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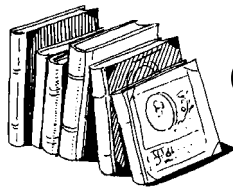
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Commentaries

Too Much of a Good Thing

I JUST READ A FASCINATING ARTICLE IN THE newspaper about the greater difficulties that people with lightly colored eyes have in bright sunlight, as compared to those with darker eyes. This was a sports article that noted, much to my astonishment, although possibly known to athletes and eye specialists, that the macula of the retina, the very tiny region of nerve cells in the back of the eye that is crucial for seeing colors as well as things that are directly in front of you, has a tint that is evidently proportional to the tinting of the iris, which is the colored portion of the eye. This means that baseball players with light blue eyes have more difficulty seeing through the glare of a sunny day than those with dark blue or brown eyes. To back up this claim the article cited a number of players whose daytime batting averages were far less than their nighttime averages, and a disproportionate share had light blue eyes. (Perhaps the others were heavier drinkers with daytime hangovers, but that was not explored).

The article then quoted a "sports optometrist," a technician trained in assessing people for eye-glasses as well as making them, that although he had no data to prove it, athletes with light colored eyes should eat more carotenoids, chemicals contained in kale and spinach, to increase their melanin and thus, hopefully, increase the pigment in their macula, improving their ability to see the fly ball in the sun, the 95 mph fastball in the sun, or the 120 mph tennis serve.

I assume now that a large number of people are increasing their spinach and kale consumption, which is probably a good thing. We know now that we're supposed to eat five portions of veggies or fruit daily, and why not make it kale and spinach? It's probably good for people, and I'm unaware of the danger of over-eating these things.

The question I have though is, why are people so simple minded? First of all, is there any reason to think that foods increase melanin? Secondly, if they do increase melanin,

why would it do so only in the macula? Why not in the skin? Or in the brain? Perhaps kale and spinach are cures for Parkinson's disease, in which the most severely affected parts of the brain are rich in neuro-melanin? But, of course, I'm playing the devil's advocate here, so where is the concern that by increasing melanin in the skin, which is where the overwhelming amount of the chemical is located, we might see light skinned people turning a bit darker? Has anyone noticed that light skinned people turn darker when they eat a lot of kale or spinach? If they did it might lead to a drop in vitamin D, which is synthesized in the body on exposure to sunlight. Melanin filters out the ultra-violet rays that make vitamin D, and the majority, yes majority, of adult Americans are reportedly currently deficient in vitamin D, and vitamin D deficiency is associated with cancers, multiple sclerosis, osteoporosis, weakness, falls and autoimmune disorders. So, maybe eating kale and spinach will increase cancer, multiple sclerosis and the other dread disorders. Melanin is an important constituent of malignant melanomas, an aggressive skin cancer that is almost impervious to treatment other than excision. There has long been concern about one of the medications we use to treat Parkinson's disease, which theoretically could increase melanin production, and thus indirectly cause malignant melanomas to develop or to grow faster. Luckily data has refuted that concern, although it is still listed as a potential side effect of the drug in the pharmacy handouts. So, perhaps kale and spinach will reduce the sun's glare at the expense of increased or more aggressive melanomas?

Enough on kale and spinach and melanin. What about vitamin A? Deficiencies of it cause blindness, so, shortly after this was discovered, people took it in large amounts to improve their vision. Unfortunately excess vitamin A leads to brain changes that cause blindness! Vitamin B6 deficiency causes problems in the nerves of people who take INH for TB, so that they don't function properly and develop numbness

in their feet. Replenishing the B6 solves the problem but, too much, in a normal person leads to the same problem! Iron is great for iron-deficiency anemia, but too much iron causes GI problems and liver problems.

I participated in a very large study of CoQ10, another wonder drug for many diseases, that is supposed to make mitochondria, the "power plant" of cells, work better, an ideal drug for Parkinson's disease, which has a well known mitochondrial problem. Unfortunately it didn't help anything. It wasn't harmful though.

People are too quick to jump to easy solutions for difficult problems. Just because a vitamin helps a deficiency condition, doesn't mean it will strengthen the person who is not deficient. Just because a vitamin is supposed to do something, doesn't mean it will, or that it may not do a lot of other similar things that you'd rather it didn't. Wishing doesn't make it so.

I am not saying that eating kale and spinach won't reduce glare. As one of my mentors, who was in training at the time that L-Dopa, still the best drug for treating Parkinson's disease, was in testing in the mid 1960's, "I thought the idea of using L-Dopa to increase the brain cells' dopamine supply was like taking a car that was out of gas and pouring the gas all over it." Luckily he was wrong. However his analysis and his skepticism is still right on target. I will go on record as doubting that kale and spinach will improve blue-eyed batters' averages.

— JOSEPH H. FRIEDMAN, MD

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Thirty Years into the AIDS Pandemic

JUNE 5, 1981: A QUIET DAY IN NEW ENGLAND. REAGAN IS entering the first few months of his presidency; Pleasant Colony, a long shot, has just won the Kentucky Derby; the Los Angeles Dodgers are well on their way to winning the World Series four months hence; and a weekly medical journal of the United States Public Health Service, a prescient publication called *Mortality and Morbidity Weekly Report*, carries a brief article reporting that five young Los Angeles males had contracted a rare form of pneumonia caused by the *Pneumocystis carinii* organism. All five patients had also previously been victim to still other fungal and viral infections. Two of these five had already died and the other three were terminally ill.

What made this cluster of infectious disease cases worthy of report? These five young males were each victim to a succession of very rare infections caused by organisms which customarily are incapable of causing disseminated infections in normal adult humans. These uncommon infections are now referred to, collectively, as opportunistic infections since they generally do not attack humans unless some intermediary factor (such as widespread, invasive cancer, severe malnutrition or extensive exposure to radiation) has intervened by depressing the body's immune system and thus rendering it vulnerable to otherwise innocuous organisms; and each of the five, although unbeknownst to each other, shared a lifestyle involving homosexual intimacy.

June, 2011, defines the 30th anniversary of this infectious disease that began its apparent existence in Los Angeles, and later, New York City and San Francisco and is presently burdening every continent of the world, rivaling the bubonic plague of the 14th Century and the influenza pandemic of 1918 as one of the great pestilences of mankind.

What have we learned, in these three decades, about this new disease? Certainly, in 1981, the causative agency was a total mystery. But this much was evident: the disease—as yet unnamed—was transmissible from one human to another by more than one route: there was mounting evidence of venereal transmission, either homosexually or heterosexually; further, that the blood of its victims carried the infective pathogen as indicated by the increasing incidence of the disease amongst those intravenous drug users who jointly employed contaminated syringes and needles. New cases of this disease, later to be called AIDS, were also appearing in hemophilia patients who required multiple blood transfusions (thus providing still further evidence that AIDS was also blood-borne).

The nameless scourge was given a formal name in 1982: **Acquired Immune Deficiency Syndrome (AIDS)**. And by 1983-84 the causative agent, a new retrovirus, was isolated and identified in both Paris and Bethesda laboratories. And now called **Human Immunodeficiency Virus (HIV)**. By 1985 it became evident to the most refractory of bigots that AIDS was not a moral retribution for homosexuality but a widespread viral disease, transmitted by multiple pathways including heterosexual

intimacy; that both males and females were victimized by the pestilence; and that even new-born infants may contract the disease, *in utero*, if their mothers had been infected.

In 1986, and in the absence of a reliable preventive or therapeutic agent, the United States government advocates a stringent education program about the biological nature of the disease and the use of condoms.

In 1986, field tests for the first antiviral drug, zidovudine, is undertaken. And in 1987 the World Health Organization launches a global campaign to educate the public on the means by which HIV is spread. New York City begins an experimental needle exchange program, despite much opposition; it proves to be successful and with no concomitant increase in intravenous drug addictions. By 1990, more Americans have died of AIDS than the total armed forces mortality incurred during the Vietnam war. And by 1994 AIDS has emerged as the leading cause of death for Americans ages 25 to 44.

At the onset of the 21st Century, thanks to a widespread educational program and the availability of effective medication, the AIDS pandemic in America has reversed itself, in contrast to Africa and Asia where the disease continues to spread unabated, with the majority of its victims now women.

What can be said, as of 2011? Effective treatment is now available and there are promising leads for an AIDS vaccine. Despite this:

- More than one million Americans are now living with AIDS and about 18,000 die each year.
- In 2009, an estimated 2.6 million humans were newly infected; and globally, nearly 2 million died of AIDS.
- In the same year, nearly 17 million children were thus orphaned by the ravages of AIDS.
- In some regions of sub-Saharan Africa, as many as one adult in four are now infected with HIV.
- Globally, there are more than 33 million people currently burdened with HIV/AIDS and only 15% of whom are under active treatment.

— STANLEY M. ARONSON, MD

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

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Health Care Access, Utilization, and Needs in a Predominantly Latino Immigrant Community in Providence, Rhode Island

Salman Khan, MS-IV, Vinnie Velazquez, Craig O'Connor, Rachel E. Simon, and Annie S. De Groot, MD

MORE THAN 46 MILLION PEOPLE IN THE US lack health insurance,¹ as do 140,000 Rhode Islanders (16% of the state's population under age 65).² Most of the state's uninsured are low income working adults, and thirty-eight percent are low-income childless adults who are not currently eligible for Medicaid.³ The number of uninsured individuals has been rising in the region, due to decreases in employer-based coverage.² National and regional statistics do not account for individuals who are uninsured because they do not yet have citizenship status and are not eligible for company-associated programs or state health insurance.

State-supported health care (RIte Care) has also been eroding. Rhode Island's fiscal woes have led to loss of coverage for low-income children and families. The biggest changes have included i) removing eligibility for children who are undocumented immigrants, ii) removing children who have legal immigrant status but have been in the US for less than five years, iii) increasing the cost of monthly premiums, and iv) reducing parent eligibility. In 2009, reauthorization of the Children's Health Insurance Program allowed states to receive federal matching funds for covering legally present immigrant children, resulting in RI restoring coverage for this group, who had previously been funded entirely with state dollars; the ACA contains a "Maintenance of Effort" requirement that has prevented RI for implementing monthly RIte Care premium increases that were contained in SFY 2012 budget. The revocation and restoration of coverage reflects the fragility of health care coverage in a time of economic down turn and state fiscal challenges.⁴ Together, these changes caused at least 1,000 adults and 3,000 children to lose coverage in 2009.³ In the years before health reform is implemented, it is likely that the number of uninsured in Rhode Island will continue to rise, due to the erosion of RIte Care as well as the ongoing deterioration of employer-sponsored

coverage. Furthermore, experts anticipate that health care reform will not eradicate the problem of the uninsured. While the number of uninsured is expected to decrease by 32 million if health reform is implemented, gaps will remain.⁵

Free clinics are one potential solution to health care access problems in the interim before health care reform, and may provide a longer-term solution to those individuals who will still be unable to access care after reform. *Clínica Esperanza/Hope Clinic* (CEHC) was established in 2007 to address the health problems of the uninsured in Rhode Island. Due to the founders' commitment to providing linguistically appropriate, culturally attuned care, CEHC initially established temporary clinics in two church basements, serving a

Clínica Esperanza/ Hope Clinic (CEHC) was established in 2007 to address the health problems of the uninsured in Rhode Island.

predominantly Latino community derived from the neighborhoods of Olneyville and Washington Park. In order to assess the current status of health care access in the target communities before opening at a new, permanent site (60 Valley Street, Olneyville), CEHC's community health workers (the Navegantes) performed a health care needs assessment survey in the two target communities. In this report, we provide the results of that survey and assess the impact of uninsurance at the community level in Rhode Island.

METHODS

Study setting and population: The health care access survey was performed

by CEHC's bilingual community outreach workers in two neighborhoods served by CEHC, Olneyville and Washington Park (Providence, RI). Over the past decade, the Olneyville neighborhood has undergone significant demographic shifts, with a fourfold increase in the non-white population and a fivefold increase in the number of persons whose primary language is not English.⁶ 57% of individuals are Hispanic, 41% live below the federal poverty level and nearly one in four families receives public assistance. In nearby Washington Park, similar shifts have occurred. 30% of individuals are Hispanic, nearly 20% are living below the federal poverty level and 12% are receiving public assistance.

Survey design: The needs assessment survey consisted of questions on age, sex, race, ethnicity, country of origin, length of time in the US, primary language, immigration status, insurance status, health care utilization, health status (as determined by length of time since last physical exam), and personal and/or family history of chronic conditions. Surveys were conducted verbally for those who could not read (in English or Spanish) and made available to participants in both English and Spanish.

Data collection: Convenience sampling was performed in the Olneyville and Washington Park neighborhoods over a four month period from March to June 2010. Participants were recruited at church fairs, food distribution points, flea markets, bodegas, barbershops, and on the street in the two survey neighborhoods by bilingual community outreach workers. All surveys were anonymous and participant consent was obtained and recorded. No personal identifiers were included on the data forms. The individual survey forms were compiled in a Microsoft Excel spreadsheet.

RESULTS

A total of 138 participants completed the survey. 59 (44%) of participants were US citizens, 34 (25%) were

Table 1: Participant characteristics (n=138)

Participant characteristic	Number (%)
Demographics	
Age (mean years)	37.9
Gender	
Male	74 (54)
Female	57 (41)
Race	
White	5 (4)
Black	10 (7)
Native American	2 (1)
Asian	0
Other	119 (86)
Ethnicity	
Latino	119 (86)
Not Latino	19 (14)
Country of Birth	
Born in U.S.	19 (15)
Born in Rhode Island	12 (9)
Foreign born	97 (76)
Primary Language	
English	40 (25)
Spanish	113 (71)
French	3 (2)
Creole	2 (1)
Other	2 (1)
Immigration status	
U.S. Citizen	59 (44)
Documented Immigrant	34 (25)
Undocumented Immigrant	42 (31)
Insurance status	
Uninsured	122 (92)
Medicaid/RIte Care	0
Medicare	1
Private Insurance	6 (5)

Participant characteristic	Number (%)
Health care utilization	
Emergency department	74 (57)
Community health center	6 (5)
RI Free Clinic	12 (9)
Hospital clinic	7 (5)
Private physician	13 (10)
Other	18 (14)
Time since last physical	
<1 year	40 (29)
>2 years	39 (28)
>5 years	50 (36)
>10 years	6 (4)
Never had physical exam	2 (1)
Personal/family history of condition	
Asthma	34 (25)
Cancer	17 (12)
Diabetes	43 (31)
Heart disease	39 (28)
High cholesterol	47 (34)
Hypertension	61 (44)
Obesity	51 (37)
Dental needs	93 (67)
Vision problems	69 (50)
Depression	47 (34)
Skin problems	39 (28)
Substance abuse	33 (24)
Women's health problems Ever had/used...	
Mammogram	8 (16)
Breast self exam	23 (43)
Pap Smear	25 (46)
Oral contraceptives	22 (43)
HIV testing	17 (32)
Men's health problems Ever had/used...	
Testicular self exam	5 (7)
Condom use	38 (51)
HIV testing	35 (47)
Unmet immunization needs	58 (42)

documented immigrants and 42 (31%) were undocumented immigrants. 113 (71%) of respondents' primary language was Spanish; 40 (25%) of respondents' primary language was English, additional demographic details are provided in Table 1.

122 (92%) of respondents were uninsured; none reported having Medicaid or RIte Care; one participant had Medicare; six (5%) had private insurance through employers. 74 (57%) reported that they used the emergency department when asked where they obtained health care; 13 (10%) reported that they had a private physician; six (5%) used a community health center; 12 (9%) attended the RI Free Clinic; seven (5%) attended a hospital clinic; 17 (13%) responded "other." 40 (29%) had had a physical exam within the past year; 39 (28%) had gone more than two years since their last physical exam; and 50 (36%) had gone more than five years since their last physical exam.

Participants reported a personal or family history of chronic conditions

including asthma 34 (25%); cancer 17 (12%); diabetes 43 (31%); heart disease 39 (28%); high cholesterol 47 (34%); hypertension 61 (44%); obesity 51 (37%). 37 of the 54 women reported women's health problems. Among the 74 men, men's health problems were reported by 17 (23%). Unmet immunization needs were reported by 58 participants (42%). These results are presented in Table 1.

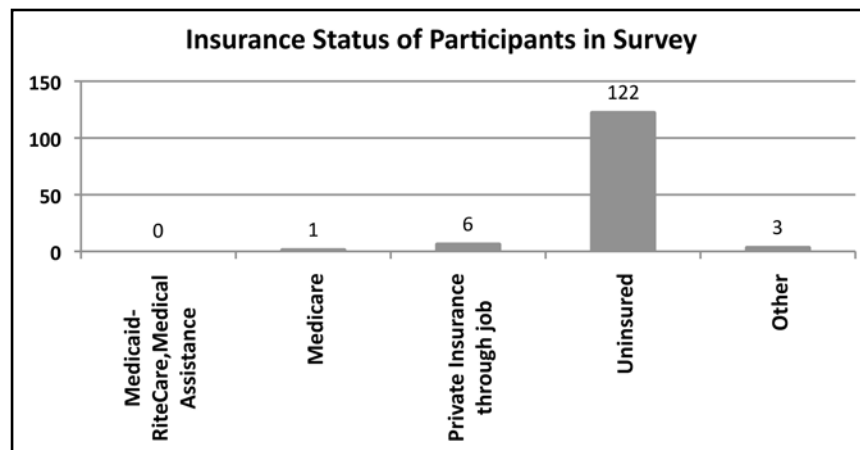


Figure 1. Insurance Status of Participants

DISCUSSION

This survey provides an important snapshot of health care access, utilization, and needs in the Olneyville and Washington Park neighborhoods of Providence in the months prior to the opening of a new free clinic for the uninsured (CEHC). Convenience sampling has an inherent limitation, namely that the sample may not be representative of the population being studied. The data collection may also have been biased toward Spanish- and English-speaking respondents as the forms and interviews were only in Spanish and English. Moreover, while all surveys were conducted in the Olneyville and Washington Park neighborhoods, there was no verification that respondents actually resided in these neighborhoods. Response bias is also a concern, as there was no verification of responses to survey questions. For example, citizenship documentation was not requested.

Despite these concerns, information obtained from this sample suggests that access to health care in the neighborhoods is limited. 92% of respondents reported that they were uninsured, suggesting a critical need for access to health care in the Olneyville and Washington Park neighborhoods (Figure 1). Health insurance, or lack thereof, is an important social determinant of health. Uninsurance has been associated with mortality, even after adjusting for age, sex, race, income, education, smoking and drinking.⁷ Furthermore, the uninsured are more likely to suffer from uncontrolled chronic health conditions such as diabetes and hypertension.⁸

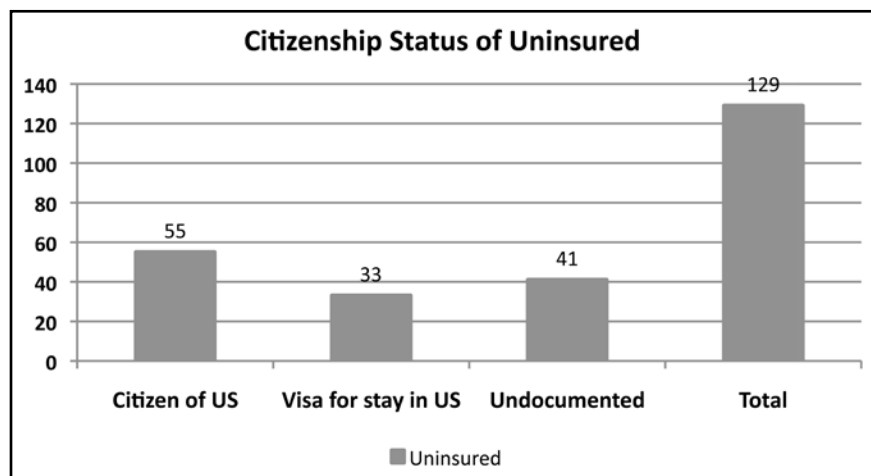


Figure 2. Citizenship Status of Uninsured Survey Participants

Lack of engagement with the health care system may contribute to poor health. According to a 2009 analysis of NHIS data,⁹ 56% of uninsured adults report no consistent source of care (compared with 10% of those with private insurance), 26% went without care due to cost (vs. 4% with private insurance), and 27% could not afford medications (vs. 6% with private insurance). In our study, two thirds of individuals had gone more than two years since their last physical exam; four out of ten had gone more than five years since their last physical exam. The high prevalence of chronic health care conditions suggests that there is a high level of unmet need for health care screening and intervention in the two neighborhoods.

It has been demonstrated that previously uninsured adults who became insured after acquiring Medicare coverage showed significant improvements in health.¹⁰ This is due to increased emphasis on prevention, decreased delay in seeking care, and better management of chronic medical conditions.¹¹ Participation in preventive health care was low; two-fifths of respondents had self-reported unmet immunization needs; only 25 (46%) of the women surveyed had ever had a Pap smear and eight (16%) had ever had a mammogram.

Both transitional and illegal immigration status are risk factors for being uninsured. Documented immigrants must be in the US for five years before they may enroll in Medicaid.¹² Undocumented immigrants are prohibited from receiving subsidies under health care reform and from enrolling in Medicaid.¹³ 56% of participants in the survey reported that they

were recent (legal) immigrants, and 31% reported that they were undocumented immigrants (Figure 2). Free clinics provide an important source of health care for immigrants living in the US—almost 40% of patients seeking care in US free clinics are immigrants.¹⁴

86% of the survey participants reported that they were Latino; most of these individuals were also immigrants. Latinos have the lowest insurance rates in the United States.^{15,16} In addition to legal and financial barriers, Latino immigrants also face the challenge of receiving culturally competent care from providers: communication problems and language barriers have been identified as key issues.¹⁶ CEHC was established with the aim of providing culturally attuned, linguistically appropriate care; the survey indicates that the need for such health

care exists in Olneyville and Washington Park.

Emergency departments, community health centers, and free clinics currently comprise the safety net for patients without health insurance.¹¹ 57% of the participants in the survey reported using the emergency department as their primary source of care; all of these individuals were uninsured (Figure 3). Less than 10% of participants used the **RI Free Clinic (RIFC)** as their source of care. RIFC was the only free clinic in Rhode Island offering continuity of care at the time the survey was conducted. Having a consistent source of primary care has been correlated with decreased emergency department utilization, decreased delay in seeking treatment, increased use of preventive services,¹¹ and better health outcomes.¹⁷

Free clinics are an important part of the ambulatory safety net. There are over 1,100 free clinics in the US, providing care to an estimated 1.8 million patients.¹⁴ Free clinics provide care to patients who might otherwise delay care or seek more expensive care in emergency departments. In a recent national survey of free clinic patients, it was found that nearly one in four patients would not otherwise seek care if their free clinic did not exist, mostly due to cost; 23% would use the emergency department.¹⁸ Small-scale savings attributed to each free clinic may add up to millions of dollars saved nationwide.¹⁹ If the average cost of an emergency room visit for an uninsured individual in the US is an estimated

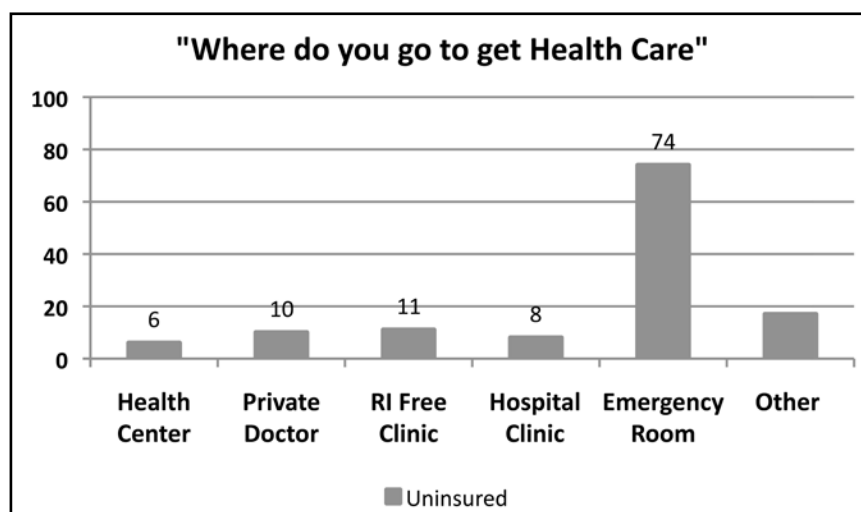


Figure 3. Source of Care of Uninsured Survey Participants

986 dollars, and 23% of the 1.8 million patients getting care at a free clinic would use the emergency department if the clinic did not exist, then the annual savings attributable to free clinics would be over 400 million dollars.²⁰

CONCLUSIONS

Lack of health insurance continues to be a problem as health care reforms begin to be implemented, contributing to poor health outcomes at the national, regional, state, local, and individual level. While the macroeconomic impact of uninsurance can be measured in terms of lost income, decreased productivity, and increased federal, regional and state health care costs, the impact at the individual level can be quite serious. Individuals who do not have health insurance but are affected by chronic health conditions can experience increased morbidity and shortened life spans due to lack of preventive and maintenance health care interventions.

In Rhode Island, access to free care is currently provided at two free clinics—Rhode Island Free Clinic and Clínica Esperanza/Hope Clinic—in addition to a network of community health centers and hospital clinics. At the time of this survey, CEHC was operating in church basements and not able to provide continuity of care; subsequently CEHC opened its doors at a permanent Olneyville site. Currently, more than 250 uninsured patients who have chronic health care problems are followed at the clinic; free laboratory tests are negotiated with the local hospitals. The Navegantes assist patients with the process of obtaining free care at the local hospitals if more extensive evaluations (radiologic, invasive) are required.

We anticipate that opening CEHC will have a significant impact on access to care for the uninsured in Rhode Island. However, unmet needs will remain, as the number of patients needing access to care far exceeds the case load that two free clinics can currently provide. Increased support for staff at the clinic (such as funding for volunteer coordinators) and increasing the number of volunteer health care providers at both clinic locations will leverage available health care expertise to make preventive health care accessible and decrease morbidity associ-

ated with chronic health conditions for one of the most vulnerable sectors of the Rhode Island community.

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Clínica Esperanza/Hope Clinic

Clinical Outcomes Review: February–July 2011

Alexandra Bicki, Ralph Rogers, Vinnie Velasquez, and Anne S. De Groot

CLÍNICA ESPERANZA/HOPE CLINIC (CEHC) opened on November 1, 2010. The clinic accepts uninsured patients on a first-come, first-served basis. Prior to opening, we performed a needs assessment survey, which enabled CEHC providers to tailor their care and program offerings to specifically target our client base. We reviewed our **electronic medical records (EMR)** and walk-in data from February 1, 2011 through July 31, 2011

and provide a graphic summary of our findings here. As demonstrated in these figures, CEHC has successfully reached out to uninsured individuals in Rhode Island. The clinic is providing

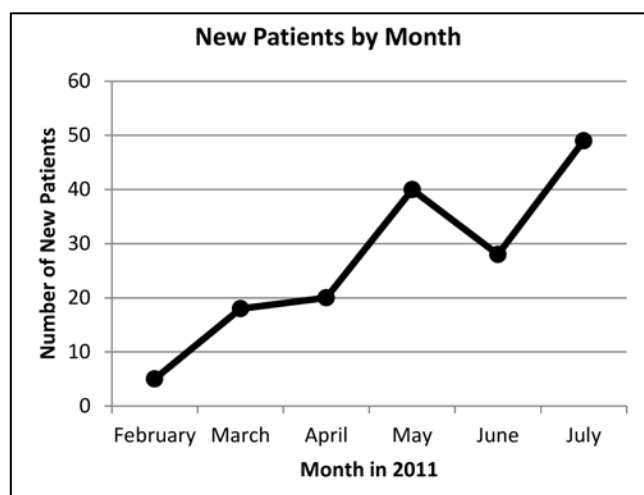


Figure 1. Number of People Interested in Becoming CEHC Patients, February–July 2011. The number of patients requesting care per month is increasing steadily as CEHC becomes recognized as a new source of free health care in Rhode Island.

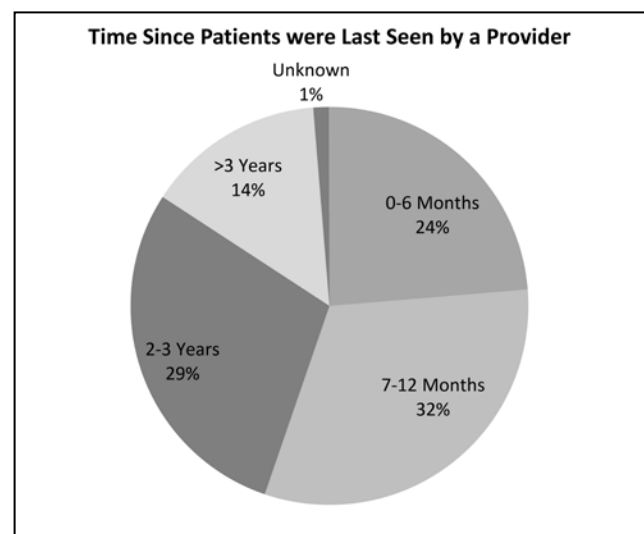


Figure 2. Time Since Incoming Patients were Last Seen by a Healthcare Provider. More than 2 in 5 uninsured patients walking in to seek care at CEHC had not been seen by any sort of healthcare provider, including emergency room visits, in over 2 years. 20% of currently uninsured patients were last seen outside of the U.S. prior to seeking care at CEHC.

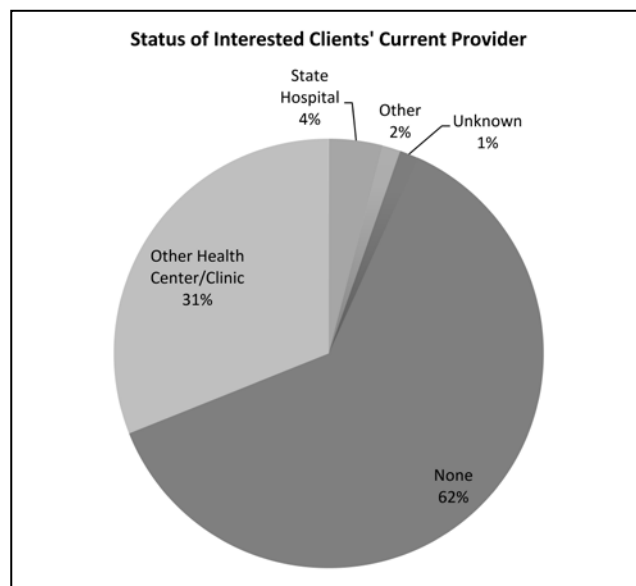


Figure 3. Status of Interested Clients' Current Provider. The vast majority of incoming clients have not had a primary care provider in the state of RI. CEHC is aware that many individuals do not seek care until they feel ill. To identify uninsured patients with chronic disease and engage them in care, CEHC volunteers and staff participate in outreach and health fair screening events, performing blood pressure, blood glucose and blood lipid screening tests.

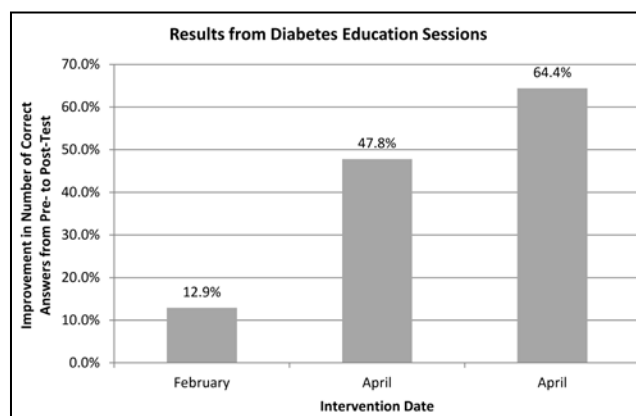


Figure 4. Health Literacy Improvement after Navegantes' Interventions. CEHC's outreach workers, the Navegantes, regularly perform free health education sessions to uninsured persons at several Providence locations (United Methodist Church and CEHC itself, funding provided by BCBSRI). Topics include diabetes, heart health, weight control, and nutrition. Pre- and post-session surveys are used to track the effectiveness of each intervention. As shown in Figure 4., at three recent sessions focusing on diabetes, the number of correct answers on the post-test improved with each education session.

interventions resulting in improvement in disease indicators for 63% of patients for whom at least two data points have been entered in the EMR.

New patients fill out a form on site at the clinic, and then discuss this information with an intake worker. All uninsured patients are welcome to apply for care at the clinic, but patients who have already established care with another provider (representing almost a third of interested clients) are encouraged to continue their care at those locations.

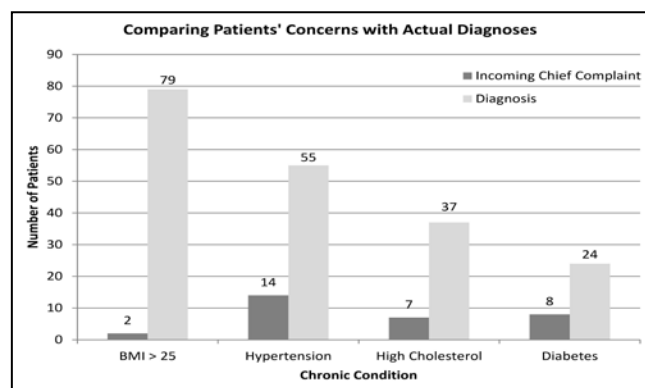


Figure 5. Chronic Conditions: Patients' Concerns vs. Actual Diagnoses. CEHC patients suffer from a range of chronic health conditions. Over a quarter (28%) of incoming patients reported one of the above chronic conditions as their chief complaint (dark grey). The number diagnosed with each condition (based on review of EMR records, light grey) was even higher than reported; the discrepancy between perceived health problem and provider-determined diagnosis shows low awareness of chronic health problems among uninsured patients seeking care at CEHC. The discrepancy between perceived and actual health problems has been addressed by active health outreach sessions to detect chronic conditions and engage patients in preventive care at the clinic.

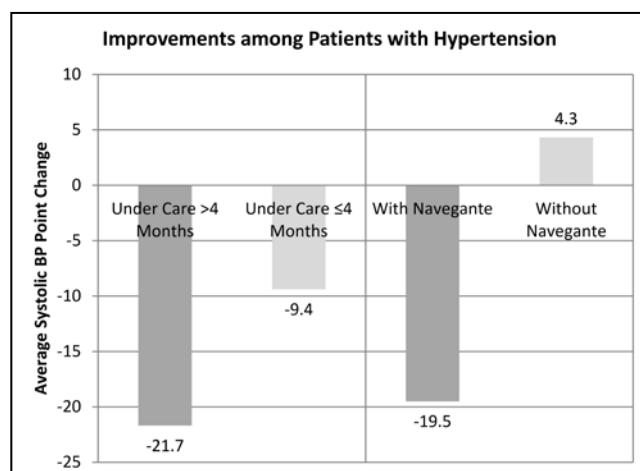


Figure 6. Systolic Blood Pressure Changes among Hypertensive Patients. According to EMR records patients in care over four months experience improvements in their blood pressure. Patients under care at CEHC for over four months also decreased their systolic blood pressure by, on average, 12 more points than patients under care for less than or equal to four months ($N = 47$, $P < 0.001$). In addition, CEHC Navegantes provide one-on-one positive reinforcement sessions to patients. Patients matched with Navegantes decreased their systolic blood pressure by, on average, 24 more points than patients not matched with Navegantes ($N = 38$, $P = 0.008$).

According to demographics compiled from self-reported information recorded on the initial registration form (not shown), most patients (over 40%) learned about CEHC through a friend or family member (word of mouth). Almost one in four patients are referred to CEHC via another community non-profit or health clinic. The wait for a new patient appointment stood at only two weeks as of August 2011.

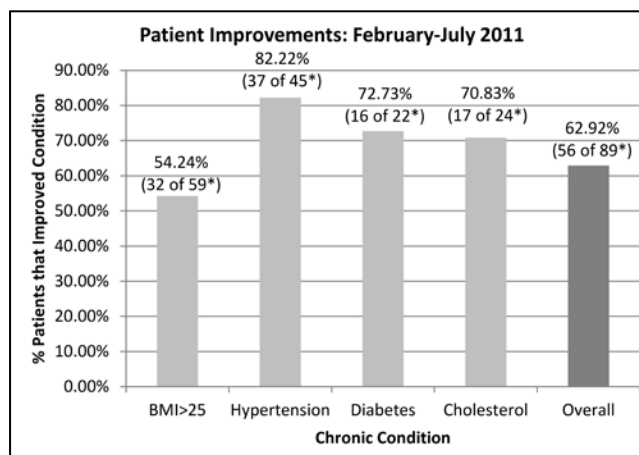


Figure 7. Percent of Patients Experiencing an Improvement in their Chronic Condition. EMR records were reviewed and health indicators (HbA1C, blood pressure, weight and cholesterol) were tracked. The greatest improvements in overall health indicators were seen in patients with hypertension: 83% of patients with hypertension reduced their blood pressure. Almost three-quarters of patients with diabetes and high cholesterol improved during the time period of this review. Over half of overweight or obese patients lost weight while under care at CEHC. Overall, about 63% of CEHC patients improved at least one of their chronic conditions during the study time period.

*Number of patients identified as having the health condition with at least two measurements of the associated biomarker.

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Immunization Status of Refugee Children after Resettlement

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INTRODUCTION

Refugees arriving in the United States are a heterogeneous group and their medical needs vary based on their country of origin and transit, length of time as a refugee, and quality of health care prior to arrival. Refugee children are at risk for vaccine preventable diseases due to under-vaccination, which can have individual as well as public health implications. In recent years, importation of infectious diseases has been of concern. For example, 89% of measles cases in the United States in the first half of 2008 were attributable to importations of disease.¹ Three percent of imported measles between 1997 and 2001 occurred specifically in refugees.² In 2006 there was an outbreak of wild poliovirus infection in Kenyan refugee camps where US-bound refugees were residing, highlighting the need for continued high rates of vaccination.³ Newly arrived refugees usually resettle near other recent arrivals within a city, increasing their potential exposure.

Unlike other immigrants, many refugees arrive with no documentation of immunization. Meropol found that only 39% of a predominantly Vietnamese refugee population had evidence of adequate immunization at their initial visit.⁴ More recently, a study of adult and pediatric refugees in Minnesota found that most refugees lacked adequate vaccination at arrival.⁵ Although many refugees lack documentation, some may have natural immunity to these diseases or they may have received vaccination for which no documentation exists.⁶ However, with the exception of varicella, it is cost effective to re-start immigrant and refugee children on the catch-up immunization schedule if they lack documentation, rather than serotesting.⁶⁻⁸

Although studies have examined immunization status upon arrival, less is known about the adequacy of catch-up vaccination after resettlement. Adequate vaccination after resettlement is important for protection against the spread of vac-

cine preventable diseases, as well as for the individual child who requires these vaccines for school entry and change of immigration status to that of a legal permanent resident. Our primary objective for this study was to determine the percent of children up-to-date on vaccines after one year in the United States. Our secondary objective was to identify risk factors including age and primary care follow-up that predict under-immunization one year after resettlement.

METHODS

We performed a retrospective chart review of refugee children at Rhode Island Hospital/Hasbro Children's Hospital, the only children's hospital in the state. Refugee children were identified by obtaining a list from the International Institute of Rhode Island of all refugees who arrived in Providence between November 2003 and November 2006. The International Institute is one of two volunteer organizations in Rhode Island that helps with the resettlement of refugees. Most refugees arriving in Providence are resettled through this organization. The list included names of refugees with their date of birth, date of arrival, and country of origin. Refugees 0-18 years of age were extracted and hospital electronic records were accessed to determine who was seen at the Hasbro Children's Hospital clinics. Inclusion criteria were: Age 0-18 years and at least one physician visit at one of the Hasbro Children's Hospital clinics (Adolescent Medicine, Hasbro Primary Care, or Medicine/Pediatrics). This time frame was chosen to ensure that all children had been in the United States for at least 15 months at time of chart review. This study was reviewed and approved by the Rhode Island Hospital and Rhode Island Department of Health Institutional Review Boards.

Age, sex, date of arrival to the United States, country of origin, and any prior immunizations were recorded from the initial visit. Immunizations and number

of primary care provider (PCP) visits were extracted for the first 15 months after arrival. PCP visits included well child, follow-up, and sick visits to the clinics. In order to capture children who may have changed primary care providers, immunizations were also extracted from the Rhode Island Department of Health KIDSNET Database, which is the state's immunization registry. KIDSNET captures most children in the state, with 152 out of 176 pediatric providers participating in the program and over 200,000 children in the database as of April 2007.⁹ Only vaccines administered in Rhode Island are included. Information was gathered for the first 15 months after arrival in order to allow up to 90 days for an initial medical screening to occur and still have at least 12 months of primary care follow-up to receive necessary vaccines.

Up-to-date immunization status was determined using the Red Book recommendations for catch-up immunization.¹⁰ A child was considered up-to-date for a specific vaccine if they received the age-based recommended number of doses that could be given, according to minimum intervals, in one year from the time of first clinic visit. Although information

Table 1. Sample Characteristics (N=198)

Variable	N (%)
Sex	
Male	98 (49)
Female	102 (51)
Country of Origin	
Liberia	140 (71)
Somalia	29 (14)
Burundi	16 (8)
Ethiopia	4 (2)
Other	10 (5)
Age at arrival	
0-35 months	16 (8)
36-83 months	50 (25)
7 years and older	132 (67)

was recorded for the first 15 months *after arrival*, children were up-to-date as long as they had the number of vaccines that could be given in 12 months *from the first clinic visit*. Up-to-date was defined in this way to give children a window of time to schedule the initial visit as well as a yearly physical one year later. For scheduling reasons, children may not have their initial visit immediately after arrival or their yearly physical scheduled exactly 12 months from their first visit.

HepB vaccination was up-to-date if evidence of immunity or three doses of vaccine. Tetanus-containing vaccination was up-to-date if three doses of DTaP or diphtheria, tetanus toxoids and pertussis (DTP) for 0-18 month olds, four doses of DTaP or DTP for 19-83 month olds, and three doses of tetanus and diphtheria toxoids (Td) or tetanus, diphtheria toxoids and acellular pertussis (Tdap) for children seven years and older. Polio vaccination was up-to-date if four doses of inactivated polio vaccine (IPV) for children less than four years, three doses of IPV for children four years and older, and four doses of IPV or oral polio vaccine (OPV) for children who received at least one dose of OPV. MMR or measles vaccination was up-to-date if one dose of vaccine for children less than seven years old and two doses if seven years or older. Varicella was up-to-date if evidence of immunity or if 1 dose of vaccine for children less than 13 years and two doses for children 13 years and older. **Pneumococcal vaccine (PCV)** was up-to-date if three doses for 0-12 month olds, two doses for 13-23 month olds, one dose for two-to-four year olds, and zero doses for children five years and older. **Haemophi-**

lus influenzae type b conjugate vaccine (Hib) vaccination was up-to-date if two doses for 0-15 month olds, one dose for 16-59 month olds, and zero doses for children five years and older. Children were considered up-to-date overall if they were up-to-date for all seven vaccines.

Only half of recently arrived refugee children initially seen at a primary care clinic were up-to-date on all vaccines 15 months after arrival in the United States.

Age was divided into categories based on the requirements of the catch-up immunization schedule. Overall up-to-date status was calculated for 0-35 month olds to allow comparisons with **National Immunization Survey (NIS)** immunization rates, which are routinely done for 19-35 month olds. We included the 0-18 month olds due to small numbers.

RESULTS

Sample characteristics

Between November 2003 and November 2006, 254 refugee children arrived through the International Institute of Rhode Island and 218 (86%) were seen at the Hasbro Children's Hospital clinics. Of these, 204 charts were available for review and five of the 204 patients were

excluded because they received one-time immunizations, without a physician visit. Another patient was excluded because she originally resettled in another state. All patients had been in the United States for at least 15 months. The majority of refugees (71%) were Liberian and the mean age at arrival was 8.8 years with a range of four months to 18.7 years (Table 1). The mean time from arrival to the first primary care appointment was 27 days (SD=20). The mean length of primary care follow-up during the first 15 months after arrival was nine months (SD=5). 51% of patients continued primary care follow-up for at least one year with visits recorded at 12 months or longer after their initial clinic visit. Nine percent of patients never returned after the initial visit.

Immunizations status

Only 4% of patients had any immunizations documented prior to arrival. Within the first 15 months after arrival, 51% were up-to-date for all seven vaccines (Figure 1). Eighty-nine percent (176/198) were tested for hepatitis B and 5.7% (10/176) were immune and required no further vaccination. Seventy percent of children who continued to receive primary care in the clinics one year after their initial visit were up-to-date for all vaccines.

Fifty percent of children 0-35 months of age at arrival were up-to-date for all vaccines 15 months after arrival. Compared to children seven years of age and older, 36-83 month olds were significantly less likely to be completely immunized after 1 year of primary care, and children with a greater number of PCP visits were more likely to be up-to-date when adjusted for age (Table 2).

DISCUSSION

Only half of recently arrived refugee children initially seen at a primary care clinic were up-to-date on all vaccines 15 months after arrival in the United States. Vaccination rates for most individual vaccines were higher (74-92%) with the exception of tetanus-containing vaccines, which had a completion rate of 58%. This is not surprising given the larger number of tetanus-containing vaccines required compared to many of the other vaccines. In addition, a six month minimum interval is needed prior to administra-

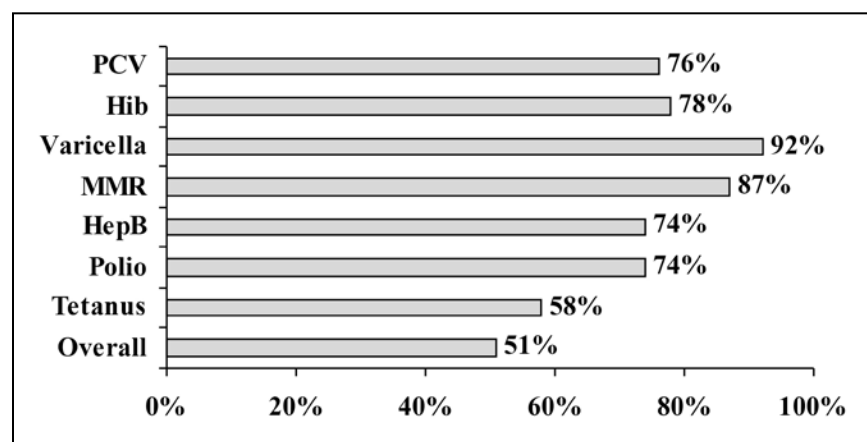


Figure 1. Up-to-date immunization rates after one year.

Table 2. The association of age and number of primary care (PCP) visits with overall up-to-date immunization

		Unadjusted		Adjusted for age and # of visits	
		OR (95% CI)	P value	OR(95% CI)	P value
Age	0-35 months	0.78 (0.28-2.21)	0.65	0.42 (0.13-1.36)	0.15
	36-83 months	0.48 (0.25-0.94)	0.03*	0.36 (0.17-0.77)	0.008*
	7 years and up	Reference group	0.10	Reference group	0.02
Number of PCP visits		1.32 (1.18-1.49)	0.00*	1.37 (1.20-1.56)	0.00*

* P < 0.05

tion of the final vaccine in the series and several visits over a longer period of time are required to achieve full vaccination.¹⁰ Consistent with this finding, PCP visits in the first 15 months of resettlement were associated with increased rates of complete vaccination.

The overall vaccination rate found in this population of refugees is much lower than the national and Rhode Island rates of vaccine coverage of 77% and 80% found in 19-35 month olds in the 2006 **National Immunization Survey (NIS)**.¹¹ In order to make comparisons with national and state immunization coverage rates, the overall completion rate specifically for 0-35 month olds was calculated and was also low at 50%. With the exception of tetanus-containing vaccines, rates of completion for individual vaccines for refugees were more comparable to NIS rates. Rates were derived from the entire sample of 198 refugees. Immunization status for individual vaccines was not calculated specifically for 0-35 month olds because of the small size of the group. Rates of MMR or measles vaccination were 87% and 92% for refugees in this study and in the NIS sample, respectively. Eighty-seven percent were up-to-date for PCV in our sample as well as in the NIS. Refugees had a higher rate of varicella vaccination (92%) than the NIS (89%).

Vivier et al (2001) examined immunization status for Rhode Island children aged 19-35 months enrolled in a Medicaid managed care program.¹² The study included only active patients and did not specifically address refugees. However the sample was more comparable to the current study because it included patients from the same hospital-based clinic practices. The authors found an overall immunization coverage rate of 79%, similar to the NIS rate.

Methodological differences between the current study and the NIS and Rhode Island Medicaid study discussed above limit direct comparison. These include differences in the sample (refugees 18 years and under versus 19-35 month olds in the general population) and definition of up-to-date (catch-up versus primary immunization schedule). The catch-up schedule requires refugees to receive nearly the same number of vaccines in a much shorter time period than children born here who start on the regular immunization schedule. This is particularly true for this refugee sample, which was essentially unvaccinated at arrival, with only 4% having documentation of any vaccines. The low rate of *any* vaccination prior to arrival differs from previous studies, which found higher rates of *adequate* vaccination at arrival.^{4, 5} Differences in country of origin and health care access prior to arrival likely explain this.

Our finding of 51% complete vaccination is within the range of 33-60% found in a study of 19-35 month old refugees and immigrants in San Diego county.¹³ However, the sample and methods used differed from the current study. The San Diego county study derived immunization information from interviews with immigrant and refugee families with children, some of whom were born in the United States, while we examined immunization records from clinic medical charts and a web-based statewide immunization registry only for newly arrived refugee children starting over on a catch-up schedule.

Another key finding was that refugees who followed up for an entire year after their initial medical visit were more likely to be completely vaccinated, with an overall completion rate of 70%. In order to achieve up-to-date status, adequate follow-up is needed. The associa-

tion found in this study between number of PCP visits and increased vaccination status is consistent with other studies of the association between immunization status and a medical home. Adequate primary care follow-up and the concept of medical home have been defined in a variety of ways.

In the study of preschool children in Rhode Island mentioned above, Vivier et al. found that children who were up-to-date on vaccines had more primary care visits (17.3 versus 12.3 visits).¹² Using NIS data, Smith et al (2005) found that 19-35 month olds eligible for the Vaccines for Children program were more likely to be up-to-date if their parents reported a primary care provider who provided ongoing care for the child (72.3% versus 63.5%).¹⁴ Irigoyen et al (2004) examined immunization status in association with length of follow-up at the initial source of care for children under three years of age in New York City.¹⁵ The authors found that children were 17.5 times more likely to be up-to-date at 18 months of age if they had continuity of care at the initial source of primary care for 12-14 months.

A major strength of this study was the ability to capture most of the refugee children in the state. The International Institute resettles most refugees arriving in Rhode Island and largely refers to the Hasbro Children's Hospital clinics. In addition, the state's immunization registry was accessed to capture any children who may have had vaccines at another practice within the state. Finally, this is the first study to our knowledge to address immunization rates in newly arrived refugee children after a year of resettlement using physician and health department records.

Limitations of this study include a relatively homogenous sample of mostly Liberian children at one institution, which may limit generalizability to different countries of origin and clinical settings. In addition, 9% of patients were lost to follow-up after their initial physician visit. They may have received vaccinations elsewhere, in an out-of-state practice or with a Rhode Island provider not participating in the state registry. If

these patients were vaccinated elsewhere, immunization rates found by our methods would be an underestimate of actual immunization coverage.

It should also be noted that this study utilized stringent criteria to define up-to-date status. This was based on minimum intervals on the catch-up vaccination schedule. Though fewer vaccinations likely confer some protection, multiple doses of vaccine are required to ensure complete protection.¹⁰ Stringent criteria were chosen to obtain conservative estimates of vaccination especially given the need for these vaccinations for school and change of status to that of legal permanent resident, which refugees can apply for one year after arrival.

In conclusion, this is one of few studies to evaluate vaccination status in refugee children after resettlement. The implications of our findings are that although refugee children have low overall rates of immunization, improved primary care follow-up after arrival may increase immunization coverage.

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Educating Patients Critical to Controlling Out-of-Pocket Clinical Laboratory Test Costs

Gary W. Sammarco, and Harold R. Caldarone

AS HEALTHCARE COSTS CONTINUE TO ESCALATE

in Rhode Island and nationwide, an important but often overlooked portion of those costs—along with insurance coverage issues—deserves to be examined: fees for clinical laboratory tests.

The basic facts of the situation are as follows:

- All of the above services, when provided by accredited facilities—whether hospital-affiliated or not—are essentially the same.
- Regardless, there is a wide disparity in costs between services delivered by independent providers—and those delivered by hospital-affiliated facilities. For example, an independent clinical lab would charge \$33 for a Complete Blood Count—vs. a hospital-affiliated lab's charge of \$45; \$53 for a **Comprehensive Metabolic Panel (CMP)**, which includes 14 basic chemistry tests consisting of glucose, BUN, Creatinine, Calcium, Total bilirubin, AST, ALT, Alk. Phosphatase, Total Protein, Albumin, and electrolytes—vs. \$474; \$52 for a TSH test—vs. \$87, \$21 for a U/A vs. \$40, and \$52 for a PSA vs. \$65.81
- Consequently, the hospital-affiliated facilities receive higher per-service reimbursements from insurance companies. Moreover, hospitals receive their reimbursements at higher rates on charges than independents—an average of 70% vs. an average of just 40%. This means that of the full charges submitted to the commercial insurers, such as BCBSRI and United, hospitals are generally reimbursed closer to 70 % of their charges vs. 40% of charges for independents. Since hospital charges are substantially higher than those of independent providers, the resulting reim-

bursement (cost to the insurer) is much higher. If a patient has insurance, s/he does not have to pay anything for covered services unless the plan is subject to a deductible, in which case s/he would be responsible to pay whatever the insurer would have paid the provider of the services.

- Increasingly higher insurance reimbursements contribute to steadily higher premiums that individuals and employers must pay—with increases of 7% to 12% for company plans approved by the RI Insurance Commissioner for 2011. Moreover, these increases are for policies that typically offer lower coverage levels, and require higher deductibles.
- Higher deductibles—resulting from the proliferation of more affordable, lower-premium insurance plans—mean that patients are paying, *out of their own pockets*, increasingly larger portions of the costs of their clinical lab tests. Exact reimbursement information for the hospitals is unavailable; however, based upon the five tests listed above, the *highest* reimbursement an independent lab would receive for these tests would be \$79.70. If we assume the 70% reimbursement level for the hospital, the same five tests would reimburse \$498.27. Even if we assumed they were reimbursed at only 25% of a charge, they would receive \$177.95, which is more than twice what the independent lab would receive from its best payer. This amount would be applied to the deductible and result in an out-of-pocket expense to the patient.

This is an inherently complicated, confusing, and exasperating situation for many patients, but one which can be

improved through education. Insurance companies are not generally providing this education. Nor are benefits managers at many companies. To its credit, the **Rhode Island Department of Health (RIDOH)** attempted to help by requesting that all clinical laboratories submit their charge lists for publication on the RIDOH website, and thus make this comparative information available to the public. Unfortunately, most of the hospitals did not reply, and the effort consequently failed. In light of these challenges, it is critically important that healthcare professionals and institutions take up the slack and assume some responsibility for this worthy mission.

The goal of this educational effort would be to ensure that individual consumers of healthcare services understand the way insurance coverage works—and possess the knowledge and tools to take greater control over the cost of their clinical lab and other ancillary services while also, collectively, making a contribution to the slowing of the overall cost of healthcare.

Specifically, patients need to understand:

- Why, fundamentally, there is a disparity between the cost of services provided by independent facilities vs. the cost of comparable services provided by hospital-owned or -affiliated facilities—because hospitals have higher overhead or operating costs (at least when services are provided under the hospital's roof, and not at a separate, commercial, "outreach" site in the community).
- How those costs are passed on to insurance companies—in the form of higher reimbursement payments.
- That those costs are ultimately passed on to the individual—in the form of higher premiums, co-payments, and deductibles.



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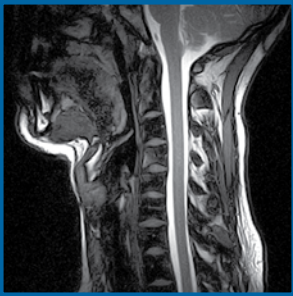
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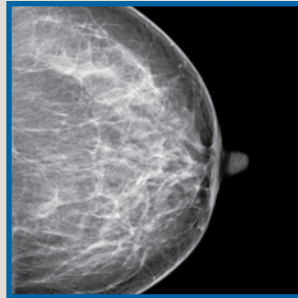
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In specific regard to deductibles, it is noteworthy that in April 2011, Blue Cross/Blue Shield of Rhode Island ceased offering a policy without a deductible when sold to groups of 50 or less, which constitute the majority of group plans in the state.

- How lower reimbursement payments to independent providers will help the bottom line of insurance companies—and ideally help rein in the increases of individual and employer premiums, as well as of deductibles.
- The fact that using lower-cost healthcare service providers reduces the individual's deductible expenses—by ensuring that the individual pays less out of pocket, and possibly never has to “work off” the entire deductible amount in a given year.
- That patients can, at any time, exercise their right to choose their providers of clinical lab services

(as well as imaging, PT, and other services)—by reviewing the options, comparing them, and discussing them with their physicians and other healthcare providers.

- How personal cost-efficiencies—beginning with the selection of lower-cost independent service providers—can reduce not only personal healthcare costs, but also overall healthcare costs, with potential system-wide savings of millions of dollars annually.

Communications vehicles for conveying this vital information to patients could include: pamphlets—especially from leading organizations devoted to the diagnosis and treatment of specific diseases—on display in waiting rooms; postings on physicians', clinics', and hospitals' websites, with links to other useful sites; community outreach and education forums at community hospitals; and, of course, one-on-one discussions between patients and their primary care doctors.

This is a logical, straightforward, and eminently achievable educational

program that healthcare providers and institutions can easily undertake, individually or in concert with their professional associations. It is a program they *should* undertake—in fact, to expedite—in the best interests of the physical, emotional, and financial well-being of the patients who depend on them.

Disclosure of Financial Interest

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

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Laryngeal Cancer Today Compared to a Study 50 Years Ago

Francis L. McNelis MD, FACS, and Peter T. Nigri MD, FACS

THE AMERICAN COMMITTEE FOR CANCER Staging and End Result Reporting (AJC) was organized in 1959. In 1962 they published a brochure, Clinical Staging of Cancer of the Larynx. This was the origin of the TNM System of staging according to the anatomic site. The intent of this system of classification was to use it in the comparison of survival rates and thereby aid in the selection of the best mode of treatment. The first report using this system was of 600 cases from seven hospitals by the Task Force on Laryngeal Cancer. The next report was by Johnson and Sisson in 1964. It was of 100 cases diagnosed in the hospitals of Syracuse in 1957 and 1958. The study reported today was from the Rhode Island Hospital in Providence, RI in 1965. This study was felt to be of significance, since the cases were all from one institution and represented a uniform plan of treatment. It is our intent today to show the mode of treatment for each stage and the resulting five year survival rates. These will then be compared to a more recent similar study.

This new study was undertaken 50 years later of 100 cases again from the Rhode Island Hospital, noting occurrence, treatment and survival. For statistical survival comparison, 14,350 histologically confirmed cases of cancer of the larynx as reported by SEER were used. SEER is the **Surveillance, Epidemiology and End Results (SEER)** Program of the **National Cancer Institute (NCI)**.

The original study will be referred to as old study. It covered a seven year period from 1952 to 1958 and totaled 91 cases. There were 87 males and 4 females. All were Caucasian, except for one Afro-American. The age range was from 37 to 86, with a mean age of 62.5 years. For site of lesion there were 56 glottic, 31 supraglottic and 5 infraglottic. Infraglottic lesions in the old study were considered extra glottic and were combined with the supraglottic lesions.

The present study with an IRB Registration # 00000396, 00004624 will be called the new study. To obtain 100 cases

it took eight years from 1998 to 2005. This allowed a five year survival window. There were 77 males and 23 females. All were Caucasian, except for eight Afro-Americans and one Asian. The age range was 38 to 89, with a mean age of 64.65 years. Site of lesion was 55 glottic, and 45 supraglottic. There were no infraglottic lesions. The main difference here of significance is the increase in females and Afro-Americans. Also of note is that there were no infraglottic lesions, and also an increase in the supraglottis as a site of lesion.

The old study was a retrospective analysis of hospital records for staging. The TNM System had not yet been formulated. The new study is from the Tumor Registry files, and the tumor staging has been entered at the time of diagnosis. However, since the first publication of the AJC there have been many revisions. The first half of these cases is from the 5th revision, and the latter half are from the 6th revision. In January 2010 the 7th revision was released. Most of the changes in these revisions involve modifications in the subgroups. It would be impossible to make an accurate comparison of each stage with its subgroups from one decade to another.

Therefore, by necessity, comparisons will be made by the Overall Stage Grouping, also referred to as Roman Numeral Staging I to IV. Table 1 is an explanation of this staging.

Cancer in situ was not recognized as a separate group until 1985 with the 3rd revision by the AJC. It was in the late 1960's that the technique of microlaryngoscopy was introduced and with the use of Toluidin Blue dye enabled more accurate biopsy specimen submissions. It was then that the diagnosis of cancer in situ became more evident. Prior to that time these lesions were often considered as keratosis. In the new study, cancer in situ lesions have been combined with the Stage 1 for a total of 38. In some studies cancer in situ is classified as **Tis (Tumor in situ)** or Stage 0. Table 2 is a listing of the old and new cases by stage.

A discrepancy is noted in Stage II, which is probably the result of the many intervening revisions. The increase in Stage I new is due to the combination of ca in situ lesions. Stage III has an increase in the number of supraglottic lesions, but again this may be due to the shifting of nodal cases in the revisions.

Table 1.

Stage I - is one anatomical site within larynx
Stage-II - is one anatomical region within larynx
Stage III - is extending beyond one anatomical region but confined to the larynx
Stage IV - distant metastasis i.e. tumor extending beyond larynx
Note that site in Stage 1 means one area only of disease, such as one vocal cord. Region means further spread of disease such as to both vocal cords etc., but all within the larynx.

Table 2. Occurrence by stage.

Stage	Supraglottic		Glottic		Total	
	Old	New	Old	New	Old	New
I	4	6	19	32	23	38
II	14	8	21	9	35	17
III	3	11	9	4	12	15
IV	14	20	7	10	21	30

A discrepancy is noted in Stage II, which is probably the result of the many intervening revisions. The increase in Stage I new is due to the combination of ca in situ lesions. Stage III has an increase in the number of supraglottic lesions, but again this may be due to the shifting of nodal cases in the revisions.

Table 3. Treatment by stage.

STAGE	OLD		NEW			
I	20-S	3-R	9-S	29-R		
II	28-S	6-R 1 NO RX	13-R	2-RC	2-SL	
III	10-S	2-R	4-R	8-RC	2-SRC	
			1-SR			
IV	8-S	13-R	1-S	1-C	4-R	16-RC
			1-SRC	5-SR	2-D	

S=Surgery R=Radiation C=Chemotherapy L=Laser D=Laryngoscopy RX=Treatment
 Note that the 2 surgeries in Stage III in the new study were after chemo and radiation failure.

Table 4. Five year survival rate by stage.

	OLD	NEW
I	91.3% (21A 2D)	94.7% (36A 2D)
II	65.7% (23A 12D)	76.4% (13A 4D)
III	50% (6A-6D)	40% (6A-9D)
IV	15% (3A-20D)	30.4% (7A-23D)

(A=Alive D=Dead)
 As noted earlier, Stage III New included a larger number of supraglottic lesions, which may account for the only poorer result in the new study.

Five year overall survival rate for laryngeal cancer

OLD	NEW
53/91=58.2%	62/100=62%

Table 3 lists the varying treatments used by Stage in the old and new studies

Briefly, the plan of treatment in the old study was:

- Stage I - Laryngofissure or conservation type surgery
- Stage II - Laryngectomy with prophylactic neck where indicated
- Stage III - Laryngectomy with radical neck dissection
- Stage IV - Surgery and or palliative radiation as indicated

Treatment for laryngeal cancer has shifted over the past fifty years. In the previous study approximately 75% of the patients underwent surgical resection as the treatment option. Our recent study at the Rhode Island Hospital showed only approximately 20% of the patients underwent a surgical procedure. Also 85% received radiation therapy alone or in combination with chemotherapy, and or surgery. 60% of the patients with Stage III or IV received combined chemotherapy and radiation therapy.

Therefore, the plan of treatment in the new study is:

Stage I - Radiation therapy or local laryngeal excision

Stage II - Radiation therapy or partial laryngectomy

Stage III - and IV Combined therapy chemotherapy and radiation (Subtotal or total laryngectomy with or without neck dissection is usually reserved for residual disease, as determined clinically or with PET-CT Scanning)

Clearly this shows the shift in treatment from the surgical era to the present era of chemoradiation and combination treatments. The result and value of this shift will be shown in a comparison of the five year survival rate in Table 4.

Survival analysis for 14,950 histologically confirmed adult cases of cancer of the larynx were obtained the NCI's SEER Program. Their relative survival rate from 1998-2001 was 65.2%. The survival rate in the new RI Hospital study was 62% compared to 58.2% in the old study. Although these samples are smaller, the improvement compares favorably with the national averages.

This study suggests that there has been a trend toward improved survival in carcinoma of the larynx over the past 50 years even though there has been a shift from surgical intervention to combined therapy. However, further information for statistical evaluation (e.g. p-values) would be necessary to determine if the difference between the old and new study are statistically significant.

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Human Subject Approval

FWA 00001230 IRB Registration
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 0075-10.

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Knowledge, Attitudes, and Behaviors Regarding the Bone Marrow Registry among College and Medical Students in Rhode Island

Adam Vasconcellos, MD, Anthony Nunes, PhD, and Edward Feller, MD, FACP, FACG

INTRODUCTION

A critical shortage exists for donors of bone marrow or peripheral stem cells. Each day, between 6,000 and 7,000 individuals nationally with leukemia, lymphoma and other blood disorders search for a potential match. As few as 30% are able to find a match within their own family; the remaining 70% depend on national or international registries to find potential donors to treat these deadly diseases.^{1,2} The “Be the Match” registry (formerly the National Marrow Donor Program), a national donor registry, is comprised of individuals ages 18-60 who join via a brief health questionnaire and a painless cheek swab used for **human leukocyte antigen (HLA)** typing, the technique employed to compare patients to potential donors. Joining the registry indicates willingness to donate marrow or peripheral stem cells in the future to anyone in need if they are discovered as a potential “match”.^{1,3}

Recipients of transplanted cells from younger donors tend to have better outcomes and increased survival.⁴ Younger age at registration translates to more potential years on the registry. College and graduate students have become a key focus for marrow donor registration drives as students fit demographics of those most likely to donate—young, healthy, well educated,² more open to new information, and part of a community. The racial and ethnic diversity of college campuses provide large pools of diverse registrants. Willingness to join the registry and follow through with donation may be linked to participation in prior blood donation drives, common on college campuses.³ Data also suggests that students are more influenced by student-led campaigns.^{5,6}

Patients are more likely to find matches within their racial or ethnic group.^{4,5} As there are higher numbers of Caucasians on the national donor registry, Caucasian patients have a 50-70% chance of finding a matched, unrelated

donor from the registry.^{6,7} Among African Americans and some other racial and ethnic minorities with lower representation on the national donor registry, however, patients find suitable matches in as few as 25-30% of cases.^{2,6-10} A national effort exists to increase registration of racial and ethnic minority individuals.^{7,8} Survival after transplantation correlates with the strongest and most precise HLA matches resulting in increased survival. Expanding the registry pool results in more patients finding suitable HLA matches for transplants.

The registry is bolstered by those who do not simply join, but actually follow through with donation if selected. Willingness to sign a letter of intent, however, does not correlate well with actual agreement to organ donation. Data indicates that less than 50% of college students indicating willingness to sign a letter of intent, actually did so.⁹ Further information is needed to target college-age individuals to improve low levels of registration and donation to improve survival for those with deadly disorders. Our study goal was to assess knowledge, attitudes and behaviors to identify barriers influencing willingness

to donate among college and graduate level students. Prior data indicates that misconceptions and misinformation are widespread concerning the realities of this process. We compared responses among those who indicated “willingness” to join the registry with responses among those who indicated “unwillingness” to join.

METHODS

Survey Design

We created and administered an investigator-designed survey utilizing internet survey software that permitted the survey to be completed once per IP address. Items included 15 Yes/No formatted questions, ten five-point Likert scale of Agree/Disagree formatted questions, and basic demographic questions. The survey took three and five minutes to complete. Potential subjects were recruited via email list serves for the following groups: Brown University medical students, University of Rhode Island pharmacy students, Brown undergraduates in the **Program of Liberal Medical Education (PLME)**, Brown undergraduate students on the “premedicine” email listserve, and a sample of student leaders

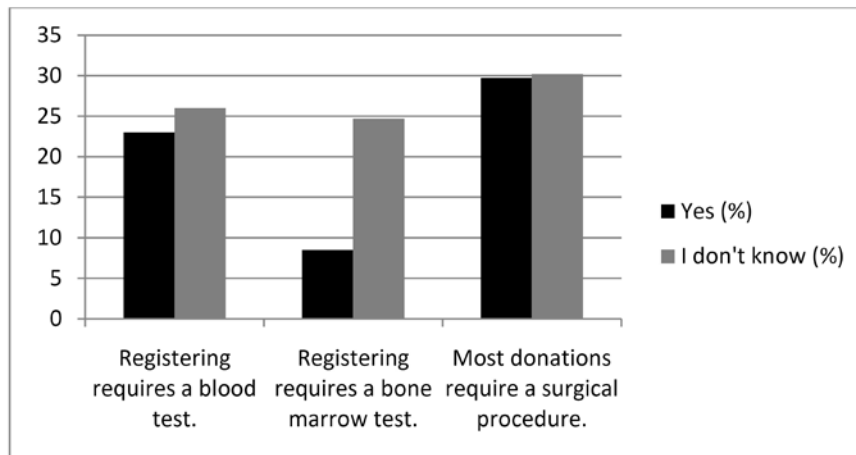
Table 1: Response totals for yes/no questions testing misconceptions about the marrow donor registry.

Question	Yes (%)	No (%)	I don't know (%)	P value
I am currently a member of a marrow registry.	198 (32.7)	397 (65.6)	10 (1.7)	n/a
I am not currently a member but I would register if a drive were held at my college	138 (26.8)	158 (30.7)	218 (42.4)	n/a
Registering at a marrow donor drive requires a blood test	139 (23)	308 (51)	157 (26)	< 0.0001
Registering at a marrow donor drive requires a bone marrow test	51 (8.5)	403 (66.8)	149 (24.7)	< 0.0001
About 80% of patients with diseases treatable with marrow or peripheral stem cell transplantation can find a matched donor among their family members	157 (25.9)	206 (34)	243 (40.1)	< 0.0001
I am more likely to be a match for a transplant candidate from my ethnic or racial group.	345 (57.3)	55 (9.1)	202 (33.6)	0.0001
Most donations require the donor to undergo a surgical procedure under anesthesia in which bone marrow is extracted from the donor's pelvic bones.	180 (29.7)	243 (40.1)	183 (30.2)	< 0.0001

Key: P value = significance of differences in responses among those who demonstrated “willingness” to join the registry vs. those who expressed that they were “unwilling” to join.

* Respondents who demonstrated “willingness” to join the registry were consistently more likely to correctly identify tested myths about the marrow registry as false. Those who expressed unwillingness to join tended to believe, or were unsure about these myths.

Graph 1: Misperceptions about the Marrow Registry
(% of total responses who answered “Yes” or “I don’t know” respectively)



from diverse student groups. Data was analyzed via chi square and stepwise logistic regressions to assess statistical significance of different responses among “willing” versus “unwilling” respondents, with “willingness” to join the registry defined as a current member of the registry (yes to question one on survey) or one who would join if a registration drive were to be held (yes to question two on survey).

RESULTS

Responses were received from 606 individuals (31% male, 69% female). Participants indicated varied fields of study, including 29.5% medical students, 23.8% pharmacy students, 25.0% majoring in hard sciences, 17.1% majoring in humanities, and 4.5% identifying as graduate students. A total of 51.5% of respondents indicated willingness to join the registry.

Several pervasive registry “myths” were evaluated. These “myths” were inaccurate statements about the registration or donation process that individuals cited as barriers to joining the registry. There were significant differences among respondents who demonstrated “willingness” to join the registry and those who expressed that they were “unwilling” to join. Respondents “willing” to join the registry were consistently more likely to correctly identify tested myths about the marrow registry as false. Those “unwilling” to join tended to believe, or were unsure about these myths. Among total respondents, 23%

believed incorrectly that registering for the marrow registry required a blood test, while an additional 26% did not know. 60% either did not know or mistakenly believed that donating stem cells required a surgical procedure under anesthesia. Almost 30% falsely believed that most donations required a “bone marrow test” while an additional 30% were unsure. Only about one-third of total respondents knew that 80% was not an accurate representation of the ability of patients to find a matched donor from a family member (Table 1, Graph 1).

Among possible donor deterrents tested via the Likert five point scale questions, stepwise regression determined three statistically significant independent

deterrents in terms of difference between “willing” and “unwilling” respondents: fear of pain, fear of complications, and perceived financial costs (all $p < .05$). Those who strongly agreed that pain was a deterrent were approximately 20 times less-likely to express willingness to join the registry as those who strongly disagreed with this statement. Whereas 30% of “willing” individuals did express concern for pain as a deterrent to donating, 70% of “unwilling” respondents reported fear of pain. Fear of complications elicited a similar pattern of decreased odds of willingness to join the registry with increased fear: whereas 65% of “willing” respondents either disagreed or strongly disagreed with a fear of complications associated with donating, only 28% of “unwilling” participants expressed similar disagreement. 66% of “willing” respondents disagreed that financial costs associated with registering and donating were too high, compared with 39% of “unwilling” respondents. Also of note, less than half of total respondents disagreed with the statement that “important or rich people” receive priority in getting donations, and only about 40% believed that the time commitment associated with donation would not be excessive. (See Table 2, Graph 2).

Comment

Our goal was to identify factors including misconceptions and biases which affect college age students’ willingness to

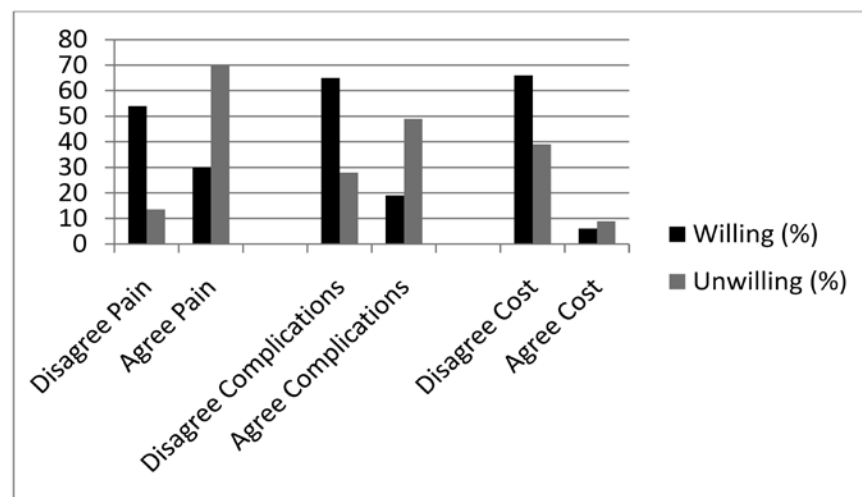
Table 2: Response totals for 5-point Likert scale Agree/Disagree questions.

Question	Strongly Disagree (%)	Somewhat Disagree (%)	Neither agree nor disagree (%)	Somewhat Agree (%)	Strongly Agree (%)	P value
Important or rich people get marrow transplants before others.	129 (23.1)	114 (20.4)	141 (25.2)	152 (27.2)	23 (4.1)	0.0438
Financial costs of registering and tissue typing are too high for me.	202 (36.2)	98 (17.6)	215 (38.5)	33 (5.9)	10 (1.8)	< 0.0001
I am afraid of serious complications associated with the marrow registration procedure.	149 (26.8)	118 (21.2)	105 (18.9)	147 (26.4)	38 (6.8)	< 0.0001
I am worried that the time commitment will be excessive if I am asked to donate	101 (18)	134 (23.9)	96 (17.1)	183 (32.7)	46 (8.2)	< 0.0001
Pain associated with donating bone marrow or peripheral stem cells would be a barrier for me to donate.	88 (15.8)	107 (19.2)	88 (15.8)	179 (32.1)	96 (17.2)	< 0.0001

Key: P value = significance of differences in responses among those who demonstrated “willingness” to join the registry vs. those who expressed that they were “unwilling” to join.

* Respondents who demonstrated “willingness” to join the registry were consistently less likely to believe various misconceptions about the registry.

Graph 2: Three barriers to donating, “willing” vs. “unwilling” respondents



Key: “disagree” = those who answered “strongly disagree” or “disagree” “agree” = those who answered “strongly agree” or “agree”

Pain: “Pain associated with donating bone marrow or peripheral stem cells would be a barrier for me to donate.” **Complications:** “I am afraid of serious complications associated with the marrow registration procedure.” **Cost:** “Financial costs of registering and tissue typing are too high for me.”

join the registry. The population surveyed included medical students, pharmacy students, undergraduate students pursuing medicine, and student leaders and activists. We expected this cohort of medicine-focused students and student leaders to be more informed and thus more likely to join the registry than the general population. Prior studies support our hypothesis that this study population was less likely to hold inaccurate perceptions than the general population.^{2, 10-12} Yet, even among our participants pervasive myths and inaccurate information appear to dissuade many from considering joining the registry.

Registration among college students, an altruistic group, may increase by publicizing the reality that thousands die on the waiting list yearly because no suitable donor exists. Misperceptions about pain, complications, and perceived financial costs deter many from joining. These misperceptions would be expected to be more prevalent among the general college population than among the specific groups we surveyed. Our results indicate that informational materials for registration drives should address specific reality-based information, highlighting, for example, “registering requires only a painless cheek swab and *no* blood test.” To account for the potentially misleading designation of “marrow” donor drive, advertisements should highlight that the

vast majority of donations are via **peripheral blood stem cell (PBSC)** donation, a non-surgical outpatient procedure. Educational efforts should be made to dispel inaccurate representations of marrow donation as a very painful procedure, a description not perceived as accurate by most actual donors. Donors generally have no medical and non-medical costs associated with registering and donating; thus, the “perceived costs” barrier to donation can be easily refuted. Expressed doubt about “rich people” receiving top priority for donations and excessive time commitment necessary to donate can also be addressed directly in donor drive materials. Greater use of contemporary media as an information tool may enhance participation by the young.

Limitations

Our study cohort was non-random. Survey distribution to select groups inhibits the external generalizability of results. However, this study population is likely to be more knowledgeable and more likely to join than the general college and college-age population. Selection bias may exist with email survey research. Individuals who are familiar with the bone marrow registry may be more likely to fill out the survey and have different opinions about the registry and donation than the general population. Prior studies of general populations have demonstrated

that more individuals classify themselves as “willing” to sign an organ donation letter, a related issue, than are actually willing to donate.⁹ Thus, the 51.5% willingness rate expressed on our survey may be higher than the rate of actual registration. Finally, our investigator-designed questionnaire, has not been validated; however, our survey instrument was based on prior surveys used to assess other populations.

CONCLUSIONS

Myths about marrow donor registration and donation are pervasive and must be dispelled to increase registration and donation. Our data indicate that widespread barriers exist related to inaccurate perception of both the registration and donation processes. Our results indicate that these widely held beliefs deter individuals from expressing willingness to donate by registration. College and graduate students are an underutilized, accessible and important group to target. Educational efforts, by circumventing these perceived impediments, can augment the marrow registry and have the potential to improve patient outcomes and save lives.

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Disclosure of Financial Disclosure

This survey-based study was deemed IRB exempt by Brown University's IRB chapter, as it primarily addresses "quality improvement and needs assessment" of a current health issue. Study participants were contacted via email and provided with a link to the survey. The email informed all potential participants that survey responses were confidential and that by clicking on the survey link and filling out the survey, one consents to participate.

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

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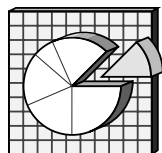
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Adults With Asthma Who Smoke – A Neglected Population?

Tracy Jackson, MPH, Cynthia Roberts, MA, and Deborah N. Pearlman, PhD

THE LONG-TERM HEALTH CONSEQUENCES OF CIGARETTE SMOKING ARE well-established¹ and may be especially acute for adults with asthma.^{2,3} Because they experience respiratory symptoms, adults with asthma might be expected to avoid cigarette smoking. Yet the prevalence of cigarette smoking among adults with a history of asthma exceeds 20% in most studies.⁴⁻⁷

This study has two objectives. First, we examine the correlates of smoking among adults with current asthma. Second, we compare asthma-related quality of life and medication use among adults with asthma who smoke to that of adults with asthma who do not smoke. Lower socioeconomic status (SES) has been linked to worse asthma control and above-average rates of asthma-related emergency department visits and hospitalizations.^{8,9} We hypothesized, however, that adults with asthma who smoked would have worse asthma-related quality of life and be more likely to use short-acting beta2-agonists for quick relief of asthma symptoms, regardless of level of education, than low SES adults with asthma who do not smoke.

METHODS

We used data from the 2008 – 2009 **Rhode Island Behavioral Risk Factor Surveillance System (BRFSS)** and 2008 – 2009 Rhode Island Adult Asthma Call Back Survey. The BRFSS is an ongoing state-based, random-digit-dialed telephone health survey system tracking health conditions and risk behaviors of adults aged 18 and older in the United States. The Asthma Call-Back Survey is conducted approximately two weeks after the BRFSS with respondents who report an asthma diagnosis. Participant responses to the Callback Survey are then linked to their responses on the BRFSS.¹⁰

A multivariate logistic regression was used to estimate the predictors of current smoking among adults with current asthma. BRFSS respondents who currently smoked either everyday or some days were classified as “smokers” and those who never smoked or were former smokers were classified as “non-smokers.” Potential explanatory variables included sociodemographic characteristics (sex, age, marital status, race/ethnicity and level of education), general health status, mental health status (recent depression, ever diagnosed with depression) and asthma-related outcomes (symptoms of asthma disturbed sleep past 30 days, symptom-free past two weeks, and use of short-term asthma relief medications). The role of binge drinking, defined as males who reported consuming five or more drinks or women who reported consuming four or more drinks on one occasion at least once over the last 30 days, was also explored. In our study, SES was measured by respondent’s level of education. Other objective measures of SES are income, occupational status and wealth. The BRFSS only includes a question on household income, however,

and 14.5% of the respondents were unwilling to answer this question. Sampling weights that corrected for unequal probabilities of sample selection were applied to the 1,234 Rhode Island BRFSS respondents with current asthma and the 579 adults with current asthma included in the Rhode Island Asthma Call-back survey to obtain two statewide representative samples.

RESULTS

The prevalence of current cigarette smoking was substantial (Table 1). Nearly one-fifth of adult asthmatics (17.6%) and 16.1% of non-asthmatic adults currently smoked cigarettes. A higher percentage of children with current asthma lived in households with a smoker than did non-asthmatic children but the difference between the two groups was not significant (18.6% vs. 15.7%, $p = 0.53$). Among adults with current asthma, those who had < 12 years of education were nearly three times as likely to be current smokers as persons with more education. Those reporting recent depression were 2.7 times as likely to be current smokers than the reference group (Table 2). Among adults with current asthma, being a smoker was associated with worse asthma-related quality of life, regardless of level of education, as compared with low or high SES adults with current asthma who were non-smokers (Figure 1). Low SES adults with asthma who were non-smokers were as likely as smokers with asthma to report depression (recent or ever being diagnosed), but both groups

Table 1. Prevalence of current smoking among Rhode Island adults with and without asthma and in households with and without a child with asthma

Estimated number and percent of Rhode Island adults ages 18 and older with current asthma	84,516
	10.3%
Percent of adults with asthma who smoke	17.6%
Percent of non-asthmatic adults who smoke	16.1%
Estimated number and percent of Rhode Island children under age 18 with current asthma	26,323
	11.7%
Percent of children with asthma in households with adult smoker	18.6%
Percent of non-asthmatic children in households with adult smoker	15.7%

Data source: 2008-2009 Rhode Island Behavioral Risk Factor Surveillance System combined file, weighted data. Rhode Island Department of Health, Center for Health Data and Analysis.

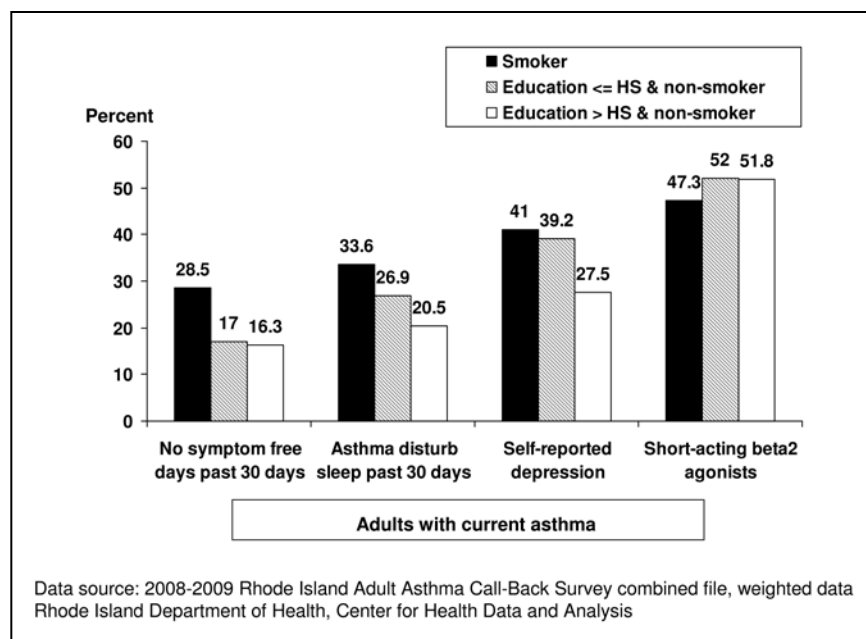


Figure 1: Quality of life among Rhode Island adults with current asthma.

were more likely to report depression than high SES adults with asthma who were non-smokers. No significant differences in use of short-acting beta2 agonists were found across the three groups of adults with current asthma.

DISCUSSION

The present study assessed factors associated with smoking in a sample of Rhode Island adults with current asthma. Results showed that lower SES and recent depression were associated with smoking, independent of other factors. These findings are consistent with previous studies finding significant associations between lower SES¹¹⁻¹³ and depression¹⁴⁻¹⁶ and tobacco use in the general U.S. population. Our results also indicate that the prevalence of cigarette smoking is similar in adults with and without asthma (17.6%, and 16.1%, respectively); a finding also reported in a recent analysis of Rhode Island's 2000 BRFSS where 25.2% of adults with asthma were current smokers compared to 23.2% of non-asthmatic adults.⁷ However, this study is, to our knowledge, the first to assess asthma-related outcomes comparing smokers, regardless of level of education, to low and high SES non-smokers. It is noteworthy that in a sample of adults with current asthma, smokers were more likely than lower SES adults who were non-smokers to have worse asthma outcomes, suggesting that smoking appears to add to the risk of having

poor asthma-related health/quality of life, beyond that which would be predicted by SES. It must also be noted that our assessment of asthma-related outcomes among low and high SES adults who smoked was hampered by small sample sizes ($n = 50$ and 34 , respectively). Asthma outcomes are clearly socially patterned, with low SES populations especially burdened by asthma due to higher exposures to indoor and outdoor asthma triggers (e.g., exposure to cockroaches, urban pollution, community violence), thus increasing risk for asthma exacerbations.^{8,17} Therefore, our findings need to be replicated in larger samples of adults with current asthma who smoke.

Three clinical recommendations warrant discussion. Primary care physicians are urged to consider smoking status as a vital sign, asking patients at every visit, especially those with current asthma, whether they smoke. Resources for patients who are ready to quit include Rhode Island's free Quitline at 1-800-QUIT-NOW, and other cessation resources such as prescription and over the counter medicines, and counseling services whose coverage is required by law through all Rhode Island insurance plans. Research shows that smokers are two times as likely to quit when the cessation intervention is conducted by a physician.¹⁸ Equally important is assessing whether patients with asthma who smoke are coping with depression. Nationally, 50% of the cigarettes purchased are done so by people with diagnosed mental health disorders.^{19,20} Yet the psychological component of smoking addiction may be one of the most challenging to deal with. Stressful situations or periods of depression may be enough for patients with asthma to continue smoking despite having a disease complicated by cigarette smoking. Third, physicians are urged to tell all of their patients to make their homes and cars 100% smoke-free, and to adopt policies that include asking patients with asthma about their home environment and exposure to secondhand smoke. A current health systems change initiative of the Asthma Control Program at the Rhode Island Department of Health is the implementation of the Breathe Easy At Home intervention. Through a shared website, doctors, nurses and other health

Table 2. Significant determinants of current smoking among Rhode Island adults with current asthma

Variable	Adjusted odds ratio	95% Confidence interval	Pr > ChiSq
Educational level Less than 12 years	2.80	1.28 — 6.10	0.0099
Age group 18 – 64 years	2.81	1.61 — 4.88	0.0002
Recent depression past 30 days			
1 to 13 days	1.07	0.55 — 2.07	0.8330
14 to 30 days	2.72	1.58 — 4.67	0.0003
Binge drinker			
Yes	2.02	0.94 — 4.33	0.0699

Reference groups: Educational level greater than 12 years, age 65 years and older, no recent depression, and not a binge drinker. Sex, race/ethnicity and marital status were not associated with current cigarette smoking controlling for other covariates.

Data source: 2008-2009 Rhode Island Behavioral Risk Factor Surveillance System combined file, weighted data. Rhode Island Department of Health, Center for Health Data and Analysis.

professionals can refer families with a child who has asthma for housing inspections if they suspect substandard housing conditions may be triggering a child's asthma.²¹ In conclusion, there are a variety of factors that contribute to why patients with asthma smoke. Different approaches are likely needed to motivate these smokers to quit smoking.

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Letters to the Editor

ON "A GREAT CASE"

(September 2011 issue)

DR. FRIEDMAN'S RECENT ARTICLE (A GREAT CASE) ABOUT CONFUSING diseases with patients has broad implications in the medical arena. Not only are patients being depersonalized into examples of diseases, doctors are being depersonalized into "services," specialties and providers.

Recently I had the experience of precepting a trio of third year medical students in their very first clinical rotation. Even at this stage, the process of depersonalization had started. During their first case presentations I was told that "surgery" had been consulted. When I asked what "surgery" looked like or who actually showed up, there was no clear response. What was clear, however that it seemed not to matter if the consultant was the first year resident or the chief of the service. "Surgery" had spoken.

I then asked this triad of students if they had their dental care provided by "dentistry." Did they care who filled their cavities or was "dentistry" adequate? The unanimous response was that real live individual dentists provided their care and it was these dentists they trusted. I was able to assure them that to the patient requiring surgery it was critical that their operation be done by a surgeon, by a person one had actually met and talked to, by a person one trusted and in whom one had confidence.

Patients do not enter into "surgery"—patient relationships, they form doctor patient relationships. Even in specialties that commonly are perceived as generic "services" rather than individual doctors, such as anesthesia, there is a role for the personal relationship that is at the core of most medical treatment. A number of years ago I needed an operation which carried a significant risk. Prior to the surgery the anesthesiologist sat down with me, looked me in the eyes

and told me that he would personally take care of me and not leave me until the procedure was over. Of course both of us knew that I could not check up on him but I trusted and believed him. His reassurance was valuable to me and I went into the procedure with increased comfort and confidence because of that personal interchange.

Contemporary society views physicians as "providers," essentially each one equivalent to another. The insurance companies would prefer to perpetuate this perception. There is no reason that we physicians should reinforce this mistaken attitude. In fact we should be proactive in opposing it. Words are powerful. Patients are not diseases, they are people with illnesses. We are not generic "providers", we are doctors. Medical care is not given by a "service", it is given by individual doctors, who function in the context of the multi person team which is a necessary component of our intricate health care system. The need to function efficiently as a member of the team does not abrogate our responsibility to relate as a person to the person who is afflicted with disease.

For the remainder of the month that I was preceptor for these students none of their patients were seen by "GI", "cardiology", "surgery", etc. There were, however, many consultations by gastroenterologists, cardiologists and surgeons (among others). It would be interesting to learn how long that message was effective.

— **HERBERT RAKATANSKY, MD, FACP, FACC**
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ON "TOO MUCH OF A GOOD THING"

(October 2011 issue)

THERE MAY BE SOME TRUTH TO THIS OPTOMETRIST'S ASSERTIONS. ONE confusing issue is that there are 2 sets of pigment involved. The iris color is due to its melanin content: blue-eyed people have less. The pigments in the macula are carotenoids (specifically lutein and zeaxanthin). These retinal pigments act as anti-oxidants and may protect the macula from near-blue light damage. There is, in fact, good evidence that diets rich in carotenoids and certain vitamin pills containing carotenoids can slow down the progression of moderate and advanced dry macular degeneration.

It turns out that people with lighter irises (less melanin) have less macular pigment (carotenoids) as well. It is also true that macular degeneration is more common in blue-eyed patients. Kale has a lot of zeaxanthin and spinach has a lot of lutein. There is an on-going study looking at dietary supplements high in these carotenoids to see if they help in dry macular degeneration.

— **ELLIOT PERLMAN, MD**
Rhode Island Eye Institute

Information for Contributors

Medicine & Health/Rhode Island is peer-reviewed, and listed in the *Index Medicus*. We welcome submissions in the following categories:

CONTRIBUTIONS

Contributions report on an issue of interest to clinicians in Rhode Island: new research, treatment options, collaborative interventions, review of controversies. Maximum length: 2500 words. Maximum number of references: 15. Tables, charts and figures should be submitted as separate electronic files (jpeg, tif, or pdf). Each submission should also be accompanied by a short (100-150 words) abstract.

CREATIVE CLINICIAN

Clinicians are invited to describe cases that defy textbook analysis. Maximum length: 1200 words. Maximum number of references: 6. Photographs, charts and figures may accompany the case.

POINT OF VIEW

Readers share their perspective on any issue facing clinicians (e.g., ethics, health care policy, relationships with patients). Maximum length: 1200 words.

ADVANCES IN PHARMACOLOGY

Authors discuss new treatments. Maximum length: 1200 words.

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Authors discuss a new laboratory technique. Maximum length: 1200 words.

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Authors submit an interesting Image, with a 300-400 word explanation.

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Physician's Lexicon

The Limbs of Medicine

MOST ANATOMIC TERMS ARE OF LATIN ORIGIN but each organ, each body part, is also blessed with a vernacular name, typically of Anglo-Saxon origin. And thus words such as head, toe, leg, finger and arm are derived from Old English and earlier, from Proto-germanic languages.

The word, limb, defining both arms and legs, is also of Old English origin: The word, *lim*, meant a part of, a member of, and in some Old-Germanic tongues it also meant a loose joint thus giving rise to the English words, limp and limber, meaning variously, looser, pliant or flexible. Limpid, on the other hand, stems from the Latin, *limpidus*, meaning clear, transparent; in turn, from the Greek name for a water goddess and from which the word, lymph, is derived.

The Latin, *limbus*, meaning edge or border descends without change to

define the corneal margin or boundary of the tympanic membrane. A similar Latin term, *limus*, meaning aslant or sidelong, evolves into the English, limit, meaning a fringe or boundary. (as in 'the city limits'). The medical term, liminal (and subliminal), refers to the lower boundaries of sensation or sensations not felt.

The word, limbo, similarly comes from *limbus*, but now in its ablative form, to define a region between heaven and hell, reserved for saints and early church fathers (*in limbo patrum*). It was a region, a temporary station, assigned particularly to the patriarchs of the Old Testament awaiting entry into heaven; and for dead infants (*limbus puerorum*) similarly awaiting assignment to paradise.

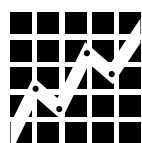
A Greek word, *limne*, meaning marsh may be confusing. The older medical term, limnemia, means chronic malaria

(marsh fever.) Yet another Greek root, *limos*, meaning hunger, appears in medical words such as limophthisis (emaciation) and limosis (starvation).

Alembic (a term defining medieval vessels employed for distilling medications) is from the Arabic defining 'the cup.'

A lemniscus, defining a bundle of nerve fibers, has a complex etymological origin. The Aegean island, Lemnos, was famed for its colorful fabrics, giving rise to a Greek term meaning ribbon. This, in turn led to the Latin, *lemniscus*, meaning bands or ribbons.

— STANLEY M. ARONSON, MD



RHODE ISLAND DEPARTMENT OF HEALTH
MICHAEL FINE, MD
DIRECTOR OF HEALTH

VITAL STATISTICS

EDITED BY COLLEEN FONTANA, STATE REGISTRAR

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

Underlying Cause of Death	Reporting Period			
	October 2010	12 Months Ending with October 2010		
Diseases of the Heart	Number (a) 195	Number (a) 2,247	Rates (b) 213.3	YPLL (c) 3,156.5
Malignant Neoplasms	199	2,277	216.2	6,181.5
Cerebrovascular Diseases	33	456	43.3	620.0
Injuries (Accidents/Suicide/Homicide)	53	617	58.6	10,119.0
COPD	47	498	47.3	527.5

Vital Events	Reporting Period		
	April 2011	12 Months Ending with April 2011	
	Number	Number	Rates
Live Births	1,005	11,754	11.2*
Deaths	789	9,996	9.5*
Infant Deaths	(7)	(69)	5.9#
Neonatal Deaths	(5)	(67)	5.7#
Marriages	356	6,117	5.8*
Divorces	218	3,204	3.0*
Induced Terminations	338	4,087	347.7#
Spontaneous Fetal Deaths	52	626	53.3#
Under 20 weeks gestation	(47)	(556)	55.6#
20+ weeks gestation	(5)	(68)	5.8#

(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 1,053,209. (www.census.gov)

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

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

* Rates per 1,000 estimated population

Rates per 1,000 live births

NINETY YEARS AGO, OCTOBER, 1921

This month sees the return of a whole monthly publication following a printers strike which rolled the previous three months into one issue. To begin with, Arthur Harrington, MD, as read before the Rhode Island Medical Society the previous month, outlines the history and layout for the State Hospital for Mental Diseases of which he is superintendent. He discusses various facilities under the umbrella of the hospital, and reports a round number of 1,400 patients overall—only slightly above their maximum capacity. He also discusses current and planned projects for future facilities, while noting financial commitments. He states: "This Hospital should be able to serve the medical profession and the community in a manner which keeps pace with all the scientific advances of our times, but without proper financial support the functions of this Hospital are bound to be curtailed."

In a separate piece, Dr. Harrington discusses psychoses following head injury. He divides common clinical types of traumatic psychoses into three varieties: traumatic delirium, traumatic constitution, and post-traumatic mental enfeeblement. He then presents case examples and notes that in some instances, cases of traumatic delirium which appear to concluded with complete recovery may still involve edema of the brain tissue and possible degeneration of cellular and other brain structures over a long period of time.

George Coon, AM, MD of the State Hospital for Mental Diseases asks "Who should we commit?" He examines the history of mental illness and cases for committal. Noting crowded conditions, Coon also looks at the process and criteria for discharge, and makes use of case studies as examples.

An editorial suggests that the State Board of Public Roads should pay greater attention to the licensing of "persons defective either physically or mentally" than it has in the past. Instances of motor vehicle accidents were pointed out in which drivers with physical handicaps that made it difficult to safely operate motor vehicles were nonetheless legally licensed.

FIFTY YEARS AGO, OCTOBER 1961

Julian Johnson, MD, looks at cancer from a surgical perspective. He discusses various cancers and surgical removal of tumors, mastectomies and gastric resections. He notes the development of anesthesia as opening the door for surgical treatments. He notes certain challenges in dealing with cancer—such as the mistake to think of it as merely one disease. Cancer manifests itself in a variety of ways, and sometimes takes unexpected turns. Johnson concludes with a hope for a future for chemotherapeutic treatments that may improve control over the spread of cancers in the patient.

Francis L. McNelis, MD, makes an argument for endoscopy as a tool best suited for the otolaryngologist. He states, "In some areas, there is a tendency to assign the pre-operative diagnostic workup to the surgeon if chest surgery is anticipated, with only the occasional foreign body removal being directed to the otolaryngologist. If we continue to tolerate such a situation, we shall find a rapid deterioration in our proficiency and thus lessening in the caliber of work in this field. Historically and by basic training, endoscopy belongs to the otolaryngologist." Also, "The endoscopic and thoracic surgeons should be able to work harmoniously as members of a team dedicated to offering the very best possible service and treatment to the patient."

Laurence A. Senseman, MD, shares his thoughts and observations based on a recent tour of medical facilities in the Philippines, Hong Kong, and Japan.

TWENTY-FIVE YEARS AGO, AUGUST 1986

Stanley Aronson, MD, introduces a journal devoted "in its entirety to the forensic, preventive, epidemiologic, and clinical features of teenage suicide."

Carolyn Drew, Executive Director of The Samaritans, leads up a piece describing a pilot program on suicidal awareness, identification, and prevention in area high schools with the help of a grant from the National Conference of State Legislatures. It involved teacher training, curriculum, and work with local educators with an plan adaptive to regional needs.

William Q. Sturner, MD, Chief Medical Examiner of the state, summarizes his experiences concerning adolescent suicide over the past ten years, noting a disturbing rise nationwide in suicides involving firearms which are often immediately lethal and preclude attempts at rescue or reversibility.

Andrew Slaby, MD, PhD, MPH, looks specifically at the role of the non-psychiatric physician in the recognition and prevention of potential teenage suicides. He notes that nearly three-fourths of all teenagers who have committed suicide had seen a practicing physician at some point within four months of the fatal event. He looks at some possible factors in suicidal likelihood, emphasizes a goal of early detection and prevention.



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