fatigue; gradually increasing over the past week. He denied orthopnea or increase in lower extremity edema. There were no sick contacts and his cough was non-productive. He was a distant former smoker. He had been discharged from the hospital the week before, after treatment for methicillin-resistant *Staph aureus* (MRSA) septic arthritis of the left knee and pacemaker lead vegetation. He had undergone irrigation of his left knee and pacemaker lead extraction. His course was complicated by left leg deep venous thrombosis as well as acute tubular necrosis due to transient hypotension as well as possible vancomycin toxicity. During that admission, at the time of his peak renal failure, he was transitioned to daptomycin to complete his 6-week antibiotic course.

Initial vital signs in the emergency room were T 100.1, BP 134/74, HR 92, RR 20, 88% on RA. He was elderly and chronically ill appearing, but in no acute distress. Mucous membranes were moist, and there was no jugular venous distension. Lung auscultation revealed inspiratory crackles at the right base. Heart rate and rhythm were regular. There were no murmurs. The abdomen was benign and extremity exam showed left calf swelling. His right arm peripherally inserted catheter site was clean, dry and intact. He had no rash.

His laboratory studies revealed: Na 136mmol/L, K 4.5mmol/L, Cl 106mmol/L, CO2 17mmol/L, BUN 54mg/dL, creatinine 3.9mg/dL, glucose 136mg/dL, WBC count was 11,200/µL with 88.4% neutrophils, 2.1% eosinophils, hemoglobin was 8.3g/dL, platelets 257,000/µL; troponin I was negative. C-reactive protein was profoundly elevated at 230mg/L (normal range 0-10.0mg/L). EKG showed a normal sinus rhythm with a left bundle branch block. Chest x-ray (**Figure 1**) revealed bilateral airspace disease and a chest CT without contrast (**Figure 2A–C**) revealed extensive bilateral areas of ground glass opacity in a peripheral distribution as well as patchy areas of consolidation.

Initially, the patient was treated with broad-spectrum antibiotics for potential healthcare-associated pneumonia (HCAP). Over the first 48 hours of his hospital stay he developed increasing hypoxemia, ultimately requiring 100% oxygen by non-rebreather mask. He also went into atrial fibrillation with rapid ventricular response and was transferred to the ICU for further care. His heart rate was controlled. The patient had historical Chest CT scans as an outpatient from the year prior to admission with findings

Figure 1. Portable AP chest radiograph taken the day of admission, revealing bilateral, peripheral airspace disease with sparing of the perihilar regions. This pattern of lung involvement is different from other typical causes of bilateral airspace disease including pulmonary edema and ARDS, which tend to be more central or diffuse respectively.

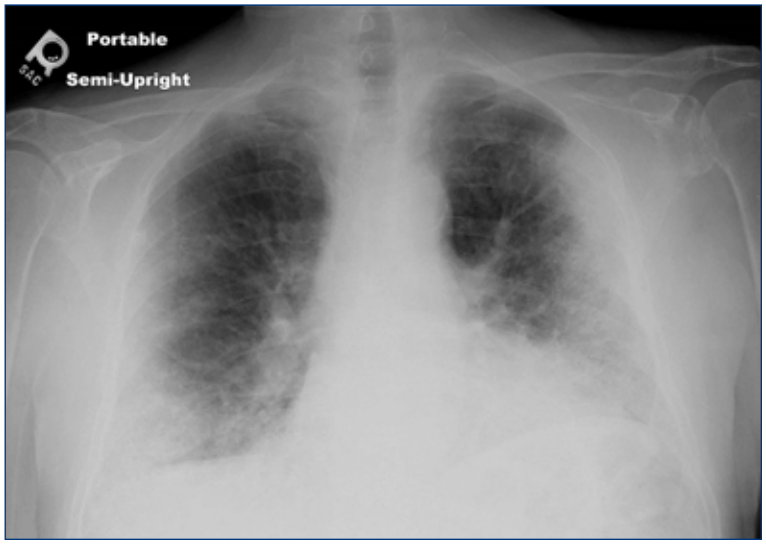

Figure 2A-C. Non-contrast chest CT images from the upper (A), middle (B), and lower (C) lung zones demonstrating ground glass opacities with some areas of more dense consolidation. The CT images, from day 2 of admission, confirm the peripheral distribution of the lung disease. This peripheral predominance is strongly suggestive of eosinophilic pneumonia.

consistent with stable, mild interstitial fibrosis, most likely nonspecific interstitial pneumonia (NSIP). Bronchioalveolar lavage (BAL) was performed. Left lower lobe fluid was pink, with 474 nucleated cells, 31% neutrophils, 7% lymphocytes and 54% eosinophils. Similar findings were present in a right middle lobe BAL. Bacterial, fungal and AFB stains and cultures were negative. Given his exposure to daptomycin over the previous 2 weeks, he was diagnosed with drug-induced acute eosinophilic pneumonia.

Daptomycin was immediately discontinued and intravenous methylprednisolone was administered. His hypoxemia resolved in the 72 hours following initiation of steroid treatment and he was weaned off supplemental oxygen. The patient was transitioned to oral steroids in tapering doses for a total course of 16 days. In follow up, his chest CT showed significant improvement. The patient completed a course of treatment for his MRSA septic arthritis with vancomycin.

DISCUSSION

Eosinophilic pneumonia should always be considered in the differential diagnosis of acute respiratory failure with bilateral infiltrates, even in the absence of a peripheral blood eosinophilia. As originally described, acute eosinophilic pneumonia is characterized by fever, diffuse pulmonary infiltrates, hypoxemia, and pulmonary eosinophilia.[1] Many drugs have been implicated in potentially triggering eosinophilic pneumonia, the most common classes being NSAIDS and antibiotics; smoking may also be a risk factor.[2] There are at least 24 published case reports of daptomycin-associated eosinophilic pneumonia.[3] Radiographically, a peripheral distribution of airspace disease, as in this case, is characteristic of eosinophilic pneumonia. BAL will confirm the diagnosis. Eosinophils are not normally present in the lungs, so over 1% eosinophils on BAL is considered an eosinophilic pattern, but >25% eosinophils strongly suggests a diagnosis of either acute or chronic eosinophilic pneumonia.[4] A careful review of medications, toxins and exposures to exclude an etiologic agent should be performed in all cases of suspected or confirmed eosinophilic pneumonia. An online database is available as a reference for drug-induced lung disorders.[5] In addition to cessation of potential offending medications, patients with significant hypoxemia or respiratory failure may benefit from corticosteroid treatment. Steroids have been recommended specifically for lung toxicity secondary to amiodarone, bleomycin, cocaine or mitomycin[6], and although there are no studies specifically looking at daptomycin, steroids have been used in other case reports[3]. There are also no official guidelines on optimum dose or treatment length, but recent data support a short treatment course of 2 weeks.[7] In our patient, steroids were used given his significant hypoxemia and he did respond well with a short duration of treatment (16 days).

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A twist and a turn

WILLIAM BINDER, MD; MARK GREVE, MD

From the Case Records of the Alpert Medical School of Brown University Residency in Emergency Medicine

DR. WILLIAM BINDER: Today's patient is a 16-year-old boy who presented to the emergency department with approximately 90 minutes of left-sided testicular pain. The patient states he was playing Ping-Pong when he suddenly developed pain in his testicle. It was associated with nausea, but no vomiting, fever, or chills. He tried lying down but the pain persisted. He had been playing soccer throughout the day but denied any trauma to the groin. The patient reported no dysuria, no hematuria, and no discharge from his penis. He was not sexually active. His past medical history was significant for a right inguinal hernia repair at 18 months, but he was otherwise healthy and takes no medicine. He has an uncle with a history of testicular torsion. He denied drugs or alcohol use.

The patient's physical exam was remarkable for a very uncomfortable young man, who was in significant pain. His abdomen was soft and non tender, and his genitourinary exam revealed a circumcised male, with no evidence of discharge or lesions on the phallus, and with a normal, descended right testicle. The left testicle was firm, elevated and with a transverse lie, and quite tender to palpation. He had an absent cremasteric reflex on the left. There was no discoloration of the scrotum. No hernia was palpated, and there were no bowel sounds heard in the scrotum. The remainder of his exam was unremarkable. A urinalysis was negative.

DR. SETH ROUGAS: Acute onset of testicular pain is a potential emergency. What was your differential diagnosis?

DR. BINDER: The differential diagnosis for an acute scrotum in the pediatric population includes testicular torsion (TT), torsion of the testes appendices (hydatid of Morgagni), epididymitis and epididymo-orchitis, and vasculitis. Other causes include hematocele, hematoma and testicular rupture, all usually related to trauma, as well as incarcerated inguinal hernia, appendicitis, and testicular tumor. Epididymitis and epididymo-orchitis is usually more insidious in onset and is sometimes associated with pyuria. The cremasteric reflex is often preserved and the testis is neither fixed nor elevated.[1] Patients with orchitis often have a preceding illness as this disease is associated with paramyxovirus (mumps), influenza, parainfluenza, enterovirus, and adenovirus.[2] Appendages of the testis and epididymis, vestigial remnants of the Mullerian and Wolffian ducts, are common and occur in 70–90% of the pediatric population.[3] (Campbell-walsh-10th edition p 3592). Torsion of the appendages is a frequent cause of pre-pubertal acute scrotum, with a peak incidence from 7–12 years of age.[3] (Campbell-walsh). Pain can be sudden or gradual in onset, but patients are less likely to present early, and do not commonly have nausea or vomiting. Pain is classically less intense than as seen in testicular torsion.[4] Physical findings can occasionally reveal the "blue dot" sign on the side of the painful testis, which is due to hemorrhagic infarction of the hydatid of Morgagni. Maximal tenderness is often directly superior to the testis.[1] Henoch-Schonlein Purpura can mimic testicular torsion, and pain, erythema, and swelling of the scrotum and spermatic cord can occur in up to 1/3 of patients. It usually occurs in patients <7 years old, and occasionally is the presenting symptom of this systemic disorder.[4] Other vasculitides causing testicular pain include Kawasaki's disease and polyarteritis nodosa.[5] Trauma can lead to a hematocele or hematoma, and can also cause unilateral testicular pain. While our patient was active, there was no report or physical evidence of direct injury to the affected testis. Given the acute onset of the patient's presentation, as well as his suggestive physical exam, we were extremely concerned about testicular torsion.

DR. JASON HACK: It appears that testicular torsion was your primary diagnosis. What are the consequences of delayed diagnosis?

DR. BINDER: Testicular torsion (TT) is a surgical emergency and occurs in 1:4000 males under 25 years of age annually.[6] In the pediatric population the disorder has a bimodal incidence, with peak incidence between 12–18 years, and a smaller peak between 1–2 years of age. Interestingly, there appears to be a familial relationship in about 10% of cases.[7] It is relatively uncommon in men over 40.[8] The consequences of delayed diagnosis are profound. Time is of the essence in this disorder as time to presentation to the emergency department is the most significant factor predicting testicular salvage in patients with acute testicular torsion.[9] Testicular survival is directly related to the length of time that the affected testicle is ischemic. While there is a wide

range of times reported, most testis are salvageable if perfusion is restored less than 6 hours after onset of pain.[10,11] Testicular salvage is approximately 20–50% after 10–12 hours of onset of pain, while viability is almost negligible after 24 hours.[12,13,14] Delay in diagnosis has medicolegal repercussions, as well. In the United States, England and Canada, testicular torsion is a common complaint resulting in successful plaintiff litigation.[10]

Ischemia and reperfusion injury may have an impact on fertility. Several studies have reported abnormal sperm count, motility and morphology in torsion patients as compared to normal controls.[10] Additionally, levels of anti-sperm antibody were abnormal in patients with testicular torsion, but this was not statistically different from controls.[15] Reperfusion injury can cause reactive oxygen free radicals, a proinflammatory cytokine response, lipid peroxidation, and alterations in microvascular blood flow, potentially leading to decreased hormone production and diminished fertility.[12]

DR. JOHN SCHIMMEL: The patient presented with acute and severe pain. How did you manage the patient and what were your diagnostic options?

DR. MARK GREVE: Based on the history and physical exam, the patient was clinically suspect for torsion of the left testis and manual detorsion was immediately performed as both a diagnostic and therapeutic maneuver. The patient had significantly decreased pain after 2 rotations of the affected testicle in a medial to lateral rotation. Within 10 minutes he complained of only soreness to the affected side.

Manual detorsion is performed by reversing the initial twisting of the torsed testicle; 2/3 of the time this is a lateral to medial rotation of the spermatic vessels.[16] The left testicle is held between the right thumb and index finger and rotated away from the midline, as if opening a book.[17] Simultaneously, the testicle should also be rotated in a caudal to cranial direction. Resistance or increased pain suggests that the torsion was medial to lateral and detorsion should be accomplished in the opposite direction.[13] The classic teaching is to rotate until there is relief, and the median for degree of rotation in orchiectomy cases is 3 rotations or 540°.[16] Immediately after detorsion we obtained an ultrasound of the testicle and requested a urology consultation. High-resolution ultrasonography (HRUS) and color doppler ultrasonography (CDS) are the primary imaging modalities for the evaluation of the acute scrotum. In TT, venous and arterial blood flow is reduced on ultrasound, depending on the degree of torsion. Conversely, flow is increased in epididymitis and epididymo-orchitis, distinguishing it quite clearly from torsion. Additionally, about 1–3 hours after onset of pain, the testicle enlarges and ultrasound commonly reveals increased heterogenous echogenicity.[18] Clinicians should verify that sonographic imaging includes the spermatic cord. In a series of 919 patients this combined modality had a sensitivity of 96% versus a sensitivity of 76% without cord visualization.[19] The "whirlpool" sign, a spiral twist of the spermatic cord, is noted on HRUS.[10]

Other imaging modalities include spatially resolved near-infrared spectroscopy (SR-NIRS). NIRS is a non-invasive optical technique which measures local oxygenated and deoxygenated hemoglobin and tissue oxygen saturation via a bedside handheld device.[20] Radionuclide imaging and MRI are both time consuming and are infrequently used. Surgical exploration is the gold standard in this disorder and if imaging is not available or does not provide clinical concordance, surgical intervention is essential.

Our patient had a normal color doppler ultrasound but a history and exam quite suggestive of TT. A urologist saw the patient and made plans for a bilateral orchidopexy the following morning. In the operating room the patient was found to have a pink and viable left testicle, but continued to have 180 degrees of torsion on the left side. The spermatic cord was completely detorsed, an orchidopexy was performed bilaterally, and the patient did well and had no sequelae.

FINAL DIAGNOSIS: Testicular torsion (partial).

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Predictors of non-completion of community-based chronic disease self-management programs: The Rhode Island experience during an economic recession

DEBORAH N. PEARLMAN, PhD; SOPHIE O'CONNELL, MA; DARREN KAW, MPH; DONA GOLDMAN, RN, MPH

Between 2012 and 2030, the U.S. population aged 65 and older is projected to grow from 43.1 million to 70 million.[1] The percentage of adults with two or more chronic conditions increases with age and living in poverty.[2,3] These data raise important questions about how to improve patient outcomes and reduce health care costs for individuals who bear the highest chronic disease burden.

The Stanford University Chronic Disease Self-Management Program (CDSMP) is among the most widely disseminated and evaluated evidence-based self-management programs for helping individuals living in the community better manage their chronic condition. As recent studies have demonstrated, participation in CDSMP is associated with significant 6- and 12-month post-intervention improvements in health outcomes,[4-11] and reductions in emergency department visits that may persist up to 2 years.[5,7] The benefits that accrue to individuals who complete a CDSMP (4–6 classes) raise questions about who attends these programs but then drops out (i.e., completes fewer than 4 classes). Several studies have compared baseline characteristics of completers and non-completers, but no single factor consistently differentiates completers from non-completers across studies.[12-15]

Given the above background, this study identified factors associated with non-completion of Rhode Island's CDSMP workshops offered from 2012 to 2014. This was a time when economic insecurity for Rhode Islanders, including Rhode Islanders 65 and older, remained nearly as high as it was at the peak of the 2007–2009 U.S. recession. The recent economic recession was more severe – deeper and longer – in Rhode Island than in other New England states and in most states nationally.[16] We hypothesized that living at or below poverty would predict non-completion of CDSMP workshops and that non-completion would vary by chronic disease.

METHODS

Data were from baseline surveys collected at the first session from three evidence-based CDSMP workshops that comprise Living Well Rhode Island: Stanford University's Chronic Disease Self-Management Program (English and Spanish), Diabetes Self-Management Program (English and Spanish), and Chronic Pain Self-Management Program (English). Information on the number of sessions completed

Table 1. Baseline characteristics of Living Well Rhode Island chronic disease self-management program participants by completers vs. non-completers

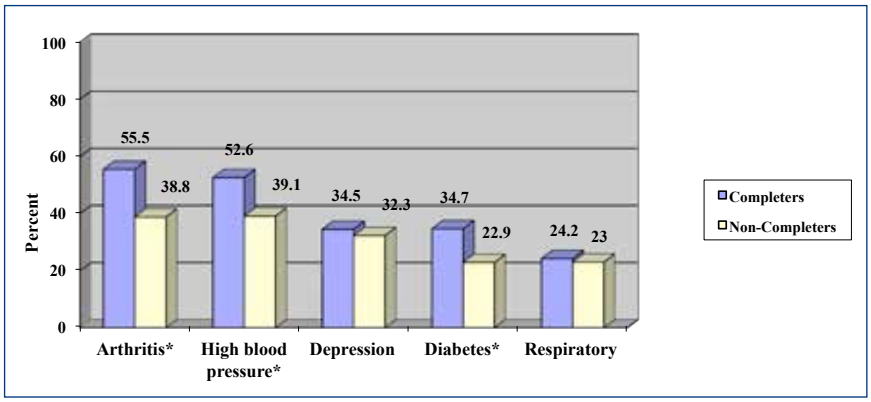
Characteristics[1]	Total Sample N= 1,627	Non-Completers < 4 sessions N = 352 (21.6%)	Completers 4 to 6 sessions N = 1275 (78.4%)	p-value[4]
	% (n)	% (n)	% (n)	
Age				.37
17–59 years	34.2 (498)	37.1 (91)	33.6 (407)	
60–69 years	28.3 (412)	24.9 (61)	29.0 (351)	
70+ years	37.5 (545)	38.0 (93)	37.4 (452)	
Mean age	64.4 years	64.1 years	64.5 years	
Sex				.10
Female	79.1 (1235)	75.7 (243)	79.9 (992)	
Male	20.9 (327)	24.3 (78)	20.1 (249)	
Race				<.001
Hispanic	40.8 (587)	28.0 (68)	43.4 (519)	
Non-Hispanic White	52.3 (753)	61.3 (149)	50.5 (604)	
Non-Hispanic Black and other races	6.9 (99)	10.7 (26)	6.1 (73)	
Income at or below FPL[2]				<.01
No	2.7 (44)	4.8 (17)	2.1 (27)	
Yes	43.6 (709)	37.8 (133)	45.2 (576)	
Unknown	53.7 (873)	57.4 (202)	52.7 (671)	
Household composition[3]				<.001
Alone	52.2 (849)	67.6 (238)	47.9 (611)	
With others	47.8 (778)	32.4 (114)	52.1 (664)	
Disability				<.01
No	25.9 (422)	23.9 (84)	26.5 (338)	
Yes	23.5 (382)	18.7 (66)	24.8 (316)	
Unknown	50.6 (823)	57.4 (202)	48.7 (621)	

[1] Income and disability were missing information on 54%, and 51% of participants, respectively. Therefore, the unknown category was retained.
[2] FPL = federal poverty level based on household size and family income.
[3] Household composition is a proxy measure for social support.
[4] Significance is based on a Pearson chi-square, two-tailed test of .05 or less.
Data source: Living Well Rhode Island Chronic Disease Self-Management Program Baseline Survey, 2012-2014

by participants, start and end dates of workshops, locations and Leaders was collected after the sixth workshop and added to the baseline database. Two and a half years of survey data (2012, 2013 and first six months of 2014) were combined to yield responses of sufficient size to be statistically significant (n = 1,627).

Non-completion was coded as a binary variable that was equal to 1 if the participant attended 3 or fewer sessions, and 0 otherwise. Demographic and health characteristics of completers and non-completers were compared (See **Table 1** for definitions). Responses to income and disability were missing for 54%, and 51% of participants, respectively. The unknown category was retained in the coding of these two variables to retain maximal sample size. Self-reported arthritis was derived by combining a "yes" response to two questions. Do you have any type of arthritis? Do you have osteoarthritis? We identified potential correlates of non-completion in a multivariable logistic regression model. Data were analyzed using SAS version 9.4.[17]

Figure 1. Self-reported chronic conditions of Living Well Rhode Island chronic disease self-management program participants by completers and noncompleters[1]



[1] Five most commonly cited chronic conditions shown in descending order
* = Significance is based on a Pearson chi-square, two-tailed test of .05 or less.
Data source: Living Well Rhode Island Chronic Disease Self-Management Program Baseline Survey, 2012-2014

RESULTS

Non-completers were more likely than completers to be non-Hispanic white (61.3% versus 50.5%), African-American or other racial minority (10.7% versus 6.1%), to have yearly household incomes above the poverty threshold (4.8% versus 2.1%), and to be living alone (67.6% versus 47.9%). Only 18.7% of non-completers reported a physical or mental disability compared to 24.8% of completers (**Table 1**). Among non-completers, a significantly smaller proportion reported having arthritis, high blood pressure or diabetes than completers (**Figure 1**). In the multivariable model (**Table 2**), non-completers were more likely to be male (OR 1.51, 95% CI 1.05–2.17), non-Hispanic White (OR 2.08, 95% CI 1.42-3.06), non-Hispanic Black and other minority races (OR 2.65, 95% CI 1.51–4.64), have household incomes above federal poverty levels (OR 2.73, 1.32–5.61), live alone (OR 1.56, 95% CI 1.13–2.15), and have anxiety or depression (OR 1.53, 95% CI 1.11–2.11), but less likely to have arthritis (OR 0.68, 95% CI 0.49–0.95).

Table 2. Logistic regression analysis of participants who **did not** complete the Living Well Rhode Island chronic disease self-management program

	Non-completers (n = 352)		
Variables	**Odds Ratio [1]**	**95% CI [2]**	**p-value [3]**
Age			0.17
< 59 years	1.36	0.91–2.03	
60–69 years	0.96	0.65–1.42	
>70 years	1.0		
Sex			0.02
Male	1.51	1.05–2.17	
Female	1.0		
Race/Ethnicity			
Non-Hispanic White	2.08	1.42–3.06	<.001
Non-Hispanic Black and other minority races	2.65	1.51–4.64	
Hispanic	1.0		
Income at or below FPL[4]			
Yes	1.0		<.01
No	2.73	1.32–5.61	
Unknown	0.78	0.57–1.07	
Household composition			<.01
Alone	1.56	1.13–2.15	
With others	1.0		
Disability			0.03
Yes	1.0		
No	1.65	1.10–2.47	
Unknown	1.13	0.75–1.69	
Chronic condition (yes) [5]			
Arthritis/Osteoarthritis	0.68	0.49–0.95	0.02
High blood pressure	1.01	0.74–1.39	0.93
Anxiety/Depression	1.53	1.11–2.11	0.01
Diabetes	0.82	0.59–1.14	0.23
Respiratory/Lung	1.37	0.98–1.91	0.06

[1] The multivariable adjusted model shows 1.0 as the reference group.
[2] 95% CI = 95% confidence interval.
[3] Significance is based on the Wald chi-square, of .05 or less.
[4] FPL = federal poverty level.
[5] The reference group did not have the chronic condition.
Data source: Living Well Rhode Island Chronic Disease Self-Management Program Baseline Survey, 2012-2014

DISCUSSION

This study is, to our knowledge, the first to assess correlates of non-completion of CDSMP during a severe economic downturn. The economic recession in Rhode Island, which lasted from 2007 well into 2014, dramatically reduced the incomes of working-age families and

older adults. The stress of poverty is not simply worries about money. Poverty creates a context of stress, in which coping with things like food insecurity and a chronic condition can be overwhelming.

Contrary to our first hypothesis that living at or below poverty would predict non-completion of a CDSMP, we found that participants with a yearly household income above the poverty threshold were more likely than those living in poverty to drop out of CDSMP classes. It is possible that program incentives influenced completion rates. Through 2014, the Living Well Rhode Island program offered incentives of $10–$25 gift cards to individuals who completed four or more CDSMP workshops. Incentives may have had less appeal to higher income participants, but could have helped lower income participants stay in the program. Unfortunately, our data do not allow us to explore this assumption.

Our second hypothesis that non-completion of CDSMP would vary by self-reported disease was partially supported. Anxiety and depression were the only chronic conditions measured in this study associated with non-completion. Depression is one of the most common complications of chronic illness,[18] which may make participation in a six-week CDSMP very challenging. We found that among non-completers with self-reported anxiety and depression, one-half attended only one CDSMP class before dropping out, 24% attended two classes, and 26% attended three classes (data not shown). From a policy and programmatic perspective, there is value in helping individuals who enroll in a CDSMP complete the program, especially for adults with a chronic condition compounded by anxiety, depression, and social isolation. A secondary data analysis of CDSMP drawn from community-based workshops (US) and Internet workshops (Canada) found that the intervention was associated with long-term improvements in program outcomes for individuals with and without self-reported depression.[18] Physicians can make these low-cost programs available to their patients with chronic conditions as an essential element of high-quality chronic care and as a useful adjunct to the self-management support provided in the clinical visit.[19]

There are some limitations to this study. Our study was based on a sample where approximately half of the participants did not complete the question on yearly income. We found, as have others,[20] that participants with missing income were not a random sample of the entire study population. In our study, participants with missing income were more likely to be aged 60 and older, female, and living alone (data not shown). Excluding participants with missing income data would have led to underestimates of a substantial proportion of participants, and thus their characteristics in relation to our outcome of interest. We performed a sensitivity analysis to test the robustness of our findings. This analysis excluded individuals with missing income (n = 690). The results from the sensitivity analysis were identical to the findings for the full sample (**Table 2**), with the exception that self-reported depression was not associated with non-completion of CDSMP.

The 2012–2014 Living Well Rhode Island baseline survey did not include questions that asked participants about the impact of Rhode Island's economic recession on their lives (i.e., job loss, housing foreclosure, reduction in income and health care benefits). We cannot say with any certainty that differences between completers and non-completers can be attributed, in part, to the economic recession. A study of active patients accessing health care in the Providence VA Medical Center between 2008 and 2009 found that the economic recession was associated with worse chronic disease management, a high rate of missed clinic appointments and increased emergency department use. The VA study, however, could not assess the specific impact of the economic downturn on individuals seeking help with chronic disease management.[21]

In summary, our goal was to highlight the importance of placing health promotion programs in the broader social and economic context in which these programs are implemented. Rhode Island has been one of the hardest hit states affected by the recent national economic recession. This has had a significant impact on Rhode Islanders' ability to meet co-pays for health care**.** In this environment, there has been increased demand for subsidized or low-cost community-based care, such as CDSMP workshops. The 2012–2014 Rhode Island Living Well data are a timely source of information about who completes and who drops out of community-based CDSMP classes. As such, a follow-up study of Rhode Island's CDSMP participants is planned to see if the factors associated with non-completion are different when the state's economy improves.

Abbreviations

CDSMP: Chronic disease self-management program

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VITAL STATISTICS
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COMPILED BY ROSEANN GIORGIANNI, DEPUTY STATE REGISTRAR

Rhode Island Monthly Vital Statistics Report
Provisional Occurrence Data from the Division of Vital Records

VITAL EVENTS	REPORTING PERIOD		
	DECEMBER 2014	12 MONTHS ENDING WITH DECEMBER 2014	
	Number	Number	Rates
Live Births	927	11,355	10.8*
Deaths	953	9,949	9.5*
Infant Deaths	6	55	4.8#
Neonatal Deaths	4	46	4.1#
Marriages	387	7,053	6.7*
Divorces	255	2,998	2.9*
Induced Terminations	241	2,962	260.9#
Spontaneous Fetal Deaths	72	597	52.6#
Under 20 weeks gestation	65	513	51.6#
20+ weeks gestation	7	77	6.8#

* Rates per 1,000 estimated population
\# Rates per 1,000 live births

Underlying Cause of Death Category	REPORTING PERIOD			
	JUNE 2014	12 MONTHS ENDING WITH JUNE 2014		
	Number (a)	Number (a)	Rates (b)	YPLL (c)
Diseases of the Heart	185	2,320	220.3	3,456.5
Malignant Neoplasms	188	2,453	232.9	6,352.5
Cerebrovascular Disease	26	392	37.2	522.5
Injuries (Accident/Suicide/Homicide)	61	740	70.3	11,188.0
COPD	38	489	46.4	472.5

(a) Cause of death statistics were derived from the underlying cause of death reported by physicians on death certificates.
(b) Rates per 100,000 estimated population of 1,051,511 (www.census.gov)
(c) Years of Potential Life Lost (YPLL).

NOTE: Totals represent vital events, which occurred in Rhode Island for the reporting periods listed above.
Monthly provisional totals should be analyzed with caution because the numbers may be small and subject to seasonal variation.

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RIMS Executive Director Newell E. Warde, PhD; Throop Prize recipient Grayson Armstrong, MD; Rakatansky Prize recipient Catherine Paniszyn, MD; RIMS Physician Health Program Chair Herbert Rakatansky, MD.

RIMS presents the annual Throop and Rakatansky Prizes

In the context of Alpert Medical School's prize day on May 22, two members of the graduating class received awards endowed by RIMS and named in honor of outstanding leaders of Rhode Island medicine.

GRAYSON ARMSTRONG, MD, received the Amos Throop Prize in recognition of his engagement with public health policy and his leadership in organized medicine nationally and locally at the student level. The Prize is named for RIMS' leading founder and first president. Dr. Throop (1736–1813) was a Revolutionary War veteran and a state legislator of the Federalist persuasion.

CATHERINE PANISZYN, MD, received the Herbert Rakatansky Prize in recognition of her positive impact upon the health and well-being of her fellow medical students. The Prize is named for the founder and chair of the Medical Society's Physician Health Program. Dr. Rakatansky also founded and advises the Medical Student Health Council at Brown.

RIMS established and inaugurated the Throop and Rakatansky Prizes in 2012 as part of observances for the bicentennial of the Medical Society's founding in 1812.

Working for You: RIMS advocacy activities

May 4, Monday
Meeting with RI Psychiatric Society regarding legislation

Chairwoman Sosnowski fundraiser

May 5, Tuesday
Physicians Health Committee, Herbert Rakatansky, MD, Chair

Heart Association Childhood Obesity Coalition

Meeting with HealthSource RI

Legislative Hearings

Senator Sheehan fundraiser

May 6, Wednesday
Legislative Hearings

May 7, Thursday
DOH Health Equity Summit

RI American College of Physicians Annual Meeting, RIMS staff attending

Reach Out and Read Rhode Island Fundraiser

Dorcas International Institute event

Legislative Hearings

May 8, Friday
Economic Progress Institute Annual State Budget Briefing

May 11, Monday
Meeting with Blue Cross Blue Shield of RI: President Peter Karczmar, MD; President-elect Russell Settipane, MD; and RIMS staff

Representative Malik fundraiser

RIMS Board of Directors meeting

May 12, Tuesday
Department of Health, Board of Medical Licensure and Discipline Community Review of proposed legislation

AMA Advocacy Resource conference call regarding Supreme Court antitrust ruling on North Carolina dental board

Legislative hearings

Senator Lombardi fundraiser

Representative Solomon fundraiser

May 13, Wednesday
Legislative hearings

Representative Trillo fundraiser

Rhode Island Medical Society/ Baystate Financial retirement planning presentation; RIMS staff attending

Rhode Island Medical Society/ Baystate Financial retirement planning presentation for RIMS members

May 14, Thursday
Meeting with Health Center Association regarding bike helmet project

Meeting with Blue Cross Blue Shield of RI regarding legislation

Legislative hearings

SIM Grant Steering Committee meeting

Warren Alpert Medical School students' reception for elected officials

May 15, Friday – May 16, Saturday
Meetings of the Council of New England State Medical Societies and the New England Delegation to the AMA, Woodstock, Vermont: AMA Delegate Alyn Adrain, MD, and RIMS staff

May 18, Monday
Senator Sheldon Whitehouse briefing on his proposed Comprehensive Addiction and Recovery Act of 2015.

Reinventing Medical Taskforce meeting

May 19, Tuesday
PhRMA meeting with state medical societies, Washington, DC

Meeting with James A. Arrighi, MD, Director, Graduate Medical Education, Lifespan: Membership Co-Chair Elaine Jones, MD, and RIMS staff

Legislative hearings

Chairman McCaffrey fundraiser: President Peter Karczmar, MD; RIMPAC Treasurer Elaine Jones, MD, and RIMS staff

Representative Fogarty fundraiser

May 20, Wednesday
AMA Advocacy Resource Center Conference call regarding the proposed Interstate Medical Licensure Compact

Legislative hearings

Representative O'Grady fundraiser

Save the Date!

RIMS Annual Meeting

September 26

The *new* tradition continues. Members are invited to schmooze, graze, and relax with colleagues at the Save The Bay Center in Providence.

Look for further details soon; invitations will be mailed.

May 21, Thursday
Legislative hearings

Chairman McNamara fundraiser

RIMS and MA/RI MGMA Seminar "ICD-10 and Your Practice"

Senate confirmation hearing for Nicole Alexander-Scott, MD, as Director of Health

May 22, Friday
RIMS President Peter Karczmar, MD, presents RIMS' two annual student awards (the Throop Award and the Rakatansky Award) to Grayson Armstrong, MD '15, and Catherine Paniszyn, MD '15 at Brown

May 25, Monday, Memorial Day

May 26, Tuesday
Meeting with House Leadership regarding legislation

Legislative hearings

Representative Ucci fundraiser

May 27, Wednesday
Meeting with EOHHS staff

Meeting with RI Public Health Institute director on various topics

Legislative hearings

May 28, Thursday
Legislative hearings

Why You Should Join the Rhode Island Medical Society

The Rhode Island Medical Society delivers valuable member benefits that help physicians, residents, medical students, physican-assistants, and retired practitioners every single day. As a member, you can take an active role in shaping a better health care future.

RIMS offers discounts for group membership, spouses, military, and those beginning their practices. Medical students can join for free.

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Powerful advocacy at every level

Advantages include representation, advocacy, leadership opportunities, and referrals

Complimentary subscriptions

Publications include *Rhode Island Medical Journal*, *Rhode Island Medical News*, annual *Directory of Members;* RIMS members have library privileges at Brown University

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Password access to pay dues, access contact information for colleagues and RIMS leadership, RSVP to RIMS events, and share your thoughts with colleagues and RIMS

Planning for Life

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Department of Health Holds First Health Equity Summit to Examine Disparities

WARWICK – On May 7 nearly 400 community members and representatives from the fields of public health, healthcare, and academia gathered at the Crowne Plaza in Warwick to participate in the first Health Equity Summit of the Rhode Island Department of Health (HEALTH). They were joined by **ELIZABETH ROBERTS**, Secretary of the Executive Office of Health and Human Services, and **NICOLE ALEXANDER-SCOTT, MD, MPH**, Director Designee of the Department of Health.

The event, which featured nationally renowned keynote speakers, breakout session discussions, and music and dance performances, was called to examine health disparities in Rhode Island and to consider ways to make Rhode Island a more equitable state.

"Despite the great work being done by our healthcare providers, educators, community groups, and many more, we still see inequalities in health outcomes in Rhode Island," said Dr. Alexander-Scott. "Rhode Island is a stronger, more vibrant place when all of our residents have the opportunity to attain their full potential."

During the event, HEALTH released new data from the 2015 Minority Health Fact Sheets, highlighting health disparities by race and ethnicity for African Americans, Hispanics/Latinos, Asian/Pacific Islanders, and Native Americans.

Data show that in Rhode Island, certain racial and ethnic groups often feel the burden of health disparities. For example, the infant mortality rate for African-American Rhode Islanders is almost double the state average (11.2 vs. 6.6 per 1,000 live births), and the diabetes rate for Hispanic adults is 11.3%, compared to 7.2% for white adults. In addition, many health disparities exist that are not based on race or ethnicity. For example, almost a third of Rhode Island adults who did not graduate high school are considered obese.

Secretary Roberts focused on how the State's reinventing Medicaid process ties in to the themes of the summit. "As important as paying for medical services is, so much of what drives health is what happens outside of a hospital or doctor's office," said Roberts. "It's about our neighborhoods, the quality of our housing, safety in our communities, health literacy, and community support. We in Medicaid need to be a part of that. We must connect what we're doing here today to healthcare reform."

National experts from a variety of disciplines provided the keynote presentations. **EDUARDO SANCHEZ, MD, MPH, FAAFP**, Chief Medical Officer for key-note presentations for the American Heart Association gave an address titled "Health Equity: Work to Do Beyond Affordable Care." **MINDY THOMPSON FULLILOVE, MD**, a Professor of Clinical Psychiatry at the College of Physicians and Surgeons at the Mailman School of Public Health (Columbia University), talked about links between the environment and mental health. **CLINT SMITH**, teacher, poet, and doctoral candidate in Education at Harvard University with a concentration in Culture, Institutions, and Society, spoke about empathy across lines of difference.

VIDEO – Health Equity Summit 2015

Local speakers utilized breakout sessions to bring the national discussions to the community level and study ways to link these strategies to Health Equity Zones, local investments of HEALTH. Health Equity Zone projects are 11 federal, state, and local partnerships that support innovative approaches to prevent chronic disease, improve birth outcomes, and improve the social and environmental conditions of our neighborhoods. Health Equity Zones will help move the Summit agenda forward to achieve health equity in Rhode Island.

HEALTH also unveiled Community Connections RI, an online directory designed to facilitate relationships and connections among community organizations and to help them leverage local resources to advance the health equity agenda. Local organizations are encouraged to share their information through this online tool. ❖

David Edmonson, MD, introduces MarginProbe™ System in lumpectomy to RI

PROVIDENCE – Women & Infants Hospital is the first in the state to offer breast cancer patients access to the MarginProbe™ System, which is three times more effective in identifying cancer on the margin of a breast mass during a lumpectomy than traditional methods.

WOMEN & INFANTS HOSPITAL

DAVID EDMONSON, MD, a surgeon in the Breast Health Center, part of the Program in Women's Oncology at Women & Infants, has been trained to use the new device, which provides him with real-time positive cancer detection for breast cancer patients during a lumpectomy. Two additional breast surgeons – **DRS. ASHLEY STUCKEY AND JENNIFER GASS**, co-director of the Breast Health Center and chief of surgery at Women & Infants – will also be trained to use the technology.

"During surgery, we always want to remove all of the cancer, but until this technology was developed, we couldn't know for sure that we'd gotten it all until pathology tests were done after the procedure," DR. Edmonson says. "Now, we are in the operating room and we are better able to assess whether or not we've gotten clean margins around the cancer and that we are not leaving any cancer behind."

With MarginProbe, however, there has been a 56-percent reduction in reoperation versus the standard of care.

"Lumpectomy and radiation are as effective in combating breast cancer as mastectomy, but only if there is a clean margin with no remaining cancer cells at the edge of the removed tissue," Dr. Edmonson explains. "Unfortunately, the rates of reoperation if there is a positive margin in the breast can be as high as 30 percent."

Using MarginProbe to ensure clean margins in the initial surgery helps reduce emotional distress for the patients, potential for scarring and deformation at the surgery site, and eliminates the increased cost of an additional surgery.

To ensure the clean margins, the surgeon uses the head of the disposable MarginProbe along the edge of the cancer site. The head contains the proprietary Fringe Field Sensor (FFS), which can detect minute differences in bioelectric properties in tissue when the surgeon presses the probe to the specimen. This allows the sensor to capture the tissue's electromagnetic signature, which is either healthy or cancerous. The surgeon runs a series of measurements on each margin, collecting data for the entire specimen. With such real-time results, the surgeon can extend the margins to remove additional tissue if needed.

"This takes three to five minutes but makes a tremendous difference in the results and, ultimately, the patient's satisfaction," Dr. Edmonson says. ❖

Comprehensive Cancer Center launches Lung Cancer Screening Clinic

Multidisciplinary clinic offers timely, convenient access of care to patients who have a positive lung cancer screening CT scan

PROVIDENCE – The Comprehensive Cancer Center of Rhode Island, The Miriam and Newport hospitals has introduced the Lung Cancer Screening Clinic. The multidisciplinary clinic, which is staffed with experienced radiologists, pulmonologists and behavioral medicine staff, provides accurate interpretation of low-dose CT scans and coordinates treatment options for patients who need additional care.

"Lung cancer is the leading cause of cancer death in the U.S. and accounts for nearly 30 percent of all cancer deaths or more than 150,000 a year," said **TERRANCE T. HEALEY, MD**, director of thoracic radiology at Rhode Island Hospital. "Early and accurate detection is essential and through the Lung Cancer Screening Clinic, we are able to utilize the most advanced diagnostic imaging technology to accurately interpret low-dose CT scans of those patients who have had an abnormal or positive scan."

He added, "While an abnormal or positive screen does not mean a patient has cancer, there could be other conditions that warrant treatment. For those who do have cancer, early detection before symptoms appear is critical to successful lung cancer treatment."

Early screening is especially important for those most at risk for developing lung cancer. Research has shown that when compared to chest X-ray, CT scans reduced lung cancer deaths among older heavy smokers by 20 percent. Low-dose CT is recommended for people who are current or former smokers, are between the ages of 55 and 74, and who smoke or had smoked one pack of cigarettes a day for 30 years or more.

"The Lung Cancer Screening Clinic is an important resource for people who are at risk for developing lung cancer because of how successful low-dose CT is in detecting an abnormality," said **MELISSA TUKEY, MD**, director of interventional pulmonology at The Miriam and Rhode Island hospitals. "Once referred to the clinic, patients will be seen by our staff within two weeks where we will interpret their scan and have the patient evaluated by a pulmonologist and a behavioral medicine staff member, who can help patients who are smokers find the right smoking cessation program. Our goal is to facilitate timely care for our patients and their families, while working closely with each patient's primary care physician." ❖

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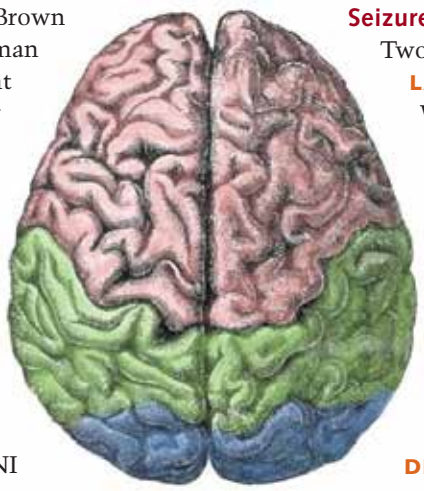
Brain science researchers embark on year-long studies of autism, epilepsy, pain, stroke

Funded by 'New Frontiers' awards from the Brown Institute for Brain Science and the Norman Prince Neurosciences Institute

PROVIDENCE — With four new grants, the Brown Institute for Brain Science and the Norman Prince Neurosciences Institute have brought together teams from the Brown University campus and affiliated hospitals to study key questions in autism, epilepsy, pain and stroke.



"A great strength of our academic medical center is the ability to bring together expertise that stretches from the lab to the patient," said **JOHN ROBSON**, BIBS associate director for medical research and clinical programs and NPNI administrative director. "The New Frontiers Award program of BIBS and NPNI is to encourage and support innovative new projects of basic and clinical teams so they can succeed."

This round of grants, the program's fourth, launches three new projects and continues another. Each team will receive $40,000 from BIBS, NPNI, and their academic departments. The new projects will begin July 1.

Autism

BARRY CONNORS, chair of neuroscience, and **DR. BRIAN THEYEL**, a psychiatry resident, will use Brown-developed mouse models to test their hypothesis that disruptions in the connectivity between the thalamus and the cerebral cortex might contribute to some of the symptoms associated with autism, such as hypersensitivity to stimuli.

Seizures

Two neurology faculty members, **DR. CURT LAFRANCE** and **DR. ANDREW BLUM**, and Wilson Truccolo, assistant professor of computational neuroscience, will study whether nervous system measurements gathered by the MIT-developed "Q-sensor," which can be worn on the wrist, can be used to detect, distinguish, and possibly predict different types of seizures. If so, it could help streamline and improve seizure diagnosis and treatment.

Strokes

DEREK MERCK, assistant professor of diagnostic imaging, and **JAMES HAYES**, assistant professor of computer science, will work together to develop an automated method of analyzing CT scans to quickly detect and classify strokes. Their goal is to shorten the time required to diagnose and begin treating patients.

Chronic pain

The fourth grant continues a New Frontiers collaboration between **STEPHANIE JONES**, assistant professor (research) of neuroscience, and **DR. BEN GREENBERG**, professor of psychiatry and human behavior. They are exploring whether noninvasive electromagnetic stimulation that modulates alpha rhythms can reduce sensory sensitivity in people and be developed as a technique for reducing chronic pain where drugs, including opioids, are not effective. ❖

IMAGE: BROWN

CNE Cardiovascular participating in TEMPO clinical research trial

PROVIDENCE – Care New England Cardiovascular Care is taking part in the TEMPO clinical research trial to evaluate the effect of an investigational drug being developed for the treatment of heart rhythm problems. The study is specific to patients with Implantable Cardioverter-Defibrillators (ICD) or Cardiac Resynchronization Therapy-Defibrillators (CRT-D).

The purpose of the TEMPO study is to assure what effect the trial drug has on heart rhythm problems in patients who have an ICD or CRT-D, and also determine the safety profile of the drug in this phase II study.

Specific heart rhythm problems which the investigational drug is being developed for are ventricular tachycardia (VT) and ventricular fibrillation (VF), in patients with an ICD or CRT-D. VT and VF are major causes of sudden death relating to the heart. Patients who have a history of these conditions or are at risk for developing these conditions, are usually treated with an ICD which can stop VT/VF but does not prevent VT/VF.

"We are excited to be conducting the TEMPO clinical trial for the many patients who have heart rhythm problems and live with ICD and CRT-D devices," says **CHESTER HEDGEPETH, MD, PhD**, executive chief of cardiology, Care New England. "These patients could greatly benefit from drug therapy to reduce the frequency of VT/VF and defibrillator shocks."

Enrollment will occur over a 12-month period and the expected maximum treatment duration is approximately 18 months. Approximately 120 subjects will be randomized at about 120 study sites in North America, Europe and Israel. The study is open to male and female subjects, 18-80 years of age and is funded by Gilead Sciences, Inc. ❖

St. Joseph School of Nursing Graduates 113th Class

NORTH PROVIDENCE – The St. Joseph School of Nursing, located on the campus of Our Lady of Fatima Hospital in North Providence, held graduation ceremonies for its 113th class on May 15, 2015.

Family members and friends attended the celebration at the Cathedral of SS Peter and Paul in Providence with the Reverend Timothy Reilly, J.C.L., Chancellor, Diocese of Providence, Rhode Island, presiding over the presentation of 32 diplomas and pins to the graduating class of 2015.

LAURA FILIPPELLI-TEDESCHI, MA, RDN, LDN, St. Joseph School of Nursing Medical Nutrition Therapy Instructor, delivered the commencement address. Class Salutatorian **RYAN BONESIO** offered the welcoming address and **IAN DONAGHY**, Class Valedictorian, delivered the farewell address.

The St. Joseph School of Nursing is the state's only hospital-based, 3-year diploma program. Upon receiving their diploma, graduates are then eligible to take the national licensing exam for registered nurses. The school was recently granted an eight-year continuing accreditation by the National League for Nursing Accrediting Commission.

A list of graduates is available at www.nursingri.com ❖

The following awards were given to the members of the 113th graduating class:

The Faculty Certificate of Merit for outstanding scholastic achievements was awarded to **IAN DONAGHY**.

The Faculty Certificate of Merit for outstanding clinical performance was awarded to **HANNAH JOUDREY**.

The Faculty Certificate of Merit for outstanding ability in Medical/Surgical Nursing was awarded to **IAN DONAGHY**.

The Faculty Certificate of Merit for outstanding ability in Clinical Achievement and Psychiatric Nursing were awarded to **IAN DONAGHY**.

The Faculty Certificate of Merit for outstanding ability in Parent Child Health Nursing was awarded to **JAMIE CAMPARONE**.

The Mother Mary Evangelist award given by the Alumni Association of St. Joseph School of Nursing in recognition of scholastic achievement, professional leadership and nursing performance was awarded to **MEREDITH GERMANI** and **DANIELLE PAROYIAN.**

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Department of Health announces $468,000 in federal funding aimed at preventing youth access to tobacco

Only four other states have received similar awards to conduct such studies

PROVIDENCE – The Rhode Island Department of Health (HEALTH) announced today that it will receive approximately $468,000 of new federal funding to conduct an in-depth evaluation of policies and practices within the state aimed at preventing youth access to tobacco. Through the study, if Rhode Island's practices are proven to lead to reductions in tobacco use among youth, the results may then be incorporated into national, evidence-based strategies. Rhode Island has seen a sharp decline in smoking rates among youth under the age of 18 since 2010, as promising tobacco-control initiatives involving youth have increased. Only four other states have received similar awards to conduct such studies.

"Rhode Island is proud to be recognized as an innovator and leader in tobacco-control practices that protect our youth from tobacco exposure, addiction, severe illnesses, and premature death," said **NICOLE ALEXANDER-SCOTT, MD, MPH**, Director Designee at HEALTH. "This evaluation project will give Rhode Island a strong voice in this critical, nationwide dialogue. A closer study of what has worked for Rhode Island can help keep the tobacco industry from preying on more youth in our state as well as across the country."

Rhode Island's 17.4% adult smoking rate is below the national average and the state has the second-lowest youth smoking rate in the country at 8%. However, there continues to be a need for these tobacco control efforts. Rhode Island is only one of four states where the rate for high school cigar use surpasses cigarettes. Additionally, more than 8% of Rhode Island youth reported using a hookah in the past 30 days, and a survey of Rhode Island youth found that more than 28% reported buying retail tobacco products, which stands among the highest of such rates in the U.S.

In addition to the new funding, Rhode Island has received $1million for core tobacco control program activities. This represents a 10% reduction for core tobacco control activities compared to previous years. Still, HEALTH remains committed to offering comprehensive programs and seeking innovative ways to raise public awareness about tobacco prevention and control.

The Rhode Island Department of Health Tobacco Control Program promotes and supports free services and clinical resources available to help Rhode Islanders quit smoking and to protect the public from the dangers of second-hand smoke exposure. For more information, visit health.ri.gov/healthrisks/tobacco or visit QuitNowRI.com. ❖

Rates of HIV, other STDs increasing in RI, nationwide

PROVIDENCE – The Rhode Island Department of Health (HEALTH) released data recently showing that the rates of HIV and several other STDs are increasing. In Rhode Island, from 2013 to 2014:

- The number of infectious syphilis cases increased by 79%.
- The number of gonorrhea cases increased by 30%.
- The number of newly-identified HIV cases increased by nearly 33%.
- New cases of HIV/AIDS and infectious syphilis continued to increase among gay, bisexual, and other men who have sex with men at a faster rate than in other populations.
- Infection rates of all STDs continued to have a greater impact on the African-American, Hispanic, and young adult populations.

"These data send a clear signal that despite the progress we have made in reducing STDs and HIV over the years, there is more work to do," said Nicole Alexander-Scott, MD, MPH, Director Designee at HEALTH. "We are fortunate in Rhode Island to have great partnerships among state agencies, community-based organizations, and healthcare providers to continue to educate, test, and treat for sexually transmitted diseases. This trend reminds us that we cannot become complacent."

During the 1980s and 1990s, key public health programs helped reduce the transmission of HIV and other STDs. Routine testing of pregnant women has almost eliminated the number of Rhode Island babies born to mothers with HIV. Likewise, needle exchange programs have drastically reduced transmission among injection drug users.

The recent uptick in STDs in Rhode Island follows a national trend. The increase has been attributed to better testing by providers and to high-risk behaviors that have become more common in recent years. High-risk behaviors include using social media to arrange casual and often anonymous sexual encounters, having sex without a condom, having multiple sex partners, and having sex while under the influence of drugs or alcohol. ❖

Medical students portray the art and science of medicine in AMS' first annual art exhibit

MARY KORR
RIMJ MANAGING EDITOR

PROVIDENCE – **SAM KLEIN, MD '16**, was visiting another medical school, similar in architectural style to the Alpert Medical School, and was inspired by the student art work on its walls and brought the idea back to AMS.

Together with **NICK NASSIKAS, MD'15**, and **ALI RAE, MD '17**, The AMS Arts Council was created. "We sent out a couple of surveys," said Klein. "The overwhelming response was the student body wanted to see a little more art in the building. We spend so much time here. They wanted it to serve as an inspiration, maybe a time for reflection and maybe just a break from what they are doing. We were fortunate to have the school administration's full support of our initiative."

Sam Klein, MD '16, one of the exhibition's organizers, with his collection of anatomical illustrations.

Sketch, untitled, by Annie Wu, MD '17.

Now, two years later, with the efforts of a dozen other students, the first annual AMS juried visual arts exhibition opened May 15. There are 40 works on display, ranging from photography, illustrations, sculptures, blown glass and paintings.

The exhibit draws on three themes: "Gravity and Weightlessness," "Potential Spaces," and "Breakdown." Each evokes medical ideas, Klein said. Potential space is described in the exhibit as "an often-used term in anatomy that indicates the resulting separation of adjoining structures. Physiologically these spaces allow the body's compartments to expand under pressure. Pieces in this theme draw analogy from the anatomical understanding to the spaces we perceive around us, focusing on how we might conceptualize both the reality and potentiality of space."

Klein's anatomical illustrations in several notebooks on display could just as well have been a RISD student's sketchbook. They are meticulously rendered and express the architecture and art of the human body.

Samsara, sculpture in alabaster, by Nick Nassikas.

Alpert Medical School students Nick Nassikas and Elisa Wing welcomed visitors to the first annual art exhibition on May 15.

For at least the next six months, the exhibit will hang on the second and third floor atria of the building, while the first floor remains open for rotating exhibits. At night, the light floods in through the large windows, and the works take on an added dimension.

As student cellist Elbert Heng, who played at the event, warmed up in the Stanley M. Aronson, MD, lounge, with a photo of the first medical school dean smiling at the school's first graduation 40 years ago, one could not help but think Dr. Aronson would heartily approve of the exhibit and these students. ❖

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Recognition

School of Public Health Names 2015 Dean's Awards and Wriston Fellowship Winners

PROVIDENCE – On May 4, **TERRIE FOX WETLE**, Dean of the School of Public Health at Brown University, issued the 2015 Dean's Awards for Teaching and Mentoring, as well as the Henry Merritt Wriston Fellowship award.

In a letter announcing the awards, Dean Wetle wrote:

Chris Kahler has been at Brown since 1998, doing outstanding research and dedicated teaching. In the words of one student, "Dr. Kahler serves as an irreplaceable piece in the training of future academics by providing outstanding teaching in quantitative methods." In addition, "He creates a classroom atmosphere of non-judgmental openness, which allows for the most effective learning by allowing his students to ask questions without ever holding back to fully benefit from class hours."

Professor Britton is recognized as a highly effective and revered mentor by her students. She came to Brown in 2007 as a research associate in the department of Psychiatry and Human Behavior and became an assistant professor (research) in the department of Behavioral and Social Sciences in 2012. The course she teaches continues to grow in popularity. One student notes "she has singlehandedly had the greatest influence on not only my current career as a student, but also my future as a science researcher and medical provider."

Brandon Marshall has received the Henry Merritt Wriston Fellowship for 2014-2015. The annual Wriston competition is one way the University recognizes young faculty who are fulfilling Brown's dual mission of excellence in both teaching and research. Professor Marshall was selected from a significant field of strong applications for his innovative teaching, range and originality of scholarship, and extensive undergraduate and graduate advising." ❖

Dean's Award for Excellence in Classroom Teaching in Public Health

CHRISTOPHER W. KAHLER, PhD

Professor of Behavioral and Social Sciences
Chair of Behavioral and Social Sciences

Dean's Award for Excellence in Mentoring in Public Health

WILLOUGHBY B. BRITTON, PhD

Assistant Professor of Behavioral and Social Sciences (Research)
Assistant Professor of Psychiatry and Human Behavior (Research)

Henry Merritt Wriston Fellowship

BRANDON DAVID LEWIS MARSHALL, PhD

Assistant Professor of Epidemiology

PHOTOS: BROWN

MEMORIAL HOSPITAL

Memorial Hospital nurses honored

On May 12, nursing staff from Memorial Hospital were acknowledged and thanked for a lifetime of caring at the PawSox pre-game field recognition at McCoy Stadium during Nurses' Week.

Holding the Memorial banner at McCoy Stadium, were, left to right, **Marla Goulart, RN**, nurse manager; Hodgson 5, **Donna Horrocks, RN**, director of Professional Development (and Donna's grandson, Andrew); **Elaine Joyal, RN**, director of Patient Care and **Barbara Saleeba, RN**, nurse manager, Center for Rehabiliation.

Recognition

Barnes, Mal honored with nursing awards at Memorial Hospital

PAWTUCKET – **JEANETTE BARNES, RN, BSN**, from the Intensive Care Unit, was named Nurse of the Year. A member of Memorial's team for 33 years, Jeanette was nominated by a fellow nurse, **MAUREEN LAWRENCE, RN**. Some of the comments in the nomination letter are as follows:

"During Jeanette's 33 years of service, she has remained caring and focused on her career as a critical care nurse. She is an employee who is accountable, caring and displays teamwork. It is a dedicated employee like Jeanette that remains the heart and soul of Memorial Hospital."

PHOTOS: MEMORIAL HOSPITAL

ALISHA MAL, RN, Emergency Department, was awarded the Rosemary Wood Nursing Leadership Award. A member of Memorial's team for 24 years, Alisha was nominated by **LAURA FORMAN, MD**, physician-in-chief, Emergency Department. This award is designed to acknowledge outstanding leadership of an individual nurse. ❖

Above L–R: Laura Forman, MD, physician-in-chief, Emergency Department at Memorial Hospital and Alisha Mal, RN, Emergency Department and recipient of the Rosemary Wood Nursing Leadership Award.

Above left L–R: Jeanette Barnes, RN, BSN, Intensive Care Unit, Nurse of the Year at Memorial Hospital and Eileen Dobbing, RN, BSN, MBA, senior vice president of patient care services and chief nursing officer at Memorial.

Dr. Martin Weinstock presented with First Founders Award by American DermatoEpidemiology Network

BARRINGTON – **MARTIN A. WEINSTOCK, MD, PhD**, of Barrington was awarded the first Founders Award by the American DermatoEpidemiology Network (ADEN). The award ceremony occurred May 7 at the Society for Investigative Dermatology (SID) annual meeting in Atlanta. At that meeting, Weinstock was also elected vice president of the SID board of directors.

Weinstock is a board-certified dermatologist affiliated with Rhode Island Hospital and the Providence Veterans Affairs Medical Center. He is a professor of dermatology and epidemiology at the Alpert Medical School of Brown University.

The Founders Award recognizes work in the field of dermato-epidemiology to advance the care of dermatological disease and for inspiring and mentoring the careers of dermatoepidemiologists.

"Marty's work and commitment to the field of dermatoepidemiology are towering examples of the spirit behind the Founds Award recognition," said Jean Tang, president of ADEN. "His rigorous epidemiological and clinical research has advanced the detection, prevention, and treatment of patients with melanoma and keratinocyte carcinoma. He has also been instrumental in the founding of ADEN and its precursor organization, ultimately creating a thriving scientific home for dermatoepidemiology at the SID."

"Dr. Weinstock has been a leader in skin cancer research nationally and internationally for the last two decades," said Abrar A. Qureshi, MD, MPH, chief of the department of dermatology at Rhode Island Hospital and chairman of the department of dermatology at the Alpert Medical School of Brown University. "He continues to publish high-quality research on cutting-edge topics, particularly in the area of melanoma and keratinocyte skin cancers. We are fortunate to have him on our faculty."

Weinstock earned a medical degree, master's of philosophy degree in epidemiology and a doctor of philosophy degree in epidemiology from Columbia University, New York, and a bachelor's degree in mathematics from Williams College, Williamstown, Massachusetts. He completed an internship in internal medicine at University of Pittsburgh-affiliated hospitals and his residency in dermatology at Harvard University-affiliated hospitals. He completed a research fellowship in dermatology at Massachusetts General Hospital as well as a clinical fellowship in epidemiology at Harvard Medical School. Weinstock is a fellow of the American Academy of Dermatology and is actively engaged in research.

In 2013, he was the first and only epidemiologist to receive the prestigious American Academy of Dermatology's Lila and Murray Gruber Cancer Research Award, presented annually for contributions in the field of cancer research. He served on the editorial boards of the *Journal of the American Academy of Dermatology* and *Journal of Investigative Dermatology*.

ADEN meets yearly in collaboration with the SID annual meeting, and the group organizes and conducts its own sessions at the SID meeting. ❖

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Recognition

David Anthony, MD, receives Family Medicine Innovative Program Award

PAWTUCKET – **DAVID ANTHONY, MD**, was awarded the Society of Teachers of Family Medicine (STFM) Innovative Program Award along with his colleagues on the board of the fmCASES. He was recognized at the STFM Annual Meeting in Florida recently.

Every year, they issue the Innovative Program Award for «excellence in the development of an original educational program or activity for family medicine residents, students, or faculty. The award recognizes a broad interpretation of innovative family medicine programs to include innovative residency programs, clerkships, services, curricula, or other activities that have had a significant, positive impact on family medicine education."

The fmCASES is a set of 40 online virtual patient cases that comprehensively covers STFM's National Clerkship Curriculum for Family Medicine. Since its inception, Dr. Anthony has worked as one of the associate editors on the fmCASES editorial board. ❖

Women & Infants Physicians Participate In Professional Conference

Specialists present on a variety of obstetrics and gynecology issues

PROVIDENCE – Several specialists from the Department of Obstetrics and Gynecology at The Warren Alpert Medical School of Brown University and Women & Infants Hospital recently shared their expertise with colleagues at the Annual Meeting of the American Congress of Obstetricians and Gynecologists (ACOG).

The theme for this year's meeting was "Teaming Up for Women's Health" and focused on obstetric emergencies, operative gynecology, contraception, menopause, and patient safety.

Participating in the event from Women & Infants Hospital were:

C.O. "SKIP" GRANAI III, MD, director of the Division of Gynecologic Oncology, who delivered the Jim and Midge Breeden Lecture, "The Good Fight."

KRISTEN MATTESON, MD, MPH, interim director of the Division of Clinical Research in Women's Health, who presented "Abnormal Uterine Bleeding: Wading Through the Evidence on Treatment Effectiveness."

CHARLES RARDIN, MD, director of Minimally-Invasive and Robotic Surgical Services, who presented "MIS and Robotics Programs: Setting Up for Success."

KATHARINE WENSTROM, MD, director of the Division of Maternal-Fetal Medicine; **GLENN E. PALOMAKI, PhD**, associate director of the Division of Medical Screening and Special Testing in the Department of Pathology and Laboratory Medicine; and **JACQUELINE HALLIDAY, MS**, senior genetic counselor in the Prenatal Diagnosis Center, who were part of a team that presented "Update on Non-Invasive Prenatal Testing (NIPT: Indications, Benefits, Limitations and the Future).

JOHN E. BUSTER, MD, of the Division of Reproductive Endocrinology and Infertility, who participated in the Sterling B. Williams, MD, PhD, Memorial Lecture Series, speaking on "Postmenopausal Estrogens: Pills, Patches, Pellets, and Gels."

VIVIAN SUNG, MD, of the Division of Urogynecology and Reconstructive Pelvic Surgery, who gave an overview for the Society of Gynecologic Surgeons.

ALEX FRIEDMAN, MD, an ob/gyn resident at Women & Infants, who gave a poster presentation entitled "Reciprocal Peer Support for Postpartum Patients with Diabetes: A Needs Assessment for the Diabetes Buddy Program."

ROXANNE VREES, MD, medical director of Emergency Obstetrics and Gynecology, who was part of a team that presented a poster entitled "The Effect of Topical Lidocaine on Pain During Manual Vacuum Aspiration for Nonviable Pregnancies."

Also in attendance at the meeting was **DEBORAH MYERS, MD**, director of the Division of Urogynecology and Reconstructive Pelvic Surgery, who is an ACOG board member.

MAUREEN G. PHIPPS, MD, MPH, chair and Chace-Joukowsky Professor of Obstetrics and Gynecology and assistant dean for Teaching and Research in Women's Health at the Alpert Medical School, professor of epidemiology at the Brown University School of Public Health, and chief of Obstetrics and Gynecology at Women & Infants Hospital and Care New England Health System, is also a member of ACOG's Committee on Scientific Program, which organized this program. ❖

Recognition

Kent honors employee service at annual recognition dinner

WARWICK – Kent Hospital honored employees for dedicated service and accomplishments on May 14 at its annual employee awards banquet, held at Quidnessett Country Club in North Kingstown, RI. These 261 employees have given a remarkable 4335 years of collective service to Kent Hospital.

"These employees have shown outstanding commitment and dedication to the Kent Hospital community and their hard work deserves to be honored," said **MICHAEL J. DACEY, MD, MS, FACP**, president and COO, Kent Hospital.

Employees were recognized for their years of service ranging from five to 40 years. In addition, the William Lang Employee of the Year and Manager of the Year were also announced. Named after the late hospital administrator, William Lang, who served in that leadership role from 1960 to 1985, and was here at Kent even longer, this award recognizes excellence, dedication and commitment to the hospital, patients and the Kent family. The Manager/Employee of the Year are both selected from a pool of past year Manager of the Quarter/Employee of the Month recipients.

The 2015 Lang Employee of the Year Award was presented to **DIANE ARDITO, RN,** emergency services of Warwick, RI. Diane has worked at Kent Hospital since 2005.

Diane Ardito, RN

William McGuire, RN

The 2015 Lang Manager of the Year Award was presented to **WILLIAM MCGUIRE, RN**, clinical coordinator, surgical services of Harrisville, RI. Bill has worked at Kent since 2011.

Kent's 40-year employees were also recognized for their years of service. They include **REBECCA BULLINGER, RN**, 5 West, East Greenwich; **JOANNE CARLSON, RN**, Nurse Manager, Exeter; **CYNTHIA COTE, RN**, emergency services, Smithfield; **SHEILA FINCH, RN**, clinical coordinator, ICU, Coventry; **CAROL JANUS, RN**, pre admission, Hope; **MARGARET KILLEA, RN**, 5 West, North Kingstown; **LINDA LAUZON**, ultrasound supervisor, West Warwick; **JOAN PARISEAULT, RN**, 3 South, Warwick; **JOY PASTORE, RN**, clinical coordinator, Coventry; **DONNA ROCCHIO**, laboratory, Coventry. ❖

PHOTOS: KENT HOSPITAL

Appointment

James Worthington, MD, orthopedic surgeon, joins Southcoast Physicians Group

FALL RIVER, MASSACHUSETTS – Southcoast® Health recently announced that **JAMES M. WORTHINGTON, MD**, orthopedic surgeon, has joined Southcoast Physicians Group.

Dr. Worthington earned his undergraduate degree at the University of Vermont, where he graduated cum laude, Phi Beta Kappa. He received his medical degree from the University of Vermont College of Medicine. Dr. Worthington completed residencies in both surgery and orthopedic surgery at Rhode Island Hospital, where he served as chief resident in orthopedic surgery.

Board certified in orthopedic surgery, Dr. Worthington specializes in state-of-the-art, computer-assisted joint replacement surgery involving knees and hips. He is a member of the American Association of Hip & Knee Surgeons and the American Academy of Orthopedic Surgery.

A resident of Swansea since 1987, Dr. Worthington is a deacon of the First Baptist Church of Swansea. Dr. Worthington supports a local soup kitchen and frequently speaks at local senior centers. He has been married for 35 years and has three sons. He is an avid runner and has completed 14 marathons. ❖

Save the Date!

RIMS Annual Meeting
September 26

The *new* tradition continues. Members are invited to schmooze, graze, and relax with colleagues at the Save The Bay Center in Providence.
Look for further details soon; invitations will be mailed.

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Appointments

BROWN

Richard Flanagan named Brown University School of Professional Studies Assistant Dean for Health Programs

PROVIDENCE – Brown University's School of Professional Studies recently announced that **RICHARD 'JAY' FLANAGAN**, a medical resource management executive with more than 25 years of experience, has been appointed Assistant Dean for Health Programs. Mr. Flanagan will guide the development of new post-graduate programs for health professionals and those with career aspirations in healthcare, and oversee the Executive Master of Healthcare Leadership (EMHL) program. Mr. Flanagan is a recent graduate of the EMHL program.

"I know firsthand the quality of the programs the School of Professional Studies delivers to leaders in the health industry," said Flanagan. "I'm excited to work with colleagues at Brown to develop high impact programs to cultivate healthcare leaders who will transform their careers, their organizations, and the industry-at-large."

Mr. Flanagan has extensive experience in consulting with healthcare systems, large physician groups, and other providers. Flanagan was founder of the Global Health Group, a Boston-based consulting practice advising hospitals, health systems, and physician clients. In this role he developed and established ancillary services, including Ambulatory Surgery Centers, Medical Imaging, Outpatient Care Centers, Sleep Medicine, Women's Health, and other inpatient and outpatient hospital-based services.

"With proven healthcare industry experience, Jay is the right person to broaden the reach and impact of our healthcare leadership program, and to develop innovative new programs for emerging talent in the field," said Karen Sibley, Vice President for Strategic Initiatives and Dean of the School of Professional Studies at Brown. "With the rapid changes in healthcare and its dominant position in the economy, we need leaders who can address the challenges in healthcare delivery and make astute policy decisions while shaping its future."

The School of Professional Studies at Brown University offers an extensive portfolio of online, residential, and global programs for executives and professionals, and for college and pre-college students. The Executive Master of Healthcare Leadership is a 16-month intensive program for highly accomplished professionals from across the health industry. Students in this blended program of online and residential learning immediately transfer new knowledge and skills to their work settings through an individual Critical Challenge Project. For professionals, the School also offers the IE Brown Executive MBA, a joint degree with the IE Business School in Spain. ❖

Shannon Marie Erisman, PhD, named Director of Day Hospital

CARE NEW ENGLAND

PROVIDENCE – **SHANNON MARIE ERISMAN, PHD**, of Rehoboth, MA, a clinical assistant professor of psychiatry and human behavior at The Warren Alpert Medical School of Brown University and staff psychologist for the Women's Partial Program at Butler Hospital, has joined the staff at Women & Infants Hospital of Rhode Island. Women & Infants and Butler are both Care New England hospitals. Dr. Erisman has been named clinical director of the Day Hospital in the Center for Women's Behavioral Health.

Dr. Erisman's current research interests include outcomes and mechanisms of third wave behavior therapies, particularly in the treatment of women with borderline personality disorder. She is also involved in ongoing studies examining psychosis-proneness, emotional processing, and cognitive flexibility with a particular focus on women's mental health.

"Dr. Erisman is a tremendous addition to the Center for Women's Behavioral health," said Dr. Margaret Howard, director of the Center for Women's Behavioral Health and the postpartum depression Day Hospital. "We look forward to what added benefit she can bring to our already successful Day Hospital program at Women & Infants."

Dr. Erisman completed her B.A. in psychology at Boston University and her master's and PhD in clinical psychology at the University of Massachusetts Boston. She completed her post-doctoral fellowship at Edith Rogers Memorial VA Medical Center in Psychosocial Rehabilitation.

About the Day Hospital The Day Hospital is the nation's first perinatal partial hospital program treating pregnant women and new mothers with depression, anxiety or other emotional distress, and their babies in a warm, nurturing setting. The concept of keeping mothers and babies together during treatment was unique when the Day Hospital opened in 2000. ❖

Nitin Damle, MD, named president-elect of the American College of Physicians

The Governance Committee of the American College of Physicians has named **NITIN DAMLE, MD**, president-elect of the American College of Physicians. Dr. Damle is the co-founder and managing partner of Wakefield's South County Internal Medicine since 1988, and is past president of the Rhode Island Medical Society. He is also a clinical professor of medicine at Brown University's Alpert Medical School. Currently on the board of regents and a member of the ACP since 1992, he was formerly the governor of the Rhode Island chapter. His professional areas of expertise include Lyme disease. ❖

Appointments

LIFESPAN

Derek Jenkins, MD, orthopedic surgeon, joins Newport Hospital

NEWPORT – Orthopedic surgeon **DEREK JENKINS, MD**, has joined the Newport Hospital medical staff as part of the Orthopedics Institute, Newport Hospital. Jenkins, an expert in hip and knee joint replacement and reconstructive surgery, began seeing patients earlier this month.

Jenkins specializes in adult reconstruction of the hip and knee, with a special interest in direct anterior total hip replacement, gap-balanced total knee replacement, partial knee replacement, and revision of failed/painful joint replacements.

Jenkins received his medical degree from Dartmouth Medical School and an engineering degree from Dartmouth College. He completed his residency in general and orthopedic surgery at Lenox Hill Hospital in New York City, and a fellowship in adult reconstructive surgery at the Mayo Clinic in Rochester, Minnesota. He is a member of the American Academy of Orthopedic Surgeons and the American Association of Hip and Knee Surgeons. ❖

C. James Sung, MD, named CNE Director of Clinical Pathology and Laboratory Informatics

CARE NEW ENGLAND

PROVIDENCE – **C. JAMES SUNG, MD**, of Lincoln, has been named Director of Clinical Pathology and Laboratory Informatics for Care New England. Dr. Sung also serves as the vice chief of the Department of Pathology and Laboratory Medicine and director of Clinical Pathology and Informatics at Women & Infants Hospital, a position he has held since 1999.

"Dr. Sung brings a wealth of experience in clinical laboratory science to this new position," said W. Dwayne Lawrence, MD, executive director of Pathology and Laboratory Medicine at Care New England and chief of Pathology and Laboratory Medicine at Women & Infants Hospital. "He was instrumental in building the laboratory information system not only at Women & Infants Hospital, but also across Care New England. His commitment to quality and clinical excellence is second to none."

Dr. Sung earned his medical degree from Chung Shan Medical University in Taiwan and completed a residency in pathology at Brown University. He was the first Stuart C. Lauchlan Fellow in Gynecologic Pathology, Breast Pathology and Cytopathology at Women & Infants Hospital/Brown University and has served as the fellowship program director since 1999. Board certified in anatomic pathology and clinical pathology, Dr. Sung is a professor of pathology and laboratory medicine at Brown University. ❖

CARE NEW ENGLAND

Dr. Vivian Sung named President-Elect of Society of Gynecologic Surgeons

PROVIDENCE – **VIVIAN SUNG, MD, MPH**, of the Division of Urogynecology and Reconstructive Pelvic Surgery at Women & Infants Hospital of Rhode Island and Associate Professor of Obstetrics and Gynecology, was recently named President-elect of the Society of Gynecologic Surgeons (SGS) at the group's 41st Annual Scientific Meeting in Orlando. Dr. Sung's term as President will begin in 2016.

As president, Dr. Sung is responsible for presiding over all meetings of the Society, Board of Directors and the Executive Committee, as well as serve as an ex-officio member of all committees. The objective of the SGS board is to promote dissemination of knowledge revolving around gynecologic surgery; advance the understanding of anatomy, physiology and pathology of the female reproductive system; and encourage improvement in surgical skills and techniques.

"I applaud Dr. Sung's goals for her role as president of the Society of Gynecologic Surgeons which will include expanding the educational and research missions of the Society through developing new programs that will enhance educational resources and evidence-based gynecologic surgery," said **MAUREEN G. PHIPPS, MD, MPH**, chief of obstetrics and gynecology at Women & Infants Hospital.

Dr. Sung is a graduate of Tufts University School of Medicine. Dr. Sung completed residency in obstetrics and gynecology at Magee-Women's Hospital in Pittsburgh, PA and then completed a dual fellowship in Urogynecology and Reconstructive Pelvic Surgery and also Epidemiology and Clinical Trials at Women & Infants Hospital. She has achieved certification in Female Pelvic Medicine and Reconstructive Pelvic Surgery (FPMRS) by the American Board of Obstetrics and Gynecology (ABOG). She is the Principal Investigator for the Women and Infants site in the NICHD Pelvic Floor Disorders Network.

Dr. Sung balances non-surgical, surgical and minimally-invasive options for the management of pelvic organ prolapse and urinary incontinence. She has a particular interest in the critical evaluation and translation of new and existing clinical practices for pelvic floor disorders. She is committed to advancing the field of urogynecology and improving patient care through rigorous research and evidence-based practice. ❖

University Orthopedics proudly announces the appointment of Brett Owens, M.D.

Brett Owens, M.D. is a fellowship-trained, board certified orthopedic sports medicine surgeon specializing in arthroscopic repair of sports-related injuries, including complex knee and shoulder reconstructions.

Lieutenant Colonel Owens was most recently Chief of Orthopedics and Sports Medicine at Keller Army Hospital at West Point, NY, caring for soldiers and cadets at the United States Military Academy, and was Team Physician for Army lacrosse, rugby, and football teams. While deployed in Iraq during Operation Iraqi Freedom, Dr. Owens was Chief of Orthopedics at the 86th Combat Support Hospital.

Dr. Owens is Team Physician for the U.S Lacrosse National Men's Team USA, and will assist Dr. Paul Fadale and Dr. Michael Hulstyn in caring for the athletes of Brown University. He is a Professor at the Uniformed Services University and is on the faculty at the Alpert Medical School of Brown University. He will perform surgery at The Miriam Hospital and Rhode Island Hospital, and will see patients at University Orthopedics' Butler Campus and Providence offices.

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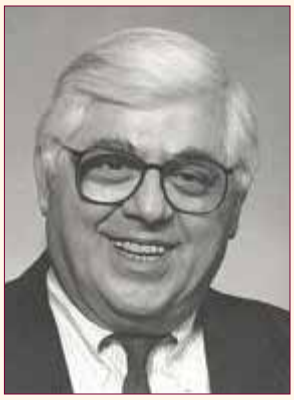
Obituaries



HERBERT P. CONSTANTINE, MD, 85, died May 3 at home. He was the husband of Muriel (Holmes) Constantine.

Dr. Constantine was Chief of Ambulatory Care and Community Medicine at Rhode Island Hospital, retiring 18 years ago. After retiring he was a consultant to the R.I. Department of Health, retiring 9 years ago.

He was a professor emeritus at the Warren Alpert Medical School of Brown University. He was a graduate of the University of Buffalo School of Medicine where he was elected to Alpha Omega Alpha. He served on the board of directors of the Providence Neighborhood Health Center and Providence Mental Health for many years.

Dr. Constantine was a member of the Providence Art Club. A former board member of the Providence Athenaeum and had also served on the board of Moses Brown School.

In addition to his wife, he leaves 2 children: Paula H. & John A. Constantine, both of Providence

In lieu of flowers, donations may be made to the Providence Athenaeum, 251 Benefit St., Providence, RI 02903.

SCOTT E. WANG, MD, of Jamestown, RI, died peacefully on Wednesday, May 6, 2015 at home surrounded by his loving family, after a valiant five-year battle with brain cancer. He had just celebrated his 61st birthday two days prior. Scott was a devoted husband and loving father, as well as a talented and compassionate physician. The son of Arlene Wang and the late Herbert Wang, he is survived by "the love of his life," Carol Wang, and his son and daughter, Joshua and Rachael Wang.

He is also survived by his sister, Beth Nast, and her husband, Bill, his brother, David Wang, and his wife, Debbie, his uncle, Bernie Margolis, his sisters-in-law, Gail O'Leary and Pat Moseley and her husband, Hank, and his many nephews and nieces.

Scott grew up in Rhode Island and completed secondary school in Newton, MA, where his family moved in 1970. He graduated magna cum laude from Duke University and received his medical degree from Boston University in 1980. He completed his residency in Pathology at the University of California, Los Angeles and his fellowship at the Medical College of Virginia in Richmond. After serving on the faculty of Allegheny General Hospital and the Medical College of Pennsylvania as the Director of Cytology, Cytogenetics, and Blood Bank, Scott moved back to his beloved Rhode Island to serve as Chairman of the Department of Pathology at Newport Hospital for nearly twenty years until his retirement due to illness as Honorary Staff in 2011.

Scott was a distinguished leader in pathology. He was an inspector and state delegate for the College of American Pathologists for nearly twenty years, served as treasurer/secretary for the Rhode Island Society of Pathologists, and was the pathology representative to the Rhode Island Medical Society. He was also a long-standing member of the Rhode Island Brain and Spinal Tumor Foundation and was a strong voice of hope for individuals and families battling brain tumors.

Scott had an amazingly positive outlook at all times, even in the face of tremendous obstacles. He lived life to its fullest, traveling the world and enjoying the backyards of his home state. Scott was an avid cyclist and skier, and he spent every summer by the water, kayaking along the coast. His devotion to his beloved wife and children served as the foundation for his life. Scott was proud of his many contributions to the field of medicine, but he was most proud of his two children. Scott's journey was filled with love, courage and hope. In lieu of flowers, contributions in Scott's memory may be made to RI Brain and Spine Tumor Foundation, 118 Dudley St., Providence, RI 02905 or Home & Hospice Care of RI, 1085 North Main St., Providence, RI 02904 or to the charity of your choice .

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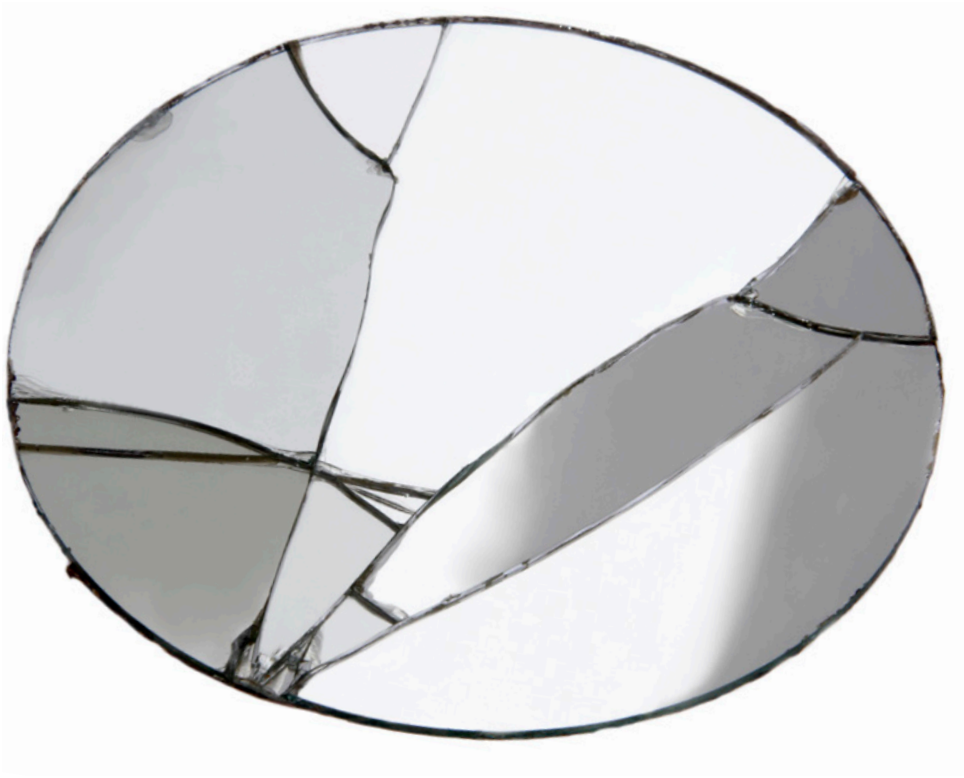

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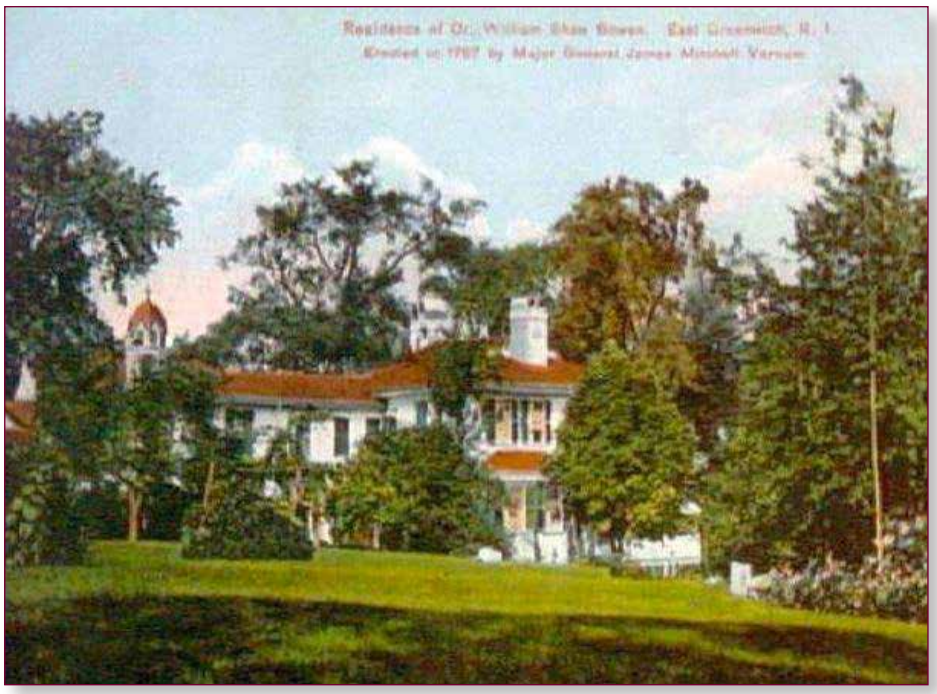
Dr. William Shaw Bowen: From Scalpel to Scoop

East Greenwich Physician Switches Careers in Era of 'Yellow' Journalism

MARY KORR
RIMJ MANAGING EDITOR

Rhode Island Medical Society member **DR. WILLIAM SHAW BOWEN** (1845–1907) was an active contributor to the Society's journal, then called *Transactions,* but perhaps medical writing became a bit too dry for the East Greenwich ophthalmic and aural surgeon. After practicing in Rhode Island and Hartford, Conn., for more than a decade after graduation from Harvard Medical School in 1867, he switched scalpel for pen and began work as a correspondent for the *New York World* owned by Joseph Pulitzer.

It was the heyday of sensational aka 'yellow' journalism. The competition between Hearst- and Pulitzer-owned tabloids and print newspapers was fierce. One of Dr. Bowen's colleagues at the *World* was Nellie Bly, famed for replicating Jules Vernes' tale of *Around the World in 80 Days.* She embarked on a voyage and indeed made it in 72 days. Another of her exploits was feigning insanity to study the goings-on in a women's asylum on Blackwell's Island in New York City.



Postcard printed by the Rhode Island News Co. circa 1900 shows the East Greenwich home of Dr. William Shaw Bowen.

THE HAWAIIAN INVESTIGATION.

Dr. Bowen Says that Mr. Blount's Suspicions Were Groundless.

WASHINGTON, Jan. 29.—The Senate committee investigating the Hawaiian affair had before it this morning as its principal witness Dr. William Shaw Bowen, the correspondent of The New-York World, who went to Honolulu shortly after the revolution. Mr. Bowen was present for the purpose of denying some statements made by Mr. Blount. He said that he went to Hono-

The *New York Times* from 1894 reported on a Congressional panel inquiry into the abdication negotiations between the US, the 'sugar trust' and Queen Liliuokalani. Dr. Bowen was in Honolulu covering the situation in 1893.

Dr. Bowen's travels for the *World* took him across the country and continents. He covered politics, presidential elections, wars and coups. We find him in Honolulu in 1893. The latter assignment landed him in an imbroglio, when one San Francisco tabloid reported he was a secret envoy for the U.S. government, on hand to negotiate Queen Liliuokalani's abdication. A Congressional inquiry was later launched, and *The Morgan Report* was issued.

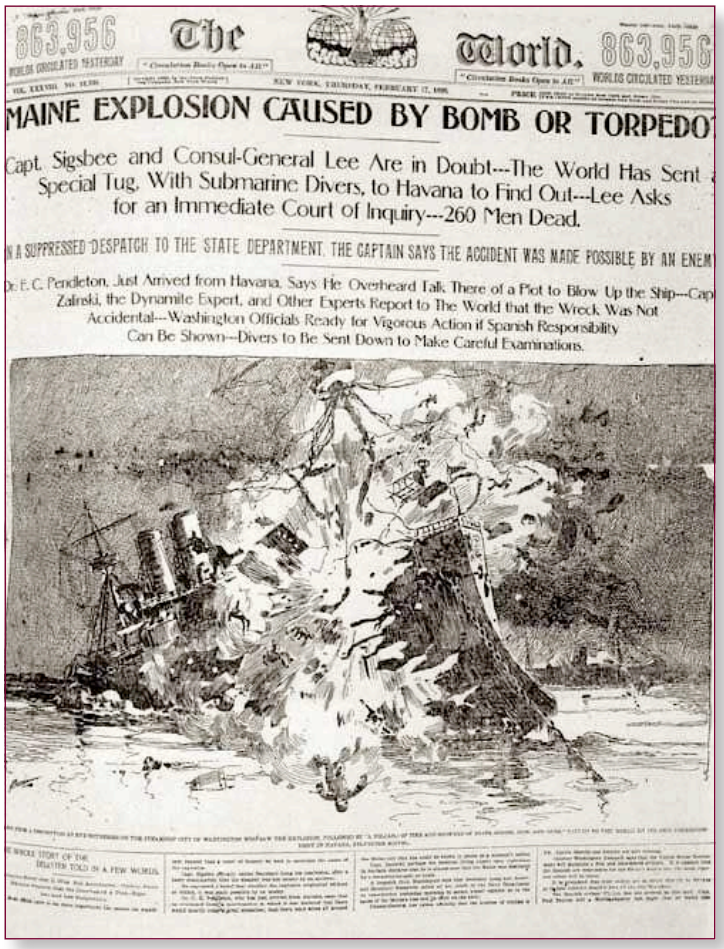
In it, Dr. Bowen stated he was not acting as a representative of President Grover Cleveland, although acknowledged that the two were friends, since Dr. Bowen's coverage of the president's election. He admitted to having informal conversations with those in power and with the Queen's emissaries, purely for journalistic reasons. Like all journalists, he was in pursuit of the scoop.

Given his medical background, Dr. Bowen also noted in

his testimony the Queen's reported heart condition, which he considered relevant to the matter of obtaining a pension for the regent.

In the report, Dr. Bowen stated: "I went there with the news instinct of a developed journalist. I saw very little to write about the country; it had been covered. There were a great many correspondents there. I conceived the idea of obtaining some very important and very exclusive news. I studied the situation. I knew before I left here that annexation was undoubtedly impracticable at present — I had very strong reasons for believing that. I always believed that the American people would not believe in the restoration of the Queen. I therefore saw a status quo condition there that I thought would continue, and that there was a fine field for making history.

"I was in company with Paul Neuman going out in the steamer and the Queen's commissioners were just returning from Washington. I became very intimate with them, especially Mr. Neuman. Mr. Neuman had the power of attorney from the Queen. I thought that I heard from authority which was entirely correct that the Queen had a disease of the heart. I had that from a professional source which it would be improper for me to mention; but it came from the best authority on the islands. I heard that she had a disease of the mitral valves of the heart, and that she was liable at any time to sudden death. I thought it was equitable that she should be taken care of. I am only explaining the motives which prompted me to do what I did. I thought it would be better if the Queen were taken care of. She was generous to her following, and there were many people depending upon her. That made an impression on me. I thought she should be taken care of."


863,956 The World. 863,956
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Capt. Sigsbee and Consul-General Lee Are in Doubt---The World Has Sent Special Tug, With Submarine Divers, to Havana to Find Out---Lee Asks for an Immediate Court of Inquiry---260 Men Dead.
IN A SUPPRESSED DESPATCH TO THE STATE DEPARTMENT, THE CAPTAIN SAYS THE ACCIDENT WAS MADE POSSIBLE BY AN ENEM
Dr. E. C. Pendleton, Just Arrived from Havana, Says He Overheard Talk There of a Plot to Blow Up the Ship---Cap
Zalinski, the Dynamite Expert, and Other Experts Report to The World that the Wreck Was Not Accidental---Washington Officials Ready for Vigorous Action if Spanish Responsibility Can Be Shown---Divers to Be Sent Down to Make Careful Examinations.

Dr. Bowen's final assignment for the Pulitzer newspaper, the *New York World,* was to cover the Spanish American War in 1898.

Dr. Bowen's final assignment was covering the Spanish American War in 1898 for the *World.* After that, he retired to his home in East Greenwich with his family, which included his wife and two daughters. His life of adventure came to an end in 1907, when he died from a cerebral hemorrhage. His obituary ran in all the major medical journals in the country, which cited foremost his journalistic accomplishments. ❖

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