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# RHODE ISLAND MEDICAL JOURNAL

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**DR. MONTROSS'  
BOOK: FALLING  
INTO THE FIRE  
PAGE 69**



**JACK ELIAS, MD  
DEAN, ALPERT MEDICAL SCHOOL  
PAGE 52**

**DR. MARTIN  
ON HOSPICE AND  
PALLIATIVE CARE  
PAGE 49**



SPECIAL SECTION  
**SOCIAL DETERMINANTS *of* HEALTH**

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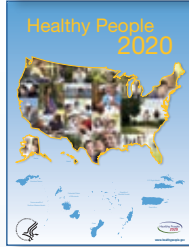
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## 14 SOCIAL DETERMINANTS OF HEALTH

Our Zip Code May Be More Important  
Than Our Genetic Code

**DANNIE RITCHIE, MD, MPH**  
GUEST EDITOR



## 15 Social Determinants of Health:

A View on Theory and Measurement

FERNANDO DE MAIO, PhD; JOHN MAZZEO, PhD;  
DANNIE RITCHIE, MD, MPH



## 20 Social Determinants of Health and the Affordable Care Act

DONNA LEONG, BA; LT. GOVERNOR ELIZABETH  
ROBERTS, BA, MBA



## 23 Optimizing the Health Impacts of Civil Legal Aid Interventions: The Public Health Framework of Medical-Legal Partnerships

ELLEN LAWTON, JD; ELIZABETH TOBIN TYLER, JD



## 27 Health Impact Assessments

EMILY SUTHER, MA; MEGAN SANDEL, MD, MPH



## 31 Health in All Policies: A Start in Rhode Island

DANNIE RITCHIE, MD, MPH; PATRICIA A. NOLAN, MD, MPH

---

# RHODE ISLAND MEDICAL JOURNAL

---



## 8 COMMENTARY

Breaking Bad News

JOSEPH H. FRIEDMAN, MD

Seeking Medicine for the Soul

STANLEY M. ARONSON, MD

## 47 RIMS NEWS

Bike Helmet Distribution

Tar Wars Poster Contest

House Calls at the State House



## 49 SPOTLIGHT

Martin Reflects on  
Approaches, Trends in  
Hospice/Palliative Care

## 61 EVENTS

Lectures  
Conferences



## 69 BOOKS

*Falling Into the Fire:*  
Contemplative Encounters  
with Minds in Crisis



## 71 PHYSICIAN'S LEXICON

I Got Rhythm (Numerical Kind)

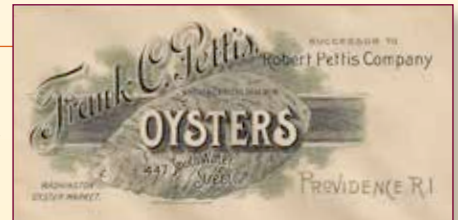
STANLEY M. ARONSON, MD

## 73 HERITAGE

100 Years Ago:  
In Defense of the R.I. Oyster;  
Cod Liver Oil (without  
the grease!)

50 Years Ago:

A report on skin cancer in R.I.





# RHODE ISLAND MEDICAL JOURNAL



## IN THE NEWS

### JACK ELIAS, MD 52

New dean at  
Alpert Medical School

### LANGEVIN, WHITEHOUSE 54

Tour brain science labs at Brown

### MICHAEL FINE, MD 55

To lead trade  
mission to Israel

### KATHLEEN HITTNER, MD 55

Nominated for Health  
Insurance Commissioner

### MEMORIAL/CNE 56

Affiliation approved by Health Dept.

### LANDMARK 56

Stae deems application complete

### NEW LAW 56

E-prescriptions for controlled substances

### BUTLER/RI HOSPITAL 57

Studying deep brain stimulation for Alzheimers

### RI HOSPITAL 57

Reduces incidence of C-Diff by 70%

### KENT HOSPITAL 58

Joins A-fib study

### LISA MERCK, MD 58

To lead TBI study

### ALPERT MEDICAL SCHOOL 59

Awarded \$1M grant

### RICHARD BESDINE, MD 59

To oversee \$1M aging grant

## PEOPLE

### 62 BARBARA ROBERTS, MD

Honored as leader in  
women's CV health

### 62 PATRICK SWEENEY, MD, MPH, PhD

Received ACOG  
Outstanding Service  
award

### 63 LISA GOLDSTEIN, MD

Chosen as The Miriam's  
Physician of the Year

### 63 AMY S. GOTTLIEB, MD

Elected co-chair of  
SGIM task force

### 63 ATHENA POPPAS, MD

Appointed chair  
of ACC Annual  
Scientific Session

### 65 IKENNA OKEREKE, MD

Named chief of  
thoracic surgery  
at RIH/Miriam

### 65 KENT HOSPITAL

Wound Recovery and  
Hyperbaric Medicine  
Center expands



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# RHODE ISLAND MEDICAL JOURNAL



## CONTRIBUTION

### 37 Environmental Management of Mosquito-Borne Viruses in Rhode Island

HOWARD S. GINSBERG, PhD; ALAN GETTMAN, PhD;

ELISABETH BECKER, MPH; ANANDA S. BANDYOPADHYAY, MBBS, MPH;

ROGER A. LEBRUN, PhD

## PUBLIC HEALTH

### 42 Vital Statistics

COLLEEN A. FONTANA, STATE REGISTRAR

## IMAGES IN MEDICINE

### 44 Intramural Esophageal Dissection Associated with Esophageal Perforation

NICHOLAS C. MONU, MD; BRIAN L. MURPHY, MD



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## Breaking Bad News

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A FEW TIMES EACH WEEK I give someone bad news. All doctors who interact directly with patients do this routinely. There is a small literature on the topic, almost entirely confined to oncology, accessible with a Pubmed search under “breaking bad news.” This time I was overwhelmed more



by the patient’s response than by the bad news itself. Whenever I have to tell a young person he has Parkinson’s disease, or Huntington’s disease or some other life-altering disorder I always pay an emotional toll. It is less troubling in older patients who have lived the great majority of their lives in good health. In this case it was very clear that this patient had come in for an evaluation of his tremor, expecting to be given a clean bill of health, told to not worry, and then continue his usual lifestyle and plans. He was 65 or so, otherwise healthy, a regular gym-workout enthusiast, semi-retired, with lots of plans. He recently met a new physician after not seeing one in a decade. He was not taking any medications. He didn’t need any. His new physician thought he should have the tremor checked out.

Before I tell people that they have Parkinson’s disease (PD), I generally ask them what they think their problem is. Usually they say that the referring doctor thought they might have PD

but wasn’t sure, or that they had scoured the internet and thought they had or did not have PD, but mentioning it explicitly. Sometimes they recognized the symptoms from a friend or family member. This, of course, makes our interaction much easier. They are prepared, at least to some

degree. I can gently agree with them, “Yes, I think you’re right. I believe that you do have PD.” Then I try to explain what I found in their history and examination to make me think this, that there were no objective tests to confirm the opinion, and generally my degree of confidence in the diagnosis, since we all make errors. I immediately say that the disease won’t kill them, that it’s not Alzheimer’s disease and that we can treat the symptoms. After that there are a variety of approaches I take, depending on the circumstances, but always including something hopeful. While my news isn’t as bad as what a lot of other doctors routinely give their patients, it is, nevertheless, not something a patient wants to hear.

This patient was devastated. He had come alone. His wife had stayed home. The visit was given no more thought than a routine visit to the dentist. It was clear as I spoke that he wasn’t processing much of what I told him. I was as reassuring as I could be, gave him a source

for a lot more information, and asked him to return in a 1-2 weeks, with his wife, to discuss the diagnosis at greater length. And I started to think, as I do after each time I tell people these sorts of things, how should I have handled this interaction? Is there a “correct” way to give bad news? Could I have done better?

I don’t think there’s a “correct” way to give bad news. Oncologists have developed a guideline called, “SPIKES,” for giving their bad diagnoses, but that doesn’t fit the needs of a neurological diagnosis which is often rendered on the spot at the first meeting. There are certainly “wrong” ways to give a diagnosis, but any approach that works for one person may be incorrect for another. I’ve had patients who have thanked me for my “direct” approach and others for my “sensitive” manner; and others who have complained about my being too direct and insensitive. I am sure that different approaches are required for different patients. I am also sure that doctors, like all human beings, cannot actually assess themselves. I doubt that any doctor thinks he’s too blunt or insensitive in providing an unwanted diagnosis. I also doubt that any patient objects to the doctor taking large amounts of time to support and console. But in most cases there’s another patient waiting, and endless amounts of time are not possible given time constraints in medical offices.

Giving a diagnosis is always easier if the patient is prepared, in some way.



When the referring doctor tells the patient that PD is suspected, my interaction is dramatically transformed. There is a difference to hearing bad news that is anticipated than the bolt out of the blue. Yet I don't blame these doctors who don't share their suspicions with the patient. In many cases, the referring doctor isn't sure and does not want the patient to spend the next few weeks worrying about having PD and then turning out not to have it. In some cases the doctor may not feel comfortable discussing the pathophysiology and prognosis of the illness, lacking a large experience, and therefore, even though she's sure of the diagnosis, quite appropriately, wants me to have that discussion.

The one consolation I have is that after three decades of doing this, I'm still thinking about it. I may be ossified in my thoughts and interactions but how can I tell? At least I'm ready to doubt

what I do and rethink it, and hopefully do it better. I'm not sure what else I can do.

My 65-year-old patient never returned.

V

#### Author

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#### Disclosures

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## F Y I Capitalism gone wild

The NY Times carried a business section article on June 15, 2013 describing what can only be considered an extraordinary example of monopoly capitalism gone wild. Acthar is a prolonged release form of adrenocorticotrophic hormone (ACTH). It is used to treat infantile spasms, a rare seizure disorder in babies, and may be used in multiple sclerosis to treat exacerbations. In 2001, "Acthar, a hormone purified from pig pituitary glands...was selling for \$40 per vial<sup>1</sup>." Questcor purchased the drug in 2001, increasing its price to \$1650 per vial and then to its current cost of \$23,000 per vial. Now Novartis is attempting to purchase the company that makes this drug, which is the only competitor for its own synthetic version of the drug. It is unlikely that the goal is to make the drug cheaper.

1. NY Times June 15, 2013

Joseph H. Friedman, MD

### The Aronson Chair for Neurodegenerative Disorders

FROM RIMJ'S MANAGING EDITOR: For more information on The Aronson Chair, click here: <http://www.butler.org/aronsonchaircampaign/index.cfm>



Dr. Aronson in 2007 receiving Doctor of Medical Science (DMS) at Brown in 2007.

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## Seeking Medicine for the Soul

STANLEY M. ARONSON, MD  
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**"MEDICINE,"** SAID Napoleon Bonaparte (1769–1821), "is a collection of uncertain prescriptions, the results of which, taken collectively, are more fatal than useful to mankind."

A nihilistic view perhaps; but given the lack of any medicinal oversight and the primitive level



of pharmacological knowledge by the practicing physician of the early 19th century, it is little wonder that there was profound skepticism over the merit of most physicians' prescriptions.

In the two-century interval since Napoleon's disparaging commentary, the world has undergone substantial change in the character and regulatory oversight of medicinals. And yet, paradoxically, by the 21st century misused medications have become increasingly instrumental in hastening some deaths.

Many of the readily available medications during the early decades of the 19th century contained sub-lethal amounts of substances such as mercurial, arsenical or lead compounds, each capable of accumulating internally in amounts sufficient, eventually, to cause death. By the middle years of the 19th century, crude opium and newly developed opium derivatives dominated the death toll ascribable to medications. Most of these deaths, from freely available substances such as laudanum,

were obtained without a written physician's prescription, since they were freely sold in pharmacies.

The 20th century witnessed the first binding regulations on the use of medications, particularly those with narcotic tendencies. In many nations, the quality and standardization of medications, as

well as their proof of efficacy, are now supervised by the government. And so, most prescribed medications are presently approved for use only after extensive field-testing and scrutiny by many clinics and laboratories.

Overdosage defines the present era

where drugs – both licit and illicit – dominate the scene. The civilian mortality rate, in 21st century America, caused by overdosage of otherwise safe medications, would shock Mr. Bonaparte. In the state of Florida, for example, there have been 16,550 overdosage deaths during a



Display of various patent medicines for teething babies. Also displayed are printed advertisements and bottle labels.



IMAGES: NATIONAL LIBRARY OF MEDICINE



recent six-year interval. And, in recent years, these deaths have become the second leading factor – after vehicular accidents – in mortalities from causes other than intrinsic disease.

Again, looking solely at data from the state of Florida: the state medical examiners record about eight deaths per day caused by drug overdosage.

What specifically are the drugs that take so many lives?

- **Prescription drugs** (particularly benzodiazepines): A family of prescription drugs, effective in alleviating anxiety and panic attacks. These widely used medications have also been extensively employed for what authorities now call “recreational use” exhibiting clearly addictive tendencies.
- **Opioid analgesics:** A family of analgesic (pain-reducing) synthetic medications – biologically similar to opium alkaloids – including oxycodone, methadone and morphine. The street value of these drugs is now so great that pharmacies have been burglarized for them.
- **Illicit drugs:** Specifically heroin and cocaine. And while these substances had at one time been prescribed, their addictive tendencies were so great that they have been effectively removed from pharmacopoeia texts.
- **Alcohol:** The U.S. Public Health Service uses this category solely for deaths attributed to the *direct* toxicity of grain alcohol. Thus, while countless deaths from motor vehicle accidents are abetted by alcohol in sub-lethal amounts, those deaths were



Mother in bed with her children is reading a newspaper advertisement (1886) for Mrs. Winslow's Soothing Syrup, a product for teething children which contained morphine.

not considered as instances of alcohol over-dosage. Alcohol, whether in amounts deemed lethal or sublethal, is nonetheless the leading mortality factor in deaths between the ages of 16 and 45.

What is meant by ‘recreational’ usage, particularly with the illicit use of substances initially designed to reduce pain? A standard dictionary tells us that recreation is defined as, “refreshment by means of some pastime, agreeable exercise or the like.” It is in the negligently listed “or the like” category that these highly dangerous medications are found.

Past threats to the common welfare, such as the recurrent poliomyelitis epidemics prior to 1956, yielded far fewer fatalities that drug overdosage and yet prompted a robust response, an urgent public demand, to find a cure. Just saying no to the blandishments of agents capable of reducing pain (whether the physical or the spiritual kind) is as purposeful as writing a letter to the local

newspaper objecting to a hurricane. And neither public reprimand nor criminalization has diminished the enormity of this problem.

Pain, of any sort and in any language, needs to be addressed with efforts more enduring than weekly maxims or jeremiads. Human pain has so many additional faces, whether it be from mundane grief, heartache, malaise, anomie or even boredom with life; and no one anodyne has yet been discovered to provide anything more than transitory relief. **v**

#### Author

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#### Disclosures

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# Our Zip Code May Be More Important Than Our Genetic Code: Social Determinants of Health, Law and Policy

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DANNIE RITCHIE, MD

Public health is defined as “what we, as a society, do collectively to assure the condition for people to be healthy.” (Institute of Medicine (IOM), 1988, 2003). This evokes the social determinants of health – where we live, learn, work and play has a greater impact on individual and population health than does access to health care. However, when we discuss health and health disparities, clinical care problems are often framed as the problems with the health-care system. Recently, the Institute of Medicine has moved to make the distinction that in public health, the clinical care system is but one part of the overall health system, which should help to avoid the conflation of health as only a product of medical care (IOM 2010).

In June 2011, Rhode Island Gov. Lincoln Chafee signed a law (RIGL 23-64.1), creating the Commission for Health Advocacy and Equity. The Commission’s mandates are to advise the Department of Health about racial, ethnic, cultural, or socioeconomic health disparities; to advocate for the integration of the activities that will help achieve health equity; to help develop a health equity plan that addresses social determinants of health, not just in the Health Department, but across state government; to align statewide planning activities in developing health equity goals and plans, and to educate other state agencies and organizations on health disparities.

Brown University’s Taubman Center for Public Policy sponsored a seminar series open to the community addressing Social Determinants, Law and Policy. The three-seminar series explored what the social determinants of health are and how we all and policymakers can address health

inequities through law and policy.<sup>1</sup> The first seminar, “Understanding the Social Determinants of Health,” explored the concepts of social determinants and how they can be measured. The second, “Law and Social Determinants: Legal Interventions to Address Health Disparities,” focused on legal tools to promote health equity and healthy communities. The third seminar, “Health in All Policies: Designing Cross-Sector Policies to Improve Health,” considered statutory legislation and institutional policy, local and national, which can increase health equity and promote healthy communities.

This special issue contains a series of papers expanding key themes addressed in the seminars. Making real improvements in the health of our communities, especially the economically, socially and environmentally impoverished communities, requires much more than “fixing” our wasteful, fragmented and misdirected medical-care systems. If we are to achieve health equity, it is time for us to evaluate how to truly shift the dialogue, and not inadvertently replicate the same disparities we are trying to eliminate. We must examine how disparities impact us all across demographics and not only the most vulnerable, though they bear the greater burden. It is our intent with this edition to provide tools to better equip us to evaluate the social determinants of health and ways to take action through law and policy.

## Acknowledgements

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## Reference

1. For access to the videos from the seminars, see the Taubman Center for Public Policy Archives  
<http://www.brown.edu/academics/taubman-center/events/social-determinants-health-law-and-public-policy>  
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# Social Determinants of Health: A View on Theory and Measurement

FERNANDO DE MAIO, PhD; JOHN MAZZEO, PhD; DANNIE RITCHIE, MD, MPH

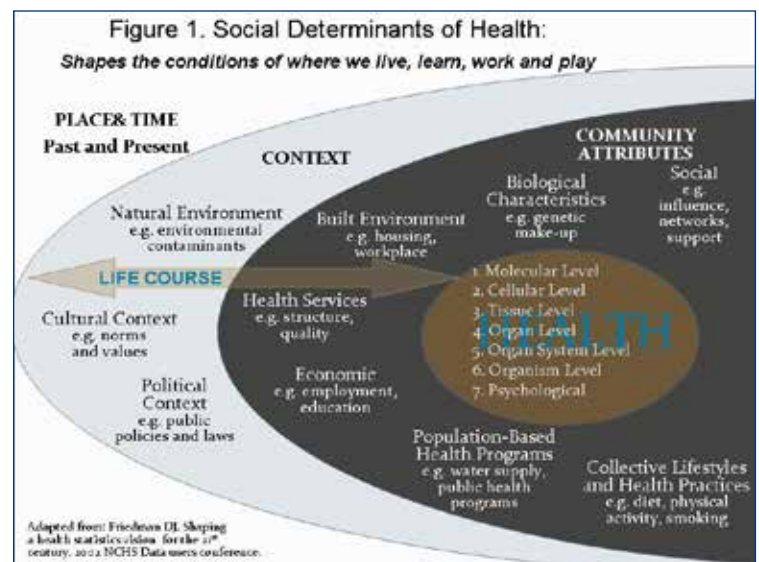
## ABSTRACT

The theory and measurement of the social determinants of health featured in a three-part seminar series on Social Determinants of Health, Law and Policy held at the Taubman Center for Public Policy, Brown University in February 2012.<sup>1</sup> The seminar series represents a broader commitment to engage the public, health providers, researchers, and policy makers in dialogue for the purposes of identifying and addressing social determinants of health at community and state levels. This article summarizes and expands upon the first part of the series by defining social determinants of health and exploring methodological debates over their measurement, with a focus on income inequality, racism and discrimination, housing security, and food security. The authors of this article and the members of the seminar series represent the kind of interdisciplinary and applied work necessary for addressing the five key areas of social determinants of health identified in *Healthy People 2020*: economic stability, education, social and community context, health and health care, and neighborhood and environment.<sup>2</sup>

**KEYWORDS:** social determinants of health; inequalities; discrimination; insecurity

National Health Service.<sup>3,4</sup> Since that landmark report, the relationship between socioeconomic status and health (the 'social gradient') has become one of the most persistent and ubiquitous findings in health research. In the United States, the *Healthy People* initiative has spearheaded the national effort to reduce health inequities and broaden awareness of the importance of the social determinants of health.<sup>2</sup>

Social determinants of health refer to both features of and pathways by which societal conditions affect health. These include income, education, occupation, discrimination, and working/living conditions (see Figure 1).<sup>5</sup>



## INTRODUCTION

The social determinants of health literature has developed in significant ways over the past 30 years. It arguably gained prominence with the publication of the United Kingdom's *Black Report*, which emphasized the large inequities in morbidity and mortality that exist between lower and upper classes – inequities that persisted despite universal access to health care services under the

Figure 1 illustrates how social conditions influence the health of individuals. Research in this area has examined a wide range of social determinants of health – from community attributes to a more macro-level political context. The social determinants of health examined in this article include income inequality, racism and discrimination, housing quality, and food security. The main goal is to consider how these factors may be affecting our health and how to measure these effects in ways that build toward policy relevance.

Figure 2 demonstrates the framework of life course effects.<sup>6</sup> Social mobility questions the changes that may occur over a life span (e.g., the impact of starting at a low social position and moving to high position or vice versa). The sensitive periods framework asks if there is a time, especially during childhood, when economic circumstances are of particular

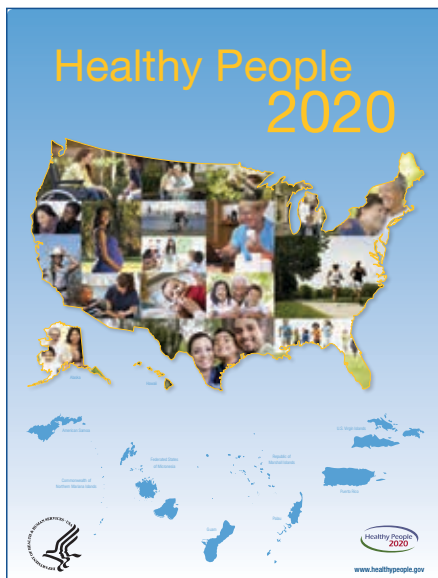
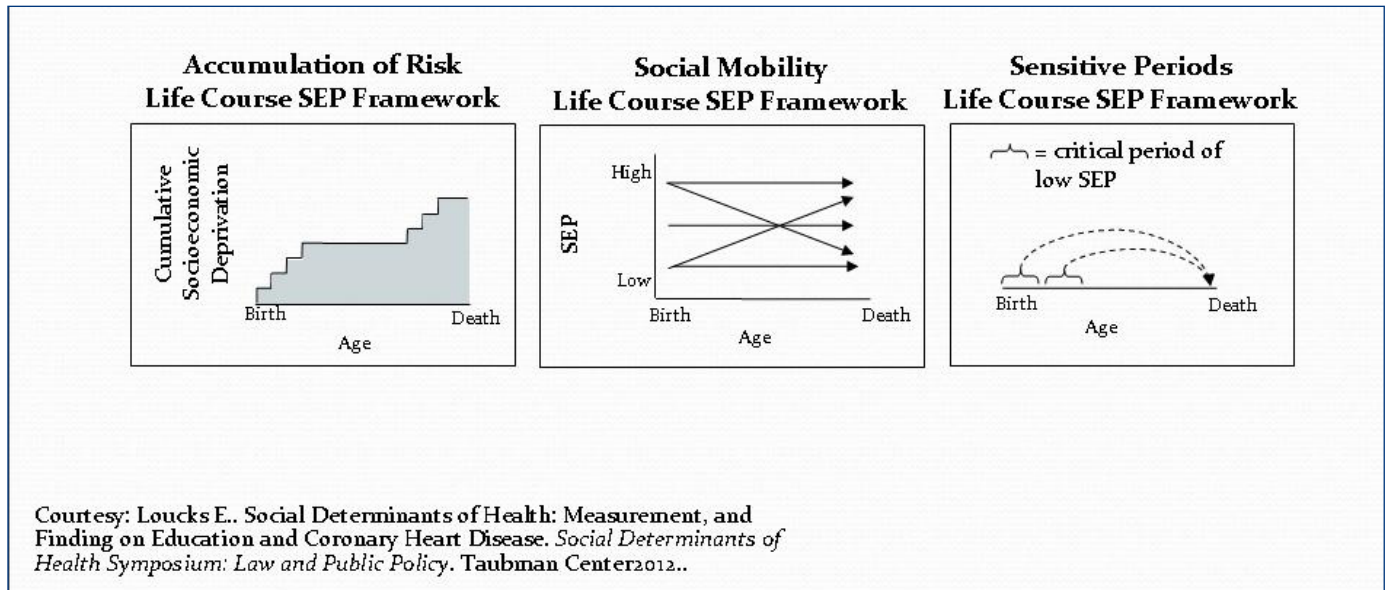


Figure 2. Life course socioeconomic position



importance in the development of the health and wellbeing of an individual. Accumulation of risk considers the build-up of effects over time. The purpose is to develop a conceptual framework with which we can predict health outcomes more accurately and to determine the validity of specific mechanisms as they influence a particular pathway.

On a global level, the World Health Organization's recent Commission on the Social Determinants of Health (CSDH) brought unprecedented attention to social conditions as fundamental causes of disease.<sup>7</sup> The CSDH sought to synthesize the now-global literature on the social determinants of health, ultimately concluding that "reducing health inequalities is...an ethical imperative. Social injustice is killing people on a grand scale."<sup>8</sup> Its focus was primarily on between-country inequities (describing the 40-year gap that exists between the worst-off and best-off nations as four decades that are 'denied' to the poor), but the CSDH also examined within-country inequities – pointing to the need to improve the distribution of power, money, and resources.<sup>8</sup>

### Income-Based Inequalities

Inequities in health running across the socioeconomic spectrum are perhaps the most consistent empirical finding in the social determinants of health literature. These inequities run as a gradient, from the very bottom of the socioeconomic hierarchy to the top; they do not reflect threshold effects that differentiate the poor from the non-poor.<sup>9</sup> The steepness of the social gradient varies from place to place and condition to condition, but its presence is widely accepted by health inequity researchers.

Building on empirical work on the social gradient, social determinants of health researchers have gone on to examine a range of other drivers of unnecessary morbidity and preventable mortality. One of the most important extensions of

this work has been Richard Wilkinson's income inequality model, which argues our health is influenced not just by our own income, but also by how income is distributed in the place in which we live.<sup>10,11</sup> Some of the most striking results have been published using data from the United States; Ross et al. observed that a 1 percent increase in the proportion of income earned by the poorest half of the population can be expected to reduce working-age, all-cause mortality in U.S./Canadian cities by 21 deaths per 100,000 every year.<sup>12</sup>

There is, however, considerable debate over the Wilkinson hypothesis, and researchers continue to grapple with a range of methodological questions of how to test the hypothesis with empirical data.<sup>13</sup> More than 200 statistical studies have examined the relationship between income inequality and population health, and approximately 90% of these have found at least some support for the hypothesized relationship. However, once control variables are taken into account, this figure drops to approximately 40%.<sup>14</sup> That is, only a minority of studies concludes with full support for the hypothesis, and others give mixed results, with the hypothesis being supported only under some conditions. It is here where the statistical issues pertaining to testing the hypothesis become quite complex and contested, with little agreement in the literature surrounding what kind of variables should be included in statistical models as control variables used to isolate the effect of inequality itself (and, in turn, whether the statistical practice of controlling for the effects of independent variables gives us an evidence base from which to establish causality). There is also no consensus on the geographical level at which the hypothesis should be tested, with some studies being carried out with national data, and other studies being carried out at state / provincial, city, and municipal levels.<sup>15</sup>

Despite the ongoing debates over the Wilkinson



hypothesis, it has strengthened the social determinants of health literature by emphasizing the need for a multilevel perspective, one that acknowledges that while health is experienced by individuals, it is ultimately affected by both individual and contextual factors. With this perspective we might consider income inequality as a proxy for capturing of a wide variety of inequalities, the social policies that tolerate them, and the unequal distribution of health protective resources. For example, we can think of the substantial differences in experience of poverty by race through discrimination and segregation. New research examining the health effects of racism / discrimination, housing, and food security, detailed below, illustrate this need for a multilevel perspective.

### Racism and Discrimination

This scholarship extends the existing literature on race/ethnic health disparities, moving from descriptive empirical studies documenting population-based patterns toward analysis that explicitly measures exposure to discrimination. In effect, this area of work begins with acknowledging the fundamental patterns of health inequities that exist today in the United States: infant mortality (per 1,000 live births) is 14.0 for African-Americans and 5.7 for non-Hispanic whites;<sup>16</sup> age-adjusted mortality from breast cancer (per 100,000 women) is 35.5 for African-Americans and 25.8 for non-Hispanic whites;<sup>17</sup> and most other indicators follow similar patterns.<sup>18</sup> The latest work in this area goes beyond description, however, by theorizing about and testing the fundamental role of racism and discrimination as drivers of these patterns.

In recent years, several measurement approaches have been developed, including the Experience of Discrimination (EOD) scale<sup>19</sup> and the Everyday Discrimination Scale (EDS).<sup>20,21</sup> These scales can be incorporated into household surveys; the EOD, for example, asks respondents if they have felt discriminated against in 9 different domains (at school or work; getting a job, housing, medical care, service at a store or restaurant, credit, bank loans or a mortgage; on the street or in a public setting, or from police or in the courts). Likewise, the EDS includes items seeking to measure 'day-to-day unfair treatment' in specific life domains. These scales have been associated with a range of health outcomes in community studies, including hypertension, self-rated health, and psychological distress.<sup>22</sup> Theoretical and clinical work has investigated the pathways through which racism and discrimination affects bodily systems, with many studies pointing toward chronic activation of stress pathways.<sup>23</sup>

Both the EOD and the EDS measures are entirely self-report in nature, raising a very real concern over validity across the socioeconomic spectrum. As Nancy Krieger observes, "people most affected by discrimination may be least able or willing to say so, even as such experiences may nevertheless affect their health."<sup>21</sup> Empirical studies have shown a strong association between self-reported discrimination and health among affluent respondents, a relationship that some

studies suggest breaks down among the poor.<sup>24</sup>

There are real concerns, therefore, that existing measures may underestimate the real effects of racism and discrimination as social determinants of health. Along with the problems of self-report data, research in this area has relied too much on individual-level measurement, with less emphasis placed on community/structural dimensions of racism and discrimination.<sup>22,25</sup>

Researchers are beginning to explore how the experience of discrimination may affect foreign-born people, tracking exposure to discrimination over time in the United States. Such work offers the possibility of integration with the 'healthy immigrant' literature, enabling a more holistic perspective on the health transitions of immigrants.<sup>26</sup> Comparative work is also possible. Researchers in other countries, including New Zealand,<sup>27</sup> the United Kingdom,<sup>28</sup> and Canada<sup>29</sup> have investigated the pathogenic effects of discrimination, though little cross-national work has been done to date.

Critical examination of the frame underpinning these studies is also warranted. As Yin Paradies notes, "the study of racism in health research is concerned, at least at present, with how racism may influence health rather than why racism occurs."<sup>30</sup> Consideration of the causes and not just the effects of racism and discrimination further strengthen the argument for a truly inter-disciplinary and cross-sector approach to health disparities research – linking biology and health sciences with political economy, history, and the social sciences.

### Housing Security

Housing quality is widely recognized as a critical determinant of health.<sup>2</sup> It has a significant influence on child health and other outcomes across the life course.<sup>31</sup> Some of these influences include exposure to physical and biological hazards, affordability, neighborhood quality and insecurity. Often not considered is how the high cost of energy can lead to housing insecurity. If heating bills are not paid a landlord may have the right to evict a tenant for not keeping the unit habitable.<sup>32</sup>

Neighborhood quality and conditions matter to health beyond the individual level. Neighborhood segregation and housing conditions vary by race and ethnicity even after accounting for income differences. Public health researchers and advocates must recognize linkages between household access and public policy in creating unhealthy, unstable conditions. Housing policy can be a public health intervention if health is an explicit objective integrated into the design, operation, and evaluation of housing assistance programs.

### Food Security

Food security, broadly defined by the U.S. Dept. of Agriculture (USDA) as the ability for all people to have enough food to lead active and healthy lives, is essentially a problem of sufficient access to quality food.<sup>33</sup> Although an increase in available calories and energy intake is often assumed to be

an indicator of food security, those calories are not always nutritious.<sup>34</sup> The high cost and availability of food leaves low-income households vulnerable to diet-related health problems as consumption of cheaper foods – usually high in fat, sugar, and salt and low in micronutrient – increases.<sup>35</sup> A less immediate cause of food insecurity is policy that can influence household resources creating unforeseen and adverse impacts. For example, policies that influence the cost of heating fuel paid by households can lead to seasonal coping strategies and temporary problems with food access.<sup>36</sup>

Methods for assessing food security recognize the challenges of measuring a complex, multidimensional phenomenon, which progresses through a continuum of successive stages. Each stage, from low- to high-food insecurity, consists of characteristic conditions, experiences, and behavioral responses. The strategy taken by the USDA and other researchers is to use a variety of indicators to capture the various combinations of conditions, experiences, and behaviors.<sup>37</sup> The Food Security Supplement is a validated approach that relies on a set of 18 core indicators.<sup>38, 39</sup> However, a strong argument can be made for approaches that capture the broader significance of food access, dietary quality, and explore the complex pathways between food security and health. This approach, often aided by qualitative inquiry, can demonstrate how food insecure households cope with variations in food access shaped by their complex and changing environment.<sup>40, 41</sup>

## CONCLUSION

Future work on identifying and measuring social determinants of health requires collaboration between researchers and policy makers for the purposes of generating policy-ready research. The seminar series on Social Determinants of Health, Law and Policy at Brown University is an example of how these dialogues can be framed, identifying key researchers, and the ways in which these interactions can offer fertile ground for interdisciplinary perspectives. This article has offered theoretical and methodological considerations for several key social determinants of health – income inequality, racism and discrimination, housing insecurity, and food security. The challenge ahead for researchers, advocates, and policy makers is to assess how these determinants affect the health status of particular populations, with the ultimate goal of informing all types of policy, not only explicit health policies, about the potential to improve health outcomes.

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# Social Determinants of Health and the Affordable Care Act

DONNA LEONG, BA; LT. GOVERNOR ELIZABETH ROBERTS, BA, MBA

## ABSTRACT

Healthy living is mainly seen as a product of good genetics and holistic healthcare in the United States, but a growing field of research is also attributing well-being to social determinants of health (SDH), which are the compounded effects that arise from the concentration or lack of social capital. The Affordable Care Act (ACA) was enacted to promote the overall health of the country and its clauses are calling to attention the health disparities that come from social inequalities, the main sources for SDH. The ACA acknowledges that SDH affects marginalized communities in different ways, and to mitigate their effects, it localizes funding in hopes of empowering individuals and communities, but there is no integrated, multi-prong system for addressing SDH.

**KEYWORDS:** Social determinants of health, marginalized populations, mitigation techniques, integrated models of care

## INTRODUCTION

Historically, improvements in living environments have ushered in higher levels of good health. The creation of a modern sewage system in London during the 1800s was instrumental in curbing the rate of infection for cholera.<sup>1</sup> However, the benefits of the new systems were not equal and the poorer residents were still at disadvantages; the latrine systems for the wealthy had flush-control valves, whereas the latrine systems for the poor were flushed manually, which continued to spread disease.<sup>2</sup> This trend of unequal benefits to health improvements within a region has continued into the present day, with the least socially advantaged populations confronted with many more health problems. Realistic efforts to improve public health on the whole necessarily should include policies that are designed to mitigate the health disparities that arise from social inequality.

## WHAT ARE SDH?

Overall health improvements, such as advances in vaccines, have been beneficial to people across the board, but the social determinants of health are still preventing many groups from reaping the fullest benefits of such advancements.<sup>3</sup> Although health is primarily seen through a biomedical



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perspective, the conditions in which people live, work, and play (social determinants of health) act not only to influence one's access to healthcare, but also largely determine the health and rate of illness within communities. Social determinants of health refer to the context in which health arises: the economic, political, social, and cultural conditions of communities and institutions that perpetuate them.<sup>4,5</sup> Racism, poverty, unsafe neighborhoods, and lack of education are some of the many SDH that create health inequity through effects such as elevated stress levels, higher rate of uninsured patients, and less access to healthy foods.<sup>6-8</sup>

Social determinants of health disproportionately affect already marginalized populations, exacerbating the material and psychosocial inequalities that they may already face. Wealth and income are main contributors to SDH; they are important to preventative measures, such as living in safe neighborhoods, as well as curative measures, such as being able to afford medical attention for illnesses. Social inequality not only prevents people from treating their current illnesses, but also creates health problems in itself. The rate of mortality among different social classes is stark; many of the working poor are in manual labor jobs and research has shown that the health of manual workers declines more rapidly during the working years than does the health of non-manual workers.<sup>6</sup> Some SDH, however, are indirectly associated with wealth, but also compound the stresses



of working and living conditions. In Rhode Island, many undocumented immigrants (estimated at 35,000 people in 2007) face a unique combination of working low-wage positions, encountering language barriers to health care, and fearing detection from deportation agencies, all of which compound with other SDH to create conditions that exacerbate undiagnosed illnesses and poor health.<sup>7</sup>

There is increasing interest in the field of SDH and a growing body of evidence that demonstrates the roles of SDH in creating health inequity.<sup>8</sup> Consequently, because the SDH are also contributors to social inequality in general, research has discussed the importance of the government in promoting social capital and equity by way of mitigating SDH.<sup>9</sup> Unequal social capital continues and compounds through the effects of SDH, and disease prevention can arise from the promotion of social justice. Healthcare services – that is, direct medical attention – function both as curative and preventative biomedical strategies, but equitable healthcare access alone does not overcome the complex ailments that stem from SDH. Mitigating social determinants of health, in addition to improving equitable access to health care, are keys to promoting healthy communities.

### **SDH MITIGATION: THE AFFORDABLE CARE ACT**

The Affordable Care Act intends to bring about healthcare reform for the United States and it addresses aspects of SDH in a two-pronged approach that emphasizes both individual and community responsibility for well-being. The act outlines different classes of resources for these two scopes of responsibility: Its efforts to encourage desirable actions at an individual level include funding allotments for public information campaigns to help people make informed choices. Additionally, to contextualize health improvement efforts, grants are given at a community level for local organizations.

### **INDIVIDUAL RESPONSIBILITY**

The goal of reducing health disparities is central to the ACA's efforts of increasing healthy choices, but the nuances of SDH – in particular, its community-specific disparities – are unaddressed at the individual level. In Section 4004 of Title IV (Prevention of Chronic Disease and Improving Public Health), there are provisions related to the dissemination of disease prevention tips and techniques.<sup>10</sup> Additionally, the act will dedicate funds for the creation of an Internet portal that allows individuals to track their own health. Although they are improvements overall, without targeting specific at-risk populations through such efforts as language translation and rural dissemination, even higher overall population health may not translate to higher health for communities already affected by SDH.

While individual empowerment is an important cornerstone of health, the ACA public information campaigns and Internet health portals rely almost entirely on person-

al choices to overcome the institutionalized social determinants of health. This practice follows what Baum et al describe as “a long-standing Western biomedical and individualistic concept of health.”<sup>11</sup> By placing the responsibility of obesity reduction, for instance, on the individual to make more informed diet choices, the ACA fails to recognize that many low-income neighborhoods are food deserts, where fresh fruits and vegetables are scarce. In contrast, processed and shelf-stable foods are more abundant, which can lead to poor nutritional health.<sup>12</sup> This approach falls short, as the ACA's individualized efforts are not prioritized for especially disadvantaged populations, but for the average American.

### **COMMUNITY EMPOWERMENT**

For the disadvantaged populations, however, the ACA has taken a larger community-level scope to mitigate SDH. The Secretary of Health and Human Services is enabled with the authority under Subtitle C to award monetary grants to community organizations and departments that are able to address healthy living in certain areas that have “racial and ethnic disparities, including social, economic, and geographic determinants of health.”<sup>13</sup> The Community Transformation Grants, while created primarily to address community-specific health concerns, also serve as a tool to improve the holistic well-being of marginalized communities. The grants' guidelines call for neighborhood safety as well as infrastructure for healthy living, among others.

Although the Community Transformation Grants do reflect a national acknowledgement of SDH, the ACA does not create comprehensive programs to address mitigation techniques for SDH. The grants, while aimed at localized solutions, are not part of a larger, integrated system that seeks to prevent SDH, as well as monitor their salience. Without a cohesive system that strategically targets SDH from many angles, the ACA's main line of SDH mitigation will be through the Community Transformation Grants. While it is most likely the case that all cities have populations that are more susceptible to SDH than others, these relatively small grants are not standard for all states and their communities; instead, communities with the resources to apply for the grants and are not guaranteed to have a winning application.<sup>14</sup> Compared to the complexity of the integrated-care model that the ACA mandates for healthcare reform, the simplicity in which the ACA addresses SDH reveals that mitigating social determinants is not a main priority for the legislation.

Even if there were an integrated model for SDH mitigation, Rhode Island faces a uniquely challenging position to alleviate effects of SDH because the state has several communities of resettled refugees, in addition to dense minority urban cores. Its refugees potentially face language barriers as well as psychological trauma due to the events that led to their emigration from their home countries. In particular, many Cambodian Americans in Rhode Island are refugees

due to the reign of Pol Pot and his genocidal mission. As such, migration woes of small communities can compound with inequalities faced by ethnic groups on the whole and result in many more SDH affecting them. The ACA's reliance on community organizations and local departments to implement SDH mitigating policies may not address the full SDH spectrum that affects marginalized populations within even larger marginalized communities.

## CONCLUSION

The development of an American healthcare system that works to eliminate health disparities rests on the importance of action aimed specifically at the social determinants of health. In particular, integrated policies should be explicit in mitigating SDH through many channels. Additionally, SDH policies ideally should integrate local involvement of community-based organizations, which can elucidate problems plaguing specific communities and provide health assessments of the policies. In its fullest, the healthcare system and its policies that aim to create healthy communities must also be synergistic to policies already in place that promote education, economic justice, and equitable services. Social determinants of health are as much related to the health of communities as they are to the general well-being of its populations.

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# Optimizing the Health Impacts of Civil Legal Aid Interventions: The Public Health Framework of Medical-Legal Partnerships

ELLEN LAWTON, JD; ELIZABETH TOBIN TYLER, JD

## ABSTRACT

Research documents the significance of the social determinants of health – the social and environmental conditions in which people live, work and play. A critical foundation of these social and environmental conditions are laws and regulations, which construct the environments in which individuals and populations live, influencing how and when people face disease. Increasingly, healthcare providers, public health professionals and lawyers concerned with social determinants are joining forces to form Medical-Legal Partnerships (MLPs) which offer a preventive approach to address the complex social, legal and systemic problems that affect the health of vulnerable populations. Now in more than 500 health and legal institutions across the country, including Rhode Island, MLP is a healthcare delivery model that integrates legal assistance as a vital component of healthcare. This article explores the many benefits of the MLP model for improving patient health, transforming medical and legal practice and institutions and generating policy changes that specifically address health disparities and social determinants.

**KEYWORDS:** health disparities, social determinants, medical-legal partnership, healthcare reform

## INTRODUCTION

Although the healthcare system plays a role in mitigating the unwanted health effects of poor social conditions, the traditional medical treatment model will never adequately address nor prevent these problems. An asthmatic child living in a mold-infested home will continue to experience respiratory problems, no matter how much medicine is administered, unless the unhealthy housing conditions are remediated. In fact, the key to better health is improving the social determinants of health – the social and environmental conditions in which people live, work and play. An important foundation of these social and environmental conditions are laws and regulations, which construct the environments in which individuals and populations live, influencing how and when people face disease.

Increasingly, healthcare providers, public health professionals and lawyers concerned with social determinants are



Dr. Dannie Ritchie and attorney Elizabeth Tobin Tyler at a conference on social determinants held at Brown University's Taubman Center for Public Policy.

joining forces to form Medical-Legal Partnerships (MLPs) which offer a preventive approach to address the complex social, legal and systemic problems that affect the health of vulnerable populations. MLP is a healthcare delivery model that integrates legal assistance as a vital component of healthcare. MLP is built on three key beliefs: (1) the social, economic and political context in which people live has a fundamental impact on health; (2) these social determinants of health often manifest in the form of legal needs<sup>1</sup>; and (3) attorneys have the special tools and skills to address these needs. MLP brings legal and healthcare teams together to provide high-quality, comprehensive care and services to patients who need it most.<sup>2</sup>

## MEDICAL-LEGAL PARTNERSHIP – LINKING LAW AND HEALTH FOR PATIENTS AND COMMUNITIES

In the early 1990s in Boston, the idea of bringing legal teams into healthcare settings to address health-related legal needs developed and has spread throughout the United States.

Twenty years later, over 500 health institutions (hospitals, health centers and specialty services such as HIV, oncology and geriatric care) and legal institutions (legal aid programs, bar associations and pro bono law firms) partner to help patients and transform the systems that serve vulnerable people: veterans, the elderly and the poor.<sup>3</sup> The MLP model has been promoted by the American Bar Association,<sup>4</sup> the American Academy of Pediatrics,<sup>5</sup> and the American Medical Association.<sup>6</sup> It has been studied and adopted in Australia<sup>7</sup> and other countries as a key strategy to address the social determinants of health.

Analogous to primary healthcare, MLP's focus is on early detection and prevention of legal problems and health crises. Key to a successful MLP program is healthcare engagement – the host institution must be committed to support and integrate legal expertise and services. MLPs are generally funded through shared financial support from the host health care institution, partnering legal aid program, law firm or law school, as well as foundation grants. Increasingly, health care institutions support MLP programs with the same funding streams used for other key health-care team members including community health workers, case managers and patient navigators. MLP programs vary in size, scope and target population, but they share three core activities: (1) direct legal care; (2) transformation of health and legal institutions, especially in clinical practice; and (3) policy change at the local, state and federal level.

Figure 1



### Legal Assistance

MLP attorneys provide on-site assistance to patients needing legal help in the form of consultations, brief advice and direct legal representation. Patients are referred to attorneys by frontline clinicians – social workers, nurses and physicians – who are trained to screen for and identify patients struggling with unmet legal needs. Many MLPs use the I-HELP assessment tool to screen for unmet legal needs: Income/Insurance; Housing and Utilities; Education/Employment; Legal Status (Immigration); Personal/Family Stability. Attorneys communicate frequently with healthcare team members and update them on advocacy outcomes. In this

way, MLP is much more than a referral service — it is an integrated approach to health and legal services that facilitates critical, efficient, shared problem solving among health and legal teams who care for patients with complex health and legal needs.

### Safe Home for Freddie – An MLP Case Example

When the chest pains got really bad, Freddie, who was mildly developmentally delayed, finally decided to go to the doctor. His physician had diagnosed him with a cardiac problem and gave him a prescription to fill, but in the meantime, his mother had died, and he was struggling to figure out what to do with her estate and her debts. After two days in the hospital recuperating from a mild heart attack, the care team was concerned about where Freddie would be discharged to. He claimed to have no relatives, and said that he couldn't live in his mother's house anymore "because it was being sold".

The MLP legal team worked with Freddie to understand the status of his mother's estate, and resolved a pending tax complication that would allow him to reside in the home with the right community supports. The legal team also worked with the health care team to identify additional community resources for Freddie, and explored stand-by guardianship options for Freddie in the event of another hospitalization.

### Transforming Health and Legal Institutions and Practices

MLPs work to transform health and legal institutions that serve vulnerable populations by training frontline health care teams to screen for, identify and refer patients with potential legal needs. The teams facilitate joint data tracking of program impact and the appropriate documentation of legal information within patient medical records. They participate in institutional efforts to improve internal systems to better serve patients and families. Through frequent interaction with patients, clinicians and the healthcare system, the MLP team – healthcare and legal members – are uniquely positioned to identify patterns of unmet need among populations, as well as opportunities for institutional and systemic improvement to efficiently address those needs.

### Policy Change

MLPs leverage healthcare and legal expertise to enact multi-level policy change. To improve local, state, and federal laws and regulations that impact the health and well-being of vulnerable populations they (1) ensure compliance with existing health-promoting laws, (2) support enactment of new or amended health-promoting laws and regulations, and (3) oppose enactment of health-harming laws and regulations.

### CONNECTING LEGAL & HEALTH NEEDS

The legal community claims a singular goal as justice – and for vulnerable populations, ensuring access to justice.



However, there are insufficient legal resources available for low-income Americans. For example, there are an estimated 429 people per lawyer in the general population; but there is only one legal aid attorney for every 6, 415 people in poverty.<sup>8</sup> The American Bar Association estimates that low-income individuals have an average of 2-3 unmet legal needs, including access to safe, affordable housing and disability benefits and services.<sup>9</sup>

The medical and public health communities' goal is to promote and protect health. But as legal interventions start to emerge as a solution to intractable social determinants that negatively affect health, it makes sense for the legal community to see health as a key goal for its constituents – and to better understand and leverage the healthcare landscape that touches virtually everybody in the United States. Because the system of legal aid services for the poor is vastly insufficient and access to civil legal services is pivotal to secure or maintain health for vulnerable members of our communities, the integration of legal service into the healthcare system is even more critical.

### THE MULTILEVEL IMPACT OF MEDICAL-LEGAL PARTNERSHIP

Significant strides have been made to demonstrate the impact and efficacy of medical-legal partnership. Gaps exist, but pilot studies show improvement in key MLP domains.

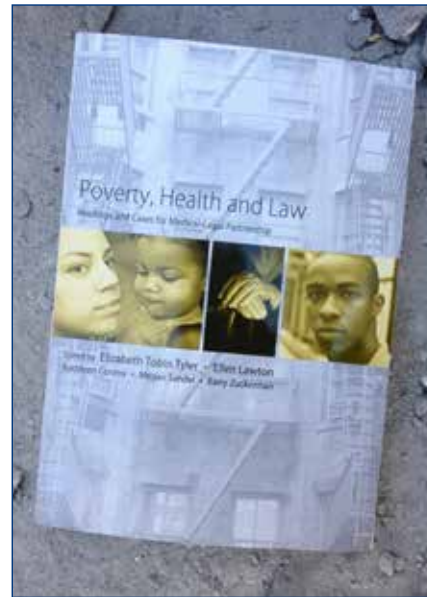
**Improvements in the health and wellbeing of vulnerable patients:** A 2010 study in California found improvements in general health through introduction of MLP<sup>10</sup>; and a 2011 study in Atlanta found that health improved for patients with chronic diseases such as sickle cell when certain legal needs were addressed by MLP programs.<sup>11</sup> Other studies indicate that the benefits reported by patients include a reduced stress level, positive effect on family and loved ones, improved financial situation, and better adherence to treatment regimens and medical appointments.<sup>12,13</sup>

**Cost savings and return on investment for host institutions:** Several studies have demonstrated significant returns on investment in recouped health insurance costs and other benefits for hospitals with patients served by MLP. An MLP program in Buffalo, New York recovered nearly \$1M in healthcare recovery dollars over a three-year period,<sup>14</sup> and a program in rural Illinois demonstrated an average 271% return on investment and a total of \$4 million in relieved healthcare debt for patients between 2002 and 2009.<sup>15</sup>

**Improved Clinical Workforce:** MLP has been shown to transform the practice of law and medicine for healthcare and legal professionals.<sup>16</sup>

### HEALTHCARE REFORM AND THE PATIENT-CENTERED MEDICAL HOME

The massive restructuring of the healthcare system that will take place over the next 10 to 20 years will value innovative



This comprehensive text for medical-legal education, focused on social determinants, law and policy, is now used in law and medical schools across the country.

interventions that improve the health of everyone, especially vulnerable (and costly to serve) children and adults. One important opportunity is the integrated care model exemplified by the “patient-centered medical home.” Alongside social workers, patient navigators, healthcare providers and other professionals who coordinate their services within the medical home, legal professionals can help ensure that patients' basic needs are met and legal rights are enforced. MLP serves as both the medical and legal home for patients and their families. The one-stop shopping approach can be enormously helpful to patients who may have a difficult time with transportation, cannot take time from work or school for appointments, or are coping with multiple stressors or chronic, debilitating conditions.

### MEDICAL-LEGAL PARTNERSHIP IN RHODE ISLAND

At the forefront of the MLP movement in 2002, the Rhode Island Medical-Legal Partnership for Children (RIMLPC),<sup>17</sup> was the fifth partnership in the country. The legal team is on-site at Hasbro Children's Hospital to provide legal assistance to families referred by the primary care clinics. Law students from Roger Williams University School of Law and medical students from the Alpert Medical School at Brown work on-site with the MLP team through internships and clerkships. Rhode Island has also been at the forefront of curriculum development for MLP. Since 2003, RWU Law and the Alpert Medical School have offered a joint course each fall for law and medical students, entitled, *Poverty, Health and Law: The Medical-Legal Partnership*. This course led to the publication of *Poverty, Health and Law: Readings and Cases for Medical-Legal Partnership*,<sup>18</sup> a joint effort of Professor Liz Tobin Tyler and the National Center for Medical-Legal Partnership. This comprehensive text for medical-legal

education, focused on social determinants, law and policy, is now used in law and medical schools across the country.

MLPs – in Rhode Island, around the country and the world – are transforming the way health is understood, the way medicine is practiced, and the way the healthcare system responds to the needs of vulnerable populations, including how resources are allocated.

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# Health Impact Assessments

EMILY SUTHER, MA; MEGAN SANDEL, MD, MPH

## ABSTRACT

Health Impact Assessment (HIA) serves as a tool for policymakers and planners when considering a new policy, project, or plan that will influence the health of people outside of the doctor's office. HIA is a series of steps that can be used to determine how a proposed plan, policy, or project may affect any number of social or environmental conditions, and ultimately health. HIA does not evaluate whether a project or plan should or should not be implemented, but rather serves to inform policymakers and planners on how to make a proposed plan, policy or project more likely to promote health and avoid potentially negative health outcomes. In this article, we present the steps, considerations needed to perform an HIA and illustrations of HIAs that have been done.

**KEYWORDS:** Health Impact Assessments, Social Determinants of Health, public policies

Foundation and The Pew Charitable Trusts, the most urgent health problems facing Americans today – such as asthma, obesity, and heart disease – are influenced more by where people live and work than their genes or what their doctor recommends. Physicians often see patients with diabetes who struggle to make healthy diet choices due to the lack of fresh produce in their neighborhoods. They treat asthmatic patients repeatedly in emergency departments, with multiple medications and courses of steroids, to ameliorate problems caused by poor air quality in their neighborhoods, at their school and/or at their place of work. Patients often want to comply with exercise recommendations, but find that their streets are not safe due to poor street conditions, traffic and/or crime.

Many projects, from transportation, pollution and food policy, are designed to address one aspect of a problem while they may have unintended consequences in another, such as a new shopping center may address concerns of access

to healthy food, but may increase traffic, pollution and decrease space to walk for exercise. When decisions are made to impact the world outside of the doctor's office, it is important to consider the full range of potential health impacts on people is addressed. Given the alarming number of patients with chronic illnesses, such as asthma, diabetes, and high blood pressure, it is imperative that health impact be considered if optimal health and health equity is to be achieved.

As health is a function of many factors not traditionally considered a function of health, the Health Impact Assessment (HIA) has been developed to be a proactive tool that uses a combination of approaches and types of knowledge to measure, capture, and assess a full range of factors that may impact health.

The National Research Council defines HIA as “a systematic process that uses an array of data sources and analytic methods, and considers input from stakeholders to



Dr. Megan Sandel, second from left, spoke on the various ways Health Impact Assessments are used by public and private planners and policymakers during a conference at Brown. Also on the panel were attorneys who work in healthy policy, Liz Tyler Tobin (left), Ellen Lawton and Sara Rosenbaum.

## INTRODUCTION

One recent peer-reviewed analysis estimated that genetics was responsible for 20% of health status; healthcare comprised another 10%, and the remaining 70% of health status was attributable to social, environmental, economic and behavioral factors.

According to Dr. Aaron Wernham, director of the Health Impact Project, a collaboration of the Robert Wood Johnson



determine the potential effects of a proposed policy, plan, program, or project on the health of a population and the distribution of those effects within the population. HIA provides recommendations on monitoring and managing those effects.”<sup>2</sup> A major principle of Health Impact Assessment is health equity, and HIA serves to focus on the health impact of policies on the most vulnerable populations.

HIA can be a vital component in the implementation of new policies, programs or plans, especially since most policy decisions are made without considering the health impact. HIA can be successfully applied to a wide array of topics, making this tool vitally useful in a variety of policy decisions. HIA works in the setting of real-time planning and decision-making, which allows the HIA to be flexible and realistic. One of its biggest strengths is that HIA can adapt to the scope, available resources, and timeliness of a decision.

Additionally, HIA recognizes that there may be competing priorities, and HIA practitioners do not expect health to be the only consideration, but thrive to ensure that it is just one of the many factors objectively considered. It is important to realize that HIA should not be utilized for every decision; it adds the most value when health is not already part of the discussion and when the health connections are less obvious. HIA is about maximizing positive health impacts and mitigating as many negative health impacts as possible in a given policy. Most HIAs do not make strict recommendations about whether to do a given policy or not, but rather make specific recommendations about how the policy, program or plan could be made better for maximal positive health impact.

It is essential to be clear about the appropriate use of this assessment tool HIA to evaluate policies, programs, or projects. The following are considerations to keep in mind to determine if this is the tool to use:

- HIA is not used to make the case for why a policy, program or project should be proposed.
- It is not an assessment to understand the impacts of a program or policy once it has been implemented.
- It is not a community assessments tool (i.e., MAPP, CHIP, CHA), but these can be used during the assessment stage of HIA.
- HIA is proactive – it’s meant to inform a proposed policy, program or project currently under consideration.
- HIA is the framework that translates that data into well-informed policies.

HIA is not meant to dichotomize a policy, program, or plan as a for-or-against proposition but rather to consider potential health consequences and outcomes to decrease and/or eliminate a deleterious impact. An HIA is a flexible research process that typically involves six steps. These steps include:

#### STEPS OF A HEALTH IMPACT ASSESSMENT

1. Screening involves determining whether or not an HIA is warranted and would be useful in the decision-making process.
2. Scoping collaboratively determines which health impacts to evaluate, the methods for analysis, and the workplan for completing the assessment.
3. Assessment includes gathering existing conditions data and predicting future health impacts using qualitative and quantitative research methods.
4. Developing recommendations engages partners by prioritizing evidence-based proposals to mitigate negative and elevate positive health outcomes of the proposal.
5. Reporting communicates findings; and
6. Monitoring evaluates the effects of an HIA on the decision and its implementation as well as on health determinants and health status.

Another element central to HIA practice is collaboration and working with stakeholders to design, conduct, and communicate the results of the HIA.<sup>2</sup> This builds capacity at the local and organizational level to participate effectively, informed by the best scientific evidence, in decision-making that affects health. Conducting an HIA can also help decision makers assess policy proposals, avoid unintended consequences and costs, and advance smarter, cost-effective policies that promote health. Ultimately an HIA should:

- Save costs over the longterm by identifying ways to minimize adverse health outcomes that come with costs such as lost productivity, higher health services utilization, higher rates of disability and premature death.
- Be a flexible process that can be tailored to the timeframe of decision-making, whether policies are made after a day-long deliberation to one that spans years. An HIA generally saves time by offering non-partisan, problem-solving forum that has potential to defuse conflict and resolve policy differences efficiently.
- Promote smart economic development by identifying and addressing potential concerns proactively.

#### ILLUSTRATIONS OF HIAS USE IN POLICY DECISION MAKING

In the last 15 years, the utilization of HIA has expanded widely across the United States. In 2012, there were 162 completed and in-progress HIAs in the United States conducted in 10 different sectors, ranging from transportation, natural resources, energy and gambling, among others.<sup>1</sup> These are policies where health traditionally would never be considered. The use of Health Impact Assessments allowed policy makers to include health considerations in their decisions.



### Example of HIA

One in-depth example of an HIA is a 2012 HIA of Advanced Metering Infrastructure (AMI), by Megan Sandel et al, to evaluate the potential health impacts of the deployment of this AMI for residential customers in the Commonwealth Edison (ComEd) service territory in Illinois.<sup>1</sup> Advanced Metering Infrastructure is a complicated policy that replaces traditional analog meters that measure electricity usage with digital or “smart” meters that communicate with the utility company using two-way internet connections. The two way connectivity allows for variable rates of electricity to be charged for usage during different parts of the day, something that is much more difficult currently. These new meters connectivity have potential benefits that would include giving customers real time information on energy usage, timing usage of appliances at times of cheapest energy. In this way, it has the potential environmental benefits of decreasing overall usage or shifting usage so that electrical companies can avoid using coal fired power plants during the peak times in winter or summer and reduced air pollution.

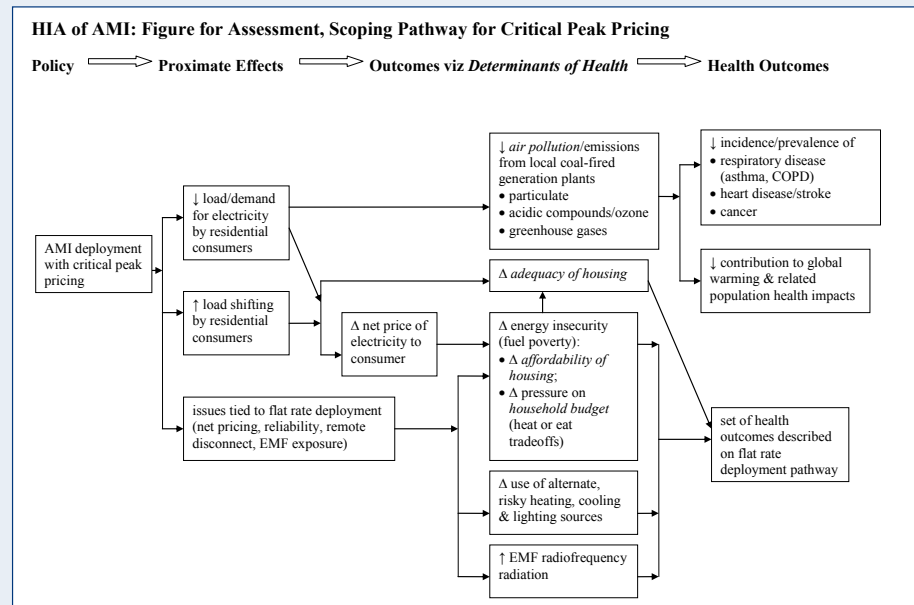
However, the “smart” meters with their two-way connectivity also allow customers to be remotely disconnected from electrical service much more easily than under the current system. This change could lead to potential severe health consequences among vulnerable populations, including children, elderly and people with chronic diseases. Thus an HIA was performed to weigh the potential consequences of the implementation of the ComEd AMI.

The purpose of the HIA on the ComEd implementation was not to determine whether or not AMI meters should or should not be deployed, but rather to highlight the health and safety aspects of AMI for consideration by the Illinois Commerce Commission as it reviewed proposed AMI deployment plans. The data-driven, systematic nature of HIA offered a unique opportunity to incorporate health explicitly into the terms set by the Illinois Commission so that AMI deployment could maximize its potential to promote health and minimize the likelihood that consumers, especially those who are most vulnerable, would be harmed.

This HIA identified three aspects of the AMI deployment that were examined for their potential health impacts on vulnerable customers, defined as five groups that are more vulnerable than the general population. The three questions that these HIA practitioners examined were:

1. Whether or not AMI would raise customer rates for electricity service

**Figure 1.** Scoping pathway used in the HIA of AMI to map the potential health impacts of a particular deployment plan compared to other possible plans.



because of the additional infrastructure investment costs the utility would recover from its customers;

2. Whether or not new pricing programs enabled by AMI would provide benefits to customers or increase costs to vulnerable customers at a time when they can least afford it;
3. Whether or not the use of a remote service switch to disconnect service, particularly in the case of disconnection for non-payment, would have adverse impacts on vulnerable populations.

After the policy was screened, a multiple scoping pathway was developed to help guide the subsequent phases of the project. HIA partners were part of this process to develop the research questions to be answered through various assessment methods. The HIA of AMI employed literature reviews, existing datasets, primary data collected from the ComEd pilot program, and quantitative and qualitative surveys. One example of the scoping pathway is shown in **Figure 1**. The pathway demonstrates the potential benefits of AMI, including reduced load and demand for electricity and therefore reduced air pollution, while showing that changes in price, particularly higher rates, may have higher rates of using risky alternative energy sources or reduce food or medicine expenditures that may adversely impact health.

Upon completion of these analyses, the HIA partners developed a complete summary table to visually display the expected health impacts of AMI deployment. Additionally, as part of the HIA process, the part-

ners developed a set of recommendations that were made to the Illinois Commerce Commission to be taken into consideration upon AMI deployment. Two of the key recommendations were:

Any AMI deployment and programs that seek customer engagement to make use of the new metering and communication system should be accompanied by robust consumer education and outreach to customers to obtain their awareness of and participation in approved programs.

The remote connection and disconnection functionality of AMI, especially in the case of involuntary loss of service for nonpayment, must be deployed to promote and not endanger the health and safety of vulnerable customers.

These recommendations recognized the benefit for AMI, but that many customers needed additional education to reach that potential health benefit. Additionally the extreme negative health risk of remote disconnection was something that should be avoided. The Illinois Commerce Commission currently has adopted these recommendations and has explored requiring the utility companies to track vulnerable populations and the potential impacts of the proposed deployment for the future.

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Examples of successful HIAs in the areas of energy, transportation, and food policies demonstrate the scope of policies and projects considered. Examples include:

- In a decision on oil and gas leasing on the North Slope of Alaska, local residents, who are generally supportive of development because of the revenue it brings, opposed expanding leasing into hunting and fishing areas vital to the community's food supply. Collaboration on the HIA contributed to a compromise leasing plan that included several new protections for health, helped overcome a sharp divide and stemmed the threat of litigation. This was also the first HIA to be formally undertaken within the legal framework of the U.S. National Environmental Policy Act and laid the groundwork for Alaska's HIA Program.<sup>2</sup>
- An HIA that analyzed the implications of a bicycle and pedestrian plan in Clark County, WA, led county planners to create connected bike and walking paths that will help residents stay fit. The HIA was given Active Living Research's 2012 Translating Research to Policy Award.<sup>3</sup>
- An HIA showed that a Farm to School and School Gardens bill in Oregon would improve health not only by improving kids' diet while at school, but also by reducing hunger and creating jobs in the hard-hit farm industry and rural communities. The HIA offered recommendations for maximizing the benefits. It was also instrumental in generating broad support for a pilot project, which was signed into law.<sup>4</sup>

## CONCLUSION

Health Impact Assessment is an important tool when considering the health impacts of policies, programs or plans, especially when they may affect the most vulnerable members of society. HIA is not meant to determine whether or not a new policy, plan or program should be implemented, but rather to identify the potential health impacts of implementation, and to make recommendations on how these policies can be implemented in a way that mitigates negative health impacts. The ultimate goal of an HIA, a proactive measure, brings health into a policy debate so that it can be part of the deliberation and weighed alongside other considerations to maximize the health potential of policy decisions.

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# Health in All Policies: A Start in Rhode Island

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## ABSTRACT

In Rhode Island, health care access, whether measured as having a regular source of care or as having health insurance, is better than the U.S. average. However, health care access does not necessarily translate into better health outcomes. Rhode Island has not fared better than the rest of the nation in ending or decreasing health disparities across socioeconomic and racial demographics in spite of improved access to quality health insurance products. In June 2011, law RIGL 23-64.1 directed the establishment of a Commission of Health Advocacy and Equity. It requires a cross-section of state agency and community members to focus on the social determinants of health, and prepare biennial reports with public participation. The law will serve to remind the government and the public that objectives for the well-being of the population are best achieved when all sectors include health as a key component of policy development.

**KEYWORDS:** social determinants of health; segregation; equity; health in all policies; health disparities



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## INTRODUCTION

In Rhode Island, health care access, whether measured as having a regular source of care or as having health insurance, is better than the U.S. average.<sup>1,2</sup> (See trends, Table 1, Health care Coverage/Access to care). Rhode Island's Rite Care ranked among America's Best Medicaid Plans from 2005–2008.<sup>3–5</sup> America's Health

Ranking 2010 ranked Rhode Island in the top 10 states as measured by access to care, overall satisfaction, prevention measures, and treatment outcomes. However, health care access does not necessarily translate into better health outcomes. Rhode Island ranks poorly on health indicators such as binge drinking, children in poverty, preventable hospitalizations, and cancer deaths.<sup>6–8</sup> Within the state in 2013,<sup>9</sup> Providence County followed by Kent County had the worst

health outcomes. Bristol County ranked first. These rankings parallel the socioeconomic disparities of the state, with Providence County being the poorest and Bristol the wealthiest.

Rhode Island has not fared better than the rest of nation in ending or decreasing health disparities across socioeconomic and racial demographics in spite of improved access to quality health insurance products. On outcomes of preventable diseases such as coronary heart disease and diabetes, Rhode

Table 1. Health Care Coverage/Access to Care

Percent report No to the question:  Do you have any kind of health care coverage?	General US Population		Hispanic		African American		Other	
	National (US) Median %	Rhode Island (RI) Median %	US%	RI%	US%	RI%	US%	RI%
1996 (CI)	12.9	10.5 (8.8-12.2)	27.3	N/A	16.9	9.1 (2.5-15.7)	14.5	N/A
2000	11.9	11.1 (9.7-12.5)	28.2	26.3 (19.7-32.9)	17.1	19.3 (10.9-27.7)	15	N/A
2003	14.5	11 (9.7-12.3)	35.1	31.6 (24.8-38.4)	18.7	15 (5.3-24.7)	19.1	16.2 (7.7-24.7)
2006	14.5	11.3 (9.8-12.8)	40.8	40.5 (33.0-48.0)	19.3	N/A	15.1	N/A
2010	15	12.3 (10.7-13.8)	30.4	36.9 (28.6-45.1)	20.5	N/A	16	13.2 (6.8-19.6)

CI = Confidence Interval

N/A = Not available if the unweighted sample size for the denominator was < 50 or the CI half width was > 10 for any cell, or if the state did not collect data for that calendar year.

Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, [1996, 2000, 2003, 2006, 2010]

Island looked the same or worse than the rest of the nation (See Table 2 Health Status Trends) despite our better insurance access. These outcome indicators demonstrate that we cannot expect success in reducing health disparities if we limit our focus only to access to medical care, adding to the “considerable evidence that social and economic conditions – apart from access to and quality of medical care, which have undeniable importance – play a fundamental, powerful and pervasive role in the health of populations.”<sup>10,11</sup>

Public health leaders have worked to reshape strategies to improve the health of communities and eliminate health disparities. A theoretical framework underlying these revised strategies is the Social Determinants of Health. The concepts of social determinants of health help us move away from the central clinical focus on individual patients. This framework allows us to consider the roles of physical, social and political environments in predicting the health of communities. Among major strategies drawn from the framework of the Social Determinants of Health is consideration of the health impact of policies, even though the policies may have been intended for a completely different purpose.

Scott Burris<sup>12</sup> states that research in social epidemiology has shown convincingly that population health is shaped by fundamental social conditions with consistent correlations across populations between health and various measures of social and economic status. Social arrangements account for an important fraction of population health disparities. However, it still remains difficult for many Americans (health care workers, individuals, and policy makers alike) to embrace the idea that an individual person is not in complete control of his or her own health. Lasker *et al*<sup>13</sup> discuss how the policy environment discourages or enables various organizations to interact. This work elaborates on problematical social and economic conditions to consider the infrastructure that reinforces these conditions and increases the resistance to change.

## METHODS: USING MEASUREMENT TO CHANGE POLICY AND SHIFT THE DIALOGUE

In 2003, a coalition of multi-disciplinary academicians, public health officials, adult education practitioners, community-based organizations, minority business owners,

and community members was formed to work on issues of health disparities and equity in Rhode Island. The work started with and included grounding in a conceptual framework for taking action. The initial premise was that how you see a problem drives how you create solutions and we agreed to work from an ecological and social determinants of health framework. From this approach, disparities in longevity and chronic disease burden among diverse communities can be correlated with societal inequities.

From an ecological approach with the aim to take action on health disparities, the coalition agreed that the usual socioeconomic measures such as income, poverty, education, access to health insurance, and access to health care are indicative but not sufficient to explain health disparities even when disaggregated for differing racial ethnic populations (Table 3 a, b and c Socio-Economic Status, page 33 and Graphs 1a–3b, Select Education Indicators, page 34). The cross-section analysis of the commonly used indicator, income, is based on hourly wages and does not account for other forms of assets such as wealth, eg. homeownership. Another commonly used indicator, education, is not sensitive to variations in quality of education. We considered other types of data analysis that might better capture forms of discrimination and chose segregation.

The addition of segregation indices to indicators of socioeconomic status helps expand our solution sets. Segregation measurement has been described by Massey and Denton<sup>14,15</sup> as having essentially five dimensions: unevenness/dissimilarity, exposure, centralization, concentration, and clustering, the definitions of which can be found in Iceland *et al*, U.S. Census Bureau, Series CENSR-3, Racial and Ethnic Residential Segregation in the United States: 1980–2000.<sup>16</sup> Why are segregation indices key to understanding social determinants of health in Rhode Island? It can expose the extreme isolation experienced by many racial and ethnic populations, better reflecting the institutional arrangements and the legacy of discrimination that continue today. Second, any one

Chronic Disease <sup>2</sup>	General US Population		Hispanic <sup>3</sup>		African American		Asian	
	US	Rhode Island (RI)	US	RI	US	RI	US	RI
<b>Coronary Heart Disease</b>								
2005	144	177	118	62	171	179	81	DNA <sup>4</sup>
2006	135	161	106	77	162	122	77	
2007	126	153	98	77	151	166	71	
<b>Diabetes Related Death</b>								
2005	77	77	93	45	132	162	58	DNA
2006	74	78	86	86	127	116	55	
2007	73	74	84	61	124	123	54	

<sup>1</sup> CDC Wonder Database for Healthy People 2010 age adjusted per 100,000 standard population

<sup>2</sup> Years and indicators chosen according to available comparable data to demonstrate trends.

<sup>3</sup> Health statistics tend to be better than the US Hispanic population. This is most probably related to a larger recent immigrant population resulting in the Latino Paradox. A good summary of this phenomenon is explained in the PBS episode 4 the documentary series Unnatural Causes: “Is Inequality Making Us Sick?” Variation in rates depend on place of origin, with Cubans fairs the best, next Puerto Ricans and Mexican American the worst - see CDC Wonder Data on Diabetes Related Deaths.

<sup>4</sup> DNA - Data have not been analyzed



Table 3a. Socio-Economic Status <sup>1</sup>								
Economic and Education Indicators	General Population		Hispanic		African American		Asian/Pacific	
	National (US)	Rhode Island (RI)	US	RI	US	RI	US	RI
Median household income <sup>2</sup>	\$51,914 +/-89	\$54,904 +/-645	\$41,534 +/-116	\$33,679 +/-1,543	35,194 +/-104	\$34,699 +/-2,436	\$68,950 +/-349	\$53,357 +/-4,292
Percent 25 and over	%	%	%	%	%	%	%	%
with less than 9 <sup>th</sup> grade	6.2 +/-0.01	7.0 +/-0.03	23.1 +/-0.1	23.6 +/-1.7	5.6 +/-0.01	12.1 +/-1.4	8.3 +/-0.01	13.0 +/-2.0
9 <sup>th</sup> to 12 <sup>th</sup> grade, no diploma	8.7 +/-0.01	9.4 +/-0.03	15.4 +/-0.1	16.3 +/-1.4	13.6 +/-0.01	12.7 +/-1.4	6.0 +/-0.01	8.0 +/-1.7
High School graduate or higher (includes equivalency)	85.0 +/-0.01	83.7 +/-0.04	61.5 +/-0.2	60.8 +/-1.8	80.9 +/-0.1	75.2 +/-1.7	85.7 +/-0.1	79.0 +/-2.5

<sup>1</sup>source: U.S. Census FactFinder2 American Community Survey 2006 – 2010  
<sup>2</sup> Large differences between Census 2000 and 2010 report of RI Asian Median Household Income at \$36, 473 in 2000 and \$53,357 in 2010 prompted a disaggregated analysis of Southeast Asian refugee population and varying Hispanic populations for this paper; see tables in Tables 3b and 3c.

Table 3b. Socio-Economic Status										
Economic and Education Indicators	Hispanic Population		Dominican		Mexican		Puerto Rican		Cuban	
	National (US)	Rhode Island (RI)	US	RI	US	RI	US	RI	US	RI
Median household income	\$41,534 +/-116	\$33,679 +/-1,543	\$28,612 +/-2,324	\$28,612 +/-2,324	\$40,588 +/-123	\$37,565 +/-5,088	\$38,426 +/-410	\$25,842 +/-4,819	\$43,857 +/-582	\$66,546 +/-39,675
Percent 25 and over with	%	%	%	%	%	%	%	%	%	%
less than 9 <sup>th</sup> grade	23.1 +/-0.1	23.6 +/-1.7	21.4 +/-0.4	23.6 +/-2.4	27.4 +/-0.1	18.8 +/-4.7	11.4 +/-0.2	17.5 +/-3.0	12.9 +/-0.3	6.8 +/-5.7
9 <sup>th</sup> to 12 <sup>th</sup> grade, no diploma	15.4 +/-0.1	16.3 +/-1.4	14.0 +/-0.3	14.8 +/-2.4	17.2 +/-0.1	17.0 +/-4.6	15.2 +/-0.2	21.7 +/-2.8	11.1 +/-0.3	6.3 +/-5.8
High School graduate of higher (includes equivalency)	61.5 +/-0.2	60.1 +/-1.8	64.6 +/-0.5	61.5 +/-2.8	55.5 +/-0.2	64.1 +/-6.5	73.4 +/-0.2	60.7 +/-3.2	76.0 +/-0.3	86.9 +/-7.8

source: U.S. Census FactFinder2 American Community Survey 2006 – 2010

Table 3c. Socio-Economic Status										
Economic and Education Indicators	Asian Population		Cambodian		Laotian		Vietnamese		Hmong	
	National (US)	Rhode Island (RI)	US	RI	US	RI	US	RI	US	RI
Median household income	\$68,950 +/-349	\$53,357 +/-4,292	\$49,870 +/-1,587	\$42,397 +/-6,534	\$55,119 +/-1,471	\$55,357 +/-22,304	\$55,132 +/-676	\$52,039 +/-19,470	\$46,634 +/-1,558	\$85,294 +/-20,298
Percent 25 and over with	%	%	%	%	%	%	%	%	%	%
less than 9 <sup>th</sup> grade	8.3 +/-0.01	13.0 +/-2.0	25.3 +/-0.9	34.7 +/-7.3	21.9 +/-0.9	26.9 +/-8.6	15.0 +/-0.3	9.3 +/-7.4	31.8 +/-1.4	30.0 +/-17.1
9 <sup>th</sup> to 12 <sup>th</sup> grade, no diploma	6.0 +/-0.01	8.0 +/-1.7	11.9 +/-0.5	13.8 +/-5.3	11.9 +/-0.7	19.8 +/-6.5	13.4 +/-0.3	16.9 +/-13.1	6.0 +/-0.5	1.7 +/-3.2
High School graduate of higher (includes equivalency)	85.7 +/-0.1	79.0 +/-2.5	62.8 +/-0.9	51.4 +/-7.3	66.2 +/-0.9	53.3 +/-9.9	71.6 +/-0.4	73.7 +/-15.4	62.1 +/-1.5	68.3 +/-16.9

source: U.S. Census FactFinder2 American Community Survey 2006 – 2010

indicator of a high level of segregation (for most indices calculated as  $\geq 0.6$ ) has deleterious socioeconomic consequence. But as the research of Massey and Denton demonstrates, hypersegregation, which is the accumulation of the negative effects across dimensions, has a multiplicative impact in socioeconomic impact and correlates with poor health outcomes.<sup>17</sup> Table 4 (p 35) shows the R.I. residential segregation indices and demonstrates how hypersegregation exists across three dimensions for African Americans in Rhode Island, while Figure 1 (p 35) reveals aspects of isolation and clustering for racial/ethnic populations in Providence.

Lu Ann Aday and colleagues in *Reinventing Public Health: Policies and Practices for a Healthy Nation*<sup>18</sup> states, “to effectively improve population health and reduce health disparities, policymaking in a variety of domains must take into account policies that address the fundamental social, economic, and ecological determinants of health.” Aday’s proposed analytical framework is one which works at both macro and micro levels of policy. It provides tools to address the goal of integrated policy analysis, rather than serial or single policy analysis, which are less commonly integrated into public health policy and practice. In particular, it considers sustainable development, economic development, community development and human development. In addition, effectiveness, efficiency and equity criteria are used to assess the impacts of current and proposed policies on the health of populations.

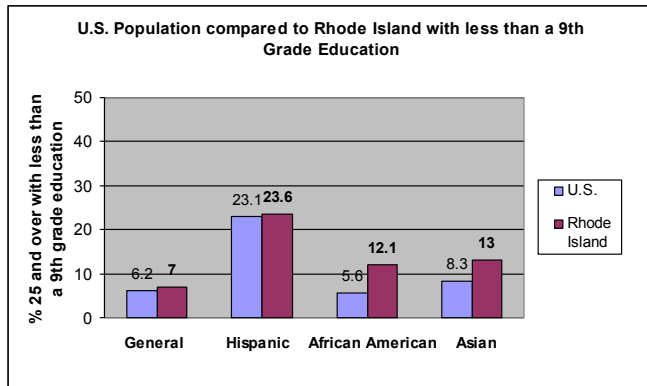
From an ecological lens, it can be seen that as individuals, we may have more or less control and influence over our own social and physical environments and those of others. Individuals who are disenfranchised by income, education, social status, segregation, or disability may have even more limited capacities. We argue here that Aday’s *variety* of domains should be taken seriously and include assessing and shaping

institutional policies to support healthiness and not only in governmental and political policies. We have the big work of assessing laws, regulations and governmental decisions, advocating for assessing health impacts and promoting governmental policies which improve community health. We also have the smaller policy decisions to consider, those in our own institutions, practices, and organizations.

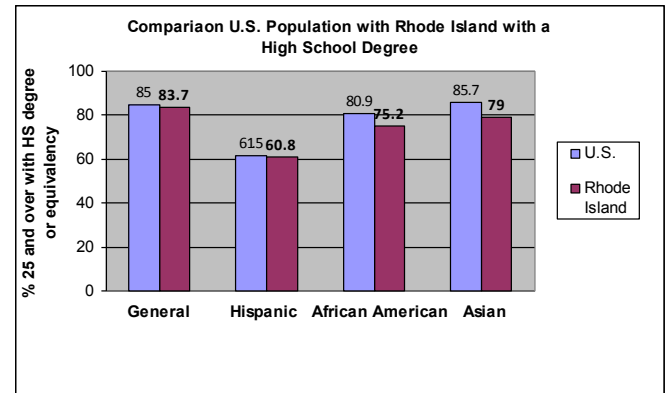
The result of our approach led us to identify a number

of areas of action to address equity; one of which was to address institutional policies through laws and regulations to guarantee sustained attention to the process of the social determinants of health demonstrated by the data for Rhode Island. The coalition worked with legislators to address the conditions that prevent Rhode Island from reducing health disparities. After a number of attempts to pass legislation to address the social determinants of health through the

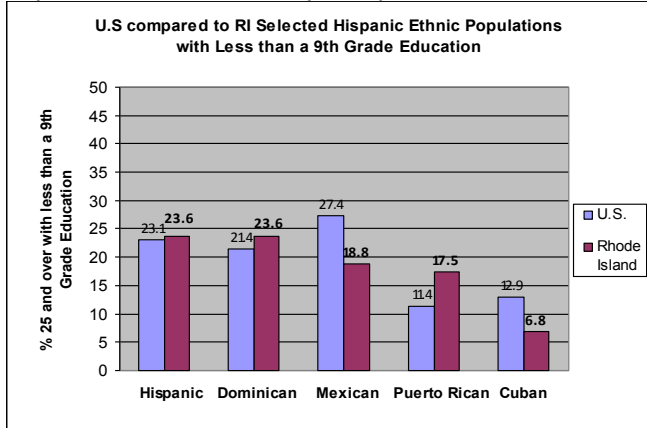
Graph 1a. Education for Crude Race/Ethnic Populations with less than 9<sup>th</sup> Grade



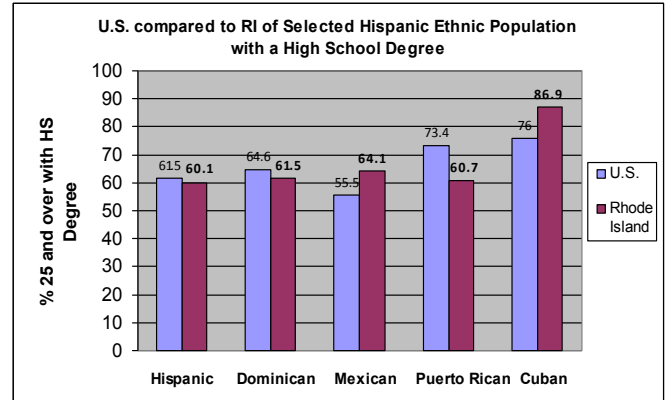
Graph 1b. Education for Crude Race/Ethnic Populations with HS Degree



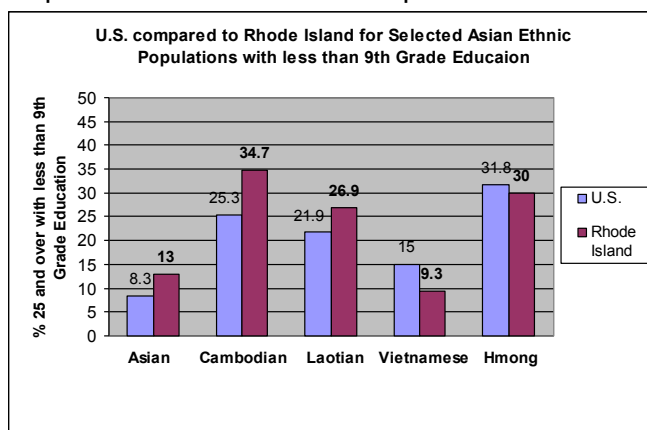
Graph 2a. Education for Selected Hispanic Populations with less than 9<sup>th</sup> Grade



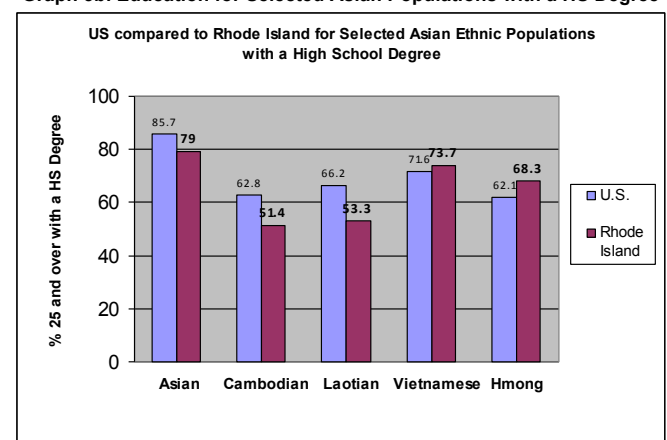
Graph 2b. Education for Selected Hispanic Populations with a HS Degree



Graph 3a. Education for Selected Asian Populations with less than 9<sup>th</sup> Grade



Graph 3b. Education for Selected Asian Populations with a HS Degree



introduction of sister bills, sponsored by Sen. Juan Pichardo and Rep. Donna Walsh, to create a Commission of Health Advocacy and Equity, it passed and became law RIGL 23-64.1 in June 2011. This statute requires a commission to involve a cross-section of state agencies and community members to focus on the social determinants of health. The commission is responsible for selecting benchmarks and measurements for accountability on improving health disparities.

RIGL 23-64.1 requires the commission to prepare and present to the Governor and the General Assembly a disparities

impact and evaluation report biennially, with significant public input prior to completion. This is a start, intended to keep the issues in front of the legislature and executive branch and to increase public involvement in scrutinizing the health impact of policy and law. In addition, public participation in the process can build more awareness and advocacy for addressing the social determinants of health disparities. It is a place for physicians and health practitioners to educate their patients to become active participants in the process of improving our communities' health.

Policies may be as simple as how we schedule appointments to encourage access to primary care at an individual health center or office. They may be as complex as how we calculate poverty or define assets when determining eligibility for subsidies or how we determine who has completed high school. Zoning policies, siting decisions on locations of parks, density of fast food outlets or liquor stores are examples of community policies that can profoundly influence health of communities. Where store owners place candy and tobacco products, whether restaurants offer or highlight healthy options, whether we clear sidewalks or only parking lots, whether we allow smoking in multi-family housing are business decisions that contribute to healthy or unhealthy lifestyles.

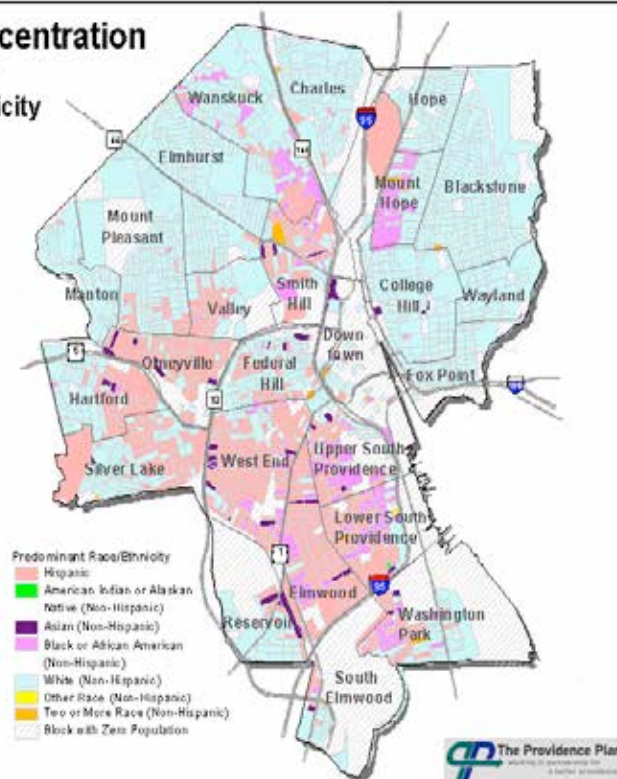
Our attention to social determinants of health in our state is consistent with the work of Burris' and with Lasker's observation, as well as that of the World Health Organization.<sup>11-13</sup> It is also consistent with what is now being termed a Health in All Policies framework developed for the Adelaide Statement of 2010.<sup>19</sup> The statement is focused principally on governmental policies in democratic societies and asks to engage leaders and policy makers at all levels of government emphasizing that government objectives for the wellbeing of the population are best achieved when all sectors include health as a key component of policy development. Health in All Policies is a strategy for influencing the social determinants of health by taking account of the expected health impacts of policies as they are formed and pressing for adjustments that will improve the daily living conditions of populations experiencing health disparities. Structural constraints like segregation require institutionalized processes which essentially force cross-sector problem solving and attention to power imbalances. Only when we cast our policy discussion in broad terms will we recognize the changes required to improve health.

Table 4. Residential Segregation Providence Metropolitan Area					
Segregation Indices		Hispanic	African American	Asian/Pacific	Native American
Unevenness: Dissimilarity Index (D)	National Median	0.371	0.501	0.337	0.254
	Providence MSA Median	<b>0.676</b>	<b>0.600</b>	<b>0.437</b>	<b>0.408</b>
Exposure: Interaction Index (*xPY)		0.870	0.680	0.950	0.975
		<b>0.571</b>	<b>0.715</b>	<b>0.863</b>	<b>0.945</b>
Concentration: Relative Concentration Index (RCO)		0.422	0.646	0.522	0.131
		<b>0.854</b>	<b>0.802</b>	<b>0.560</b>	<b>0.280</b>
Centralization: Relative Centralization Index (RCE)		0.148	0.244	0.197	0.0585
		<b>0.488</b>	<b>0.479</b>	<b>0.292</b>	<b>0.216</b>
Clustering: Spatial Proximity Index (SP)		1.038	1.109	1.014	1.003
		<b>1.271</b>	<b>1.133</b>	<b>1.045</b>	<b>1.012</b>

Source: U.S. Census Bureau (2000), Housing and Household Economic Statistics Division; Providence-Fall River-Warwick, RI-MA MSA, most updated available

Figure 1. Map reflects residential racial/ethnic segregation

### Racial/Ethnic Concentration 2000 Census Blocks by Predominant Race/Ethnicity Providence, RI



Source: Census 2000 Redistricting Data

## CONCLUSION

The creation of law RIGL 23-64 coincided with a series of Institute of Medicine reports, *For the Public's Health*.<sup>20-22</sup> The first, *Role of Measurement in Action and Accountability*,<sup>20</sup> noted that the United States spends more on health than other nations – almost \$2.5 trillion in 2009 – and yet scores lower than other wealthy nations on life expectancy, infant mortality, and other indicators of population health. The second, *Revitalizing Law and Policy to Meet New Challenges*,<sup>21</sup> notes that public policy can be one of the most effective approaches to protecting and improving the health of the population and asks government and private sector stakeholders to consider health in a wide range of policies and to evaluate the health effects and costs of major legislation. The final report, *Investing in a Healthier Future*,<sup>22</sup> asks for the reallocation of health dollars and new sources of funds to strengthen the nation's public health capacity. In Rhode Island, the law asks for the use of a social determinants of health framework, to use a cross-sector approach to evaluate health disparities and to report progress on benchmarks for measurement and accountability. It is a start to continue to develop a clearer look at the social determinants of health and develop greater capacity to do prospective Health Impact Assessments with the goal to advance a Health in All Policies approach.

For up to date information about the Rhode Island Health Advocacy and Equity Commission attend their meetings that are open to the public, see the schedule here: <http://sos.ri.gov/documents/publicinfo/omdocs/notices/6064/2012/134533.pdf>

Or contact them for more information on joining the Commission: <http://www.health.ri.gov/partners/commissions/healthadvocacy-andequity/index.php>

## Acknowledgements

Many thanks to Senator Juan Pichardo and Representative Donna Walsh for the legislation to create the Commission for Health Advocacy and Equity. Also, many thanks to the coalition – the Transcultural Community Health Initiative, Ocean State Action and many others – who advocated over the years for the legislation.

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## Disclosures

There is no potential conflict of interests for either of the authors.

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# Environmental Management of Mosquito-Borne Viruses in Rhode Island

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## ABSTRACT

West Nile Virus (WNV) and Eastern Equine Encephalitis Virus (EEEV) are both primarily bird viruses, which can be transmitted by several mosquito species. Differences in larval habitats, flight, and biting patterns of the primary vector species result in substantial differences in epidemiology, with WNV more common, primarily occurring in urban areas, and EEEV relatively rare, typically occurring near swamp habitats. The complex transmission ecology of these viruses complicates prediction of disease outbreaks. The Rhode Island Department of Environmental Management (DEM) and Department of Health (DoH) provide prevention assistance to towns and maintain a mosquito surveillance program to identify potential disease risk. Responses to potential outbreaks follow a protocol based on surveillance results, assessment of human risk, and technical consultation.

**KEYWORDS:** arbovirus, mosquito, West Nile Virus, Eastern Equine Encephalitis Virus

## INTRODUCTION

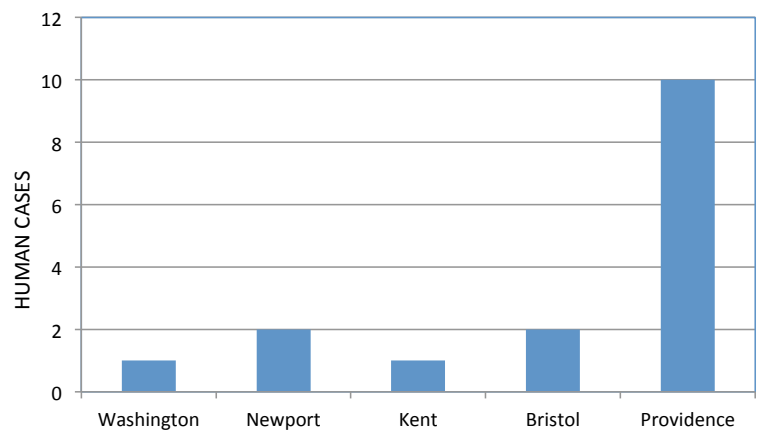
The major mosquito-borne viruses in Rhode Island are West Nile Virus (WNV) and Eastern Equine Encephalitis Virus (EEEV). EEEV rarely infects humans, with an average of fewer than ten cases per year nationwide.<sup>1</sup> However, it often causes permanent neurological deficits or death,<sup>2</sup> so public health agencies typically respond when surveillance reveals the presence of EEEV. WNV is less virulent, with serious symptoms primarily in older patients,<sup>3</sup> but it is far more common, causing one to several thousand cases per year in the United States.<sup>1,3</sup> In this report we describe the transmission dynamics, infection patterns, and the surveillance and management programs for these arboviruses in Rhode Island.

## EPIDEMIOLOGY OF ARBOVIRAL DISEASES IN RHODE ISLAND

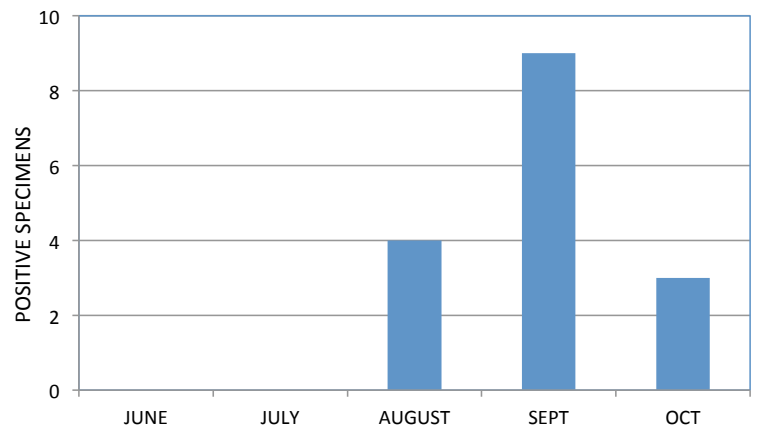
The RI Department of Health reports that in 2000–2012, a total of 16 cases of disease from WNV (Fig. 1) and one case from EEEV were confirmed in Rhode Island. Ten of these patients developed WNV meningitis, five WNV fever (which

**Figure 1. Human illness from West Nile Virus infection, Rhode Island, 2000–2012.**

Number of cases by county



Number of cases by month of positive specimen



is not reportable in RI), and one WNV meningo-encephalitis. Nine of the 11 neuroinvasive WNV cases were among patients >50 years of age, reflecting the national pattern of increased neuroinvasive disease from WNV infection in older patients.<sup>4</sup> The majority of WNV cases were reported in Providence, with no discrepancy in disease between men and women. All cases were reported in the late summer/early fall (Fig. 1).

## Natural transmission dynamics of WNV and EEEV

### Seasonal patterns of enzootic viral amplification and transmission to humans

WNV and EEEV are both transmitted among birds in enzootic cycles by bird-feeding mosquitoes.<sup>1,5</sup> In both cases, prevalence of infection builds over the season in wild bird populations. For the pathogen to infect humans, a mosquito species with a broad host range needs to acquire the virus by feeding on a bird, then transmit it to a human in a subsequent blood meal, thus acting as a “bridge vector” from the enzootic cycle to humans. This seasonal pattern explains why most transmission to humans occurs in late August and September (Figs. 1B, 2B).

Competence to serve as reservoir hosts varies among bird species.<sup>6,7</sup> Viremia high enough to assure a reasonable probability for a naïve mosquito to pick up the virus is short-lived; typically 2-5 days in most bird species that serve as reservoirs. Therefore, human exposure is difficult to predict, because it requires the coincidental occurrence of large numbers of a bridge vector mosquito species seeking blood meals at just the time and place that a reasonable proportion of birds is viremic. Once a mosquito has fed on a viremic bird, the virus needs to overcome the mosquito's defenses, replicate, and invade the salivary glands before it can be transmitted.<sup>8</sup> This extrinsic incubation period (the time from when the mosquito acquires the virus from an infected bird to when it is infectious to another host) is temperature dependent,<sup>9</sup> lasting roughly ten days during the summer in Rhode Island. The identities of the enzootic and bridge vector species, and their natural histories, help explain the epidemiological trends observed in human cases.

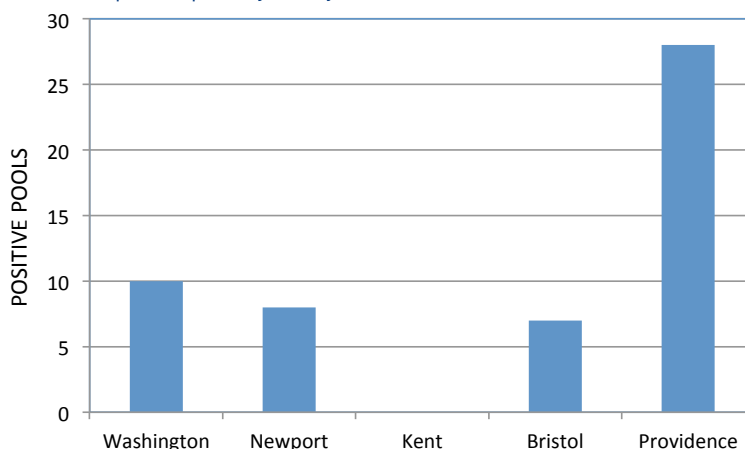
### Natural histories of major vector species

Larval mosquitoes live in standing water, where most filter-feed on organic particles in the water column and obtain air from the surface through breathing siphons. Adults feed on nectar, and females feed on vertebrate blood to provide proteins and lipids for egg development. The enzootic vector of EEEV is the bird-feeding mosquito *Culiseta melanura*, a forest-dwelling species that lives in freshwater swamps, where the larvae inhabit water in holes at the bases of trees.<sup>10,11</sup> One reason that human infections are rare is that human populations are generally not concentrated near swamp habitats. Several species can serve as bridge vectors, including *Aedes vexans*, *Ae. sollicitans*, and *Coquilleltidia perturbans*.

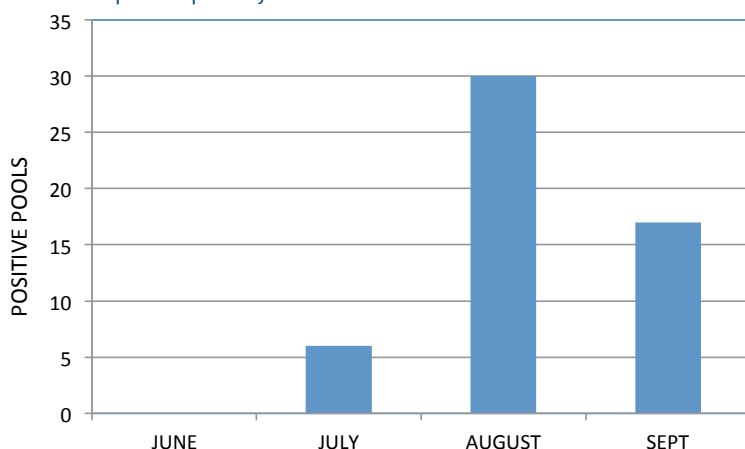
Prediction of disease outbreaks is complicated by the fact that these species respond to different environmental conditions.<sup>12</sup> *Cs. melanura* tends to do well when water levels are high in freshwater swamps. *Cq. perturbans* larvae inhabit freshwater wetlands with emergent vegetation and adults emerge incrementally over the season, typically peaking in late July.<sup>10,11</sup> *Ae. vexans* lays eggs above the water level in hollows and puddles. This species responds to rainfall because the eggs hatch when the water levels rise. *Ae. sollicitans*

**Figure 2. Mosquito pools positive for West Nile Virus, Rhode Island, 2000-2012.**

Number of positive pools by county



Number of positive pools by month



lays eggs on muddy spots on salt marshes (when not flooded), and emerges in large numbers after high tides (at full moon or new moon) that flood the marshes and inundate the eggs. Larvae go through four instars, pupate, and emerge as adults a week or so after the flooding event. The adults then seek nectar meals, mate, sometimes disperse, and then seek blood meals, so biting activity typically peaks about a week and a half after the eggs are flooded. A rainfall event or flood tide will lead to an emergence of *Ae. vexans* or *Ae. sollicitans* only if mosquito eggs are already present in the flood zone. Even after a flooding event, puddles sometimes dry quickly, precluding adult emergence. As such, it is difficult to predict emergences of these species more than a week ahead of time. An emergence of floodwater mosquitoes can cause an enormous nuisance problem, but these newly emerged females are generally not infected. A few weeks later the numbers of mosquitoes have declined due to dispersal and mortality so the nuisance level is much

lower, but these older mosquitoes have taken blood meals and lived through the extrinsic incubation period, so the risk of pathogen transmission is higher.

The first sign that EEEV is present is generally infection in *Cs. melanura*. Since this species feeds on birds, positivity does not necessarily imply a risk to humans, but it does demand increased attention to surveillance. When EEEV appears in bridge vector species a management response is required, ranging from public warnings to mosquito control.

The ecology of WNV transmission differs markedly from EEEV because different species of mosquitoes are involved.<sup>14</sup> The enzootic vector is *Culex pipiens*, which is highly abundant in urban areas, where the larvae live in stagnant water in sewer catch basins, clogged rain gutters, artificial containers, and even sewage treatment facilities.<sup>9</sup> The primary reservoir species are birds that occur in urban areas, such as robins and house sparrows.<sup>15,16,17</sup> Since the enzootic cycle occurs in close proximity to large numbers of humans, any bridge vector that acquires the infection has a reasonably high probability of biting a human and transmitting the virus. Thus WNV causes many more human cases than EEEV, and in the eastern U.S. WNV is concentrated in urban areas. Important bridge vectors appear to be *Cx. salinarius*, a coastal high marsh species, *Ae. vexans*, and the enzootic vector *Cx. pipiens*, which feeds primarily on birds early in the summer, but shifts in late summer to biting mammals.<sup>15</sup> The three most common *Culex* species, *Cx. pipiens*, *Cx. restuans*, and *Cx. salinarius*, are competent WNV vectors in lab studies,<sup>13</sup> so positivity in any *Culex* sample requires increased attention, with the response depending on prevalence of infection and abundance in areas with large human populations.

## Surveillance and management of mosquito-borne pathogens

### Rhode Island's mosquito surveillance program

The Office of Mosquito Abatement Coordination (MAC) is housed in the DEM's Division of Agriculture. From early June to late September, mosquito traps are set once weekly statewide by MAC seasonal staff. Female mosquitoes from each trap are separated by species and grouped into pools. Each pool is a sample that contains the catch of one species from one trap at one site on one date (typically ≤50 specimens per pool). The risk of transmitting EEEV or WNV to humans varies among mosquito species, so virus isolation from a rare species, or one that exclusively bites birds, will guide a different response than an isolation from a species known to be an important vector to humans.

Pools are delivered to the RI State Health Laboratory in Providence weekly (average of 1,710 pools per year), where they are processed and placed in a cell culture medium that supports the growth of EEEV, WNV, Highlands J and Jamestown Canyon virus. Positive cultures are identified using IFA. Results are reported to the MAC Office as they are revealed during the following week.

## Decision-making for mosquito management

Mosquito management is best directed at larvae as they are located in discrete habitats, allowing well-targeted interventions with environmentally benign larvicides. In areas where viral circulation is frequent, reducing larval numbers can lower disease risk by reducing numbers of adults. Management of adults can be directed at mosquitoes with high viral prevalence, but adults disperse widely, and area-wide applications of the broad-spectrum pesticides available to control adults can affect nontarget species, with attendant environmental impacts. Therefore, adult mosquito control is used only when transmission of pathogens to humans is imminent.

The state assists communities to reduce mosquito production in catchment basins by providing 2/3 funding toward the purchase of environmentally benign larvicides formulated for that important urban habitat. The 90-day, slow-release briquettes are placed in catch basins in mid-June by Department of Public Works employees of participating municipalities. The state also engages in saltmarsh water management projects, using specialized low ground pressure equipment to alter the terrain to augment fish predation of mosquito larvae. This approach, known as open marsh water management (OMWM) reduces mosquitoes without insecticides,<sup>18</sup> reduces annoyance from mosquito biting activity in coastal areas, and reduces the need to spray adult mosquitoes for disease prevention.

Mosquito management is guided by a written response protocol (Table 1), which outlines appropriate responses under various levels of disease risk. This document was modeled on Centers for Disease Control and Prevention (CDC) and Association of State and Territorial Health Officials (ASTHO) guidelines and tailored to conditions in Rhode Island. Decisions involve consultation with the Mosquito-Borne Disease Advisory Committee, a group of DEM and DoH officials, URI and federal entomologists, which makes recommendations to the DEM and DoH Directors. General guidelines are used to judge transmission risk (Table 2), but the natural variability in transmission patterns requires that specific conditions must be considered each year in management decisions. Time of season, mosquito density, distribution and species composition, levels of positivity in surveillance samples, along with current and predicted weather conditions all contribute to the assessment of disease risk. Thus, one isolation of EEEV from a bird-biting species in September represents a much lower risk than multiple EEEV isolations from mammal-biting species in August. The former finding would yield a press release noting a low level of risk, while the latter finding would prompt DEM and DoH officials to issue urgent warnings, suggest community actions, and consider implementing emergency mosquito control activities.

Interventions can range from public warnings, "Smart Scheduling" to avoid outdoor events at times of peak mosquito biting activity, intensified surveillance and if



warranted, pesticide applications. Rhode Island DEM and DoH issue weekly press releases during the mosquito season that recommend sanitation practices to lower mosquito numbers (especially around the home), and provide information about mosquito activity, viral isolations, risk of transmission to humans, and appropriate precautions to prevent human exposure to arboviruses. The RI Mosquito Abatement Board (MAB), an 11-member board established by state law, regulates the rare use of adulticides by communities. Large-scale adulticide applications can be performed by the state, but such interventions are utilized only in cases of extreme risk of epidemic activity.

### Acknowledgment

The authors thank Michael Gosciminski and Christopher Harmon for supplying statewide information. We also thank Robert Vanderslice, John Fulton, Utpala Bandy, and Dennis A. LaPointe for constructive comments on early drafts of the manuscript. Use of trade or product names does not imply endorsement by the U.S. Government. This effort was supported by the US Geological Survey, RI Department of Environmental Management, RI Department of Health, and the University of Rhode Island.

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**Table 1.** Mosquito Borne Disease Management Protocol

- Educate the general public to adopt personal protective behavior and to eliminate mosquito breeding environments at home, as follows:

Prevailing Risk	Actions
Low	<ul style="list-style-type: none"> <li>• DOH/DEM web sites are kept up-to-date throughout the year.</li> <li>• DOH offers printed materials to nursing homes, primary medical care practices, and [through primary and secondary schools] to all families of school-age children.</li> </ul>
Medium	<ul style="list-style-type: none"> <li>• DEM issues <u>regular</u> press releases on activities associated with mosquito surveillance and abatement.</li> </ul>
High	<ul style="list-style-type: none"> <li>• DEM issues <u>special</u> press releases at times of high risk for the transmission of mosquito-borne illnesses to humans.</li> </ul>

- Larvicide storm drains and similar natural environments, as follows:

Prevailing Risk	Actions
Low	<ul style="list-style-type: none"> <li>• DEM, in collaboration with municipalities and with DOT, assures that all storm drains in the state are treated with larvicide in June-September, inclusive.</li> </ul>
Medium	
High	<ul style="list-style-type: none"> <li>• DEM consults with all appropriate entities about larviciding all mosquito-breeding environments that contribute to a high risk of the transmission of mosquito borne illnesses to humans.</li> </ul>

- Adulticide geographic areas by ground or aerial spraying, as follows:

Prevailing Risk	Actions
Low	<ul style="list-style-type: none"> <li>• Adulticiding is not generally recommended for low-risk situations, with some exceptions to abate mosquito nuisances (regulated by DEM).</li> </ul>
Medium	<ul style="list-style-type: none"> <li>• DEM convenes the MBD Advisory Group to make routine risk assessments.</li> <li>• The MBD Advisory Group briefs DEM, DOH, and the Governor's Office immediately on the results of all routine risk assessments that include recommendations for use of adulticides to reduce MBD risks.</li> <li>• DEM advises and guides municipalities about the desirability of ground spraying by municipal governments, if and as recommended by the MBD Advisory Group.</li> <li>• DOH assists DEM in crafting and disseminating risk communications for the press and general public.</li> </ul>
High	<ul style="list-style-type: none"> <li>• DEM convenes the MBD Advisory Group to make special risk assessments.</li> <li>• The MBD Advisory Group briefs DEM, DOH, and the Governor's Office immediately on the results of all special risk assessments.</li> <li>• DEM advises and guides municipalities about the desirability of ground spraying by municipal governments, as may be recommended by the MBD Advisory Group.</li> <li>• DEM seeks permission from the Governor's Office for aerial spraying, as may be recommended by the MBD Advisory Group.</li> <li>• DOH assists DEM in crafting and disseminating risk communications for the press and general public.</li> </ul>

**Table 2.** Guidelines to assess risk of arboviral transmission to humans.

Variable	Low Risk Indicators	Medium Risk Indicators	High Risk Indicators
<b>Physical Environment</b>			
- Temperature @ dusk	< 55° F	55° - 70° F	> 70° F
- Wind Velocity	> 20 mph	10-20 mph	< 10 mph
- Relative Humidity	Low	Average	High
- Habitat	Open, unshaded	Partial Sun	Woods, deep shade
- Proximity	> 2 miles	1-2 miles	< 1 mile
- Time of Day	Mid-day	[Other times]	Dusk
<b>Surveillance Data</b>			
- Mosquito Density*	< 20 / CDC Trap	20-50 / CDC Trap	> 50 / CDC Trap
- Mosquito Species	None	Bird-biting	Cross-biting
- Infected Mosquitoes	None	WNV; Highland J	EEE
- Infected Mammals**	None	WNV	EEE
- Age of Mosquitoes	Newly emerged adults	Newly emerged - 2 wks	> 2 wks***
<b>Season</b>			
- Month	November - June	July, October	August, September
* A good indicator of "nuisance"			
** Including human cases			
*** Rationale: Mosquitoes have had an opportunity for ~ 2 blood meals.			



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## Rhode Island Monthly Vital Statistics Report

### Provisional Occurrence Data from the Division of Vital Records

VITAL EVENTS	REPORTING PERIOD		
	DECEMBER 2012	12 MONTHS ENDING WITH DECEMBER 2012	
	Number	Number	Rates
Live Births	901	11,748	11.2*
Deaths	863	9,551	9.1*
Infant Deaths	8	80	6.8#
Neonatal Deaths	6	66	5.6#
Marriages	356	6,367	6.0*
Divorces	302	3,351	3.2*
Induced Terminations	265	3,466	295.0#
Spontaneous Fetal Deaths	No data available		
Under 20 weeks gestation	No data available		
20+ weeks gestation	No data available		

\* Rates per 1,000 estimated population

# Rates per 1,000 live births

Underlying Cause of Death Category	REPORTING PERIOD			
	JUNE 2012	12 MONTHS ENDING WITH JUNE 2012		
	Number (a)	Number (a)	Rates (b)	YPLL (c)
Diseases of the Heart	175	2,344	222.6	3,464.5
Malignant Neoplasms	182	2,206	209.5	5,579.5
Cerebrovascular Disease	37	431	40.9	620.0
Injuries (Accident/Suicide/Homicide)	60	746	70.8	9,536.5
COPD	40	509	48.3	465.0

(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 1,052,567 ([www.census.gov](http://www.census.gov))

(c) Years of Potential Life Lost (YPLL).

NOTE: Totals represent vital events, which occurred in Rhode Island for the reporting periods listed above.

Monthly provisional totals should be analyzed with caution because the numbers may be small and subject to seasonal variation.



## Rhode Island Monthly Vital Statistics Report

### Provisional Occurrence Data from the Division of Vital Records

VITAL EVENTS	REPORTING PERIOD		
	JANUARY 2013	12 MONTHS ENDING WITH JANUARY 2013	
	Number	Number	Rates
Live Births	950	11,781	11.2*
Deaths	1000	9,669	9.2*
Infant Deaths	13	86	7.3#
Neonatal Deaths	9	69	5.9#
Marriages	175	6,360	6.0*
Divorces	341	3,383	3.2*
Induced Terminations	No data available		
Spontaneous Fetal Deaths	No data available		
Under 20 weeks gestation	No data available		
20+ weeks gestation	No data available		

\* Rates per 1,000 estimated population

# Rates per 1,000 live births

Underlying Cause of Death Category	REPORTING PERIOD			
	JULY 2012	12 MONTHS ENDING WITH JULY 2012		
	Number (a)	Number (a)	Rates (b)	YPLL (c)
Diseases of the Heart	188	2,352	223.3	3,474.5
Malignant Neoplasms	201	2,178	206.8	5,712.0
Cerebrovascular Disease	34	431	40.9	602.5
Injuries (Accident/Suicide/Homicide)	48	737	70.0	9,701.5
COPD	39	515	48.9	482.5

(a) Cause of death statistics were derived from the underlying cause of death reported by physicians on death certificates.

(b) Rates per 100,000 estimated population of 1,052,567 ([www.census.gov](http://www.census.gov))

(c) Years of Potential Life Lost (YPLL).

NOTE: Totals represent vital events, which occurred in Rhode Island for the reporting periods listed above.

Monthly provisional totals should be analyzed with caution because the numbers may be small and subject to seasonal variation.

# Intramural Esophageal Dissection Associated with Esophageal Perforation

NICHOLAS C. MONU, MD; BRIAN L. MURPHY, MD

## ABSTRACT

Intramural esophageal dissection (IED) is a rare clinical entity involving a mucosal injury and creation of a true and false lumen within the esophagus. We report on a case of IED caused by repeated vomiting due to a small bowel obstruction associated with a small amount of pneumomediastinum on CT. IED has traditionally been believed not to be associated with esophageal perforation. Our case adds to the few reported instances where IED has been associated with extraluminal air leakage, the mildest form of esophageal perforation and demonstrates imaging not previously published in the radiology literature. Our case was successfully managed conservatively.

## CASE

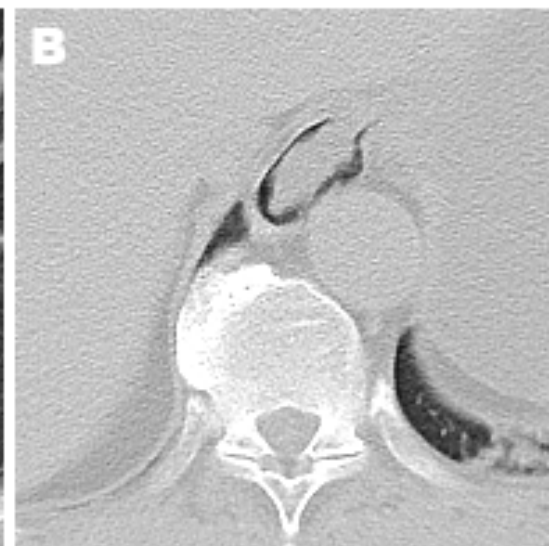
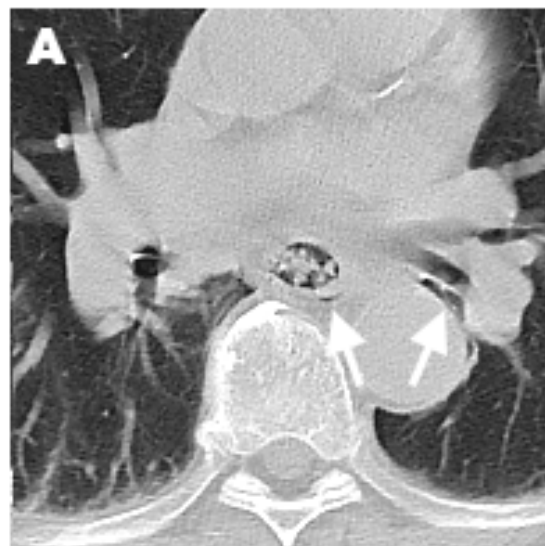
A 76-year-old male presented to the Emergency Room with a one-day history of abdominal pain, distention and multiple episodes of vomiting. His past medical history was significant for a small bowel obstruction that was managed non-conservatively prior to episodes of small bowel obstruction. On physical examination there was abdominal distention and tenderness to palpation. The patient denied chest pain. A CT scan of the abdomen and pelvis confirmed the diagnosis of a small bowel obstruction. Also noted was submucosal air in the distal esophagus on the initial images of the study (Fig. 1). A CT scan of the chest was obtained both to assess the full extent of involvement and to exclude pneumomediastinum due to esophageal perforation. The CT scan of the chest revealed extensive submucosal air dissecting circumferentially around the lumen of the esophagus extending along the length of the esophagus but not extending past the gastroesophageal junction (Fig. 2, 3). The appearances were

**Figure 1.** Axial CT with IV contrast showing circumferential submucosal air in the esophagus.



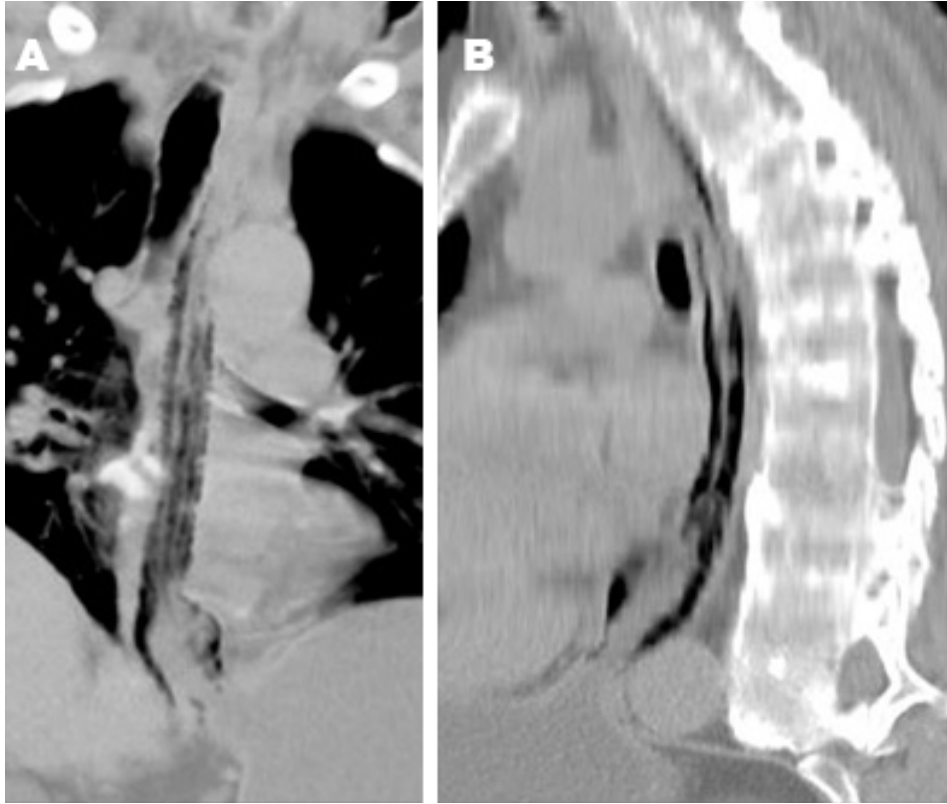
**Figure 2 A.** Circumferential submucosal air in the mid esophagus creating a true and false lumen diagnostic of an IED. Trace extraluminal air adjacent to the esophagus and around the aorta (arrows).

**2 B.** IED terminating at the gastroesophageal junction.





**Figure 3.** Curved coronal (A) and sagittal (B) CT reformat demonstrating the circumferential long segment IED.

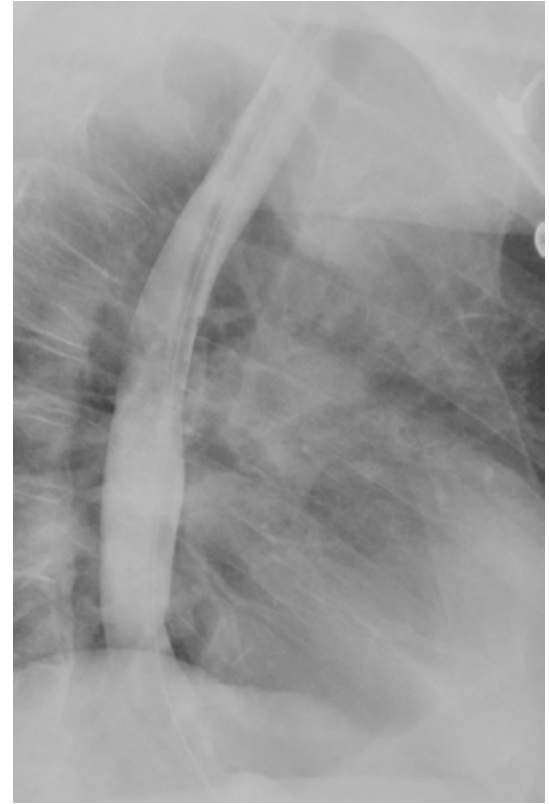


diagnostic of an intramural esophageal dissection (IED). Also present was minimal pneumomediastinum (Fig. 2). The patient was admitted to the hospital and managed conservatively – nothing by mouth and nasogastric tube decompression. He had a negative barium esophagogram on hospital day #2 (Fig. 4) and was able to tolerate an oral diet. He was discharged without complications.

## DISCUSSION

Intramural esophageal dissection (IED) was originally described as intramural rupture of the esophagus by Marks and Keet in 1968.<sup>1</sup> It has also been referred to as intramucosal esophageal dissection, esophageal apoplexy, and submucosal hematoma.<sup>2</sup> It is a rare clinical entity characterized by a mucosal injury and creation of a true and false lumen in the esophagus, conceptually similar to an aortic dissection. Traditionally described in elderly women in their seventh or eighth decades on anticoagulation or with a coagulopathy, it is now accepted that IED can occur in a wide variety of patients such as the previously healthy patient in this case report. It is thought that IED either results from a mucosal tear that leads to dissection of the submucosa or from a submucosal dissection (commonly from submucosal bleeding) that leads to a mucosal tear.<sup>3</sup> IED has also been reported as a complication of endoscopy.<sup>3</sup> IED is usually managed

**Figure 4.** Barium esophagography demonstrating no contrast extravasation from the esophagus.



conservatively with pain control, nothing by mouth, and IV hydration with most patients being able to return to oral intake within 2 to 3 days.<sup>4</sup>

IED is usually thought of as a contained injury without extraluminal esophageal perforation. A meta-analysis of IED done in 1997 found no reported cases progressing to complete esophageal perforation.<sup>4</sup> However a case report in 2008 reported extraluminal perforation consisting of air leakage during endoscopically diagnosed IED.<sup>5</sup> The small amount of pneumomediastinum observed in our case adds support to the few existing reports of IED associated with extraluminal air leakage, considered to be the mildest form of esophageal perforation.<sup>6</sup> CT is likely more sensitive for trace amounts of pneumomediastinum than contrast esophagography that has been the traditionally employed radiologic method of diagnosing IED. So it is possible that previously reported cases that did not use CT were only able to exclude more serious esophageal perforations that would have involved frank leakage of contrast material or large amounts of pneumomediastinum.

We hypothesize that with advances in CT technology, including volumetric data acquisition allowing for multi dimensional reformatting, coupled with the increased utilization of CT scanners in the Emergency Room, CT will likely have an important role in the diagnosis and management of IED while simultaneously assessing for more serious

conditions like esophageal rupture and aortic dissection. In our case, based on the lack of significant pneumomediastinum on CT and the negative barium study, conservative management was successfully pursued.

## CONCLUSION

Intramural esophageal dissection (IED) is a rare clinical entity involving a mucosal injury and creation of a true and false lumen within the esophagus. We report on a case of IED caused by repeated vomiting due to a small bowel obstruction associated with a small amount of pneumomediastinum on CT. IED has traditionally been believed not to be associated with esophageal perforation. Our case adds to the few reported instances<sup>7</sup> where IED has been associated with extraluminal air leakage, the mildest form of esophageal perforation and demonstrates imaging not previously published in the radiology literature. Our case was successfully managed conservatively.

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## Make a House Call at the State House!

We invite you to make a "House Call at the State House" this legislative session. For the past several years, members of RIMS leadership have volunteered to spend an early evening at the General Assembly. With our new, online Member Portal, we are now able to welcome all RIMS members to observe the General Assembly in action.

Given the vagaries of legislative scheduling, your House Call you may offer you the opportunity to: attend a committee hearing; assist RIMS with testimony; get a tour of the State House; and hopefully meet your legislators. This has proven to be a worthwhile and informative opportunity for those RIMS members who have attended in the past.

It is impossible to overstate the importance and impact of real life physicians being at the State House. Every year, RIMS' Public Laws Committee puts together a broad legislative agenda and works with allies on health care legislation, and naturally "plays a lot of defense" on behalf of physicians and their patients. Your presence at the State House can truly make a difference in support of RIMS' efforts.

Registration is easy through the RIMS website, rimed.org. Enter the Member Portal of the RIMS website, log onto your account, and click "Events" on the Portal menu. Once you connect to this page, you may select a date on the "Event List" on this page and follow the prompts to complete the process. Should you have questions about your Member Portal log-in information, please email rims@rimed.org.

You will not need to be at the State House until 4:30–5:00 pm. The registration page will request contact information, both email and a cell phone or pager. We will send you a reminder a few days prior to House Call date along with instructions where to meet Steve DeToy, RIMS' lobbyist, who will be your guide.

## Tar Wars® Poster Contest and Bike Helmet Distribution

On Saturday, May 11, the Rhode Island Medical Society, in partnership with the Rhode Island Academy of Family Physicians and the Rhode Island Chapter of the American Academy of Pediatrics, hosted the **20TH ANNUAL TAR WARS RHODE ISLAND POSTER CONTEST** at The Community School in Cumberland.

The winner was Kinjal Gupta from the Metcalf School in Exeter. Second-place winner was Robert Colomey from The Community School in Cumberland; and the third-place winner was Adelina Steinmetz from St. Paul School in Cranston, daughter of Medical Society member, Dr. Gregory Steinmetz.

The Community School was also the setting on May 11 for the Medical Society's **ANNUAL BIKE HELMET DISTRIBUTION** to eligible Rite Care families. RIMS volunteers distributed more than 150 helmets to children ages 5–8 years of age.



2013 Tar Wars® Poster Contest winner, Kinjal Gupta.



## NEW Share your thoughts on RIMS "Communities" online forum

The RIMS website offers a password-protected Member Portal with access to an online "Communities" forum. This is a unique opportunity to express your opinions with RIMS leadership who work to advocate on behalf of Rhode Island physicians and patients.

### COMMUNITIES TOPIC-OF-THE-MONTH

A discussion of the Rhode Island Department of Health's RI Primary Care Trust

## Save the date! RIMS Annual Banquet & Inauguration of Officers

Saturday, September 21, 2013  
Warwick Country Club

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For more information contact  
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### Stay informed

Make sure RIMS has your current email address or you could be missing out on timely information of interest that most physicians are unlikely to receive as quickly from other sources.

Please contact Sarah Stevens with additions or changes, or visit RIMS' Member Portal to update your contact information.





## Why You Should Join the Rhode Island Medical Society

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Above: State House press conference on health care, Brown MSS at the AMA, CPT update seminar, bike helmet distribution; Upper right: RIMS staff meets with physicians to discuss concerns.



## Martin Reflects on Approaches, Trends in Hospice/Palliative Care

BY MARY KORR  
RIMJ MANAGING EDITOR



MARY KORR

Dr. Edward Martin in his office at Home & Hospice Care of Rhode Island.

PROVIDENCE – Edward Martin, MD, MPH, medical director of Home & Hospice Care of Rhode Island (HHCRI) since 2008, said he feels incredibly fortunate to be working in this subspecialty at this time. “I don’t think I could ask for more rewarding work in medicine. One of the nice things about working in hospice and palliative care is that we work as a team.” Currently, his team serves more than 450 patients statewide and in the 24-bed inpatient unit at the HHCRI center on North Main Street.

“Yesterday, I heard peals of laughter coming from a patient’s room as the family reminisced about the good times in their lives,” Dr. Martin said. “Patients and families are so grateful for the assistance we offer to them at such difficult time.”

Dr. Martin, a ’79 Brown medical school graduate and clinical associate professor of medicine at Alpert Medical School, heads the palliative care consultation service at The Rhode Island and Miriam hospitals.

Recently, he reflected on the work of hospice and palliative-care professionals.

**Q. When you started out in your career, there was no such thing as hospice and palliative-care medicine. Now it’s board-certified subspecialty and growing field of medicine. How will the increased demand for hospice and palliative care be met here in Rhode Island?**

**A.** In two ways. We now have a Fellowship program at Brown, for one physician. We certainly have faculty to train more but are limited by funding. There’s sort of been a cap for a number of years on training slots and although there’s legislation in Washington to free up monies for hospice and palliative

care medicine given that it's a new and emerging specialty, it's clearly understaffed at this point. Subspecialists will not be able to meet the entire demand. The other focus will be on training in primary palliative care so that basically all medical disciplines get some training in hospice and palliative care medicine, since they are the ones who have the initial conversations with their patients.

**Q. Where do practicing physicians learn how to initiate palliative care conversations with patients and their families, who are often unprepared and reluctant to have these conversations?**

A. Last year, we participated in as many CME programs as possible. This year I was invited by The Miriam to participate in cardiology grand rounds. It's a work in progress. But going forward, the critical area is in residency and fellowship training in palliative care skills.

**Q. What is the difference between hospice and palliative care?**

A. It's confusing, even for physicians. One problem is we don't have the elevator pitch for palliative care. The big difference is hospice care is, by medical regulation, restricted to patients with a six-month life expectancy. Palliative care is not. They both have attention to symptom care and quality of life. But in palliative care we may be seeing patients in the intensive care unit who may have a life-threatening illness but need attention to symptom control.

**Q. Is time an issue here for most clinicians?**

A. Yes, I have had a resident ask me why the attending physician ordered a palliative care consult. The answer was

that the physician said, 'this patient is going to need a lot of time going forward.' We provide that. First, we make sure their symptoms are well under control in terms of pain, anxiety so that whatever time they have left they are as comfortable as possible. That's one thing we don't often address in the hospital, and medicine in general. We get so focused on treating an illness it can be easy to miss the fact that the patient is miserable in this process. That's one area that's fundamental to palliative care – making sure that the symptoms are well controlled. There's often a sense that people associate palliative care with Dr. Kevorkian and that it's somehow a slippery slope. There's enough evidence in the medical literature to suggest that patients who got palliative care had prolonged survival rates. We don't know exactly why, but clearly it doesn't hasten death and can improve quality of life.

**Q. What do you do when families disagree about treatment options or even about having a conversation about hospice or palliative care with a loved one?**

A. With all of the conversations we have with patients and families, we try and get at what the patient wants. So if I'm sitting with a family member, I am asking: 'What would your dad want at this point?' Not: 'What do you want for your dad?' First it begins with a conversation about prognosis. It changes a great deal when the patient's time becomes shorter. Ideally we go to the patients and assess their wishes and speak to the family about honoring their wishes. We want to be sure the patient's wishes are paramount in this process.

**Q. Is it usually a one-time consult that you do, or several?**

A. It's a process. Often we'll see patients on their fifth or sixth hospitalization, and then on their eighth hospitalization, when it's finally clear to the patient or family that things, in spite of coming back to the hospital, are not improving. In fact, they're getting a little worse each time. At that point, they may decide to have a different focus for their care.

**Q. For repeat cases such as the ones you have just described, is palliative care a component of the discharge planning in hospitals?**

A. It's not mandatory. Many times it's the nursing home population with advanced dementia coming back. There is very little evidence that there's a great benefit from going in and out of the hospital at the end of life. But sometimes family members seem to be unaware that their parent does not have to go to the hospital.

**Q. Why do you think hospice care is sought so late in Rhode Island compared to other states?**

A. I wish I had a good answer for that. We have one of the shortest stays in the country; the median length of stay is 8–9 days. It's been called "brink-of-death" care. We tend to get patients late. One issue in our state is that there are a large number of older patients without caregivers who are living alone. When these patients wind up in the hospital with a serious illness, and are ready for discharge, they go to a skilled nursing home, which Medicare pays for.

For us, the biggest source of short-stay patients are ones that have gone through all of their days in the skilled nursing home and have continued to decline

and now are actively dying and switch to hospice with days or just hours to live. Hospice was designed for the final months of life and often there's a much more limited benefit when they get hospice care for 48 hours as opposed to 48 days. But there's a financial disincentive to seek hospice care earlier.

**Q. Do you think that non-cancer disciplines under-utilize hospice care?**

A. Yes. There's a study looking at a large number of patients with cancer as compared to those with heart failure. About

half of the patients with cancer received hospice care. But only about 15 percent of the heart failure patients did. I think part of it is the nature of the non-cancer diagnosis. Patients see themselves as chronically ill and not terminally ill, even when they're terminally ill. I've yet to hear a cardiac patient say, 'I'll never forget the day my ankles swelled up or the day my doctor told me my ejection fraction was reduced.'

**Q. What is the opinion of what is termed 'Death with Dignity'?**

**programs such as the ones in Oregon and Washington among hospice/palliative-care physicians?**

A. I think there is very little support in the hospice and palliative care community for this. And I think it's poor public policy. At least in my experience we still don't do a good enough job of controlling symptoms in patients near the end of life. It seems a tragedy that people would take their life because we didn't control their pain or nausea or anxiety or given them the kind of support they needed. v

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## Brown Names Yale Physician as its 7th Dean of Medicine

*Pulmonologist, researcher Jack Elias, MD, to arrive September 1*

BY MARY KORR  
RIMJ MANAGING EDITOR

PROVIDENCE – Jack Elias, MD, chairman of the Department of Medicine at the Yale School of Medicine and physician-in-chief of Yale-New Haven Hospital since 2006, has been appointed seventh dean of medicine and biological sciences at Brown University.

He succeeds Dr. Edward J. Wing, who became dean in 2008, and stepped down from the position July 1.

Dr. Elias will assume his position on Sept. 1. Brown Provost Mark Schlissel, MD, who led the nationwide search for the new dean, will serve as interim dean until then.

The appointment was announced on June 27th.

In a professional career spanning more than 30 years since earning his bachelor's degree and MD at the University of Pennsylvania, Dr. Elias has cared for patients with a wide variety of lung ailments and injuries and has conducted research on conditions including asthma, chronic obstructive pulmonary disease, pneumonia, pulmonary fibrosis, and the effects of smoking.

Brown President Christina Paxson said Dr. Elias, elected to the Institute of Medicine and who has served as president of the Association of American Physicians, arrives at a time when "our medical school and research programs, for instance in brain science, are expe-



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riencing significant growth, and soon we will embark on a new strategic plan to continue this momentum. As an internationally recognized biomedical researcher, educator, administrator, and practitioner, Dr. Elias is a wonderful addition to our leadership team."

A day after the announcement, Dr. Elias sat down with the *Rhode Island Medical Journal* to answer the following questions posed by its editors.

### **Q. What will be your top initiatives as the new dean?**

A. One of my personal top initiatives is to get to know Brown, the medical school and its hospital partners better. One of the biggest issues that face the medical school and the partners is mak-

ing sure their relationship grows and matures along the lines of the changes that are taking place in health care. The challenges that hospitals and medical schools have are pretty impressive everywhere in the United States – to try and keep the educational and research missions going at the same time is very hard. I've been at two major places in my career – at the University of Pennsylvania and at Yale – and some of the lessons that I've learned from those two institutions will be directly transferable and some will not.

We're going to need to prioritize where we are going to grow, and where we are going to invest. And we are going to have to get a strategic planning process going for the medical school.



**Q. Do you plan to practice medicine here as well as teach, do research and administer the medical school?**

A. That's a good question. I've been doing that up until now. I was 6-foot 3 when I entered my residency program and look at me now. The No. 1 reason they brought me here was to be the dean of the medical school and the program in biology so obviously that's got to be No. 1.

The other thing I'm going to be doing is bringing my research lab here, so I will have a research presence. I have a research focus that is a basic science yet translational focus. I also plan to round at the hospitals, teach and go to morning report. I'm not coming here to be a practitioner.

**Q. You will soon be the spokesperson for the state's only academic medical center. How do you plan to bring harmony to what is sometimes a fractious health care community? What message would you give to docs practicing in Westerly and Woonsocket?**

A. I come from a place where there are often heated discussions. What always bothers me is when I see energy being directed in the wrong way. If we direct our energy towards squabbling with each other, we're not putting our energy toward the right things, which is caring for patients in the right way and coming up with new knowledge.

I think the message is that healthcare is changing. Coordinated care, extended care and eventually disease-focused and capitated care are going to be facing all of us. The dream is that we have a well-integrated health care system so that we care for people the right way and with the right level of humanity and

compassion and that five and 10 years from now we have treatments for people that actually work.

We're on the verge of some very amazing breakthroughs and some have already happened. At every meeting now there's another breakthrough drug being announced. It's exciting. When I first got into pulmonary, lung cancer – if you couldn't surgically remove it – was a death ticket. Now you have a drug that actually works.

**Q. Hospitals are being reimbursed less for graduate internal medicine training programs, and as a result these training programs are being reduced, not only in Rhode Island but nationwide. Will the medical school play any role in determining which training programs will be reduced by its affiliated hospitals and health care systems?**

A. When you stop training residents, you have to replace them with something. And when you start replacing a resident with a person that's an already trained, board-certified physician, invariably it's more expensive. There's a very reasonable case to be made to the hospitals that the costs of getting rid of the educational experience is actually greater than the money that you're saving by doing that. In my hospital, they left everything alone. But again, I am not speaking about here and I need to understand the thinking here.

Primary care programs are expanding because the federal government is willing to let you add slots in primary care but not in specialty programs. That issue is not just here. I don't know what's happening here but one of my roles is to be an advocate for educational training.

**Q. What are your plans for better integration with the main campus of biomedical scientists and physicians?**

A. I am a huge believer in the integration of basic science and translational medicine. I will work as hard as I possibly can to get the physician-scientists that we have here to be interacting with the basic scientists. The tack I've always taken in my research is to figure out something at the level of basic science and then carry it into the clinic, to see if what I have discovered in the lab makes any sense in man, and then you push it as far as you can until the next question comes up and you bring that question back to the lab and you keep going back and forth.

**Q. Physician alignment and a single faculty practice plan – how realistic is that to achieve here?**

A. I don't know that's it's going to be easy. Yale has two groups of physicians largely – those that are employed by Yale and those that are employed by Yale-New Haven Hospital independent of the school of medicine. The general rule of thumb is that the vast majority of the doctors at Yale-New Haven Hospital are employees of the school of medicine.

Here you've got a situation that is much more complex with many more moving parts to it. I think in the long run it's going to be in everyone's interest to simplify and to integrate and to eliminate duplication; and in the process I'm not saying it's going to be easy. I know people have already started working on it and I am cautiously optimistic that a resolution will take place that will benefit everyone. v

## Navigating the Mazes and Sensors of Brain Science

BY MARY KORR  
RIMJ MANAGING EDITOR



PROVIDENCE – Used to navigating political mazes, U.S. Sen. Sheldon Whitehouse and U.S. Rep. James Langevin were willing “subjects” in the Virtual Environment Navigation (VEN) Lab at Brown, which they visited on June 7 as part of a tour to learn about brain research underway at the university and its affiliated hospitals.

They donned virtual reality helmets and electronic backpack units and navigated through a virtual garden maze projected on the headgear. William Warren, professor of cognitive, linguistic, and psychological sciences at Brown, introduced the virtual exercise.

“As we walk around our normal environments, we have certain kinds of visual information that’s coming in all the time,” he said and explained the exercise monitors the paths people choose to determine the underpinnings of their spatial knowledge.

The VEN Lab is collaborating with the Providence VA Medical Center on several studies involving lower extremity injury and gait disturbances. Patients who have undergone surgical repair for Anterior Cruciate Ligament (ACL) knee tears have been coming to the lab to have postoperative gait



On June 7, U.S. Sen. Sheldon Whitehouse and U.S. Rep. James Langevin toured two labs at Brown to observe brain science research underway. In the Virtual Environment Navigation (VEN) Lab, Sen. Whitehouse walked through a virtual maze projected on his headgear. Rep. Langevin holds prototype of wireless neural sensing brain device under development

function measured with the use of motion capture markers, which measures precise gait movements.

Another study at the VEN Lab involves simulating and testing the effects of peripheral vision loss on mobility in people with severe “tunnel” vision resulting from retinitis pigmentosa.

Afterwards, Sen. Whitehouse said he could see the lab floor, but nevertheless felt himself drawn inside the maze, especially when it shifted abruptly, or a barrier appeared.

### Wireless brain sensor

During the tour, Arto Nurmikko, professor of engineering, also showed the Congressmen a prototype of a wireless, broadband implantable neural sensing device developed in his engineering lab, a first in the brain-computer interface field. It has not been tested in humans yet.

He showed a video of its wired

precursor, used in the investigational BrainGate system. In the film, people with severe paralysis were able to control assistive devices, such as robotic arms or computer cursors, through the use of a wired system using similar implantable sensing electrodes which transmit neural signals from the cortex. The wireless “remote” would replace the wired unit connected to cables which protruded from the skulls of these patients.

“This research could really help our disabled veterans,” Sen. Whitehouse noted.

“It’s the next step in providing a practical brain-computer interface,” added neuroscientist John Donoghue, director of the Brown Institute for Brain Science, a developer of BrainGate and a member of the Brain Initiative announced by President Obama.

After the tour, Rep. Langevin tweeted, “Turning sci-fi into reality.” v



Dr. Kathleen Hittner, center, former Miriam Hospital CEO, shown here at an event honoring women leaders last week, has been nominated to replace Health Insurance Commissioner Christopher F. Koller.

## Chafee nominates Hittner as Health Insurance Commissioner

PROVIDENCE – Gov. Lincoln Chafee nominated Dr. Kathleen C. Hittner to lead the Office of the Health Insurance Commissioner. If approved by the R.I. Senate, she will replace outgoing Commissioner Christopher F. Koller, who stepped down at the end of June to become president of the Milbank Memorial Fund, a national health policy foundation based in New York City.

“Dr. Hittner is a widely respected medical professional with decades of relevant experience in Rhode Island’s health care industry,” Gov. Chafee said.

“The Health Insurance Commissioner is a critical role for businesses, for health care providers and for the future

of our health care system,” said Lt. Gov. Elizabeth Roberts.

Dr. Hittner served as President and CEO of the Miriam Hospital from 2000 to 2009.

She was the first woman president of the Rhode Island Society of Anesthesiologists (1988–1990) and the Rhode Island Medical Society (1991–1992). Dr. Hittner completed the requirements to be certified as a Fellow in the American College of Healthcare Executives in 2007. **v**

## Dr. Fine to lead trade mission to Israel

*November trip will visit medical, biotech sites*

BY MARY KORR  
RIMJ MANAGING EDITOR

PROVIDENCE – Dr. Michael Fine, director of the Rhode Island Department of Health, will lead a trade mission to Israel Nov. 8–16, geared to physicians, CEOs, research and development executives, leaders in the healthcare and life science industries, and university and hospital officials.

“This is a great opportunity for Rhode Island and Israeli healthcare providers and healthcare-related businesses to exchange ideas, learn from one another, and develop joint ventures. Programs such as this generate important collaborations that have a lasting impact on our healthcare system,” said Dr. Fine.

The trip will include visits to medical, biomedical and pharmaceutical facilities, medical schools, life science incubators and EMS facilities.

Participants will also meet with industry leaders and government officials from the Ministry of Health, Industry and Trade Labor, and Office of the Chief Scientist to explore collaborative research and business opportunities; learn about the country’s universal healthcare system and explore Israel’s broad use of information technology in medical applications.

Israel is home to approximately 1,000 life science companies and more than 400 medical device companies. Among

the sites listed on the preliminary itinerary are visits to:

- Hadassah Medical Center in Jerusalem
- Teva Pharmaceutical Industries
- Emek Medical Center in Afula (sister hospital to The Miriam)
- Technion Medical School and Rambam Hospital (Haifa)
- Diverse biomedical companies
- An Army emergency readiness center
- Clalit Health Center headquarters in Tel Aviv
- Weizmann Institute of Science
- Sackler School of Medicine in Tel Aviv

The cost to participate is \$3,000 for the first individual from a company with fewer than 250 employees, and \$5,000 for the first individual from a company with more than 250 employees; the registration fee for each additional employee from a company registered to attend is \$500. Travel expenses are additional.

Registration and payment is due by Sept. 27. For more information or to register, contact Katherine Therieau (278-9100, ext. 139 or [ktherieau@riedc.com](mailto:ktherieau@riedc.com)), director of international trade for the R.I. Economic Development Corporation. **v**

## Health Dept. oks Memorial Hospital/Care New England affiliation

### *Retention of family medicine program a stipulation*

BY MARY KORR

RIMJ MANAGING EDITOR

PROVIDENCE – On June 26, Michael Fine, MD, director of the Rhode Island Department of Health, announced the approval of the merger of Memorial Hospital of Rhode Island (MHRI) with Care New England (CNE) Health System.

The conversion application was submitted to the health department for consideration under the new Expedited Review Process, which makes special provisions for hospitals that are deemed financially distressed, a criteria MHRI met. Applications were also filed with the R.I. Attorney General's office, which is expected to announce its ruling this week, and the Federal Trade Commission.

Dr. Fine approved the affiliation with conditions. Among them was the stipulation that Memorial maintain an Accreditation Council for Graduate Medical Education (ACGME) approved family medicine residency program that is "substantially similar in nature, scope and purpose to the family medicine residency program presently offered at Memorial Hospital, including all academic, medical and research components."

Currently the hospital is affiliated with the Alpert Medical School and is the site of Brown's Center for Primary Care and Prevention. Each year the program trains between 70–80 residents in primary care and internal medicine.

### Overview

According to the affiliation agreement between MHRI and CNE entered into on Jan. 2, 2013:

- CNE will refinance or discharge \$11M in Memorial Hospital bond debt
- CNE will finance Memorial operational shortfalls through Sept. 30, 2016 (estimated in the range of \$27–\$36 M)
- CNE's board will expand to include four new members; three at-large directors to be nominated by Memorial
- No elimination of clinical services is expected
- A new foundation will be created as the primary fundraising entity for Memorial
- Memorial will continue to be the teaching site for the Alpert Medical School undergraduate medical education program as well as residency programs, and continue to host the Brown Center for Primary Care and Prevention.

Memorial is a 294-bed acute care community hospital that was founded in 1901. It serves a population of approximately 300,000 residents in the Blackstone Valley and surrounding southeastern Massachusetts communities.

CNE, a not-for-profit healthcare system founded in 1996, includes Women & Infants, Kent and Butler hospitals and a Visiting Nurses Association (VNA). Once the conversion process is completed, Memorial's home care division will be incorporated into the VNA of CNE. **v**

## State deems Landmark application complete

PROVIDENCE – The Office of Attorney General (RIAG) and the Rhode Island Department of Health (HEALTH) announced on June 28 that the Hospital Conversion Initial Application for Prime Healthcare Services and Landmark Medical Center, and affiliated entities, has been deemed complete.

Pursuant to the Hospital Conversions Act, RIAG and HEALTH have 120 days, commencing July 1, 2013, to review and evaluate the application to determine if the transaction may go forward.

The review of the initial application was suspended on March 29, 2013 when the transacting parties failed to provide the required information within the statutory timeframe. Given the specific circumstances of Landmark, especially that it has been in Special Mastership for five years, by this suspension, RIAG and HEALTH permitted the application to continue to be processed even though the application remained incomplete rather than rejecting it without prejudice. This gave the transacting parties more time to achieve a complete application and avoided additional delay that would have been caused by requiring the entire application to be re-filed.

In a separate but related matter, HEALTH accepted as complete Prime's application for a change in effective control of Landmark Medical Center and the Rehabilitation Hospital of Rhode Island. Both of these applications will be heard before the Health Services Council; the date has yet to be scheduled. **v**

## Legislative Health News

### New law OKs e-prescription use for controlled substance list drugs

PROVIDENCE – The use of electronic prescriptions in Rhode Island – already at a fairly high level according to the Department of Health – is expected to become more prevalent with enactment into law of legislation recently approved by the General Assembly.

In June, Gov. Lincoln Chafee signed into law bills requiring the director of the Department of Health to establish rules and regulations for adopting a system for electronic data transmission of prescriptions for substances on the various controlled substance schedules.

State law currently refers to "written" prescriptions for these drugs, making enactment of the legislation necessary to keep up with technological advances in the medical field.

Items on the Schedule II controlled substances list are those that have a high potential for abuse and include such drugs as Demerol, OxyContin and Percocet. Items on the Schedule III list are those with a lesser potential for abuse and include drugs such as Vicodin and Tylenol with Codeine. The Schedule IV controlled substances have a low potential for abuse and include such drugs as Xanax and Valium. Schedule V covers such items as cough preparations containing some codeine.

The legislation also adds a new section to the law, relative to an electronic prescription database to be maintained by the Department of Health, and spells out how and to whom information in that database can be made available. **v**



## Research News

### Butler, RIH in clinical trial to test deep brain stimulation for Alzheimer's

PROVIDENCE – Butler Hospital and Rhode Island Hospital are collaborating in The ADvance Study, a clinical trial investigating the use of deep brain stimulation (DBS) as a treatment for patients with Alzheimer's disease. The multisite clinical trial is investigating the safety and efficacy of DBS in slowing the loss of memory and cognition in patients with Alzheimer's disease.

In the ADvance Study, a pacemaker-like device is implanted beneath the skin in the patient's chest to deliver electrical pulses directly to the fornix – a part of the brain that plays a central role in memory. DBS is currently FDA approved to treat Parkinson's disease, Tourette's syndrome and resistant obsessive compulsive disorder.

"DBS has helped transform the treatment of Parkinson's disease and we hope that stimulation of memory circuits can have a similar benefit in treating Alzheimer's disease," said **DR. STEPHEN SALLOWAY**, principal investigator for the study and director of the Memory and Aging Program at Butler Hospital.

The trial stems from a preliminary DBS study in six patients with Alzheimer's disease in Canada which found that patients with mild forms of the disease showed sustained increases in glucose metabolism, an indicator of neuronal activity, over a 13-month period. Most patients with Alzheimer's disease show decreases in glucose metabolism over the same time period.

In the double-blind clinical trial being conducted at Butler and Rhode Island Hospital, all participants will have the device implanted. Half of the participants will have the device activated in the first year, and all participants will receive active stimulation in the second year of the study. Following an initial evaluation at Butler, participants will have the device implanted at Rhode Island Hospital under the direction of **GARTH REES COSGROVE, MD**, chief of neurosurgery at RIH. He is also chairman of the Department of Neurosurgery at Alpert Medical School and director of the Norman Prince Neuroscience Institute at Rhode Island Hospital.

After the device is implanted, participants will visit Butler to have the device programmed by **DR. VICTORIA CHANG**, a neurologist with expertise in DBS programming. Researchers at Butler will monitor safety outcomes and changes in memory, cognition and daily functioning with brain scans performed at Rhode Island Hospital. ▽

### RIH reduces incidence of hospital-associated C. difficile by 70%

PROVIDENCE – Rhode Island Hospital has reduced the incidence of hospital-associated *Clostridium difficile* (C. difficile) infections by 70 percent and reduced annual associated mortality in patients with hospital-associated C. difficile by 64 percent through successive implementation of five rigorous interventions, as reported in the July 2013 issue of *The Joint Commission Journal on Quality and Patient Safety*.

"Hospital-acquired infections are a major concern for hospitals across the country and C. difficile is among the most dangerous," says principal investigator **LEONARD MERMEL, DO**, medical director of the department of epidemiology and infection control at Rhode Island Hospital. "The risks to patients are enormous, as is the excess associated hospital cost."

Dr. Mermel et al. note that from 2000 to 2009, discharge diagnoses from U.S. hospitals that included C. difficile increased from 139,000 to 336,600 – a 242 percent increase. Similarly, the yearly national excess hospital cost associated with hospital-onset C. difficile is estimated to be upward of \$1.3 billion.

To measure and reduce the incidence of hospital-acquired C. difficile, Dr. Mermel and his colleagues implemented a multi-step process based on a risk assessment: develop and implement a C. difficile infection control plan; monitor additional data sets, including associated mortality and morbidity as measured by C. difficile-related colectomies; improve sensitivity of C. difficile toxin detection in stool specimens to reduce false-negative results; and enhanced environmental cleaning of patient rooms and equipment.

Researchers monitored the number of C. difficile infections per 1,000 hospital discharges from the second quarter of 2006 to the third quarter of 2012, and found that hospital-associated C. difficile infections were reduced from a peak of 12.2 per 1,000 to 3.6 per 1,000 discharges. Additionally, the mortality in patients associated with this infection was reduced from a peak of 52 in 2006 to 19 in 2011, and by the end of the third quarter of 2012, that number was down to 13.

Other researchers involved in the study are **JULIE JEFFERSON, RN, MPH**; **KERRY BLANCHARD**, **STEPHEN PARENTEAU**, **BENJAMIN MATHIS, MD**; **KIMBERLE CHAPIN, MD**, and **JASON MACHAN, PHD**. All are affiliated with Rhode Island Hospital and/or Brown University. ▽

## Research News

### RIH study finds Body Dysmorphic Disorder triggers panic attacks

PROVIDENCE – Researchers at Rhode Island Hospital, in a study of patients with Body Dysmorphic Disorder (BDD) published in the current issue of the *Journal of Psychiatric Practice*, found that 28.9% reported lifetime panic attacks triggered by BDD symptoms.

“Patients who have the added burden of panic attacks have more severe lifetime BDD, social anxiety, depressive symptoms and poorer quality of life than those with BDD who do not have BDD-triggered panic attacks,” said **KATHARINE PHILLIPS, MD**, lead author of the study and director of the Body Dysmorphic Disorder program at Rhode Island Hospital.

Additionally, patients with BDD-triggered panic attacks were more likely to be unemployed, to have been hospitalized for psychiatric issues, and to have had suicidal ideation due to BDD symptoms.

“We found that the BDD-cued panic attacks were triggered by common situations – social situations, mirrors and other reflective surfaces and bright lights,” Dr. Phillips said. “By experiencing this panic, it is possible that these patients will become even more fearful and anxious and may try to avoid these common situations in the future.”

Researchers suggest that panic attacks triggered by such situations may be a clue to clinicians of the presence of this often-secretive disorder. Since BDD-triggered panic attacks are associated with greater morbidity, including suicidal ideation, patients with cued panic attacks may warrant closer clinical monitoring, Dr. Phillips added.

The study was funded by the National Institute of Mental Health and by a grant from the American Foundation for Suicide Prevention. Other researchers involved in the study were **WILLIAM MENARD, BA**, and **ANDRI BJORNSSON, PHD**, both of the department of psychiatry at Rhode Island Hospital. v

### Kent taking part in A-fib drug study

WARWICK – Kent Hospital announced last week it will take part in the clinical research study, HARMONY, which aims to reduce the frequency of atrial fibrillation (A-fib). Kent is the only site in Rhode Island participating in the study.

The purpose of the HARMONY study is to see if two drugs, Ranolazine and Dronedarone, when taken together reduce the amount of A-fib. The study is part of an international Phase II clinical trial sponsored by Gilead Pharmaceuticals and will be conducted through the Kent Hospital Department of Cardiology, on patients who have pacemakers and have been diagnosed with paroxysmal atrial fibrillation.

“We are excited to be conducting the HARMONY clinical trial for the many patients who live with paroxysmal atrial fibrillation and may be looking for a possible alternative treatment,” says **CHESTER HEDGEPEETH, MD, PHD**, chief of cardiology at Kent Hospital and director of Brigham and Women’s Cardiovascular Associates at Kent Hospital. “Clinical research studies form the basis for development of medical therapies and this study will determine if there are more effective ways to manage A-fib.” v

### Merck to lead RIH study on use of progesterone in TBI

PROVIDENCE – Rhode Island Hospital is joining a national research study to assess the treatment of traumatic brain injury (TBI) with progesterone. The multi-site study, ProTECTIII, is funded by the National Institutes of Health and will be led in the state by **LISA MERCK, MD, MPH**, of the Department of Emergency Medicine. It is currently being conducted at 36 sites around the country.

“The ProTECTIII clinical trial will help determine if progesterone, plus standard medical therapy, improves patient outcomes over standard medical therapy alone,” Dr. Merck said.

Preliminary research demonstrated that administering it shortly after brain injury appears safe, and may reduce the risk of death and disability.

Traumatic brain injury is the leading cause of death and disability in children and adults ages 1 to 44. In calendar year 2011, Rhode Island Hospital treated approximately 3,800 patients with a traumatic brain injury. v

## Grants

### AMA awards \$11M to transform the way future physicians are trained *Alpert, 10 other medical schools to become part of AMA learning consortium*



Drs. Phil Gruppuso and Jeffrey Borkan have been developing plans for an MD/ScM program in primary care and population health at Brown.

The funding will help the Alpert Medical School to advance plans to create an MD/ScM program in primary care and population health for 24 students a year beginning in the fall of 2015.

WASHINGTON, D.C. – The American Medical Association (AMA) announced on June 14 that 11 medical schools, including The Warren Alpert Medical School of Brown University, will receive funding as part of its Accelerating Change in Medical Education initiative.

The AMA will provide \$1 million to each school over five years to fund the educational innovations envisioned by each institution. A critical component of the AMA's initiative will be to establish a learning consortium with the selected schools to rapidly disseminate best practices to other medical and health profession schools.

"The goal is to educate a new type of physician leader with a primary care background and the skills to promote the health of the population they serve," said **DR. PHIL GRUPPUSO**, associate dean for medical education. "The course of study will emphasize teamwork and leadership, population science, and behavioral and social medicine."

Since January faculty members and administrators have continued to develop plans for the program, said **DR. JEFFREY BORKAN**, chair of the Department of Family Medicine and assistant dean in charge of developing the new program. **v**

### Grant supports education in aging

PROVIDENCE – The Donald W. Reynolds Foundation has awarded a \$1 million, four-year grant to fund the development and delivery of aging-related curricula for doctors at Rhode Island and The Miriam Hospitals.

**DR. RICHARD BESDINE** and colleagues at the Brown University School of Public Health and Alpert Medical School will teach hundreds of residents and practicing physicians about aging to further improve care.

The program will take advantage of existing "co-management" programs by geriatricians and specialists of orthopedics and surgery patients, and support recruitment and training of specialist physicians to become champions for promoting aging education among colleagues.

The project will also provide professional development for medical faculty. **v**

### RI Foundation awards \$60,000 grant to RI Quality Institute for veteran's initiative

PROVIDENCE RI, JUNE 25, 2013 – The Rhode Island Quality Institute (RIQI) has received a \$60,000 grant from the Rhode Island Foundation to support its initiative to improve health care coordination for veterans in Rhode Island served by the Veterans Affairs Medical Center (VAMC) and its affiliated Middletown Community Based Outpatient Clinic (CBOC).

The new initiative aims to 1) roll out CurrentCare's Viewer and Hospital Alerts to all providers at the VAMC and Middletown CBOC, 2) enroll nearly 18,000 veterans in CurrentCare, and 3) increase opportunities for care coordination that would potentially decrease inefficient duplication of services.

CurrentCare, a secure electronic network operated by RIQI, enables providers to access and exchange the most up-to-date health information about enrolled patients. VAMC physicians will be able to view health information from other care settings all across RI, such as lab results, medicines, allergies and more.

VAMC providers will also receive Hospital Alerts, which provide near real-time, notification of emergency room or hospital admissions and discharges across the state. **v**

## Kent graduates third class of residents

WARWICK – Kent Hospital graduated its third class of residents who have completed the Emergency Medicine and Family Medicine Graduate Medical Education (GME) programs, as well as the second graduate of Kent's Undersea & Hyperbaric Medicine Fellowship. The ceremony took place Thursday, June 13, and also recognized Kent Hospital's honorary award recipients.

"Graduate Medical Education here at Kent has grown tremendously over the last several years, especially with the addition of our Undersea & Hyperbaric Medicine Fellowship and Internal Medicine Residency program. We take much pride providing the foundation to these physicians, for what will hopefully be long, successful careers in medicine," said **JOSEPH SPINALE, DO, FACC**, chief medical officer and director of medical education at Kent.

The graduates, who comprise the third graduating class include: **BRIAN ANDERSON, DO; KIRK CAMPBELL, DO; JILL DONOFRIO, DO; STEPHEN KROH, DO; MARK PETRARCA, DO; JORDAN WAGNER, DO; SARAH WHYTE, DO; NICHOLAS NIKOLOPOULOS, DO; CARY VACHON, DO; and CHRISTOPHER MOZDZANOWSKI, DO.**

Kent Hospital is a major teaching affiliate of the University of New England College of Osteopathic Medicine. Graduate Medical Education at Kent started in 2008 and currently has 43 residents enrolled.

## Care New England, Thundermist form family medicine partnership

WARWICK – Care New England and Thundermist Health Center have formed a partnership for the training, recruitment and retention of family medicine physicians, supported by an \$80,000 grant from The Rhode Island Foundation. It will allow Kent Hospital family medicine physicians and family medicine residents to provide clinical care at Thundermist's West Warwick location.

Thundermist is a Federally Qualified Community Health Center and NCQA Level III Certified Patient Centered Medical Home. It treated more than 35,000 patients in 2012. **v**

## Rhode Island Medical Journal Submissions

The Rhode Island Medical Journal is a peer-reviewed, electronic, monthly publication, owned and published by the Rhode Island Medical Society for more than a century and a half. It is indexed in PubMed within 48 hours of publication. The authors or articles must be Rhode Island-based. Editors welcome submissions in the following categories:

### CONTRIBUTIONS

Contributions report on an issue of interest to clinicians in Rhode Island. Topics include original research, treatment options, literature reviews, collaborative studies and case reports.

Maximum length: 2000 words and 20 references.

PDFs or Jpegs (300 dpis) of photographs, charts and figures may accompany the case, and must be submitted in a separate document from the text. Color images preferred.

### CREATIVE CLINICIAN

Clinicians are invited to describe cases that defy textbook analysis. Maximum length: 1200 words. Maximum number of references: 6.

PDFs or JPEGs (300 ppi) of photographs, charts and figures may accompany the case, and must be submitted in a separate document from the text.

### POINT OF VIEW

The writer shares a perspective on any issue facing clinicians (eg, ethics, health care policy, patient issues, or personal perspectives). Maximum length: 600 words.

### ADVANCES IN PHARMACOLOGY

Authors discuss new treatments. Maximum length: 1000 words.

### ADVANCES IN LABORATORY MEDICINE

Authors discuss a new laboratory technique. Maximum length: 1000 words.

### IMAGES IN MEDICINE

Authors submit an interesting image or series of images (up to 4), with an explanation of no more than 400 words.

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## Bridging Neurology & Psychiatry: Movement Disorders

Saturday, October 12, 2013

The Joseph B. Martin Conference Center  
at Harvard Medical School  
Boston, Massachusetts

This full day course is aimed at reviewing the interface between neurology and psychiatry to enhance the clinician's ability to recognize and classify movement disorders in psychiatric patients and psychiatric problems in movement disorder patients. Behavior problems are the major determinants of quality of life in Parkinson's disease yet they are often not recognized. Similarly, movement disorders caused by antipsychotics frequently go unrecognized.

World renowned experts in movement and psychiatric disorders will review drug-induced movement disorders, psychogenic movement disorders and movement disorders associated with primary psychiatric disorders.



This course is designed for neurologists, psychiatrists, primary care physicians, nurses, psychologists, pharmacists, physician assistants, social workers, medical students and fellows.

Click to download the Course Program.

Register Online: <http://www.worldwide-medicalexchange.org/content/movement-disorder-course>



## AUGUST

### Assessment and Management of Chronic Pain in Pediatric Patients

Sunday, August 4, 2013

7 am–5 pm

Alpert Medical School, 222 Richmond Street, Providence, RI

This conference will present an integrated approach to the assessment and management of pain in pediatric patients with special reference to Ehlers Danlos Syndrome. Ehlers Danlos Syndrome (EDS) is an inherited connective tissue disorder that is often misdiagnosed or under diagnosed and is a complex disease that warrants a multidisciplinary approach to treatment. It is a common cause of chronic disabling myopathic, nociceptive and neuropathic pain in children and adults.

Register online

## SEPTEMBER

### Signs, Symptoms and Questions Related to Diagnostic Imaging and Interventional Radiology

September 25, 2013

12–5 pm

The Providence Marriott, Providence, RI

## OCTOBER

### 1st International Carpometacarpal Workshop (ICMCW)

October 25–6, 2013

Hotel Viking, Newport, RI

Program Highlights:

#### Keynote Lectures

**Matt Tocheri PhD**, Smithsonian National Museum of Natural History, Washington, DC

Dr. Tocheri is a paleoanthropologist whose research interests focus on the evolutionary history and functional morphology of the human and great ape family, the Hominidae. His work on the wrist of *Homo floresiensis*, the so-called 'hobbits' of human evolution, received worldwide attention after it was published in 2007 in the journal *Science*.

**David Felson MD, MPH**, Boston University, Boston MA

Dr. Felson is a Professor of Medicine and Public Health, and Principal Investigator of the NIH-funded Boston University Multipurpose Arthritis and Musculoskeletal Diseases Center and the Boston University Multidisciplinary Research Center. An expert on the epidemiology and pathophysiology of osteoarthritis, Dr. Felson has led numerous large cohort studies in osteoarthritis, with the goal of elucidating risk factors for the disease, as well as its natural history.

#### Meeting Chairs

J.J. Trey Crisco, PhD

Amy L. Ladd, MD

Arnold-Peter C. Weiss, MD

## Recognition

### Roberts honored as leader in women's cardiovascular health



MARY KORR

Dr. Barbara Roberts, right, was honored at a recent "women taking the lead" event in Providence by Reps. David Cicilline and Nancy Pelosi.

PROVIDENCE — **BARBARA H. ROBERTS, MD**, director of the Women's Cardiac Center at The Miriam Hospital, was recognized for her outstanding achievements in women's cardiovascular health at a women's leadership event hosted by Rep. David Cicilline of Providence on June 24. He also noted she was the first woman adult cardiologist in the state, and the author of *How to Keep From Breaking Your Heart— What Every Woman Needs to Know about Cardiovascular Disease*.

Keynote speaker Rep. Nancy Pelosi lauded her as a "pioneer in staking out women's health and for that all of us owe you a personal debt of gratitude."

Dr. Roberts, an associate clinical professor of medicine at the Alpert Medical School, said she felt "extraordinarily blessed that I made a very good decision when I was a young woman, and that was to become a physician. I have now been a doctor for two thirds of my life. I can barely remember a time when I was not fighting the forces of evil and disease (that's what I used to tell my children I did for a living when they were small). I owe a huge debt of gratitude to my patients for they are my best teachers and they humble me by entrusting their hearts to my care."

Dr. Roberts is also the author of *The Truth About Statins: Risks and Alternatives to Cholesterol-Lowering Drugs*. v



WOMEN &amp; INFANTS HOSPITAL

### ACOG honors Sweeney with outstanding service award

PROVIDENCE — **PATRICK SWEENEY, MD, MPH, PhD**, a long-time member of the medical staff at Women & Infants Hospital of Rhode Island and professor of obstetrics and gynecology at The Alpert Medical School, was recently presented with the Outstanding District Service Award by the American College of Obstetricians and Gynecologists (ACOG).

This award is presented to those individuals who have made notable contributions to their districts. For ACOG, Dr. Sweeney has held numerous leadership positions, including serving as District I treasurer for two terms and organizing two annual district meetings. At the national level, he currently chairs the committees on Finance and Compensation. He previously chaired the Committee on Continuing Medical Education and the Audit Committee. Dr. Sweeney was a McCain Fellow and a member of the Committee on Practice Bulletins – Gynecology and the PROLOG Task Force on Patient Management in the Office. During his second term as district treasurer, he assisted in the establishment of the District and Section Financial Services Center.

Dr. Sweeney continues to hold leadership positions in other medical and specialty societies, including president of the Providence Medical Association, past president and executive committee member of the New England Obstetrical and Gynecological Society, and president of the Obstetrical Society of Boston. He has received numerous awards, including Women & Infants Medical Staff Distinguished Service Award and the Rhode Island Medical Society's Award for Professionalism. v

## Recognition



LIFESPAN

### Goldstein named Physician of the Year at Miriam Hospital

PROVIDENCE – Pathologist **LISA J. GOLDSTEIN, MD**, has been named the recipient of the 2013 Charles C.J. Carpenter, MD, Outstanding Physician of the Year Award. Recognized by her peers for her clinical expertise, dedication to The Miriam Hospital and commitment to training the next generation of pathologists, Dr. Goldstein was honored during the hospital's annual medical staff association meeting on June 19.

"Pathologists often work behind the scenes, but that doesn't mean their contributions go unnoticed, and this award to Dr. Goldstein is clearly a testament to that," said William Corwin, MD, senior vice president and chief medical officer at The Miriam Hospital.

In addition to her clinical work, Dr. Goldstein is a clinical assistant professor of pathology and laboratory medicine at The Warren Alpert Medical School of Brown University and a highly regarded instructor, having won more than a dozen different teaching awards over the years. She is also actively involved on a number of hospital and university committees, including the Credentials Committee at The Miriam Hospital, which she chairs, and the Undergraduate Medical Education Teaching Committee at Brown.

The award recognizes a physician, nominated by his/her peers, for outstanding contributions to medicine, leadership, professionalism and patient care – qualities exemplified by Dr. Carpenter. **v**

## National Appointments

### Gottlieb elected medicine task force co-chair

PROVIDENCE – **AMY S. GOTTLIEB, MD**, was recently elected co-chair of the Society of General Internal Medicine (SGIM) Women and Medicine Task Force.

Dr. Gottlieb, a physician with the Division of Ambulatory Care at Women & Infants and associate professor of medicine (clinical) and associate professor of obstetrics and gynecology (clinical) at The Warren Alpert Medical School of Brown University, has been a member of the committee for five years.



SGIM is a national medical society of 3,000 physicians who are the primary internal medicine faculty of every medical school and major teaching hospital in the United States. SGIM formed the Women and Medicine Task Force in 2007 to support research, education and clinical practice in women's health. **v**

### Poppas named chair of ACC scientific sessions

PROVIDENCE – **ATHENA POPPAS, MD**, director of the echocardiography laboratory at Rhode Island Hospital and director of cardiovascular imaging at the Cardiovascular Institute, has been appointed chair of the American College of Cardiology (ACC) Annual Scientific Session, effective 2015. The chair is charged, during



a two-year term, with overseeing the Annual Scientific Session, the educational flagship event of the ACC.

In addition to her new role with the ACC, Dr. Poppas also serves as a member of the ACC board of trustees and chair of the ACC Sections Steering Committee. Her clinical and research expertise is in echocardiography, valvular heart disease and heart disease in women. **v**





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## Area Appointments



LIFESPAN

### Okereke named chief of thoracic surgery

PROVIDENCE – **IKENNA OKEREKE, MD**, has been appointed chief of thoracic surgery at Rhode Island Hospital and The Miriam Hospital. He previously served as assistant professor of surgery at Indiana University School of Medicine and chief of thoracic surgery at the Richard L. Roudebush VA Medical Center in Indianapolis, Ind.

Dr. Okereke specializes in minimally invasive thoracic surgery to treat lung and esophageal cancers, chest wall and mediastinal tumors, and complex gastroesophageal reflux (GERD).

He received his undergraduate degree from Johns Hopkins University and his medical degree from Washington University School of Medicine. As a volunteer with Haiti Medical Mission Relief, Dr. Okereke went to Haiti a week after the January 2010 earthquake and is creating a foundation dedicated to medical mission relief in underserved areas such as Haiti.

He will also have an academic affiliation with The Warren Alpert Medical School of Brown University and is a member of University Surgical Associates. **v**

### Kent's Wound Recovery/Hyperbaric Medicine Center expands

WARWICK – A nurse practitioner and two physicians have joined Kent Hospital's Wound Recovery and Hyperbaric Medicine Center. The group is also part of the hospital's physician organization, Affinity Physicians, LLC.

"As our center continues to grow, it is extremely beneficial to bring new staff members on board who have a high level of expertise," said **GEORGE PERDRIZET, MD**, medical director.

**LISA J. GOULD, MD, PHD**, joins Kent Hospital as a board certified physician in plastic surgery and is the assistant director for the Wound Recovery and Hyperbaric Medicine Center at Kent. Dr. Gould came to Kent from Tampa, FL, where she was a professor in the Department of Surgery, co-director of the University of South Florida Plastic Surgery Research Laboratory and served as staff surgeon at James A. Haley VA Hospital, where she was chief of plastic surgery from 2007–2010. Dr. Gould is president-elect of the Wound Healing Society.

**KATHRYN REYNOLDS, ANP-BC**, joins Kent Hospital as a nurse practitioner and has most recently practiced at Wrentham Developmental Center in Wrentham, MA. Previous to that position, she served as a hospitalist at UMASS Memorial Medical Center from 2008–2012. In 2011, Reynolds sought specialization in wound care, completing a course through the University of Washington in Seattle, WA.

**RONALD P. ZINNO, MD**, joins Kent Hospital as a board



George Perdrizet, MD



Lisa J. Gould, MD



Kathryn Reynolds, ANP-BC



Ronald P. Zinno, MD

PHOTOS: KENT HOSPITAL/CARE NEW ENGLAND


certified physician, specializing in wound care and hyperbaric medicine. Dr. Zinno previously worked at The Elliot Hospital's Center for Wound Care and Hyperbaric Medicine in Manchester, NH, as a staff physician and medical director for 11 years (2001–2012). He also had a private practice of plastic and reconstructive surgery in Rhode Island from 1978–2001 and was the director of The Center for Wound Care at Fatima Hospital in North Providence. Dr. Zinno has also held positions as staff physician at Miriam and St. Joseph's Hospitals in Providence.

### About the center

The Wound Recovery and Hyperbaric Medicine Center at Kent is a regional referral center, composed of physicians and clinicians experienced in advanced wound care, and treating diabetic foot ulcers, complicated surgical wounds, bone infections and venous leg ulcers.

The center received national accreditation with distinction by the Undersea and Hyperbaric Medicine Society. **v**

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## Obituaries

**MAX BLOOM, MD**, 88, of Cranston, RI, died on June 13, 2013 at Philip Hultar Inpatient Center, Providence. He was the beloved husband of Frances (Feld) Bloom. Dr. Bloom, a well-known cardiologist in private practice, retired in 1987.

He was a WW-II Army veteran, serving in the European Theatre as a medic. He was a graduate of Brown University and Yale University School of Medicine, and was a Fellow of the American College of Cardiology. He developed and instituted the first hospital intensive care unit in Rhode Island and helped develop, and remained an important contributor to, the cardiac care program at The Miriam Hospital. Dr. Bloom was also a clinical assistant professor of medicine at Brown University's medical school.

He was the devoted father of Ira Bloom and his wife, Deborah Ebner, of Wilmette, IL, Steven Bloom and his wife, Marti, of Needham, MA, and the late Paul Bloom.

In lieu of flowers, contributions in his memory may be made to your favorite charity.

**J. GERALD "GERRY" LAMOUREUX, MD**, 92, of Woonsocket died June 13 at Landmark Medical Center with his family at his side after a sudden illness. He was the loving husband for the past 15 years of Gertrude "Trudy" (Lambert) (Rheume) Lamoureux and he was the husband of the late Laurette H. (Bergeron) Lamoureux, who died in 1997.



Dr. Lamoureux graduated from Providence College, Class of 1950. He then went on to receive his medical degree from Tufts University Medical School in Boston. In the 1950s he was a general practitioner in Woonsocket and delivered thousands of babies. In the late 1950s he returned to Tufts and received an advanced degree in radiology.

Dr. Lamoureux is the last surviving member of six physicians in Woonsocket who established the former Mercy Hospital as a Catholic hospital to provide for a second (and at the time much-needed) hospital in the community. Dr. Lamoureux later spearheaded the campaign to raise the funds to relocate Mercy Hospital from its original location on Roberts Street to the new facility at Park Square and oversaw its subsequent dedication in honor of the late Congressman John E. Fogarty.

Dr. Lamoureux was a three-term president of the medical staff at Woonsocket Hospital and served as chief of radiology for many years. He retired in 1993.

Among his numerous civic accomplishments he was the physician of the Woonsocket Police Department for many years and served on the Board of Trustees of the Museum of Work and Culture, Woonsocket Housing Authority, and the St. Francis House.

In addition his wife Trudy, he is survived by three sons Jean-Charles Lamoureux (Diane) of North Attleboro, Andre Lamoureux and Marc Lamoureux both of Gilford, NH, two daughters Gisele Lesmerises (William) of Rollinsford, NH and Monique St. Germain (Marc) of Canterbury NH, two stepdaughters Lenore

M. Rheume (Eric White) of Woonsocket, and Yvette Lazdowski (Edward) of Moultonborough, NH. He is also survived by 12 grandchildren, 6 great-granddaughters and several nieces and nephews and their families.

In lieu of flowers, memorial donations may be made to Precious Blood Parish, 94 Carrington Ave. Woonsocket, RI, 02895.



**CHARLES S. (STEVE) KELLY, MD**, passed away on June 3, 2013 at the Philip Hultar Center, surrounded by his family. He was 72 years old. Born in Providence he grew up in East Greenwich. He was a graduate of La Salle Academy (1957), Providence College (1961), and the University of New Jersey School of Medicine (1965).

Following graduation from medical school, he served for 10 years in the U.S. Army Medical Corps, attaining the rank of Lieutenant Colonel. He then practiced at Kent Hospital, retiring in 1990, after which he worked for United Healthcare and Harvard Pilgrim Healthcare in an advisory capacity.

He was a member of the Rhode Island Medical Society, a Life Fellow of the American College of Obstetricians and Gynecologists, and a Diplomate of the American Board of Obstetrics and Gynecology. In addition, he was a former member of the New England Obstetrical Gynecological Society, and the American College of Physician Executives.

He is survived by his wife Kathryn, three children, three grandchildren, as well as a sister.

In his memory, donations may be made to Home and Hospice Care of Rhode Island, 1085 North Main Street, Providence RI 02904 or the Rhode Island Community Food Bank, 200 Niantic Avenue, Providence, RI 02907.



**JAMES R. URBAN, JR., MD**, beloved father, brother, and son, passed away unexpectedly in his home in East Greenwich on June 4. Jim was born in Lynn, Massachusetts on September 7, 1947.

Growing up in Avon, Connecticut, he earned his bachelor's degree from the University of Notre Dame where he played football and lacrosse. He had a distinguished career in the U.S. Army National Guard, serving as captain in the Heavy Artillery Unit. He also worked as a parole officer in Connecticut. He earned his medical degree from the University of Rome and completed his residency in internal medicine at Pawtucket Memorial Hospital and in neurology at the University of Utah in Salt Lake City.

Jim was a devoted father and husband. He settled with his family in Rhode Island and established his medical practice in East Greenwich, where he dedicated his life to his patients and family.

Jim leaves behind his beloved son, James R. Urban III and his loving family, Natalie, Ruth, Maureen, Carolyn, and Michael. The family asks in lieu of flowers that you send donations to the American Diabetes Association at [www.diabetes.org](http://www.diabetes.org).

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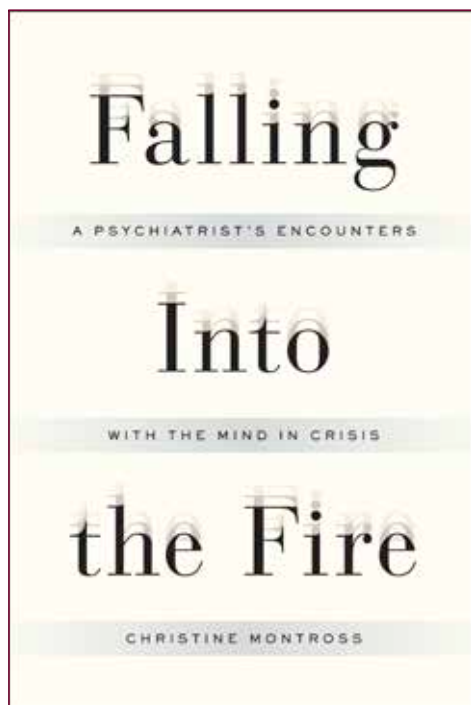


## Falling Into the Fire: Contemplative encounters with minds in crisis

BY MARY KORR  
RIMJ MANAGING EDITOR

**"BEFORE I BECAME A DOCTOR, I HAD more faith in medicine,"** Butler Hospital staff psychiatrist Christine Montross writes in the prologue of her second book, *Falling into the Fire*.

That was when she was a poet and a teacher. Her background suffuses this account of often-harrowing patient encounters during her residency and early years as an attending psychiatrist with a lucidity and luminosity not often found in medical literature.



*Falling Into the Fire: A Psychiatrist's Encounters with the Mind in Crisis*  
Publication: Aug. 2013, The Penguin Press, NY

In the book, the physician becomes the explorer, not only of her patients' psyches but her own, as she struggles with the challenges of diagnosis and therapies for mental illness that are often transitory and tenuous.

One case study is that of Lauren, 25, "the woman who needed a zipper," who had ingested a light bulb and was in a hospital emergency room. Lauren was a repeat "offender," having been admitted to the hospital 23 times over a four-year period. She had undergone multiple surgical procedures and endoscopies to remove the ingested objects, all of which she swallowed in times of great emotional stress. The human and medical costs of this one patient are staggering to read.

As Dr. Montross walks past the security guard and into her room, Lauren greets her:

"Let me guess, you're the shrink, right? I can always tell you guys – you're all nicey-nice handshakes and dipshit smiles...and unless you're going to get me something for this pain, I'm not in the mood for conversation."

Another chapter, "Fifty-thousand-dollar skin," tells the story of Eddie, 34, a newcomer to Rhode Island who suffered from body dysmorphic disorder (BDD). He was convinced he had horrific acne scarring that made him repulsive to look at.

To Dr. Montross, his skin looked totally normal. Yet he had undergone 25 dermatological procedures to "repair" his face: laser dermabrasions, silicone injections, desiccation procedures and a face-lift in his 20s. He treated himself by scouring his skin with sandpaper and stared at his reflection in the mirror for eight hours at a time. It cost him his girlfriend and any semblance of normal life.

"I wrote the book not as a sequential exploration of patients I have encountered over these years but rather as a visiting and revisiting of hard questions that emerged for me about



PHOTOS COURTESY OF PENGUIN PRESS

### DR. CHRISTINE MONTROSS

Assistant professor of psychiatry and human behavior at Brown University  
Staff psychiatrist at Butler Hospital.

Alpert Medical School graduate, '06

MFA in poetry from the  
University of Michigan

Previous nonfiction: *Body of Work: Meditations on Mortality from the Human Anatomy Lab*

A native of Indianapolis, she and her partner, the playwright Deborah Salem Smith, live in Rhode Island with their two young children.

### Read excerpt here:

<http://www.christinemontross.com/falling-into-the-fire-excerpt.html>

patients, medicine, and the mind," she explains in the book.

Montross juxtaposes current case studies with historic examples. She also writes of the integral support provided by her physician mentors and colleagues and explores ethical and pragmatic questions, such as admitting patients against their will who are a danger to themselves and/or others.

A riveting read, it is a volume medical students and residents considering a career in psychiatry or neuropsychiatry, or on the front lines of emergency medicine, should read. **v**



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## I Got Rhythm (Numerical Kind)

STANLEY M. ARONSON, MD

THREE ENGLISH WORDS THAT SOUND AS THOUGH THEY ARE semantically related – algorithm, logarithm and cardiac rhythm – are in truth derived from wildly different ages, sources and languages.

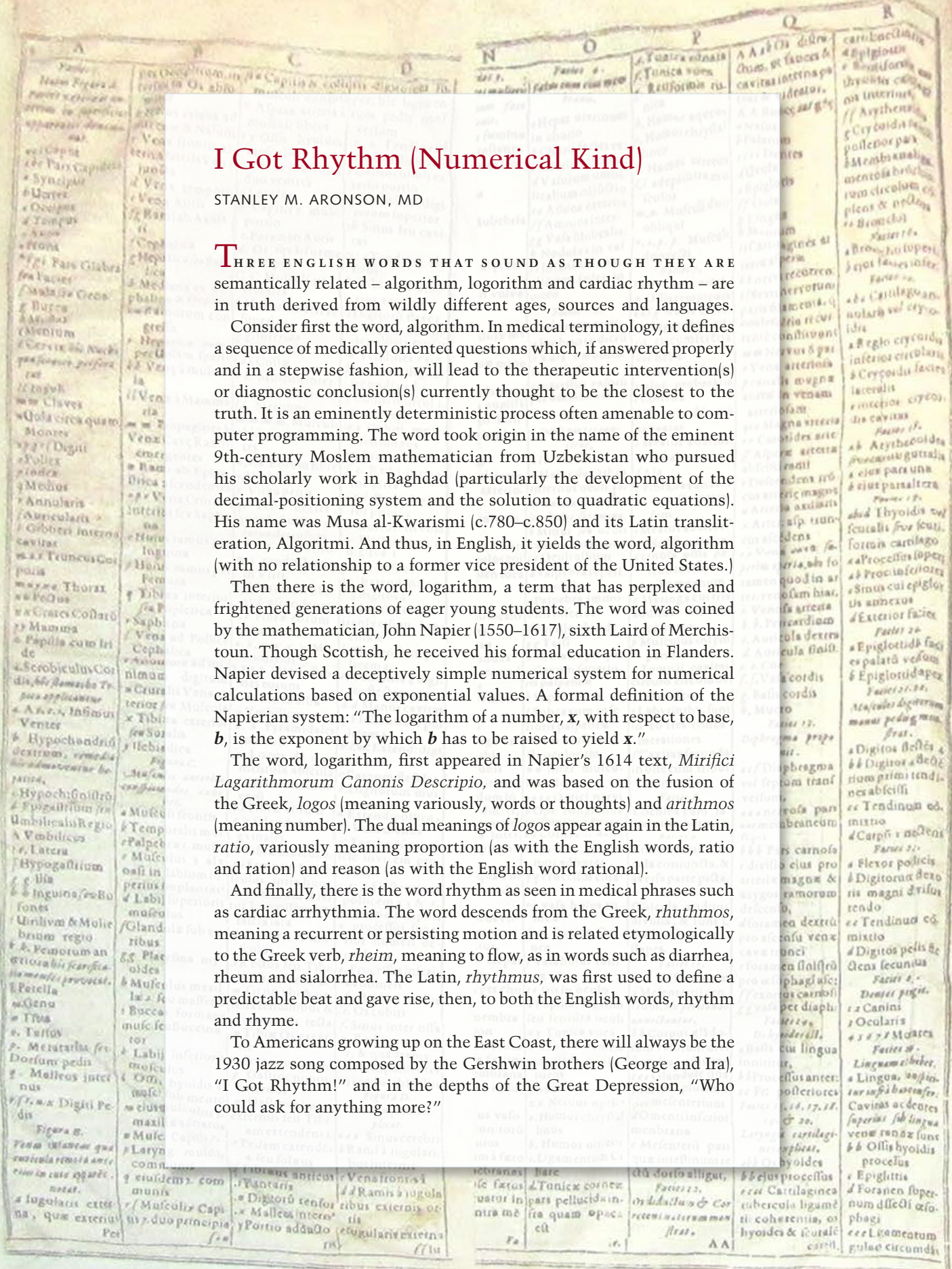
Consider first the word, algorithm. In medical terminology, it defines a sequence of medically oriented questions which, if answered properly and in a stepwise fashion, will lead to the therapeutic intervention(s) or diagnostic conclusion(s) currently thought to be the closest to the truth. It is an eminently deterministic process often amenable to computer programming. The word took origin in the name of the eminent 9th-century Moslem mathematician from Uzbekistan who pursued his scholarly work in Baghdad (particularly the development of the decimal-positioning system and the solution to quadratic equations). His name was Musa al-Kwarismi (c.780–c.850) and its Latin transliteration, *Algoritmi*. And thus, in English, it yields the word, algorithm (with no relationship to a former vice president of the United States.)

Then there is the word, logarithm, a term that has perplexed and frightened generations of eager young students. The word was coined by the mathematician, John Napier (1550–1617), sixth Laird of Merchiston. Though Scottish, he received his formal education in Flanders. Napier devised a deceptively simple numerical system for numerical calculations based on exponential values. A formal definition of the Napierian system: "The logarithm of a number, *x*, with respect to base, *b*, is the exponent by which *b* has to be raised to yield *x*."

The word, logarithm, first appeared in Napier's 1614 text, *Mirifici Logarithmorum Canonis Descriptio*, and was based on the fusion of the Greek, *logos* (meaning variously, words or thoughts) and *arithmos* (meaning number). The dual meanings of *logos* appear again in the Latin, *ratio*, variously meaning proportion (as with the English words, ratio and ration) and reason (as with the English word rational).

And finally, there is the word rhythm as seen in medical phrases such as cardiac arrhythmia. The word descends from the Greek, *rhuthmos*, meaning a recurrent or persisting motion and is related etymologically to the Greek verb, *rheim*, meaning to flow, as in words such as diarrhea, rheum and sialorrhea. The Latin, *rhythmus*, was first used to define a predictable beat and gave rise, then, to both the English words, rhythm and rhyme.

To Americans growing up on the East Coast, there will always be the 1930 jazz song composed by the Gershwin brothers (George and Ira), "I Got Rhythm!" and in the depths of the Great Depression, "Who could ask for anything more?"





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## 100 Years Ago: In Defense of the R.I. Oyster

### *FDA stirs up controversy in Ocean State*

A century ago, **FRED-ERIC P. GORHAM**, bacteriology professor at Brown University and sanitary expert for the Rhode Island Shellfish Commission, took umbrage at federal officials for denigrating Rhode Island oysters and “hauling some of the growers into court.”

In a 1913 article in the *Providence Medical Journal*, the scientist vetted his anger after “Dr. Wiley and his associates on the Board of Food and Drug Administration descended upon these Plantations and informed us that certain of our Rhode Island oysters must not be shipped out of the State because they were polluted with sewage.”

Although the professor acknowledged the existence of pollution from the sewers into Narragansett Bay, he queried whether any disease, such as typhoid, could be linked to the consumption of the bivalves. It depended, he argued, on whether “typhoid germs are present in the sewage.” There has been no proof to date, he asserted, and quoted public health pioneer **DR. CHARLES CHAPIN** of the Providence Health Department, who stated: “Providence has a typhoid death less than half the rate of the average American city.”

Nevertheless, Gorham noted that dirty oysters with colon bacilli should not be sold in the marketplace. At the



The Pettis family oyster business opened during the mid 1800s in Providence, and became known for the size and plumpness of its oysters. Its oysters were shipped throughout New England and served in a fancy oyster “saloon” in downtown Providence.

time the oyster industry was the third or fourth largest business in the state.

Subsequently, the Shellfish Commission performed an extensive analysis of Narragansett Bay and concluded that

the state must clean up the Bay in order for the oyster industry to flourish. “It may require moving the beds a certain distance from the sewer pipes which dump into the bay,” the report stated. **v**

## 50 Years Ago: The ‘Fleet Is In’

### *A report on skin cancer in R.I.*

**DR. MALCOLM WINKLER**, then chief of dermatology at The Miriam Hospital, reported on skin cancer in the July 1963 issue of the *Rhode Island Medical Journal*.

He noted the term, “the Fleet is in,” used by Dr. Thomas Murphy of the Health Department. “Dr. Murphy informed me it means an increase in reports of skin cancer from Newport. This is because that particular fleet has spent six months in the sunny Mediterranean. Moreover, some of those afflicted are in their twenties, a most premature age for skin cancer.” [At the time Newport

was the site of the Fleet Training Center. It also housed a medical and dental facility.]

Dr. Winkler analyzed the prevalence rates of skin cancer per 100,000 in the white population nationwide and reported the highest incidences occurred in the South, six times as many reported cases as compared to Northern cities.

In the paper, he concluded that the sun was a major cause of skin cancer, even in Rhode Island, “particularly in those with light eyes, light skin and the inability to tan.” **v**


## 100 Years Ago: Cod Liver Oil (without the grease!)

THE PROVIDENCE MEDICAL JOURNAL v

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