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Cover: "Frozen Cherubs," watercolor, by Bunny Griffith. After 28 years of nursing at RI Hospital, she retired and started a blog of her watercolor paintings (<http://bunnygriffith.blogspot.com>). She has exhibited in Rhode Island and Massachusetts, and is a member of the RI Watercolor Society and Pawtucket Arts Collaborative. *The WaterFire Duck* (Kiki Latimer author, Sept. 2009) is Bunny's first book of children's book illustrations. Her second book will be *Bubble Butt, The Story of Charlotte the Sea Turtle*, also with Kiki Latimer. E-mail: bunnygriffith@gmail.com

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Commentaries

Three A's or Four; or, What Do Patients Want In a Doctor?



In thinking about the best way to tell Parkinson's disease (PD) patients their diagnosis, I became interested in the methodological problems a research study would encounter. I then started to think about the issue of the doctor-patient relationship in PD, which may, of course, extend to many medical encounters. The more I pondered, the more convinced I became that this complicated topic had no simple answer. Different patients and different cultures produce different needs and different desires.

The standard line we're taught in medical school, with somewhat pejorative undertones, is that patients care about the "three As: availability, affability and ability," in that order. I learned from some research articles studying the patient doctor relationship that there is a fourth A, autonomy. Patients, at least in the primary care area, want to be included in decision-making. An Israeli study of in- and outpatients on a medical service at a university center reported that patients didn't care at all about whether their doctor was a medical school faculty member or did research. They didn't even care about continuity of care, a surprising finding, of course, at a center full of resident clinics where doctor turnover is guaranteed. Three of their four major concerns were that their doctor should be competent, humanistic and available. However, the area in which they most fully agreed with each other was in the need for patient "autonomy."

In the area of medical decision-making patients are often not included. The doctor may think, after all, that they came to the doctor to be diagnosed and treated, and who knows best?

There is a literature on "shared decision-making (SDM)," evidently a buzz phrase in health-care delivery. It has been studied, to a limited extent, but different studies have reported different effects. First of all, it is unclear to me how one does a blinded trial of SDM vs not-SDM, but some studies reported controlled, blinded

trials. Few indicated that SDM produced better patient satisfaction with the doctor, or benefit in terms of compliance with treatment recommendations. Support for SDM is, therefore, more theoretical than real.

As I considered how to study this topic in my own area, PD and movement disorders, the more I became convinced that although data on autonomy and shared decision-making may be useful, the real key to being a humanistic doctor is recognizing the needs of the individual patient. And I haven't thought of any reasons why this wouldn't extrapolate to all areas of medicine. It is difficult for me to believe that patients have a uniform opinion other than that they'd like to be treated with respect and kindness, with the three A's mentioned above as well.

I suspect that every medical discipline differs in its approaches to autonomy, as do these disciplines' patients. Patients with psychiatric problems, for example, are less inclined to get second opinions, although my experience indicates that they change doctors relatively frequently. I am not sure there is room for autonomy in much of psychiatry. Oncology patients often get second opinions and are used to hearing what the options are, as do patients being referred for procedures. I think patients are often quite autonomous in these settings, like making a decision on buying a car.

A colleague asked a group of people with PD what they would have liked to have heard on their initial visit to their neurologist versus what they did hear. Of course we must keep in mind that what they recall having heard and what they were told are often different (and the same goes for the doctors). Nevertheless patients often recalled that they were given short lectures on the disease process, the options for treatment, prognosis, etc, but what they really wanted to hear (reported much later on) was that the doctor and the patient were in this together, forever. They wanted emotional support, not autonomy.

This was a surprise to me. The study has not been published and has not been replicated. The results may represent a cultural bias of Oregon, where the PD study was performed. Soon after I learned about this study, an old friend of mine was talking about the ordeal he and his wife were going through with their neurologist in the mid-west, who had cared for the wife because of her dementia. At an early meeting he told her that there wasn't much he could do for her but he'd always be her doctor. Yet three years later he could not see her again. Her dementia had progressed rapidly and he was under institutional pressure to stop seeing patients with advanced dementia. My friend, her husband, who needed at least as much emotional care as she did, felt desperately betrayed. Demented as she was, she too felt betrayed and abandoned.

I have given this a fair amount of thought and have considered telling new patients that I'd always be there for them, but it sounds too ominous, too much like a death-bed promise and somewhat paternalistic as well. I have never said this to a patient. I do try to say, or at least convey, the fundamental bond we will have, that since we don't yet have a cure for PD that I'd be happy being on their treatment team until there's a cure or one of us dies. I hope that putting it this way conveys the message that I won't abandon the patient, while at the same time, placing us on the same level, acknowledging that not only are we together on the same team but also that we are *both* mortal.

— JOSEPH H. FRIEDMAN, MD

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Worlds That Might Have Been

Imagination is a wondrous gift. It allows us to reconstruct some part of the world, solely in our heads, and to see whether the fantasized changes, still confined to the laboratory of the mind, are to our liking. Of the many cognitive benefactions granted to us as humans, creative imagination is perhaps the most far-reaching. It gives us the seeds of symphonies, the schema of great works of art, Disneylands and scientific insights. It allows us to foresee future consequences – good and bad – were our dreams to be translated to reality. It allows us to fill in the hiatuses that reality overlooks. And imagination works in two spheres: what the world might be like if it be enriched by something new, something not currently available; or, alternatively, what a future world might be like deprived of some notable invention currently available.

Imagine now a world without the microscope, or indeed without any technical instrumentation to make the very small things of life visible. Imagine a world where nothing smaller than a grain of sand is discernible. In such a world we acknowledge sadly that there might exist strange and wondrous things – perhaps even living creatures – too small to be visible; so small indeed that their very materiality goes no further than idle speculation.

Imagine a world aware that the domain of things too small to see might possibly harbor entities more structured than bland mush. Imagine a world that acknowledges that invisible forces must somehow be operative in the nature of things too small to see. Something, logic tells us, must be actively engaged, behind the scenes, to cause grape juices to ferment into wine, to encourage mushrooms to grow after rain showers and to hasten lichens to appear on ancient fieldstones.

When confronted by unexplained phenomena, humanity takes one of two paths: it may ascribe these unexplained findings to unknowable forces and thus the basis of a new religion with a core dogma declaring smallness, rather than higher authority, as the ineffable core of the world. Alternatively, mankind may perceive smallness as a worthy challenge to be confronted by science rather than mystery or adoration.

In the realm of medieval medicine, barely removed from its heritage of alchemy and less than a century before the microscope was invented, there had been a pervasive awareness that something other than bad feelings or moral sin must cause infectious diseases to exert their damage. And with diligent record-keeping, physicians came to understand that a disease such as cholera, for example, seems to be conveyed, from the afflicted to the unafflicted, through the intermediacy of drinking water; that something in the effluence of a cholera-ridden patient may find its way into the potable water of the future patient with cholera.

But what that “infective” substance is remained a mystery. A natural question arose: Can a disease such as cholera be experimentally transmitted? The answer was yes; which prompted the next question: In the absence of a gadget such as a microscope, can the size of the infecting agent be determined? Again, the answer was yes, by using filters with pores of graded diam-

eters, science concluded that the agent causing cholera was about three microns in size. Next question: What other biological attributes did it possess? Again, without a microscope, biologists demonstrated that these invisible agents, if given appropriate nourishment, could propagate at astonishing rates. And thus, without “seeing” these agents, science inferred that these infective agents were alive and worthy of a special name. A 19th Century scientist then bestowed a Greek word upon them: *bacteria*, meaning little rods.

Gone then were the days when medical scientists, after a few martinis, dared to whisper to each other that there exists a world of invisible creatures – then called animalcules – which may be the bearers of human disease, knowing that the very thought of such invisible creatures causing death in 180 pound humans was patently absurd.

And finally, in a world without microscopy, there would inevitably arise a new genre of writers spinning science-fiction tales about the world of small things, eternally hidden from the woefully inadequate eyes of mankind, a microscopic world populated by alleged creatures that possessed the capacity to make strong men weak, reduce giant trees to crumbling soil and bring devastation to unsuspecting millions. These writers with vivid imaginations might even hypothesize the existence of predatory creatures, flesh-eating monsters – all of incredibly small size – capable of causing a tapestry of human disease, some as debilitating as venereal disease or devastating as the Black Plague.

Imagine, still, that assembly of medical scientists in some ancient tavern, gathered on a cold, wintry twilight to warm themselves and to talk in poignant whispers of what their world might be like if only they possessed a scientific instrument allowing them to peer into the domain of the extremely-small-things to observe, in wonderment, what exotic agents might exist in such a nether world.

– STANLEY M. ARONSON, MD

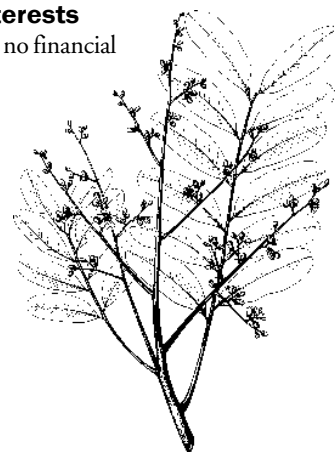
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Disclosure of Financial Interests

Stanley M. Aronson, MD, has no financial interests to disclose.

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Rhode Island Chapter, American College of Physicians 2009 Annual Meeting Abstracts

In June 2009, the Rhode Island Chapter, American College of Physicians hosted its annual Associates' Forum Competition at the Radisson Airport Hotel in Warwick. Over 80 residents in Rhode Island's teaching hospitals submitted entries. A committee of program directors chose the following six winners. These six podium presenters each received a plaque and a cash award from the College Chapter. The Chapter applauds this year's Associates—they represent the future of medicine in the United States.

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When Lying Down Is Better Than Sitting Up: Orthodeoxia/Platypnea Syndrome

*Deepak Pradhan, MD, Austin Larson, Bethany Gentilese, MD
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Orthodeoxia/Platypnea Syndrome refers to dyspnea and decreased blood oxygen saturation when in the upright compared to the supine position. The rarity of this condition provides a diagnostic challenge. Our patient is an 83-year-old woman with history of a prior deep venous thromboembolism/pulmonary embolus previously on coumadin therapy who presented with shortness of breath. On physical exam she was tachycardic, tachypneic, and hypoxic. EKG demonstrated sinus tachycardia, and a chest X-ray showed no acute pathology. CT angiogram visualized a right upper lobe subsegmental acute pulmonary embolus. She was promptly started on anticoagulation with a heparin drip and admitted. During her inpatient stay she was noticed to have positional hypoxia/dyspnea on pulse oximetry that occurred when sitting up. This finding was corroborated by arterial blood gas measurements, which showed a pH of 7.44, PaO₂ of 60, and SaO₂ of 92% while supine, and while sitting up a pH of 7.48, PaO₂ of 44, and SaO₂ of 84% on room air. Accordingly, a diagnosis of platypnea/orthodeoxia syndrome was established, and a physiologic shunt was considered. The patient had no evidence of liver disease or neurologic disease to suggest hepatopulmonary syndrome or autonomic dysfunction. She was a life-long nonsmoker without evidence of emphysema on chest x-ray or pulmonary arteriovenous malformations on CT Chest. Transthoracic echocardiogram showed a normal left ventricle with low nor-

mal systolic function. However, transesophageal echocardiogram showed an aneurysmal inter-atrial septum with a large patent foramen ovale and small atrial septal defect. With the patient supine a small left to right shunt was observed by color doppler, but with the patient upright at a 70 degree angle, there was a brisk jet flow from right to left through the PFO wrapping around the left atrium. After right heart catheterization to ensure that her pulmonary artery pressures were not markedly elevated, the PFO was closed using an Amplatzer cribiform closure device guided by echocardiography. At the end of the procedure an IVC filter was also placed. One day post-procedure, transthoracic echocardiogram revealed an intact intra-atrial septum without evidence of shunting by agitated saline injection. On the day of discharge the patient no longer showed any evidence of platypnea or orthodeoxia with an upright pulse oximetry oxygen saturation of 95%, and was discharged back to assisted living. This case reminds us that when a diagnosis does not fully explain our findings that we need to delve further, as a small subsegmental pulmonary embolus did not fully explain our patient's hypoxia. Also, with the high prevalence of patent foramen ovale in the population, providers should keep this rare diagnosis in their differential when dealing with any report of positionally-dependent dyspnea, which can be initially investigated quickly, cheaply, and non-invasively via pulse oximetry.

Acute Disseminated Encephalomyelitis in a Patient Presenting With an Asthma Exacerbation

*Micaela Hayes, MD, Bashar Staitieh, MD, Milu Kojic, MD
Rhode Island Hospital/The Miriam Hospital*

Acute disseminated encephalomyelitis (ADEM) is a demyelinating disease of the CNS thought to be autoimmune in etiology. It is typically associated with an antecedent viral infection or immunization. Clinical presentations vary widely

depending on the degree and location of demyelination. Although theories abound, a definitive pathogenesis has not yet been determined.

Case Description: A 39 year-old female smoker with mild

asthma presented to the Emergency Department with three days of cough, fever, and dyspnea. She took no medications. Clinical and radiologic examinations confirmed pneumonia and acute asthma exacerbation. She was admitted to the medical floor and treated with moxifloxacin, steroids, and bronchodilators. Two days later she was emergently intubated for hypoxic respiratory failure and transferred to the intensive care unit. CT pulmonary angiogram revealed no emboli but confirmed severe multilobar pneumonia with ground-glass opacities and hilar and mediastinal lymphadenopathy. Bronchoscopy revealed friable mucosa with minimal secretions and bronchioalveolar lavage fluid grew Adenovirus. All other cultures, including bacterial, fungal, and acid-fast bacilli were negative.

Upon extubation six days later, she demonstrated diminished cognitive function, profound muscle weakness, and sensory deficits in her upper and lower extremities. Initially, these deficits were attributed to neuropathy of critical illness. However, a CT brain obtained after a mechanical fall showed diffuse white matter disease. Subsequent contrast MRI of the brain demonstrated profound cortical white matter disease and punctate hemorrhages consistent with ADEM. Contrast MRI of the entire spine was unremarkable. Lumbar puncture revealed 12,900 RBC/cmm, 12 nucleated cells/cmm (46% lym-

phocytes, 46% macrophages, 8% neutrophils) and strongly positive adenovirus serologies (>1:512). In the CSF, serologies for HSV, CMV, and syphilis as well as viral PCR for JC virus, EBV, CMV, and VZV were all negative.

The patient's cognitive and neurologic symptoms improved dramatically prior to discharge on high-dose steroids. Nine months later a bilateral foot-drop remains. Sensory deficits persist in her lower extremities accompanied by neuropathic pain that has partially responded to gabapentin.

Discussion: This case describes a unique association between a rare, serious neurologic disorder and a common, typically benign virus. Adenovirus usually causes a mild respiratory infection or keratoconjunctivitis, but severe pneumonia in healthy adults (most commonly military recruits) has been well described. Although neurologic complications such as meningitis and encephalitis have been reported, the association between adenovirus and ADEM is novel. While quantitative PCR of the CSF is diagnostic of CNS infection, the clinical and serologic correlations strongly support Adenovirus as a causative agent in this patient. The recent rise in severe Adenovirus infections and the association with a serious CNS complication underscore the need for early evaluation and treatment. Efficacy of early therapy with antiviral medications such as cidofovir has been demonstrated.

Viremia in Vietnam: Viral Load Surveillance in the Era of Rapid Scale UP

*Trong Trinh, MD, Mimi Gerard MD, Brian Montague DO, Timothy Flanigan MD
Rhode Island Hospital/The Miriam Hospital*

Since 2003, the global HIV community has benefited greatly from a rapid scaling up of **antiretroviral therapy (ARV)** to resource-limited settings. Despite the increased options and access to ARV, there is no standard guideline on viral load surveillance in these settings. Many ARV sites in resource-limited settings traditionally adopt a selective approach to viral load surveillance, doing so only under clinical suspicion for virologic failure. Our study attempts to identify the features associated with viral load testing and viremia among patients on ARV in an HIV center in Ho Chi Minh City, Vietnam.

METHODS: An Hoa **Day Care Center (DCC)** is a medical center that provides ARV and HIV – related services in District 6 of Ho Chi Minh City, Vietnam. The site is funded by the **US President's Emergency Plan for AIDS Relief (PEPFAR)**, with technical and administrative support from the Vietnamese Ministry of Health, and the non-governmental organization **Medicins du Monde (MdM)** since 2005. We conducted a cross – sectional review of patients attending the An Hoa DCC who have been on ARV for greater than one year and who received viral load testing.

RESULTS: A total of 203 patients were evaluated. The median age at registration to DCC was 26. Eighty three percent were male, and 73.4% (had a history of **injection drug use (IDU)**). Approximately 25% (51) had detectable **viral loads (VL)**, of which 92% (47) had VL above 400 copies / ml. Detectable viremia was associated with female gender ($p <$

0.023), history of ARV prior to registration to DCC ($p < 0.002$), documented immunologic failure ($p < 0.0009$), documented clinical failure ($p < 0.008$), and a history of 1st line ARV modification (OR2.6 CI 95% 1.1 to 6.0). Of the 203 patients who received viral load monitoring, 27 (13.3%) were performed under traditional, selective criteria. One hundred and seventy six (87.7%) underwent viral load monitoring under non-selective criteria (non-traditional, routine approach). The sensitivity of the selective, traditional approach of VL monitoring was found to be 29.4% in detecting patients with detectable VL, 31.9% in detecting patients with VL > 400 copies/ml, 60.9% in detecting patients with VL > 10,000 copies/ml.

DISCUSSION: Our review demonstrates an association between detectable viremia and female gender, history of ARV use prior to DCC registration, history of clinical and immunologic failure, and history of 1st line ARV modification. We have identified possible risk factors for virologic failure among patients receiving ARV for greater than one year. Furthermore, our study has shown that the traditional, selective approach to virologic surveillance may be insensitive to detecting detectable viremia.

CONCLUSION: As access and options to ARV treatment increase in resource limited settings, the approach to virologic surveillance needs to be re-defined.

A Case of Mistaken Identity: Accidental ingestion of the Jack O'Lantern Mushroom (*Omphalotus olearius*) Causing Muscarine Toxicity

*Mahim Kapoor, MD, and Nicholas S. Ward, MD
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Mushrooms are an important ingredient in many cuisines throughout the world. Of the known 5000 species, 50-100 have been associated with myriad toxic syndromes. While commercially available mushrooms have an excellent safety profile, cases of ingestion of toxic species are well described, especially in Europe and Asia. Knowledge of syndromes related to mycotoxin ingestion is important given the increasing popularity of mushroom hunting (for purposes of nutrition, culinary diversity, or hobby) and mushroom ingestion for hallucinogenic purposes on college campuses.

A 56 year-old woman from Laos, with no medical history, presented to the emergency room promptly after experiencing acute onset, copious, non-bloody vomiting, salivation, lacrimation, diaphoresis, and stomach upset. The patient mentioned ingestion of multiple, orange-colored, sweet-tasting mushrooms approximately 2-3 hours prior and has eaten similar mushrooms without consequence in the past. She was afebrile, with blood pressure 169/104, heart rate 98, breathing 22 times per minute, and normal pulse oximetry. Physical exam was remarkable for increasing confusion and lethargy, diaphoresis, lacrimation, salivation, miosis, and mild wheezing on chest auscultation.

Initial laboratory evaluation was notable for leukocytosis of 17.3 with 43% neutrophils, and 0% bands, amylase of 273, and lactate of 4.9. Chem-7, LFTs, Urine toxicology screen, UA, CSF cell count and differential were unremarkable.

She was administered activated charcoal, and given her lethargy and persistent vomiting, was intubated for airway pro-

tection. After discussion with Poison Control, it was felt that her clinical syndrome was most consistent with muscarine toxicity, although the patient's altered mental status suggested the presence of a second, hallucinatory agent. Given the lack of concerning hypotension or bradycardia, no atropine boluses were administered. She was given supportive care and extubated approximately 18 hours later. Given her description of the ingested mushrooms as well as her choice from a lineup of different mushroom pictures, the offending mushroom was identified as *Omphalotus olearius*, also known as the North American Jack O'Lantern Mushroom, and often confused with the edible chanterelle.

Muscarine is a compound similar to acetylcholine, and contained in a variety of mushrooms including *Omphalotus olearius*, capable of stimulating peripheral, muscarinic, cholinergic receptors. It is not degraded by cholinesterase, causing peripheral cholinergic symptoms lasting several hours. These symptoms include salivation, lacrimation, emesis, urination, diarrhea, miosis, bronchorrhea, and bronchospasm. Muscarine does not cross the blood-brain barrier and does not cause central cholinergic symptoms. Significant morbidity and mortality is uncommon, and care is primarily supportive with rehydration and atropine boluses for bradycardia and associated hypotension. There are no measurable markers of muscarine or its metabolites in body fluids and diagnosis is made clinically. Knowledge of the muscarinic toxidrome is important given the variety of cultural practices regarding mushroom ingestion.

Vitamin D: A Potential Supplement To Protect Pancreatic Beta Cell Function for Type I diabetes

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Type I diabetes is characterized by dysfunctional beta cells leading to insulin deficiency. Identifying agents capable of preventing beta cell damage offers a potential treatment. Studies have shown that individuals with more exposure to vitamin D are at a lower risk for Type I diabetes. Vitamin D may affect beta cell function. Receptors for 1 alpha 25-dihydroxyvitamin-D3 have been identified in pancreatic beta-cells. Hence, we propose that Vitamin D may affect beta cells by preventing damage and by promoting cell function, which can be measured by enhancing insulin secretion.

Methods: Rat pancreatic beta cell line (INS-1) cultured with serum free medium was used in this study. Cells were treated with IL-1beta and STZ to induce damage (damage model). Test cultures were co-administered with IL-1beta

(1nM) and STZ (8µM) (experimental groups) for 48 hours; to test if Vitamin D is capable of preventing damage. Culture media was extracted at the end of the experiment and an insulin ELISA kit was used to measure media insulin content.

Results: STZ and IL-1b both showed to cause beta cell damage leading to a lower level of insulin secretion (Control vs STZ: 22.86 +/- 4.5 vs 7.68 +/- 1.1 (P<0.01), and Control vs IL-1 beta: 59.95 +/- 16.80 vs 94.26 +/- 32.75 (p<0.05)). In addition, test groups (groups administered vitamin D co-treatment) showed that Vitamin D was able to prevent beta cell damage in co-administered circumstances (Control vs STZ and Vitamin D: 59.95 +/- 16.80 vs 102.92 +/- 21.26 (P<0.05), and Control vs IL-1 beta and Vitamin D: 59.95 +/- 16.80 vs 134.18 +/- 54.07 (P<0.05)).

Conclusion: This study suggests that Vitamin D may have a direct effect on preventing beta cell damage and sustaining insulin secretion. The phenomenon of Vitamin D preventing beta cell damage may be possible through activating Vi-

tamin D receptors on beta cell surfaces, and consequently activating signal transduction pathways in beta cells. However, further studies are required to confirm the mechanisms of these findings.

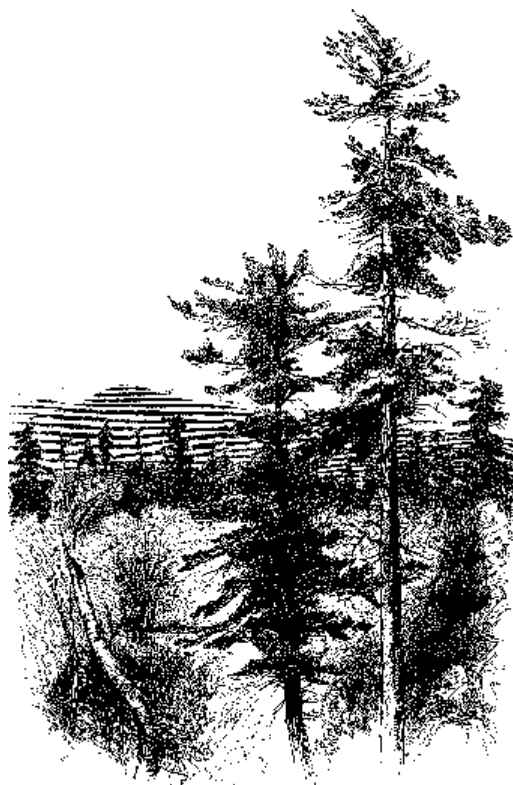
A Pilot Study Comparing WHI criteria to Framingham Heart Study Congestive Heart Failure Criteria

*Abdulrahman Abdulkaki, MD, Charles B. Eaton, MD, MS, Liviu Klein MD
Memorial Hospital of RI*

There is no universally accepted standard epidemiologic algorithm used to define Congestive Heart Failure (CHF) . We compared CHF diagnosed by the **Women's Health Initiative (WHI)** to the **Framingham Heart Study (FHS)** criteria at one clinical center, in the WHI, to better understand the precipitating causes and echocardiographic finding associated with CHF potentially available in the WHI study if the present outcome packets for CHF were re-adjudicated.

Methods: Retrospective chart review of 104 WHI participants diagnosed with incident CHF according to Women Health Initiative criteria was performed in duplicate by two adjudicators. We classified patient presentations to definite, probable, or no CHF based upon FHS criteria (2 major or 1 major and 2 minor criteria were considered to have Definite CHF; Probable CHF was diagnosed when patients didn't meet criteria for definite CHF, but still had sign, symptoms and X ray finding suggestive of CHF; No CHF was diagnosed when patients had alternative diagnosis to explain there findings. **Results:** Of 104 patients with CHF according to WHI suggested criteria, 79(75.9%) patients had definite CHF by Framingham criteria, 19(18.3%) pts had probable CHF, and 6(5.8%) pa-

tients had no CHF. Of those meeting both WHI and Framingham criteria for CHF (n=79) precipitating causes were: Atrial Fibrillation -16(20.3%), ACS/MI-12(15.2%), Post-operative- 3(3.8%), Volume overload- 3(3.8%), Mitral regurgitation- 2(2.5%), medication noncompliance-1(1.26%), Right sided CHF-1(1.26%), HTN crisis- 1(1.26%), pericardial effusion with tamponade-1(1.26%), Unknown etiology-39(49.36%). Echoes were performed on 70 (71.4%) patients with definite or probable CHF .Echo results showed Systolic CHF in 22 (31.4%), Non Systolic CHF in 48(68.6%). Wall motion abnormality was recorded in 43 cases (61.4%), and Valvular abnormality was recorded in 26(37.1%) cases. **Conclusion:** Most post-menopausal women with incident CHF met both WHI and FHS criteria for CHF. Approximately 50% had an obvious precipitating cause. Non systolic heart failure was much more common than systolic heart failure in those with cardiac echoes. Re-adjudication of CHF within WHI defining the precipitating cause and echo finding would add substantially to its scientific contribution regarding the natural history and etiology associations with CHF in post menopausal women.



Prevalence of Alcohol, Tobacco and Drug Misuse Among Rhode Island Hospital Emergency Department Patients

Quentin Youmans, Roland C. Merchant, MD, MPH, ScD, Janette R. Baird, PhD, Thomas J. Langan, IV, and Ted Nirenberg, PhD

Alcohol, tobacco and drug misuse are growing public health concerns. In 2007, an estimated 19.9 million (8.1%) of those 12-years-old or older living in the United States were users of illicit drugs, 126.8 million (51.1%) were drinkers of alcohol, and 70.9 million (28.6%) were users of tobacco products.¹ In Rhode Island in 2007, 12.5% of those 12-years-old or older used illicit drugs, 63% had consumed alcohol, and 29.9% used tobacco products.²

The **emergency department (ED)** provides medical care to many patients with problems related to substance misuse. However, little is known about the extent and severity of substance misuse among ED patients.³ Knowing this information would greatly assist in the design of interventions to reduce substance misuse among ED patients. Recent research has shown the success of conducting interventions among ED patients to reduce or eliminate their use of alcohol or tobacco.⁴⁻⁷ Further research is needed to determine if ED-based interventions can be successful for the reduction or elimination of other types of drug misuse.

In this study, we estimated the lifetime and previous three-month prevalence of alcohol, tobacco, and drug use among a random sample of Rhode Island Hospital ED patients. We also estimated the level of need for intervention (either brief or intensive) for alcohol, tobacco, and drug use among these ED patients. Our ultimate goal is to use these estimates to plan effective interventions for substance misuse for this population.

METHODS

Study design, setting, and participants

We conducted this study during a seven-week period from February through March 2009 at the Rhode Island Hospital ED. We approached a random sample of 18- to 64-year-old, English- or Spanish-speaking ED patients on a convenience sample of dates and assessed them for inclusion in the study.

Patients were not eligible if they were an inmate or on home confinement; pregnant; critically-ill; critically-injured; intoxicated; or, impaired by a physical or mental disability that would prevent informed consent or participation in the study. Patients eligible for study inclusion were surveyed about their substance use. The Rhode Island Hospital Institutional Review Board approved the study.

Study instrument

We adapted the **Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST)** Version 3 (V3) for use as the instrument for this study.⁸ This 8-item tool is designed to measure drug misuse severity and need for interventions to reduce or stop substance misuse. The ASSIST V3 also measures self-reported lifetime and previous three-month drug use and queries respondents about their history of ever using injection-drugs for non-medical purposes. The ASSIST V3 asks respondents about the categories of drugs rather than the specific types they have used. The survey gives examples of drugs within each category. Respondents also are asked about their social and life problems associated with their drug use, and about the extent of concern that others have expressed about their drug use. Responses were converted into substance involvement scores. Scores were calculated for each category of substance misused. These scores indicate a respondent's need for no, a brief, or more intensive intervention to reduce or stop substance misuse for each category of substance misused.

The ASSIST V3 was originally intended to be administered through an in-person interview. We modified the format of the questions, responses, and instructions of the ASSIST V3 so that it could be self-administered using a handheld tablet personal computer by patients in the ED. The ASSIST V3 categories of drugs and drug examples also reflect a European rather than US focus. Accordingly, we updated the categories of drugs, expanded them, and provided examples

of drugs for each category that reflected the common names of drugs likely to be known in Rhode Island.

Study procedure

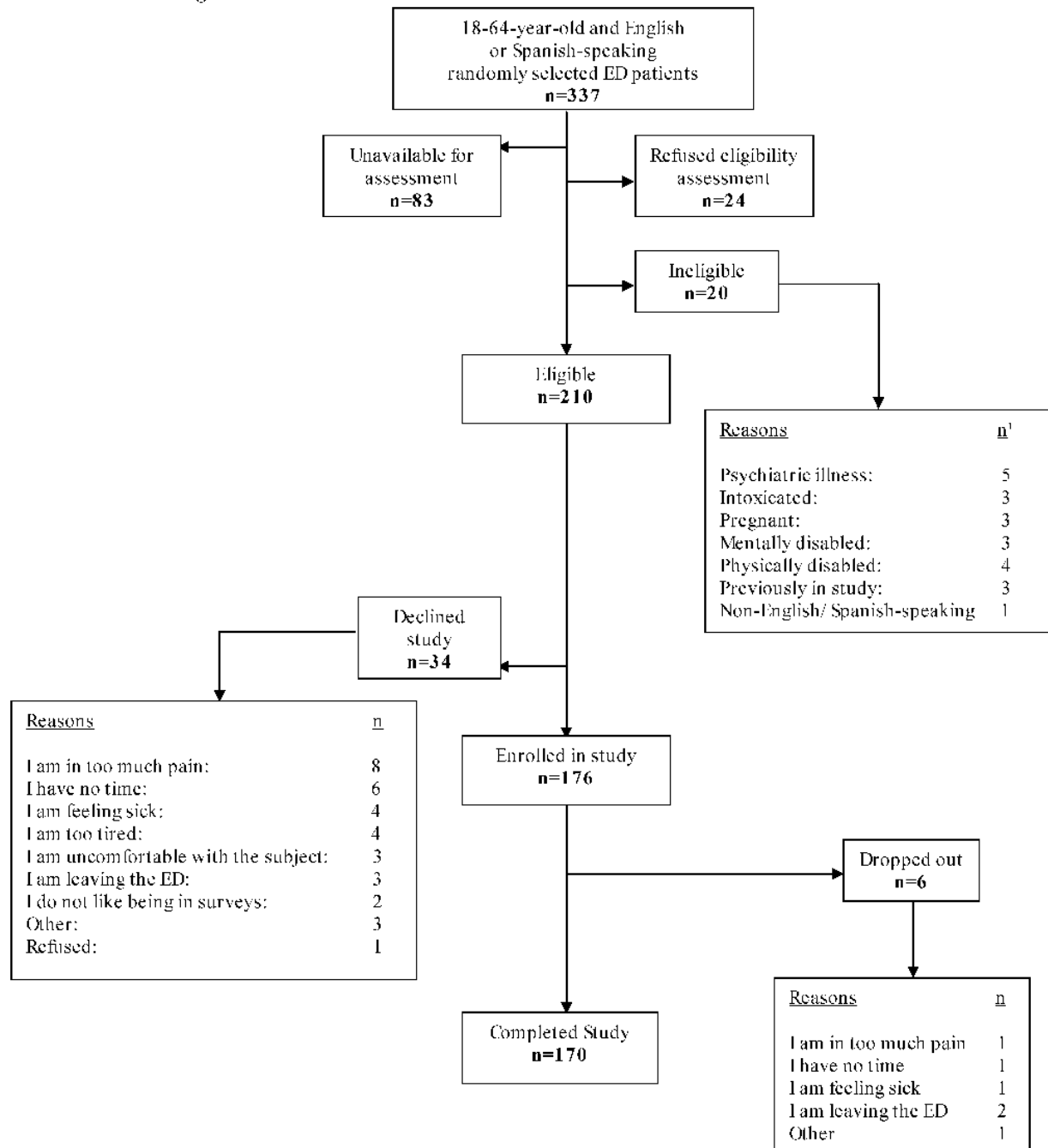
We conducted this study four days a week (Tuesdays, Thursdays, Saturdays, and Sundays) during four-hour time blocks from 11 am to 3 pm, 3 pm to 7 pm, and 7 pm to 11 pm. The number of days of the week and four-hour time blocks during which we conducted the study were approximately equal. We performed the study between 11 am to 11 pm because all patient care sections of the ED are open during this period when the majority of patients present for medical care.

Prior to each four-hour shift, we randomly selected a series of eight digits using a computerized random number generator. During each shift, the **research assistants (RAs)** collecting data used these digits to identify which patients would be approached and then assessed for possible inclusion in the study. The RAs matched the digits randomly selected for that shift with the terminal digit of the medical record number of ED patients receiving medical care in the ambulatory and urgent care sections of the ED. Thus the RAs could randomly select 80% of the ED patients for assessment of their eligibility for the study.

The RAs reviewed the ED medical records of the randomly selected patients in the ambulatory and urgent care units for possible inclusion in the study. The RAs approached patients whose medical record indicated that they might be eligible for the study. Those patients who agreed to speak with the RAs underwent an in-person assessment to verify their eligibility. They also were queried about their demographic characteristics. All patients eligible for the study who agreed to participate provided verbal consent for the study. No incentives were provided to patients to participate.

The RAs followed a strict, standardized protocol in conducting the study. They were observed by the study authors during their first shifts; deviations from

Figure 1: Eligibility assessment and enrollment flow diagram



¹ Reasons do not total to n=20 because multiple reasons for ineligibility were possible

protocol were corrected. RAs were blinded to the responses participants provided to the survey questions.

Data collection and analysis

Participant responses were collected onto a DatStat® (DatStat, Seattle, WA) database and then analyzed using STATA

9.2. (STATA Corporation, College Station, TX). Results of the medical record screening, eligibility assessments, demographic profiles, and responses to the ASSIST V3 were summarized. The demographic characteristics of those who enrolled vs. those who declined were compared using Wilcoxon test for continuous

variables and Pearson's χ^2 test for categorical values. Differences at the $\alpha=0.05$ level were considered significant. The prevalence of lifetime and previous three-month substance use were calculated by substance category. ASSIST V3 scores were calculated and the level of need for an intervention was assessed using the substance

Table 1: Demographic characteristics of enrollees and those who declined study enrollment

	Enrolled in study	Declined study	p-value ¹
	n=176	n=34	
	%	%	p<
Demographic characteristics			
Median age in years (inter-quartile range)	34.5 (25-46.5)	33 (26-42)	0.67
Gender			0.16
Female	54.6	67.7	
Male	45.5	32.4	
Ethnicity/Race			0.61
White, Non-Hispanic	49.4	41.2	
White, Hispanic	18.8	26.5	
Black, African American	18.2	14.7	
Black, Hispanic	7.4	8.8	
Asian/Middle Eastern	1.1	2.9	
Native Hawaiian, Other Pacific Islander	0.6	0.0	
American Indian/Alaskan Native	2.8	0.0	
Other	1.7	5.9	
Partner status			0.05
Married	25.6	29.4	
Divorced	9.7	23.5	
Widowed	0.6	0.0	
Separated	3.4	5.9	
Never Married	38.6	38.2	
Unmarried Couple	22.2	2.9	
Insurance status			0.15
Private	40.3	32.4	
Governmental	35.8	26.5	
Private and governmental	1.1	0.0	
None	22.7	41.2	
Years of formal education			0.00
None	0.0	2.9	
Grades 1-8	2.3	17.7	
Grades 9-11	23.3	17.7	
Grade 12 or General equivalency degree	40.9	38.2	
College 1-3 years	21.4	8.8	
College 4 years/Graduate studies	11.9	14.7	

¹p-values reflect comparison of those who enrolled vs. who declined enrollment

involvement score ranges according to the recommendations by the producers of the ASSIST V3.⁹

RESULTS

Study population

Of the 337 patients screened during the seven-week period, 210 were eligible for the study. (Figure 1) Figure 1 also provides the reasons for ineligibility for the study. Table 1 displays a comparison of the demographic characteristics of the 176 patients who enrolled and the 34 patients who declined participation in the study. The two groups were similar in terms of gender and ethnicity/race and insurance status. However, there was a higher percentage of patients who declined the study who were divorced and a higher percentage of patients who enrolled in the study who were a part of an unmarried couple. Also, those who enrolled were more likely to have more years of formal education.

Of the 34 patients who declined the study, the most frequent reasons were that the patient was in too much pain, had no time, or was feeling sick or too tired. (Figure 1) Few declined participation because of the topic (i.e., substance misuse). Six of the patients who enrolled in the survey dropped out during the survey process, leaving 170 patients who completed the survey. (Figure 1)

Prevalence of self-reported substance use

The prevalence of self-reported substance use among the 170 patients who completed the study is presented in Table 2. The substances with the highest reported prevalence of lifetime and prior three-month use were tobacco, alcohol, marijuana, and pain killers. Eight patients (5%) reported using injection drugs for nonmedical use at least once in their lives.

ASSIST V3 substance involvement scores and level of need for intervention

The mean ASSIST V3 scores and the level of need for intervention among the patient population are presented in Table 2. The substances with the highest mean ASSIST V3 substance involvement scores were tobacco, alcohol, marijuana, and pain killers. Likewise, these substances had the highest proportion of participants who needed either a brief intervention or intensive treatment for their misuse of these substances.

Among all participants, 52.4% required a brief intervention and 10% required intensive treatment for any of the substances included in the ASSIST V3 survey. Among all participants, 37.1% needed a brief intervention and 5.3% needed an intensive intervention for drugs (not including alcohol or tobacco) and 12.9% needed a brief intervention and 1.8% an intensive intervention for one or more drugs and alcohol (not including tobacco).

DISCUSSION

The study results indicate that the four most common substances our sample of 18-64-year-old ED patients reported having used in their lifetime or within the previous three months were tobacco, alcohol, marijuana, and pain killers. Most of those needing a brief intervention or intensive treatment were users of these substances. Slightly more than half of ED patients needed a brief intervention for some type of substance misuse; fewer needed intensive treatment. These results inform us of the types of resources that are needed in the ED for patients with substance misuse problems.

This study had a number of limitations that might affect the interpretation of the results. First, the study focused upon English- or Spanish-speaking patients at Rhode Island Hospital. As such, the findings might not be reflective of those who do not speak English- or Spanish at this ED, or EDs outside of Providence.

Second, the brief period of data collection and convenience sampling of dates when the data were collected limit the external and internal validity of the study findings. Further, the small sample size did not allow us to conduct more sophisticated analyses.

Table 2: Substance use prevalence, mean ASSIST scores, and need for interventions

n=170	Lifetime use	Past three-months use	Mean ASSIST score μ (σ) ¹	Need for intervention based upon ASSIST score ¹		
				No Intervention	Brief Intervention	Intensive Treatment
Substance	%	%		%	%	%
Tobacco	68.8	42.4	7.8 (10.2)	57.7	35.9	6.5
Alcohol	87.7	65.9	6.8 (8.3)	76.5	20.6	2.9
Marijuana	60	28.2	3.8 (7.7)	75.9	21.8	2.4
Cocaine	22.9	7.7	1.8 (7.0)	92.4	4.7	2.9
Amphetamines	17.7	5.9	0.7 (3.6)	95.9	3.5	0.6
Inhalants	6.5	1.2	0.4 (3.1)	98.2	1.2	0.6
Benzodiazepines	22.4	11.2	1.5 (5.2)	88.2	10.6	1.2
Barbiturates	4.7	1.2	0.3 (3.0)	98.8	0.6	0.6
Hallucinogens	18.8	1.8	0.3 (3.1)	98.2	1.2	0.6
Opioids	11.8	3.5	0.9 (5.1)	95.3	2.9	1.8
Pain killers	41.8	25.3	2.6 (6.1)	79.4	18.8	1.8
GIIB ²	3.5	0.6	0.2 (3.0)	99.1	0.0	0.6

¹Except for alcohol, the ASSIST scores that indicate a need for no intervention, a brief intervention, or intensive intervention are 0-10, 11-26, and 27, respectively. For alcohol, the scores for no intervention, a brief intervention, and intensive treatment are 0-3, 4-26, and 27+, respectively.

²Gamma hydroxybutyrate

Third, because this study analyzed self-report data, there might be inaccuracies. Some patients may have been uncomfortable about divulging their substance use, even though the survey was anonymous with no patient identifiers. However, prior studies have shown that anonymous self-report is a valid, reliable, and accurate method of assessing substance misuse.¹⁰

Fourth, although the results of the ASSIST V3 questions allowed us to identify the type of substance misuse intervention that these ED patients needed, we did not ask these patients if they would be willing to undergo a brief or more intensive intervention for their substance misuse. Therefore, although we know more about the need for intervention for substance misuse within the ED, we do not know the level of acceptance for those interventions among these patients.

CONCLUSIONS

Using an adapted version of the ASSIST V3, we found that the substances with the highest prevalence of lifetime and previous three month misuse among Rhode Island Hospital ED patients were tobacco, alcohol, marijuana, and pain killers. Our data also show that our the most often needed interventions, whether brief or intensive, were for these four substances. These substances need to be addressed specifically when creating and enacting interventions for substance misuse among Rhode Island Hospital ED patients.

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REFERENCES

1. Substance Abuse and Mental Health Services Administration. 2007 National Survey on Drug Use and Health. <http://oas.samsha.gov/NSDUHlatest.htm>.
2. Substance Abuse and Mental Health Services Administration. 2007 State Estimate of Substance Use and Mental Health: Rhode Island. <http://oas.samsha.gov/2k7/state/RhodeIsland.htm>.
3. Rockett IR, Putnam SL, et al. Declared and undeclared substance use among emergency department patients: a population-based study. *Addiction* 2006;101:706-12.
4. Longabaugh R, Woolard RE, et al. Evaluating the effects of a brief motivational intervention for injured drinkers in the emergency department. *J Stud Alcohol*. 2001;62:806-16.
5. Academic ED SBIRT Research Collaborative. The impact of screening, brief intervention, and referral for treatment on emergency department patients' alcohol use. *Ann Emerg Med* 2007;50(6):699-710, 710 e691-696.
6. Nilsen P, Baird J, et al. A systematic review of emergency care brief alcohol interventions for injury patients. *J Subst Abuse Treat*. Sep 2008;35:184-201.
7. Bernstein SL, Becker BM. Preventive care in the emergency department. *Acad Emerg Med* Jul 2002;9:720-9.

8. World Health Organization. Alcohol, Smoking and Substance Involvement Screening Test (WHO ASSIST) Working Group. The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST): development, reliability and feasibility. *Addiction* 2002;97:1183-94.
9. Humeniuk R, Ali R. Validation of the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) and pilot brief intervention [electronic resource] : A technical report of phase II findings of the WHO ASSIST Project. Geveva, Switzerland 2006.
10. Vitale SG, van de Mheen H, et al. Substance use among emergency room patients. *Addict Behav* 2006;31:1661-9.

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The authors and spouses/significant others have no financial interests to disclose.

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Factors Associated With Family Planning and Vasectomy Discussions: Results From a Health Provider Survey

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UNDERUTILIZATION OF VASECTOMY IN THE US

Male sterilization through vasectomy is far less expensive, less invasive and safer than female sterilization through tubal ligation. Despite vasectomy's advantages, tubal ligation is utilized approximately three times as often, contributing to an overall underutilization of vasectomy in the US. The underutilization of vasectomy may be related to patient concerns and misconceptions about vasectomy as well as poor access to family planning services and male underutilization of health care in general. Hopton demonstrated the low priority male patients assign to family planning in a patient survey (N=3,482) in which family planning was ranked 26th in a list of 36 health care services.

Racial and ethnic minorities and the uninsured are less likely to utilize vasectomy than other groups. Bensyl et al. found that men undergoing vasectomy

tend to be a "homogenous group" who are married/cohabitating (91%), non-Hispanic whites (87%), who have at least a high school education (81%), and finance the procedure with private insurance (81%). In an attempt to reach populations with the least access to vasectomy, the Rhode Island Department of Health initiated a No Cost Vasectomy Program (NCVP) in 1999 to provide vasectomies at no cost to uninsured men and men whose insurance does not cover vasectomy. As of 2007, approximately 100 men received vasectomies through the program, of whom one third were Hispanic; no African Americans utilized the program.

Increased vasectomy uptake in the population may depend on the ability and willingness of providers to reorient men towards the positive aspects of vasectomy and help patients overcome their fears and misconceptions about the procedure. Uptake may also depend on pro-

viders' ability to link patients to resources such as the NCVP. An important first step in understanding vasectomy underutilization is to ask health care providers whether they are addressing family planning and sterilization options with their patients in the first place. Do these discussions target female and male patients equally? Are there specific provider-related factors associated with whether or not these discussions are taking place? Are health care providers aware of local resources available for uninsured or underinsured men?

SAMPLE DESCRIPTION

A total of 242 anonymous surveys were mailed to health care providers in Rhode Island. Eighteen were returned due to an incorrect/outdated address and excluded. Of the remaining sample (N=224), 67 surveys were completed, yielding a response rate of 30%. Half of the respondents were male (50.7%) and

Table 1
Provider discussion of family planning, stratified by patient gender

	Providers discussing family planning with >10% male patients % (n)*	Providers discussing family planning with >10% female patients % (n)*	P-value
Specialty			
Family medicine (n=24)	70.8 (17/24) ^a	83.3 (20/24)	0.303
Non-family Medicine (n=43)	11.8 (2/17)	73.7 (28/38)	<0.001
Gender			
Male provider (n=34)	44.0 (11/25)	61.3 (19/31) ^b	0.197
Female provider (n=33)	50.0 (8/16)	93.5 (29/31)	<0.001
≥ 50% Male pts (n=26)	42.3 (11/26)	60.0 (15/25) ^c	0.206
< 50% Male pts (n=39)	50.0 (7/14)	88.6 (31/35)	0.003
Proportion minority			
≥ 25% Minority pts (n=42)	41.7 (10/24)	84.6 (33/39)	<0.001
< 25% Minority pts (n=24)	50.0 (8/16)	63.6 (14/22)	0.402
Proportion Medicaid-eligible			
≥ 25% Medicaid-eligible pts (n=37)	43.5 (10/23)	82.9 (29/35)	0.002
< 25% eligible (n=29)	50.0 (9/18)	69.2 (18/26)	0.199

^aProviders in family medicine are more likely to discuss family planning with male patients than are providers in non-family medicine specialties (p<0.001).

^bMale providers are significantly less likely to discuss family planning with female patients compared to female providers (p=0.002).

^cProviders with more male patients are less likely to discuss family planning with female patients than are providers with more female patients (p=0.041).

* Denominators may vary due to not applicable responses or answers left blank.

Table 2
Provider discussion of vasectomy, stratified by patient gender

	Providers discussing vasectomy with >10% male patients % (n)*	Providers discussing vasectomy with >10% female patients % (n)*	P-value
Specialty			
Family medicine (n=24)	34.8 (8/23) ^a	52.2 (12/23)	0.234
Non-family medicine (n=43)	0.0 (0/17)	37.5 (15/40)	0.003
Gender			
Male provider (n=34)	20.8 (5/24)	31.3 (10/32) ^b	0.380
Female provider (n=33)	18.8 (3/16)	54.8 (17/31)	0.018
≥ 50% Male patients (n=26)	20.0 (5/25)	25.0 (6/24) ^c	0.675
≥ 50% Male patients (n=39)	14.3 (2/14)	51.4 (19/37)	0.016
Proportion minority			
≥ 25% Minority patients (n=42)	13.0 (3/23)	42.5 (17/40)	0.015
< 25% Minority pts (n=24)	25.0 (4/16)	40.9 (9/22)	0.308
Proportion Medicaid-eligible			
≥ 25% Medicaid-eligible pts (n=37)	21.7 (5/23)	44.1 (15/34)	0.082
< 25% eligible (n=29)	17.6 (3/17)	39.3 (11/28)	0.127

^aProviders in family medicine are more likely to discuss vasectomy with male patients than are providers in other specialties (p=0.013).

^bTrend of male providers being less likely than female providers to discuss vasectomy with female patients seen with borderline significance (p=0.059).

^cProviders with more male patients than female patients are less likely to discuss vasectomy with female patients (p=0.041).

* Denominators may vary due to not applicable responses or answers left blank.

most were non-Hispanic white (85.1%). Providers practiced in the fields of obstetrics/gynecology (OB/GYN) (37.3%), family medicine (35.8%), and internal medicine (23.9%). Seven and a half percent were in a residency training program. Sixty-one percent saw mostly female patients, 62.7% reported at least a quarter of their patients being racial/ethnic minorities and 55.2% reported at least a quarter being Medicaid-eligible.

PROVIDER KNOWLEDGE, ATTITUDES AND PRACTICES

Almost all of the respondents displayed correct knowledge regarding the benefits of vasectomy over tubal ligation, describing vasectomy as safer (94.0%), less expensive (92.5%), and less invasive (98.5%). Moreover, 41.8% and 43.3% of providers correctly estimated the lifetime prevalence of vasectomy and tubal ligation in the US, respectively. While 83.9% of providers believed vasectomy is underutilized in the US, only 23.9% felt that tubal ligation is underutilized.

Providers cited multiple explanations for their patients' objections to vasectomy. The most common included "aversion to surgical procedure" (88.3%), "desire to have more children" (81.7%), "satisfaction with other birth control" (70.0%), and "concerns with masculinity, virility

or sex life" (65.0%). Other explanations included "birth control is the female's responsibility" (48.3%) and "affordability or insurance coverage" (38.3%).

Only 17.5% of providers recommended vasectomy to at least 10% of their male patients. Less than half of providers reported discussing family planning and only 20% reported discussing vasectomy with at least 10% of their male patients. In contrast, 77% of providers reported discussing family planning with at least 10% of their female patients and 42% of providers reported discussing tubal ligation with at least 10% of their female patients. A t-test revealed that providers discussed both family planning and vasectomy more with their female patients than with their male patients

... only 18% [of providers] were aware of Rhode Island's NCVP and only 7.5% reported making a referral to the program in the past five years.

(p=0.001 and p=0.0168, respectively). Among female patients, there was an association between the frequent discussion and recommendation of both vasectomy and tubal ligation (p<0.001).

Provider-related factors associated with discussions of vasectomy and family planning included provider specialty and provider gender. (Tables 1 and 2) Compared to other providers, family medicine providers were more likely to discuss vasectomy (p=0.013) and family planning (p<0.001) with their male patients. Further, compared to female providers, male providers were less likely to discuss family planning (p=0.002) and vasectomy with borderline statistical significance (p=0.059) with their female patients. Lastly, female providers were more likely to talk about vasectomy with female patients (p=0.018).

While most providers agreed that underutilization of vasectomy is problematic, only 18% were aware of Rhode Island's NCVP and only 7.5% reported making a referral to the program in the past five years.

MEN AND FAMILY PLANNING DISCUSSIONS

This study suggests that not only are men being left out of family planning discussions, but certain provider-related factors such as being female and practicing

family medicine are associated with more family planning and vasectomy discussion. Likewise, Bertakis et al. found that female physicians devote more time to preventive services and family medical or social issues compared to male physicians, even when controlling for patient gender and health status. Researchers demonstrate that 97% of Ob/Gyns reported that they refer male partners of their patients for vasectomy. This research underscores the potential influence that Ob/Gyns and other women's health specialists can have on vasectomy discussions and referrals. Further, it may be fruitful to explore which elements of family medicine explain the higher family planning and vasectomy discussions found among these providers. Perhaps it is related to some aspect of the family medicine training or philosophy or that family medicine providers are more likely to see multiple members of the same family (e.g. husband and wife). In addition, family medicine physicians are often involved in a greater number of health care spheres, including obstetrics, which bear relevance to family planning.

Researchers suggest that providers attempt to empower men to take control of their health and reproduction. Vasectomy, in particular, seems to inspire specific fears for men. Future studies might explore potential methods for addressing these fears and dispel myths when discussing family planning options.

The generalizability of this study is limited due to a relatively small sample size and low response rate. Further, as with all self-report studies, results are subject to selection, recall and acquiescence biases that may lead to either an over- or under-estimation of levels of family planning and vasectomy discussion.

This study contributes a novel look at provider-sided factors related to family planning and vasectomy. It also suggests that providers, as well as their patients, may not be aware of the family planning resources available to them, such as Rhode Island's NCVP.

REFERENCES

1. Hendrix NW, Chauhan SP, Morrison JC. Sterilization and its consequences. *Obstetric Gynecology Survey* 1999; 54: 766-77.
2. Kjersgaard AG, et al. Male or female sterilization. *Fertility & Sterility* 1989;51:439-43.
3. Bensyl, DM, Iuliano D, et al. Contraceptive use—United States and Territories, Behavioral Risk Factor Surveillance System, 2002. *Morbidity Mortality Weekly Report* 2005;54(SS06): 1-72.
4. Bressler J, Landry E, Ward V. Choosing vasectomy. *Avsc News* 1996; 34 (3).
5. Finger WR. Attracting men to vasectomy. *Network* 1998; 18: 26-32.
6. Bertakis KD, Azari R, et al. Gender differences in the utilization of health care services. *J Fam Practice* 1999; 49: 47-152.
7. Hopton JL. Patients' perceptions of need for primary health care services. *Bri Med J* 1995;310:1237-40.
8. Barone MA, et al. Vasectomy in the United States, 2002. *J Urol* 2006;176:232-6.
9. Author correspondence with Cheryl LeClair, Rhode Island Department of Health, July 5, 2007.

10. Baldé A, Légaré F, Labrecque M. Assessment of needs of men for decision support on male sterilization. *Patient Education and Counseling*. 2006;63: 301-7.
11. Spencer BE. How men come to hear about vasectomy. *Int J Health Educat* 1978;21: 112-5.
12. Bertakis KD, Helms LJ, et al. The influence of gender on physician practice style. *Medical Care* 1995; 33:407-16.
13. Should gynecologists perform vasectomies? Some say yes. *Contraceptive Technology Update*. 1990; 11:184-6.
14. Noone JH, Stephens C. Men, masculine identities, and health care utilisation. *Sociology of Health & Illness* 2008; 30: 711-25.
15. Seymour-Smith S, Wetherell M, Phoenix A. 'My Wife Ordered Me to Come!' *J Health Psychol* 2002; 7:253.

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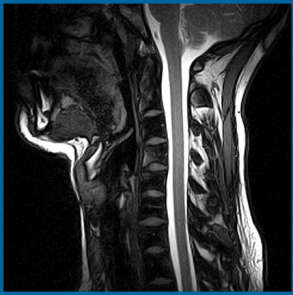
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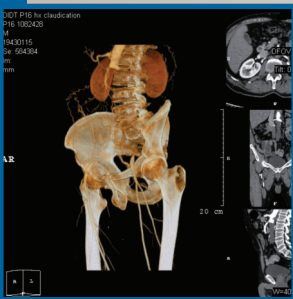


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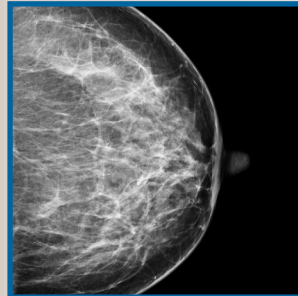
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Lower Urinary Tract Symptoms (LUTS) In Men: Thinking Beyond the Prostate

Sammy Elsamra, MD, and Pamela S. Ellsworth, MD

Lower Urinary Tract Symptoms (LUTS) in men are commonly thought to be related to **benign enlargement of the prostate, BPE**, a term that replaces the term, **BPH (benign prostatic hyperplasia)**, which is a pathologic diagnosis. However, LUTS is not exclusive to men, nor is it only related to BPE. More recently, the role of underlying **overactive bladder (OAB)** has been highlighted in the etiology of male LUTS.

LUTS is a symptom complex composed of storage and voiding phase symptoms. The storage phase symptoms consist of urinary urgency (a sudden compelling desire to void that is difficult to defer) with or without urinary urgency incontinence, urinary frequency (voiding 8 or more times per day), and nocturia (awakening one or more times at night to void) and the voiding phase symptoms include hesitancy, intermittent urinary stream, feeling of incomplete emptying, straining to void and post-void dribbling. The storage phase symptoms are those of OAB, a symptom complex, suggestive of underlying vesicourethral dysfunction. The **National Overactive Bladder Evaluation (NOBLE)** study, using a validated, computer-assisted telephone interview of 5204 adults in the United States > 18 yrs of age, identified the overall prevalence of OAB as 16.9% in women and 16.0% in men.¹ The Males Attitudes Regarding Sexual Health Study demonstrated the overall prevalence of LUTS among US men ≥ 40 yrs to be 13%, 9% and 6% for storage symptoms, mixed symptoms and voiding symptoms, respectively.² OAB symptoms in women are easily recognized and treated, but those in men, despite a similar prevalence, are not. In two large studies utilizing medical and pharmacy data from IMS Health, only 16-24% of men diagnosed with OAB were treated medically.^{3,4} Simply treating the BPE and BOO symptoms of LUTS leaves a subset of male patients with inadequate control. Lee et al demonstrated that 65% of patients with BOO and overactive bladder treated with an alpha-blocker for 3 months did not show symptomatic improvement.⁵ Furthermore, 25 to 30% of males have persistent OAB symptoms after prostate surgery and OAB

symptoms may return even after initial resolution of LUTS after TURP.^{6,7}

Men with LUTS are more commonly treated with agents directed at **bladder outlet obstruction (BOO)** secondary to BPE, alpha-blockers (tamsulosin (flowmax), terazosin (hytrin), doxazosin (cardura), alfuzosin (uroxatral) and silodosin (rapaflo) and 5 alpha-reductase inhibitors (finasteride (proscar) and dutasteride (avodart), even if BPE is not documented. General practice prescribing data supports that antimuscarinics are not given to men, due

to a theoretical concern that the inhibitory effect of antimuscarinic agents on detrusor contraction may aggravate voiding difficulties or precipitate acute urinary retention. Abrams et al. demonstrated that short term use of tolterodine (Detrol IR) 2mg orally twice a day compared to placebo in males with urodynamically proven OAB and BOO did not adversely affect urinary function. There was a significant increase in volume to first detrusor contraction and maximum cystometric capacity, favoring tolterodine over placebo. There was a statis-

Table 1: Dosing and Metabolism of Currently Approved OAB Agents

Drug	Half-life (hr)	Time to Peak (hr)	Route of Metabolism	Adult Dose	Dose frequency
Darifenacin (Enblex)	7-20	5-8	CYP450 CYP2D6 CYP3A4	7.5mg 15mg	QD
Fesoterodine (Toviaz)	7-8	5	Ester hydrolysis CYP450 CYP2D6 CYP3A4	4mg – 8mg	QD
Oxybutynin (Ditropan)	2-3	<1	CYP450 CYP3A4	2.5 to 5.0mg	BID to TID
Oxybutynin XL (Ditropan XL)	12-13	3-6	CYP450 CYP3A4	5mg-30mg	QD
Oxybutynin chloride 10% gel (Gelnique)	64 At steady state	Steady state concentrations achieved within 7 days of steady dosing	Liver CYP450 CYP3A4	1gm dose of 100mg/g oxybutynin chloride gel 1.14ml	QD
Solifenacin (Vesicare)	45-68	3-8	CYP450 CYP3A4	5mg-10mg	QD
Tolterodine IR (Detrol IR)	2-4	1-2	CYP450 CYP2D6 CYP3A4	1mg-2mg	BID
Tolterodine LA (Detrol LA)	7-18	2-6	CYP450 CYP2D6 CYP3A4	2mg 4mg	QD
Transdermal oxybutynin (Oxytrol)	7-8	10-48	CYP450 CYP3A4	36mg patch delivers 3.9mg/day	Twice weekly
Trospium chloride (Sanctura)	18	5-6	Renal excretion Minimal hepatic metabolism	20mg	BID 1 hr before meals
Trospium Chloride XR (Sanctura XR)	36	5	Ester hydrolysis Renal excretion	60mg	QD – 1 hr before breakfast

tically significant increase in post-void residual in patients on tolterodine, compared to placebo, however, the one patient who experienced acute urinary retention was in the placebo group.⁸ Athanasopoulos et al demonstrated that combined treatment with an alpha-blocker plus an antimuscarinic in males with urodynamically proven OAB and BOO improved quality of life compared to monotherapy with an alpha-blocker. There was no acute urinary retention in the combination therapy group, nor was there a change in the flow rate or increase in post-void residual.⁹ Kaplan et al. evaluated the efficacy and safety of tolterodine extended release (ER), tamsulosin, or both in men with OAB and BPH. Patients receiving tolterodine ER plus tamsulosin compared to placebo experienced significant reduction in urgency urinary incontinence, urgency episodes without incontinence, maturations per 24 hours and maturations per night. In addition, patients receiving tolterodine ER plus tamsulosin demonstrated significant improvements on the total International Prostate Symptom Score versus placebo and QOL item. The incidence of acute urinary retention requiring catheterization was low (tolterodine ER plus tamsulosin 0.4%, tolterodine ER 0.5%, tamsulosin 0%, and placebo 0%).¹⁰

In clinical practice, men with LUTS are often started on one or a combination of agents directed at BOO secondary to BPE, an alpha-blocker and/or 5 alpha-reductase inhibitor (Table 3) Those individuals who fail to respond to this therapy who have persistent OAB symptoms, who empty their bladders well (usually documented by bladder scanner post-void residual, bladder ultrasound or catheterized PVR determination) are suitable candidates for the addition of an antimuscarinic agent, provided there are no medical contraindications. A variety of antimuscarinic agents that vary in dose flexibility, method of administration, and safety and tolerability profiles exist, such that one can select an antimuscarinic agent most appropriate for each individual patient. (Tables 1 and 2) The antimuscarinic agents share similar efficacy; however, if an individual fails one agent from either an efficacy or tolerability standpoint, it is reasonable to try another agent.

Behavioral therapy is a useful adjunct to the treatment of LUTS in both men and women, particularly with respect to management of OAB symptoms. Behavioral therapy

focuses on education, dietary and lifestyle changes, bladder training and pelvic floor muscle exercises to improve symptoms. In some individuals, caffeinated (tea, coffee, soda, chocolate) and acidic foods may exacerbate OAB symptoms and thus avoidance of such foods/drinks may improve symptoms. Fluid restriction in the evening may improve nocturia symptoms. Pelvic floor muscle exercises (quick flicks) may help decrease urgency urinary incontinence episodes and suppress detrusor overactivity.

Lastly, an association between LUTS and **erectile dysfunction (ED)** is being increasingly identified. Studies have demon-

strated that the presence and severity of LUTS are associated with sexual dysfunction and decreased sexual activity and satisfaction.¹¹ The presence of LUTS is an independent risk factor for sexual dysfunction and the close association between LUTS and sexual dysfunction is not attributable to age or to co-morbidities and lifestyle factors such as hypertension, diabetes, cardiac disease, hypercholesterolemia, pelvic operations, obesity, smoking, and alcohol consumption. Irwin et al demonstrated that OAB, as defined by the International Continence Society, was significantly associated with increased prevalence of ED, reduced sexual activity

Table 2 Adverse Events of the Antimuscarinic Agents Approved for OAB

DRUG	SIDE EFFECT	DRUG	PLACEBO	DRUG/PLACEBO ratio
Darifenacin (Enblex) 7.5 mg	Dry mouth	20.2%	8.2%	2.5
	Constipation	14.8%	6.2%	2.4
	Dizziness	0.9%	1.3%	0.7
	Dry mouth	35.3%	8.2%	4.3
	Constipation	21.3%	6.2%	3.4
	Dizziness	2.1%	1.3%	1.6
Fesoterodine (Toviaz) 4mg	Dry mouth	18.8%	7.0%	2.7
	Constipation	4.2%	2.0%	2.1
	Insomnia	1.3%	0.5%	2.6
	Dry mouth	34.6%	7.0%	4.9
	Constipation	6.0%	2.0%	3.0
	Insomnia	0.4%	0.5%	0.8
Oxybutynin chloride 10% gel (Gelnique)	Dry mouth	7.5%	2.8%	3.3
	Constipation	1.3%	Not reported	-
	Application site reaction	5.4%	1.0%	5.4
Solifenacin (Vesicare) 5mg	Dry mouth	10.9%	4.2%	2.6
	Constipation	5.4%	2.9%	1.9
	Dizziness	1.9%	1.8%	1.1
	Blurred vision	3.8%	1.8%	2.1
	Dry mouth	27.6%	4.2%	6.6
	Constipation	13.4%	2.9%	4.6
10mg	Dizziness	1.8%	1.8%	1.0
	Blurred vision	4.8%	1.8%	2.7
Tolterodine LA 4mg (Detrol LA 4mg)	Dry mouth	23%	8%	2.9
	Constipation	6%	4%	1.5
	Headache	6%	4%	1.5
	Dizziness	2%	1%	2.0
	Abnormal vision	1%	0%	
Transdermal oxybutynin (Oxytrol)	Dry mouth	9.6%	8.3%	1.2
	Constipation	3.3%	0%	
	Application site			
	Puritis	16.8%	6.1%	2.8
Trospium chloride IR (Sanctura)	Erythema	5.6%	2.3%	2.4
	Dry mouth	20.1%	5.8%	3.5
	Constipation	9.6%	4.6%	2.1
	Headache	4.2%	2.0%	2.1
Trospium chloride XR (Santura XR)	Dry mouth	10.7%	3.7%	2.9
	Constipation	8.5%	1.5%	5.7
	Dry eyes	1.6%	0.2%	8.0

*Oxybutynin IR and XR not included as prescribing information reports AEs from multiple doses. Information is derived from prescribing information for each drug.

Table 3: BPE Drugs and Dosing					
DRUG	DOSE	Tmax Hrs	Half-Life Hrs	Metab	Contraindications
<i>Alpha-blocker</i> Alfuzosin (Uroxatral)	10mg	8 hrs	10 hrs	Liver metabolism, CYP3A4	Contraindicated in moderate to severe hepatic impairment, should not be used with co administration of potent CYP3A4 inhibitors. Intraoperative Floppy Iris Syndrome has been reported in patients taking uroxatral while undergoing cataract surgery.
Doxazosin (Cardura)	1mg, 2mg, 4mg, 8mg	2-3 hrs	22 hrs	Liver metabolism mainly by O-demethylation of quinazoline nucleus or hydroxylation of the benzodioxan moiety	Administer with caution if impaired hepatic function. Intraoperative Floppy Iris Syndrome has been reported in patients taking doxazosin while undergoing cataract surgery.
Doxazosin XL (Cardura XL)	4mg, 8mg With breakfast	4mg: 8±3.7 hrs 8mg: 9±4.7 hrs	15 to 19 hrs	CYP3A4 primary elimination pathway but also CYP2D6 and CYP2C19	Use with caution in pts with mild or moderate hepatic impairment, not recommended with severe hepatic impairment. Intraoperative Floppy Iris Syndrome has been reported in patients taking doxazosin while undergoing cataract surgery.
Sildenafil (Rapaflo)	4mg and 8mg capsule, once daily with meal	2.6±0.90 hrs	13.3±8.07 hrs	Glucuronidation, alcohol and aldehyde dehydrogenase, and Cyt P450 pathways	Severe renal impairment Severe liver impairment Concomitant admin strong CytP3A4 inhibitors Sildenafil is not recommended in patients taking strong P-gp inhibitors such as cyclosporine. As with other alpha-blockers individuals taking sildenafil should discuss this with ophthalmologist prior to undergoing cataract surgery due to risk of Intraoperative Floppy Iris Syndrome
Tamsulosin (Flomax)	0.4mg, 0.8 mg	0.4mg : 4 hrs (fasted) 0.8mg: 5.0 hrs (fasted) 7.0 hrs (light breakfast)	0.8mg: 14.9±3.9	Cyt P45- CYP3A4 and CYP2D6	Use with caution in combination with moderate or strong CYP2D6 or CYP3A4 inhibitors. If pt has a serious or life-threatening sulfa allergy, caution warranted when using tamsulosin. Intraoperative Floppy Iris Syndrome, a complication in cataract surgery has been reported in patients taking flomax prior to cataract surgery.
Terazosin (Hytrin)	1mg, 2mg, 5mg, 10 mg capsules, with or without food	1 hr	12 hrs	Extensively metabolized by liver with little parent drug excreted in urine and feces	Contraindicated in those with known sensitivity to terazosin. Same concerns apply regarding use and risk of Intraoperative Floppy Iris Syndrome in patients undergoing cataract surgery.
<i>5-alpha-reductase inhibitors</i> Dutasteride (Avodart)	0.5mg with or without food	2-3 hrs	5 wks at steady state	Liver metabolized by CYP3A4 and CYP3A5	Caution when co administration with potent, chronic CYP3A4 inhibitors
Finasteride (Proscar)	5 mg	1.8 hrs	6 hrs (3-16 hrs) 8.2 hrs in those ≥ 70 yrs	Liver Metabolized by CYP3A4	Caution with use in those pts with liver function abnormalities

and sexual enjoyment because of urinary symptoms, and reduced sexual satisfaction.¹² Other studies have suggested that voiding problems, including obstructive urination, might be an independent risk factor for ED. Conversely, Shiri et al noted that ED is associated with an increased incidence of LUTS and bother.¹³ Several hypotheses are being evaluated to explain the relation between LUTS and ED: (1) an increased Rho-kinase activation, (2) an alpha-adrenergic receptor imbalance, (3) a decrease in NOS/NO in the endothelium, (4) atherosclerosis affecting small vessels in the pelvis and (5) autonomic hyperactivity, each affecting simultaneously bladder, prostate and penis.¹⁴ In a study evaluating sildenafil for erectile dysfunction and lower urinary tract symptoms in men with the 2 conditions, in addition to improving the erectile function domain score and all other International Index of Erectile Function domains, sildenafil significantly improved the International Prostate Symptom Score, the Benign Prostatic Hyperplasia Impact Index, the mean International Prostate Symptom Score quality of life score and total self-esteem and relationship questionnaire scores compared to placebo, although there was no difference in urinary flow between the 2 groups. Conversely, in separate studies 0.4mg tamsulosin or 10mg alfuzosin daily improved sexual function in men with LUTS associated with BPH.¹⁵ Prescribing information for the oral PDE-5 inhibitors indicates that they should not be used in males taking alpha-blockers until they are on stable doses of alpha-blocker and tolerate the alpha-blocker.

CONCLUSION

No longer can male LUTS be viewed as a problem related to only the prostate. A careful history can help determine whether or not coexistent OAB symptoms are present with BPE with BOO symptoms. Use of antimuscarinic agents in males treated for LUTS with persistent OAB symptoms has been demonstrated to be safe over the short term and associated with improved QOL and patient satisfaction. Furthermore, the impact of LUTS extends beyond storage and voiding symptoms and men presenting with LUTS should be screened for underlying erectile dysfunction and vice versa. Pelvic health in men

can no longer be viewed as distinct, separate conditions, the interactions between the prostate, bladder and sexual function require that an assessment of each of these conditions be made in an individual presenting with one to achieve maximal quality of life impact. For further information regarding OAB and the management of male OAB patients one can go www.urologyuniversitycme.com, a CME website presented by the office of Continuing Medical Education at the Warren Alpert School of Medicine of Brown University in collaboration with Health and Wellness Education Partners and chaired by Pamela Ellsworth, MD.

REFERENCES

1. Stewart W, Herzog R, et al. The prevalence and impact of overactive bladder in the United States. *Neurourol Urodynam* 2001; 20: 406-8.
2. Glasser DB, Carson III C, et al. Prevalence of storage and voiding symptoms among men aged 40 years and older in a US population-based study. *Int J Clin Pract* 2007; 61: 1294-300.
3. Helfand BT, Evans RM, McVary KT. Prevalence of medical therapies in men and women with overactive bladder symptoms. Poster presentation at 2009 American Urological Association Meeting, April 25-30, 2009. Chicago, IL. Poster 1942.
4. Helfand BT, Evans RM, McVary KT. Medical treatment of LUTS/BPH. Poster presented at 2009 American Urological Association Annual Meeting, April 25-30, 2009. Chicago, IL. Poster 1939.
5. Lee JY, Kim HW, et al. Comparison of doxazosin with or without tolterodine in men with symptomatic bladder outlet obstruction and an overactive bladder. *BJU Int* 2004; 95: 1117-8.
6. Abrams PH, Farrar DJ, et al. The results of prostatectomy. *J Urol* 1979; 121: 640-2.
7. Mitterberger M, Pallwein L, et al. Persistent detrusor overactivity after transurethral resection of the prostate is associated with reduced perfusion of the urinary bladder. *BJU Int* 2007; 99: 831-5.
8. Abrams P, Kaplan S, et al. Safety and tolerability of tolterodine for the treatment of overactive bladder in men with bladder outlet obstruction. *J Urol* 2006; 999: 1004.
9. Athanasopoulos A, Gyftopoulos K, et al. Combination treatment with an alpha-blocker plus an anticholinergic for bladder outlet obstruction. *J Urol* 2003; 169: 2253-6.
10. Kaplan SA, Roehrborn CG, et al. Tolterodine and tamsulosin in men with LUTS including OAB. *JAMA* 2006; 296: 2319-28.
11. Wein AJ, Coyne KS, et al. The impact of lower urinary symptoms on male sexual health. *BJU Int* 2009; 103: 33-41.
12. Irwin DE, Milsom I, et al. Overactive bladder is associated with erectile dysfunction and reduced sexual quality of life in men. *J Sex Med* 2008; 5: 2904-10.
13. Shiri R, Hakkinen J, et al. Erectile dysfunction influences the subsequent incidence of lower urinary tract symptoms and bother. *Int J Impot Res* 2007; 19: 317-20.
14. Pohnholzer A, Madersbacher S. Lower urinary tract symptoms and erectile dysfunction. *Int J Impot Res* 2007; 19: 544-50.
15. McVary KT, Monnig W, et al. Sildenafil citrate improves erectile function and urinary symptoms in men with erectile dysfunction and lower urinary tract symptoms associated with benign prostatic hyperplasia. *J Urol* 2007; 177: 1071-7.

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Management of Influenza Vaccination In Patients With Suspected Egg Allergy

Russell A Settignano, MD, FAAAAI, FAAAAI, FAAAAI

The H1N1 influenza pandemic presents a challenge for clinicians to thoroughly evaluate options for influenza vaccination in patients, who have been labeled as “egg allergic.” All currently available influenza vaccines, including the seasonal and swine flu (H1N1) vaccines (both the inactivated injectable and live-attenuated intranasal vaccine preparations), are produced by propagation of the influenza virus in chicken egg amniotic fluids, and as a result contain egg protein, which can pose a potential risk to individuals with egg allergy. Fortunately, anaphylactic reactions to vaccines are very rare and are estimated to occur at an incidence of approximately 1 per million doses.^{1,2} When IgE-mediated reactions to influenza vaccines do occur, vaccine components, including egg protein, gelatin or antibiotics are the most likely causes.³ Consequently, egg allergy is a frequently stated contraindication to influenza vaccination. (Table 1)⁴⁻¹⁰ A resultant concern is that many egg allergic patients are unnecessarily restricted from vaccination, when, in fact, most would likely be able to tolerate influenza vaccination.¹¹ Therefore, patients with suspected egg allergy may benefit from being carefully evaluated by an allergist/immunologist for optimal management of their influenza vaccination options.

EGG ALLERGY

Egg allergy is one of the most common causes of food allergies, affecting 1-2% of young children.^{12,13} It represents the second most common food allergy in children as well as the first most common food allergy in children with atopic dermatitis.¹⁴ In addition, early sensitization to egg is a marker of later sensitization to aeroallergens¹⁵ and the development¹⁶ and persistence¹⁷ of asthma. Clinical manifestations of egg allergy result from an IgE mediated hypersensitivity reaction to protein components of the whites or yolks of hen's egg. Five major allergens have been characterized in hen's egg, four of which are egg white proteins (ovomucoid, oval-

bumin, ovomucoid and lysozyme); whereas chicken serum albumin is the major allergen in egg yolk.¹⁸ Fortunately, almost all children with egg allergy develop tolerance to egg ingestion by late childhood (68% by age 16 years).¹⁹

Although the majority of egg-allergic individuals react to the ingestion of less well cooked eggs (such as scrambled eggs), many may tolerate the ingestion of extensively heated (baked) egg products (such

as cakes, muffins, waffles).²⁰⁻²² A possible explanation for this dichotomy resides in the differential sensitivity to thermal denaturation that exists between egg proteins.²³ Many patients may be predominantly sensitized to ovalbumin, which is the egg protein most sensitive to thermal denaturation. By contrast, ovomucoid, the immunodominant protein in egg white, retains its potency as an allergen despite extensive heating. Consequently, individu-

Table 1. Current (2009) recommendations regarding influenza vaccination in patients with suspected egg allergy

Source	Recommendation (2009)
FDA News Release[4] CDC[6]	People with severe or life-threatening allergies to chicken eggs, or to any other substance in the vaccine, should not be vaccinated. TIV is contraindicated and should not be administered to persons known to have anaphylactic hypersensitivity to eggs or to other components of the influenza vaccine unless the recipient has been desensitized. LAIV is contraindicated in persons with a history of hypersensitivity, including anaphylaxis, to any of the components of LAIV or to eggs.
AAP Policy Statement[8]	Children Who Should Not Be Vaccinated With TIV (or LAIV) include those who have a history of hypersensitivity, including anaphylaxis, to eggs, to any previous influenza vaccine dose, or to any of the vaccine components
AAP Red Book[7]	Neither TIV, nor LAIV should be administered to anyone with severe allergic reactions (eg, hives, angioedema, allergic asthma, and systemic anaphylaxis) to chicken, egg proteins, or any other component of the vaccines. Less severe or local manifestations of allergy to egg or feathers are not contraindications.
BSACI Position Statement[9]	No egg-allergic patient should be refused swine influenza vaccination without full assessment and discussion of the risks and benefits. Patients who only develop local symptoms after consuming lightly cooked (scrambled) eggs should be vaccinated as usual.
AAAAI Treatment Guidelines[10]	Many people with diagnosed or suspected egg allergy can receive influenza vaccination safely, if precautions are followed. A graded dose protocol can be used to administer the vaccine in sensitive patients.
Joint Task Force on Practice Parameters[3]	Even if vaccine or vaccine component skin test results are positive, the vaccine may still be administered, if necessary, in graded doses.

The Joint Task Force on Practice Parameters represents the American Academy of Allergy, Asthma and Immunology (AAAAI), the American College of Allergy, Asthma and Immunology (ACAAI) and the Joint Council of Allergy, Asthma and Immunology.
AAP = American Academy of Pediatrics; BSACI = British Society of Allergy and Clinical Immunology;
CDC = Centers for Disease Control and Prevention; FDA = Food and Drug Administration;
LAIV = live-attenuated influenza vaccine; TIV = trivalent inactivated influenza vaccine

Table 2. Examples of graded-dose protocols for influenza vaccine administration

Target Dose	Example of a Five Dose Protocol a		Example of a Two Dose Protocol b	
	0.5ml	0.25ml	0.5ml	0.25ml
Dose 1	0.05 ml 1:10	0.025 ml 1:10	0.05 ml FS	0.025 ml FS
Dose 2	0.05 ml FS	0.025 ml FS	0.45 ml FS c	0.225 ml FS c
Dose 3	0.1 ml FS	0.050 ml FS		
Dose 4	0.15 ml FS	0.075 ml FS		
Dose 5	0.2 ml FS c	0.10 ml FS c		

Graded-dose protocols should be performed under direct medical supervision with emergency medications and equipment to promptly treat an anaphylactic reaction. Target dose is age dependant. Refer to specific product information for appropriate target dosing.

A Doses administered 15 minutes apart.

b Doses administered 30 minutes apart.

c Observe for at least 30 minutes after final dose.

FS = full strength influenza vaccine

als tolerating egg in baked products, but not tolerating scrambled or raw egg, may potentially still be at risk for the development of an allergic reaction to the native egg protein present in the influenza vaccination. However, if an individual can eat lightly cooked egg (such as a spoonful of scrambled eggs) without any reaction, egg allergy is considered resolved; and the risk of an allergic reaction to the influenza vaccine is considered to be most unlikely.⁹

Diagnosis of egg allergy is generally made by a careful clinical history in combination with skin prick testing and/or serologic testing for specific IgE. Symptoms consistent with egg allergy are of immediate onset, usually within minutes, and may include flushing, pruritus, urticaria, angioedema, wheezing, dyspnea, vomiting and/or shock. In individuals where the history or testing is unclear or where the clinical correlation of a positive test for specific IgE to egg is questionable, the gold standard of diagnosis remains a double-blind, placebo controlled, oral challenge procedure (which is an outpatient based procedure, only performed when benefits outweigh risks, including anaphylaxis.) An alternative procedure is an open (non blinded) food challenge. However, it should be noted that it is not advisable for parents to administer to children an oral egg challenge at home because of the potential risk of anaphylaxis.

Diagnostic cutoffs have been reported, for skin test size and for *in vitro* measures, which may assist the clinician in deciding to forgo a food challenge in patients when

a high risk of reaction is present.^{24,25} However, the *in vitro* measurement of specific IgE to egg has poor negative predictive value. Therefore it is best to rely on a negative skin prick testing (rather than *in vitro* measures), followed by ingestion challenge when attempting to establish the loss of egg sensitivity.

Batch-to-batch variability of egg content in extant influenza vaccines necessitates an informed and cautious approach to vaccination of an egg allergic individual.

MANAGEMENT OF INFLUENZA VACCINATION IN PATIENTS WITH SUSPECTED EGG ALLERGY

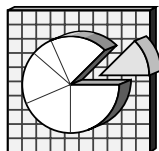
Although the quantity of egg protein in the influenza vaccine may be a significant contributing factor to the risk for a vaccine reaction in egg allergic patients, the exact content is usually not reported and can be highly variable, differing from year to year, as well as from manufacturer to manufacturer and lot to lot. For the 2009-2010 seasonal influenza/H1N1 formulations, preliminary data suggests vari-

ability in the content of egg protein ranging from 0.0005-1.2168 micrograms/mL. [Li, J. Personal Communication. Nov. 15, 2009] Based on prior clinical studies, if the amount of egg protein is known to be ≤ 1.2 micrograms/mL, the vaccine can safely be administered, either in a 2-dose protocol (Table 2) and subsequently as a single dose, without the need for vaccine skin testing.¹¹

Although a history of tolerating cooked egg ingestion may seem reassuring, there is concern that this history may not unequivocally predict low risk with vaccination. This results from a number of case reports of egg allergic patients, who tolerated the ingestion of well cooked egg (as described above), but who experienced anaphylactic reactions upon exposure to unheated egg protein (as may be present in the influenza vaccine).²⁰⁻²² Consequently, when there exists a question of egg allergy, it is recommended to consider skin testing (or *in vitro* measurement of specific IgE antibody) to egg as well as skin testing to the vaccine in order to resolve the question.¹⁰ Skin testing to egg is preferred over *in vitro* testing because of superior sensitivity, faster results and lower cost. Skin testing for IgE sensitivity to the vaccine is most clearly indicated if the clinical history is consistent with prior anaphylaxis from egg ingestion.^{9,10}

When evaluating for the presence of specific IgE to the influenza vaccine, skin testing is the only option available. (Table 2) It is initially performed by the prick technique, which usually suffices,⁹ but may be followed by more sensitive, properly diluted, intradermal testing in order to exclude the possibility of a reaction in patients with suspected severe egg allergy. Even if all test results are negative, whenever a past history suggests a potential risk for an anaphylactic reaction, it is prudent to administer the vaccine under direct physician observation, with epinephrine and other supportive measures available. Additionally, depending on coexisting risk factors such as asthma, history of severe egg anaphylaxis or strongly positive egg skin test, the clinician may elect to administer the influenza vaccine using a two-dose graded protocol.

Positive skin test results to the influenza vaccine do not necessarily contraindicate vaccine administration. If benefits



Older Persons In Motor Vehicle Traffic Crashes

Edward Donnelly, RN, MPH, and Yongwen Jiang, PhD

Stories in the general media regarding older drivers have often confused two related concerns: diminished sensory and motor ability of older drivers and the threat that poses to all *versus* the greater vulnerability among older persons to the consequences of motor vehicle crash injuries.

Li *et al*¹ found increased crash risk among older drivers but much greater risk of severe injury and death to the older driver when involved in a crash. They concluded that “fragility” due to age was of “over-riding” importance in explaining the high rate of motor vehicle traffic mortality among older persons. Evans² used counts of motor vehicle traffic crashes in which a single driver killed a pedestrian with various denominators to calculate relative rates. He demonstrated that older drivers presented a small increased threat of death to others per mile driven when compared with middle-aged drivers. He also described the much greater risk that older persons experience as occupants and pedestrians, compared with younger persons.

METHODS

Data used in the analysis come from several sources: crash reports for the **calendar year (CY) 2006**, completed by police, and managed by the Rhode Island Department of Transportation; hospital **emergency department (ED)** visits during CY2007; and hospital discharges for CY2007. Injured persons are identified and their roles in the crash are defined by the external cause of injury (E-code) reported in the hospital record.

Denominators are drawn from the US Census Population estimates July 1, 2007 and the **Nationwide Personal Transportation Survey (NPTS 1995)**. The NPTS 1995 used transportation diaries of participants who were part of a national sample to develop driving, pedestrian, and passenger weights based on mode of transportation, distance, and role reported for the individual trips. Population estimates, licensed driver rolls, and NPTS 1995 were used by both Evans² and Li *et al*.¹ The choice of population estimates rather than group-specific number of licensed drivers or estimates of miles driven for the denominator in the calculation of rates leads to different results and affects the relative risk of being in a crash or of being seriously injured or killed.

RESULTS

Of the 77,880 drivers reported in Rhode Island crashes in 2006, 7,625 (10%) were 65 years of age or older. Young people aged 15–24 years made up the largest number of drivers in crashes in any 10-year age group (25%) and had the highest population rate of crash reports in that year. (Figure 1)

According to ED reports in 2007, persons 15–24 years of age make up the highest proportion of motor vehicle injury visits (29%); 5% of these visits are among persons 65+ years of age. Although teens and young adults represent the highest proportion of hospital admissions (23%), 18% of admissions were among older persons. (Figure 2)

When NPTS 1995 national estimates were used as denominators, less reported driving among females results in higher crash rates in every age group, with a small peak among the youngest drivers and a curve that bends sharply upward at age group 75–79 years and climbs to 61.3 crashes per 100 million **vehicle miles traveled (VMT)**, the highest rate of crash reports. This rate, found in females 85+ years of age, is more than double the rate (24.5) crashes per 100 million VMT reported among males in the same age category.

DISCUSSION

Headline stories report older drivers are responsible for deadly crashes, implying that older drivers are a menace. Higher mortality rates for older persons are used to support this contention. Although older drivers are involved in a lower proportion of crashes (10%) than their portion among licensed drivers (15.2%), older drivers are at some increased risk of being involved in a crash when relative exposure is taken into account.^{1,2} Fault is not assigned on routinely reported crash data in Rhode Island.

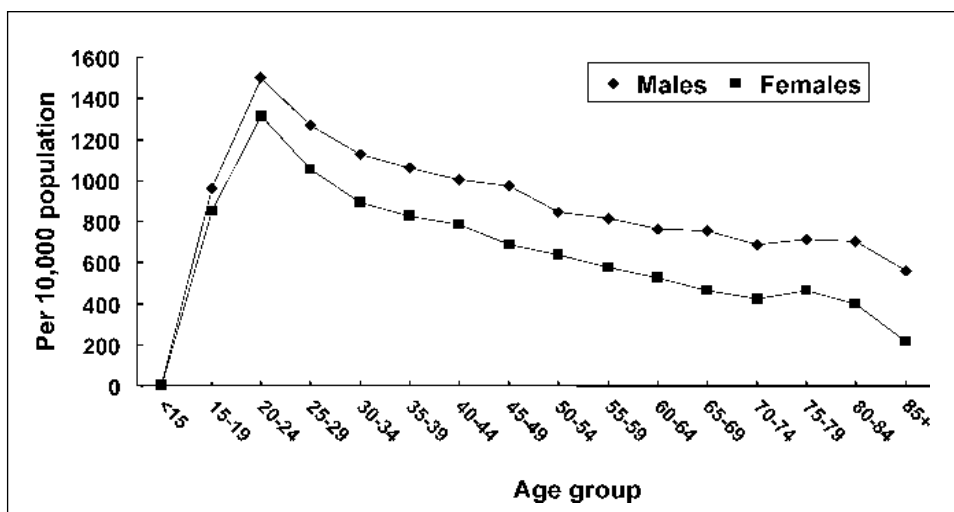


Figure 1. Rates of crash reports per 10,000 population by age group by sex, Rhode Island 2006.

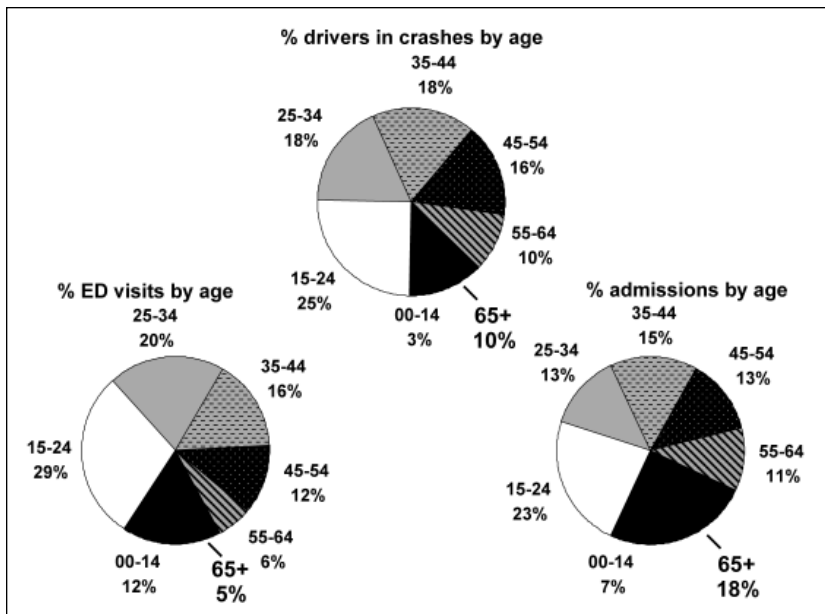


Figure 2. Three pie charts depicting the percentage distribution of (Pie 1) drivers in crashes, (Pie 2) Persons with motor vehicle crash injuries in Emergency department visits and (Pie 3) Persons admitted with motor vehicle crash injuries. Note. 2006 Crash reports and 2007 hospital data. % 65+ drivers in crashes; % 65+ persons in ED; % 65+ persons in HDD

The fact that a much smaller percentage of crash injury ED visits are among older persons (5%) suggests that these drivers are usually involved in minor crashes and are not injured. When older persons are injured, they are much more likely to be admitted (18%), a marker for severity of the injuries. In the three-year period 2006-2008, older persons also made up 18% of Rhode Island traffic fatalities.

Rates calculated using NPTS 1995 denominators paint a different picture than do the population rates. It is useful to recognize the very high rate of crashes for older females per mile traveled. The number of events for any subgroup is the best measure of that group's contribution to the burden of injury. Population rates, based on Census counts and intercensal estimates provide a basis of comparison between subpopulations while controlling for the different number of subgroup members.



The National Highway Traffic Safety Administration (NHTSA) reports that older drivers in fatal crashes are much more likely to be struck than to strike. As vehicle drivers and as pedestrians, older persons in fatal crashes are the adult group least likely to be under the influence of alcohol at the time of the crash.³ Most drivers do modify their driving behavior for safety, with lower speeds and decreased driving especially at night. Evidence for this is the small number of late night crashes involving older drivers.⁴

At present, the number of older persons behind the wheel is decreasing in Rhode Island due to aging of smaller birth cohorts of the 1930s and 1940s. Baby boomers will enter this age group beginning in 2011 as persons born in 1946 turn 65 and their younger brothers and sisters will continue to enlarge the category. Legislators and regulators must plan for the safety of this growing group. Primary care providers and specialists such as ophthalmologists, cardiologists, and neurologists should include a conversation about driving

in their contacts with older persons. Helpful articles on driving risk in older persons are available from NHTSA website, www.nhtsa.dot.gov. Click "Traffic Safety" and find "Older Drivers" under "Browse Topics".

Acknowledgement: This analysis and report were supported by funds from the National Highway Traffic Administration, 408 Traffic Safety Funds.

REFERENCES

1. Li G, Braver ER, Chen LH. Fragility versus excessive crash involvement as determinants of high death rates per vehicle-mile of travel among older drivers. *Accident Analysis Prevention* 2003;35:227-35.
2. Evans L. Risks older drivers face themselves and threats they pose to other road users. *Internat J Epidemiol* 2000;29: 315-22.
3. National Center for Statistical Analysis, National Highway Traffic Safety Administration. Older Population: 2007 Data.
4. Unpublished data analysis, Center for Health Data and Analysis 2004, Rhode Island Department of Health.

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Disclosure of Financial Interests

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Our Visitor From Vienna

Walter A. Brown, MD

One hundred years ago Sigmund Freud made his only visit to the United States. The centennial of this event seems a good time to recount the little-known fact that during his trip the father of psychoanalysis sailed up Narragansett Bay.

The basic facts about Freud's trip to the US are well known. G Stanley Hall, the president of Clark University in Worcester, and a psychologist, invited Freud to lecture and receive an honorary degree as part of the university's 20th anniversary celebration. Clark originally scheduled the celebration for June 1909, but Freud declined that invitation on the grounds that early summer was a busy time for his clinical practice and if he traveled then he would lose too much income. When Clark rescheduled the event for September and increased Freud's travel allowance, Freud accepted the invitation. He set sail for the US from Bremen on August 21, 1909, with two members of his inner circle, Sandor Ferenczi, a Hungarian psychoanalyst, and Carl Jung, the Swiss psychoanalyst with whom he would later experience a bitter break.

They arrived in New York City on August 29th and spent the next week as tourists—seeing the museums, walking up and down the avenues, visiting Coney Island and Chinatown. On September 4th Freud left for Worcester. Several days later, at Clark University, he gave the first of five daily lectures describing his theory of the mind. He spoke with little preparation, without notes and in his characteristic conversational style. At Hall's urging, when Freud returned to Vienna he wrote down these lectures from memory. They were translated into English and published in both English and German.

With one exception, Freud's biographers don't tell us how he got from New York City to Worcester. But Saul Rosenzweig, a psychologist who spent 50 years researching and writing his 475 page book about Freud's trip to America (*Freud, Jung and Hall The Kingmaker: The Historic Expedition to America 1909*), notes that on Saturday, September 4, 1909, Freud and his companions left New York "by night-boat to Fall River" and on Sunday "they traveled by rail via Boston to their destination, Worcester."

Had Rosenzweig not provided this information, we would have guessed that Freud made the journey in precisely this manner. If one needed to travel from New York City to Massachusetts in 1909, the Fall River Line was the way to go. You could take the train, but it took longer (all the bridges were not in place so passengers had to take ferries at several points). Most importantly, the Fall River Line's steamships, complete with valet service, lavish staterooms and sumptuous dining, offered comfort.

In 1909 the Fall River Line operated two steamships - the Princess and the Commonwealth. Every evening at 5:00 one left New York City and one Fall River. They arrived at their destinations 12 hours later and made the return trip later that day.

A quick check of the *Fall River News*, which listed the comings and goings of these ships, places Freud and his party, which now included in addition to Ferenczi and Jung, Abraham Brill, a New York City psychoanalyst, and Ernest Jones, a British psychoanalyst and Freud's biographer, on the Commonwealth.

After leaving its berth in New York City on the evening of Sept 4th the Commonwealth rounded the Battery, sailed up the East River, weathered Hell's Gate and then steamed through Long Island Sound. I imagine that at about the time the Commonwealth entered the Sound, Freud and his companions sat down for dinner. Ernest Jones would have reserved a table. Freud had suffered a bout of indigestion a few days earlier that he attributed to the richness of American food, so he would probably have done without the caviar and other delicacies offered by the Commonwealth. He probably ordered something simple,

perhaps roast beef, one of his favorites. A cigar, maybe a bit of discussion about Brill's dream the night before, and Freud was off to bed.

Around midnight, the Commonwealth left the relative calm of Long Island Sound and soon tr came up against the unpredictable and often treacherous seas off Point Judith. At 2:10 AM, it stopped at Newport—the only stop between New York and Fall River. I imagine that the change in the ship's motion awakened Freud. When I awaken in a strange hotel room it often takes me several seconds to realize where I am. Not Freud. I suspect that he immediately grasped the nature of his whereabouts, turned on the bedside light, wrote down the dream fragment he remembered, and, free of the unanalyzed anxieties that keep many of us awake, instantly returned to sleep.

After Newport, the Commonwealth sailed past Jamestown up the east passage of Narragansett Bay. It pleases me that Freud crossed the same waters that I sail every summer. I have long felt a professional connection—debt might be more accurate—toward Freud. That we traversed the same waters adds a bond of a more heart-felt sort.

As the sun rose, the Commonwealth enters Mount Hope Bay; the passengers are served coffee and donuts. I picture Freud at the Commonwealth's railing, with a cup of coffee in his hand. Jung, another early riser, is at his side.

"They are a simple people, these pioneers and cowboys," Freud says to Jung.

"And prudish," Jung offers, well aware of the master's thoughts on this subject.

Both men watch a lobster boat leave Bristol Harbor and disappear into the mist. "All the same," Freud continues, "there is beauty here, and magic."

Freud did not stay long in Fall River. He was due in Worcester later that day and he probably took the first available train to Boston. That would have meant the 6:40 AM, leaving the wharf less than two hours after the Commonwealth arrived.

It is not entirely surprising that Freud's trip up the Bay went completely unnoticed. Although he was 53 years old in 1909 and his work was known in professional circles, he was not yet a celebrity. That was all to change quite soon. In fact, the Clark lectures, a few days later, marked Freud's emergence as a figure of international renown.

Needless to say, Freud didn't get it all right. If women envy anything about men it's probably their power, not their anatomy. And much of how we feel and think and behave is molded at least as much by our genes as by our training - potty and otherwise. But even if only 1% of what he put forth was correct, Freud taught us more than anyone before or since about how the mind works. For that he stands with Newton and Darwin. But more than Newton and Darwin he belongs to us. At the height of his creative powers he sailed our waters, breathed our air, landed on our shore.

Walter A. Brown, MD, is Clinical Professor of Psychiatry at both The Warren Alpert Medical School of Brown University and Tufts University School of Medicine.

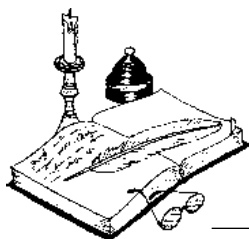
Disclosure of Financial Interests

The author and spouse/significant other have no financial interests to disclose.

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Physician's Lexicon

Curing Through the Ages

In a moment of atypical modesty, Ambroise Pare (1517 – 1590) declared, “*Je le soignay, Dieu le guerit*” (I treated him, God cured him.) Some anonymous soul responded by noting that every human ailment except vanity is indeed curable, if not by iatrogenic intervention then certainly by death. Curing has always been an integral part of medicine's explicit mission, and in the naïve thinking of some, even medicine's primary goal.

The word, cure, has a long history, both in medicine and other professions; and in its journey from the early Latin, it has provided many meanings and nuances.

Cure begins its lexical journey in the Latin word, *cura*, meaning concern or solicitude. In early French, the word, *curer*, meant to cleanse or to heal. And thus *escur* in time evolved into the English word, scour, meaning to clean diligently. The scoop-shaped surgical instrument, the curette, is thus originally a scouring or cleansing instrument.

To cure, in a medical sense, then, is to heal, to bring resolution to an ailment. Curing, in a gastronomic sense, however, means to modify a food product, to delay its deterioration—usually by smoking or salting—so as to preserve it.

The medieval Latin, *curatus*, came to mean a church official (a curate) or a cure, a parish priest, one who cleanses away sin or who heals spiritually. A similar English word, curia, however, was originally the name for the ancient Roman senate and is currently a synonym of the papal court at the Vatican. The word, curia, however, is derived from a proto-Latin phrase meaning community of men.

The word, curious, stems from the Latin, *curiosus* meaning diligent, careful, inquisitive. Similar English words include curio, curiosity and even accurate, meaning precise, free of defect, in conformity with a model. The Latin, *accuratus*, meaning toward exactitude, free of error (the Latin prefix, *ac-*, generally

means toward or in the direction of) is the ancestor of the English, accuracy.

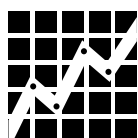
The act of healing or cleansing the fingers, thus, is a manicure (Latin, *manus*, meaning hand, as in words such as manual or manifest); and cleansing the feet, is a pedicure (Latin, *pedis*, meaning foot, as in words such as pedestal, pedestrian, pedal).

Still other English words, such as procure and secure, trace their meanings back to the Latin, *cura*.

Kipling, not a physician, versified his thoughts on curing:

The cure for this ill is not to sit still,
Or frowst with a book by the fire;
But to take a large hoe and a shovel also,
And dig till you gently perspire.

— STANLEY M. ARONSON, MD



RHODE ISLAND DEPARTMENT OF HEALTH
DAVID GIFFORD, MD, MPH
DIRECTOR OF HEALTH

VITAL STATISTICS

EDITED BY COLLEEN FONTANA, STATE REGISTRAR

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

Underlying Cause of Death	Reporting Period			
	February 2009	12 Months Ending with February 2009		
	Number (a)	Number (a)	Rates (b)	YPLL (c)
Diseases of the Heart	187	2,539	241.6	3,045.0
Malignant Neoplasms	189	2,259	215.0	6,267.5
Cerebrovascular Diseases	24	406	38.6	622.5
Injuries (Accidents/Suicide/Homicide)	37	552	52.5	8,666.0
COPD	51	478	45.5	422.0

Vital Events	Reporting Period		
	August 2009	12 Months Ending with August 2009	
	Number	Number	Rates
Live Births	1,096	12,389	11.6*
Deaths	766	9,543	8.9*
Infant Deaths	(5)	(82)	6.6#
Neonatal Deaths	(4)	(65)	5.2#
Marriages	850	6,290	5.9*
Divorces	166	2,767	2.6*
Induced Terminations	339	4,327	349.3#
Spontaneous Fetal Deaths	33	782	63.1#
Under 20 weeks gestation	(26)	(686)	55.4#
20+ weeks gestation	(7)	(96)	7.7#

(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 1,050,788

(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.

* Rates per 1,000 estimated population

Rates per 1,000 live births

THE RHODE ISLAND MEDICAL JOURNAL

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NINETY YEARS AGO, FEBRUARY 1920

An Editorial, "The Workman's Compensation Act," explained that the worker was at a disadvantage: "The employer or his agents have the money to hire whom they please and as many as they please for the presentation of [the] case before the court."

A second Editorial, "Lest We Forget," urged colleagues to help the physician returning from the war to "gather up the ...tangled threads of his professional life. "Let us do it cheerfully and thankfully as a debt..."

A third Editorial marked the death of Sir William Osler, MD.

The Medical Advertising Bureau, Chicago, announced the return of the Rhode Island Medical Journal, which joined 27 other state medical journals. The year 1919 "with labor strikes and other difficulties," hindered production, but societies were recovering.

FIFTY YEARS AGO, FEBRUARY 1960

Wendell S. Muncie, MD, Associate Professor of Psychiatry, Johns Hopkins, delivered "Clinical Importance of Overt and Hidden Depression," before the Rhode Island Hospital House Officers' Association. "I'm inclined to use the term depression in a broad ...sense rather than as a diagnostic syndrome and to admit many varieties of it...Any one of these factors will influence the actual presentation of the misery of the illness." For instance, the term could even apply to criminals "suffering from chronic self-depreciation as an item of character structure."

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John C. Ham, MD in "Changing Needs in the Care of the Aging Individual," discussed chronic illness and patients without insurance. He suggested that the lack of insurance "...rarely places an insurmountable burden on the individual or his family although it sometimes looks to these people as if it would. If they can't pay they don't have to. Physicians treat anyway."

Bencil L. Schiff, MD, in "Autohemotherapy in the Treatment of Post-Herpetic Pain," discussed 11 patients, ages 45 to 79, seen over a two-year period with post-herpetic neuralgia. He withdrew 10 cc of whole blood from the antecubital vein, then injected the blood into the gluteal muscles. Injections were given every 3 days. Eight patients improved; no patients showed reactions.

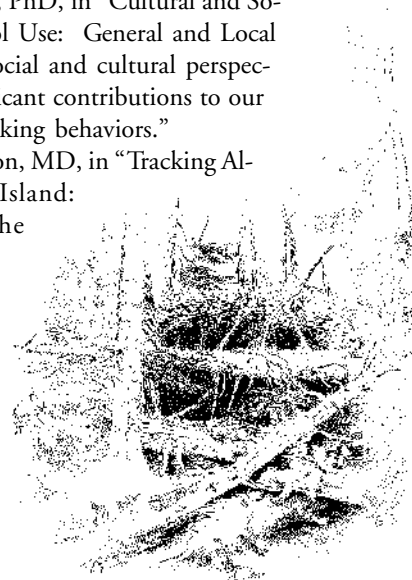
TWENTY-FIVE YEARS AGO, FEBRUARY 1985

Stanley M. Aronson, MD, and David Lewis, MD, contributed "Alcoholism and the Role of the Physician." For Rhode Island, the authors estimated that alcoholism cost \$139 million through lost employment and diminished productivity, and that \$93 million was linked directly to health care costs.

Paul Healey, MD, on the President's Page, discussed "Hospital Variations in RI." He cited a study from the Department of Health, which showed that a Pawtucket resident had a 7 times higher chance of having a tonsillectomy than a Barrington resident. Cesarean rates showed a similarly high variation. The Rhode Island Medical Society, with the Department of Health and the Hospital Association of Rhode Island, planned a conference on practice variations, with Dr. Wennberg from Dartmouth invited as the speaker.

Dwight B. Heath, PhD, in "Cultural and Social Aspects of Alcohol Use: General and Local Issues," noted that "social and cultural perspectives have made significant contributions to our understanding of drinking behaviors."

Roswell D. Johnson, MD, in "Tracking Alcoholism in Rhode Island: 1974-85," called the treatment programs and decreased consumption "hopeful signs for the future."



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