

# Proceedings of the Fourth Biennial National Conference on Health Issues in the Arab American Community

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Including Summaries of Pre- and Post-Conference Workshops  
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Proceedings of the Fourth Biennial National Conference on Health Issues in the Arab American Community

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## SECTION I: INTRODUCTION

Wael A. Sakr, MD; Adnan Hammad, PhD;  
May Darwish-Yassine, PhD

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**Key Words:** Arab American Health, Tobacco Control, Lifestyle Modifications, Public Health Risk Factors, Global Health, Mental Health, Cancer, HIV/AIDS

### INTRODUCTION

We are glad to offer the *Proceedings of the Fourth National Conference on Health Issues in the Arab American Community* in this supplement to *Ethnicity and Disease*. This biennial conference began in 1999 to achieve ambitious objectives, including:

- to gather and generate data on Arab American health issues;
- to compare the standards of care for specific diseases within the community to other ethnicities within the United States; and
- to use the data to help direct resources, obtain funding, and design research projects to address areas of deficiencies.

The long-term goal of the conference continues to be aligning the health planning of ACCESS (Arab Community Center for Economic and Social Services) and its academic and community affiliates with *Healthy People 2010*. Through the four conferences spanning the last eight years, barriers and obstacles to improving the health of Arab Americans have been identified and researched and have resulted in policies and programs to address the barriers. The conferences have offered a unique exposure to Arab American health issues to numerous constituencies including academic institutions, healthcare providers, public health agencies and community-based organizations, as well as individual physicians and other healthcare professionals working with members of the Arab American community.

In keeping with the goals of *Healthy People 2010*, the major themes of this year's conference continued to be mod-

ifiable risk factors within the Arab American community and the population-at-large. A significant component of our fourth forum was devoted to the devastating effects of tobacco use in every corner of the globe and every age bracket of all populations, particularly in the developing world and alarmingly in teenagers and young adults. Contributions on the subject encompassed areas of epidemiology, relationship to mental health and depression in particular, and the local, national and international efforts to combat the problem.

During the fourth conference, the scientific committee enhanced the emphasis on aspects of integrated health-care delivery. Our objective was to initiate a dialogue on developing a comprehensive approach to health care that addresses patients' physical and mental health concerns in a coherent and systematic way, despite the highly technical and specialized system within the United States.

We continue to build on the international component of this effort with the growing participation of researchers, specialists, and public health leaders from the Arab world. Presentations, from multiple Arab countries, offered data related to the main topics of the conference. These exchanges offer unique opportunities to enrich collaborations in areas of mutual interest, such as: programs designed to protect teenagers from starting tobacco use, educational efforts aimed at modifying lifestyle risk factors and the effort to emphasize the need for the detection and early treatment of mental health issues in the primary care setting.

Two significant additional activities took place in coordination with this year's conference.

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**Pre-Conference Workshop on Reducing the Cancer Burden in Arabs and Arab Americans.** Sponsored by the Collaborative Group of Research on Cancer and the University of Michigan School of Public Health.

Because of the variations in genetics of different ethnic groups and the differences in the exposure of diverse populations to environmental carcinogens, the annual incidence, the relative frequency and the subtypes of various cancers, differ markedly from one country, or population subgroup, to another. Moreover, the availability of particular treatments, as well as patients' tolerance to treatment, varies from one country or population group to another. Thus, an improved ability to control cancer among population groups, such as Arabs and Arab Americans, and to more efficiently use available resources will only be achieved by performing research in these populations. Yet, the lack of resources—both human and financial—has hindered the optimal

design and analysis of translational and clinical studies in such a setting. Overcoming these deficiencies represents an immense challenge to those dedicated to cancer control throughout the world.

**Post-Conference Workshop on HIV/AIDS in the Arab American Community: Breaking the Silence!** Sponsored by The Leadership Campaign on AIDS (TLCA) from the US Department of Health and Human Services.

Because HIV/AIDS is rarely addressed in private conversations among Arabs or Arab Americans, and until now has never been publicly addressed, infection rates are unclear within this population living in the United States. The goal of this workshop was to offer insight on HIV/AIDS in the Arab American community. It fostered discussion among domestic and international Arab healthcare experts and residents about HIV/AIDS and ways that Arab Americans can respond to

it. The workshop also highlighted current ACCESS efforts to address HIV/AIDS.

Finally, on an editorial note, the sequence of the material in this supplement is reflective of the structure of the conference and presents original articles based on the topics grouped by sections. In addition, other articles include: a summary of the keynote presentation by Admiral John O. Agwunobi, MD, assistance secretary of health, US Department of Health and Human Services; excerpts from a keynote address by John Seffrin, PhD, CEO of the American Cancer Society; and excerpts from a keynote address by Sabri Belgacem, MD, MPA, FFPHM, director of Systems and Services Development of the WHO-Eastern Mediterranean Regional Office. These summaries appear in Section II-Highlights from Keynote Presentations, with a more-detailed account of presentations by Seffrin and Belgacem incorporated in Section II and VI, respectively.

# HIGHLIGHTS OF CONFERENCE KEYNOTE PRESENTATIONS

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## SECTION II: HIGHLIGHTS OF CONFERENCE KEYNOTE PRESENTATIONS

Adnan Hammad, PhD; May Darwish-Yassine, PhD; Wael A. Sakr, MD

*Ethn Dis.* 2007;17[Suppl 3]:S3-3-S3-5

**Key Words:** Tobacco, Noncommunicable Diseases, Arab American

### OVERVIEW

The fourth biennial conference had the privilege of securing distinguished national and international authorities to deliver keynote presentations designed to address the main themes of the conference. During the first day of the conference, John Seffrin, PhD, CEO of the American Cancer Society and president of the Union of International Cancer Control and Sabri Belgacem, MD, MPA, FFPHM, director of Systems and Services Development of the WHO-Eastern Mediterranean Regional Office in Cairo, Egypt delivered presentations on tobacco and health and noncommunicable diseases, respectively. During the second day, Admiral John O. Agwunobi, MD, the assistant secretary for health at the United States Department of Health and Human Services and a pediatrician by specialty, delivered the keynote address.

The following paragraphs provide summaries of these addresses with the details of the presentations of Seffrin and Belgacem incorporated within the Section III, Tobacco and Health and Section VI, Global Health, respectively. Agwunobi's remarks are accounted for in this section.

### SEFFRIN: TOBACCO AS A GLOBAL HEALTH THREAT

In his address, Seffrin discussed tobacco as a global health threat and the leading cause of cancer worldwide. He highlighted trends in tobacco use across the globe, with special reference

to the Middle East where the incidence of lung cancer, especially among young men, is increasing at an alarming rate. According to Seffrin, deaths from cancer in developing countries, including the Middle East, are clearly linked to tobacco use and the increased risks associated with lifestyle behaviors, including obesity and lack of physical exercise. Public health officials face major challenges in helping individuals to quit smoking and in preventing young men and women from starting.

Seffrin emphasized several points:

- Tobacco is the only consumer product proven to kill more than half of its regular users.
- Tobacco will be responsible for 4.9 million deaths worldwide this year alone.
- If today's trends continue, the cancer burden in the developing world will more than triple in the next 25 years, resulting in a global total of 10 million deaths worldwide each and every year.
- Tobacco will kill an estimated 650 million people alive today, half of whom are now children.
- Half of these people killed by tobacco will die in middle age, when they are most productive for their economies, their societies and their families.

Without intervention, the tobacco pandemic will be the worst case of avoidable loss of life in recorded history. Lung cancer has surpassed prostate cancer incidence among men in Tunisia, Algeria and Jordan. In one US study of Arab Americans in Dear-

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## HIGHLIGHTS OF CONFERENCE KEYNOTE PRESENTATIONS - *Hammad et al*

born, Michigan, 62% of respondents reported smoking at least half a pack of cigarettes each day. Another study of young Arab Americans smokers revealed more were exposed to environmental smoke at an earlier age than the US national average.

The political and economic strength of the tobacco industry is a major obstacle, especially with the enhanced recruitment of new smokers in Asia, Africa, and Latin America, Seffrin told conference participants. The nefarious marketing techniques used to lure more of the world's children into deadly addiction is particularly problematic. As smoking rates decline in the United States and many other industrialized nations, the tobacco industry has dramatically stepped up its efforts in emerging markets in Asia, Africa, and Latin America. Worldwide, one in seven teens, aged 13 to 15, smokes, 25% of them having tried their first cigarette before the age of 10. Nearly 100,000 children and adolescents become addicted worldwide every day.

In the last segment of his keynote address, Seffrin discussed the world's first global public health treaty—the Framework Convention on Tobacco Control (FCTC). Developed by the World Health Organization (WHO), FCTC was formally adopted and ratified by 40 nations at the World Health Assembly in 2003. The FCTC was formed to protect the citizens of member countries from the tobacco industry's marketing techniques by banning all tobacco advertising and promotion and by requiring that warning labels cover at least 30% of cigarette packaging. The treaty also has developed efforts to shield citizens from secondhand smoke, increase tobacco excise taxes, prevent cigarette smuggling, promote public awareness of the deadly consequences of tobacco use, provide greater access to treatment for nicotine dependence, and provide more stringent regulation of tobacco products.

### **BELGACEM: NONCOMMUNICABLE DISEASES**

Sabri Belgacem, MD, MPA, FFPHM, focused on the growing morbidity and mortality related to noncommunicable diseases (NCD) in the Arab world. Countries in this region are at different stages with respect to their epidemiologic and demographic transition and many low- and some middle-income countries face the double burden of disease. However, the trend is toward an increase of risk factors and non-communicable diseases.

The rise of the main risk factors affecting noncommunicable diseases, such as tobacco, obesity, lack of physical activity, and high blood pressure, is statistically supported and indeed alarming. Unhealthy lifestyles are also growing among younger populations and are being exacerbated by globalization and extended communication, particularly through the very popular satellite channels in the region. Ischemic heart and vascular diseases and cancers represent the major causes of morbidity and mortality in the Arab world.

Most countries of the region are developing noncommunicable disease (NCD) control strategies and programs focusing on health promotion and advocacy of healthy lifestyles in terms of eating habits, smoking cessation and increased physical activity. Efforts are being made to improve the knowledge about morbidity and mortality by noncommunicable diseases by improving national health information systems and by introducing national and subnational registries.

Considering the financial pressures within the countries of the region, their ability to address risk factors and noncommunicable diseases is costly for the already strained health systems. Some countries are investing in more cost-effective strategies for health promotion starting at school and in work settings. All countries are beginning to

realize the paramount importance of investing in empowering individuals and communities to take active responsibility in health promotion.

WHO is providing technical support in developing national NCD programs, in developing guidelines for managing risk factors and noncommunicable diseases, and in promoting national and regional NCD registries. WHO also encourages networking between professionals from the region in order to facilitate sharing of experiences and good working models.

### **AGWUNOBI: USDHHS, ACCESS AND EFFORTS TO KEEP ARAB AMERICANS HEALTHY**

In his remarks, Admiral John O. Agwunobi, MD, offered an overview of the mission of the United States Department of Health and Human Services (USDHHS) and emphasized the department's dedication to public health and its long-standing history of providing services with compassion. As he thanked the conference speakers and participants for their efforts to increase the knowledge and understanding of health issues related to Arab Americans, Agwunobi emphasized that the USDHHS relationship with ACCESS is a long-term partnership in the fight against disease. He made particular note of the combined work of his department and ACCESS in developing solutions for diseases, such as HIV/AIDS, most difficult to address openly in the Arab American community, and he saluted ACCESS for breaking that silence.

Agwunobi spoke of the diverse ethnic and geographic spectrum of the US population and that many living in the United States continue to have family members, friends and loved ones in other countries. The environment of globalization also introduces concerns regarding the ease by which infectious

diseases can travel and affect populations in all parts of the world. His message concentrated on the need for preparedness for such threats. He cited some current and historical examples, most notably: the Avian influenza. This infectious disease has spread from southeast Asia into eastern Europe to the Middle East and now into middle Africa. Scientists at the Centers for Disease Control and Prevention and the National Institutes of Health are concerned about a pandemic resulting from this disease that can overwhelm the capacities of health systems.

Agwunobi indicated that, based on historical patterns of three major pandemics that took place in the last 100 years (1918, 1957 and 1968), it is likely that the United States will experience a pandemic in the future. These pandemics could result from natural or biological causes and not necessarily the Avian influenza. Since such a pandemic

would affect every community and very likely many regions and nations simultaneously, it is imperative that communities, cultures and religions come together to minimize the devastating effects. Such a cooperative effort is more successful when built on relationships that have been established and nourished.

A true test of humanity would be to witness how nations reach out and care for all in need around the world if, for example, the Avian influenza became a pandemic with rapid transfer from one human to another. Real-life crises were introduced by hurricane Katrina in 2005, with victims and devastation relating to many of us with afflicted family members and friends in the disaster area.

Such tragedies can, and have, occurred in remote places with similar devastation and with lack of resources and timely help. The need for education

and preparedness to deal with such disasters can not be over-emphasized. According to Agwunobi, these efforts must be initiated at the community level and not dependent on federal help; it is estimated that at least 40% of the government workforce would be sick in a pandemic. Agwunobi referred the audience to the website, <http://www.pandemicflu.gov>, for more information.

Also in his remarks, Agwunobi characterized the rise in tobacco use and poor nutrition as pandemics affecting many populations, including Arab Americans. He praised the efforts of ACCESS and the conference in raising awareness of these risks and designing and implementing strategies to combat them. Simply stated, Agwunobi insisted that the message, "cigarettes kill," must be repeated through every channel possible. Other important messages should emphasize physical activity and healthy diets.

# TOBACCO AND HEALTH

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## SECTION III: TOBACCO AND HEALTH

Section III has been edited by David J. P. Bassett, PhD;  
Virginia Hill Rice, PhD, RN

*Ethn Dis.* 2007;17[Suppl 3]:S3-6-S3-25

**Key Words:** Tobacco, Arab American Health, Cancer, Depression

### A. OVERVIEW

**Background.** At the first Arab American health conference in 1998, we reported a relative lack of information on the prevalence of environmental and tobacco-related problems in the Arab American community and little was known about tobacco use among the young. Facilitated by these conferences, community-based studies have been conducted that have brought together the ACCESS research group with investigators from Michigan universities. At subsequent conferences, findings of the potential adverse health effects associated with pollutant exposures of the ambient, workplace and home environments have been presented, together with some preliminary assessments of environmental health knowledge, attitudes and beliefs. This information is now being used as a basis for developing intervention strategies. In particular, a major focus of ongoing work is the development of effective, culturally sensitive programs for reducing both adult and adolescent tobacco uses.

In addition to cigarette smoking, more recent investigations are being directed toward a greater understanding of the reasons and dynamics for the growing use of narghile smoking. The narghile also known as the water pipe, narghileh, argileh, hubble-bubble (HB), hookah, shisha, and goza (with variations in spelling and pronunciation depending on global location) is found in the Middle East, Southeast Asia and North Africa dating back some 500 years. Traditionally associated with older male use, its history has undergone a renaissance in recent years and is growing in popularity, particularly among the young, around the world.<sup>1</sup>

The narghile is typically a decorated glass water pipe with a long snake-like tube. The pipe is filled with a mixture of tobacco, which may be combined with molasses, honey or fruit-flavored products. Smokers inhale the tobacco that is heated by charcoal and travels through the water. The water is used to clean soot belched out of the burning tobacco and to reduce such harmful constituents as acrolein and other aldehydes before it is inhaled through long flexible tube(s) with detachable mouthpieces. The use of charcoal generates rather high levels of carbon monoxide, thus increasing secondhand exposure for others.<sup>2</sup> Researchers in the Middle East are just beginning to examine narghile smoking among the young.

Associated with these collaborations are two major studies funded by the National Institutes of Health. One study, *Environmental Impacts on Arab Americans in Metropolitan Detroit*, was conducted by Hammad, Nriagu, and colleagues at ACCESS and the University of Michigan. The ongoing results of this study were reported at the 3<sup>rd</sup> biennial meeting and included a presentation of findings from a series of community-based workshops on environmental health, a pilot project to assess contaminant exposures, and a household assessment of environmental risk factors for respiratory health with an emphasis on the triggers of asthmatic reactions. New findings from this project are described in Sections III and IV. A second study entitled *Arab American Youth: Tobacco Use and Intervention* is being conducted by Hammad (ACCESS) and Rice and her colleagues at the Wayne State University College of Nursing.

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In previous conferences, data were presented that examined trends and predictors of tobacco use among different Arab-American adolescent subgroups, as well as school-based findings of the psychosocial factors among adolescents and the influence of peer and parental smoking. In addition, the redesigning of the *Project Toward No Tobacco* (Project TNT) to make it culturally and ethnically sensitive for Arab-American youth was presented.<sup>3</sup> Findings demonstrated that: Arab American adolescents are more likely to smoke cigarettes if they were born in this country; their peers and parents are smokers; and, they have high levels of stress and/or depression and low levels of self-esteem. It is interesting to note that, although the prevalence of cigarette smoking among Arab Americans is actually lower than non-Arab adolescents in Michigan, the use of narghile is very high and was the subject of more recent investigations presented at this conference.

The invited presentations to this conference were designed to put these previous endeavors into a more global health perspective. Research from the Middle East and from the above Michigan-based investigators provided an important broad-based view to move health professionals forward in addressing tobacco-related health problems.

The first of two sessions on tobacco and health followed speeches by the conference keynoters. One of the keynote addresses was delivered by John Seffrin, PhD, CEO of the American Cancer Society and president of Union of International Cancer Control. Section II provides highlights from this presentation while a more in-depth paper is presented within this section.

The first session on Tobacco and Health was moderated by Vicki Ra-

kowski, executive vice president of Medical Activities at the American Cancer Society's Great Lakes Division and John Ruckdeschel, PhD, president and CEO of the Karmanos Cancer Institute.

In this section, readers will find presentations from additional speakers in the first session:

Kenneth E. Warner, PhD on the global epidemic of tobacco;

Omar Shafey, PhD, MPH on the global epidemiology and health hazards of tobacco use;

Cynthia L. Artfken, PhD on depression and smoking;

Virginia Hill Rice, PhD, RN and colleagues on collaborative research on tobacco use and its predictors in Arab and nonArab American 9th graders;

Although the paper is not provided herein, Dr. Maziak, of the Syrian Center for Tobacco Studies, served as an additional speaker in this session and provided a very comprehensive presentation on the dramatic increase in the use of the water pipe among college-age students in Syria since the 1980s. This growing epidemic is in part attributed to the introduction of Maasal, a sweetened and flavored tobacco, increased accessibility, and enhanced promotion by the media and marketing on the Internet. According to Maziak, 25% of the males and nearly 5% of female students at Aleppo University apparently use the water pipe. A study of smoking among 90,000 13- to 15- year olds across the Middle East suggested a far greater use of tobacco products other than cigarettes, assumed in part to include the water pipe.<sup>4</sup> The greater percentage of 13- to 15-year-old girls smoking products other than cigarettes compared to the rate observed in Aleppo University female students further indicated a potential for an even greater increase in non-cigarette tobacco use in the future.

Dr. Maziak's comprehensive presentation demonstrated that water pipe smoking is a growing public health threat in Syria and probably in other Middle Eastern nations. Its use is different than that of cigarette smoking, although some similarities with dependency were observed in cigarette smokers. The use of the water pipe as a substitute for cigarette smoking among cigarette quitters is particularly disturbing. The acute and chronic health effects may also differ between these two methods of tobacco smoking.

Moujahed Hammami, MD, director, University Hospital, Aleppo, Syria, and May Darwish-Yassine, PhD of the Michigan Public Health Institute moderated the second session on tobacco and health. The session featured oral presentations of scientific information from abstracts submitted to the scientific committee of the conference. Briefs are provided within this section for:

Linda S. Weglicki, PhD, RN and colleagues on tobacco use patterns among high school students;

Nizar Akil, MD on patterns of smoking among Aleppo University students;

Moujahed Hammami, MD et al on active and passive smoking during pregnancy in Aleppo, Syria.

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## B. COMMENTARY ON TOBACCO: THE WORLD'S LEADING CAUSE OF CANCER

John R. Seffrin, PhD

**Abstract:** Cancer incidence is on the rise in many regions of the world, including the Middle East, where incidence rates for both men and women are increasing. Like many regions of the world, increased tobacco use, combined with other factors, is driving cancer incidence in the Middle East. Tobacco, the only consumer product proven to kill more than half of its regular users, will be responsible for 4.9 million deaths worldwide this year alone. That burden is fairly evenly shared by industrialized and developing nations today but, if current trends continue, the cancer burden in the developing world will more than triple in the next 25 years, resulting in a global total of 10 million deaths worldwide each year. Seven million of these deaths will occur in the developing world, in nations least prepared to deal with the financial, social, and political consequences of this global public health tragedy. In the Arab world, lung cancer is already occurring with increasing frequency, particularly among men. (*Ethn Dis.* 2007;17[Suppl 3]:S3-8–S3-9)

**Key Words:** Cancer, Tobacco

### TOBACCO AND LUNG CANCER

Despite new treatments, better prevention, and early detection techniques and other advances, cancer continues to be a growing global public health threat. Today, cancer kills more people than AIDS, tuberculosis and malaria combined. To understand why the cancer burden is increasing despite years of progress in the United States and other developed nations, we must look to the developing world. By 2020, an estimated 70 percent of the forecasted 10 million annual deaths will occur in developing countries, which are least prepared to address their growing cancer burdens.<sup>1,2</sup>

Cancer incidence is on the rise in many regions of the world, including the Middle East, where incidence rates for both men and women are increasing.<sup>3</sup> Like many regions of the world, increased tobacco use combined with other factors is driving cancer incidence in the Middle East. Although communicable diseases still account for a large percentage of deaths in emerging nations, improvements in vaccination and prevention efforts are reducing the deadly toll of these diseases. But deaths from non-communicable diseases like cancer are rising steadily, driven by an increase in tobacco use and the spread of Western lifestyle behaviors, such as lack of physical activity, that lead to obesity.

Tobacco, the only consumer product proven to kill more than half of its regular users, will be responsible for 4.9 million deaths worldwide this year alone.<sup>4</sup> That burden is fairly evenly shared by industrialized and developing nations today but, if current trends continue, the cancer burden in the developing world will more than triple in the next 25 years, resulting in a global

total of 10 million deaths worldwide each year.<sup>5</sup> Seven million of these deaths will occur in the developing world, in nations least prepared to deal with the financial, social and political consequences of this global public health tragedy.<sup>5</sup> In the Arab world, lung cancer is already occurring with increasing frequency, particularly among men.<sup>3</sup>

Lung cancer is already the most common cancer among men in Tunisia, Algeria and Jordan – surpassing prostate cancer.<sup>3</sup> Without intervention, this trend is likely to continue in other countries. Even in Arab immigrant populations in the United States, tobacco use is high. In one study of Arab Americans in Dearborn, Michigan, 62 percent of respondents reported smoking at least half a pack of cigarettes each day.<sup>6</sup> The study also revealed that young Arab Americans who smoke were exposed to environmental smoke at an earlier age than the US national average.<sup>6</sup>

Worldwide, similar tobacco use trends are taking their toll. Tobacco will kill 650 million people, half of whom are now children.<sup>5</sup> Half of these people killed by tobacco will die in middle age, when they are most productive for their economies, their societies and their families.<sup>5</sup> In the last century alone, tobacco use killed 100 million smokers.<sup>7</sup> If left unchecked, tobacco use will kill more than a billion people in this century.

This extraordinary suffering and death is not inevitable. Without intervention, the tobacco pandemic will be the worst case of avoidable loss of life in recorded history. Yet, with comprehensive, concerted action, we can eliminate the global scourge of tobacco and save hundreds of millions of lives within the next few decades.

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From the American Cancer Society, Atlanta, Georgia.

## INTERVENTION

To save lives, we must help current smokers quit and we must stop the tobacco industry from using its marketing techniques to lure the world's children into deadly addiction. If we choose to act, we could save thousands of lives. For example, if we were able to cut adult cigarette consumption by just 50% worldwide, we could avert more than 200 million needless deaths within the next 50 years.

As smoking rates decline in the United States and many other industrialized nations, the tobacco industry has dramatically stepped up its efforts in emerging markets in Asia, Africa and Latin America. Because tobacco kills the majority of its customer base, the industry must recruit millions of new smokers each year just to break even. In the unrestricted markets of the developing world, that means that no one is immune from the industry's tactics, especially the most vulnerable people of all – children.

Worldwide, one in seven teens, aged 13 to 15, smokes.<sup>8</sup> One-quarter of them tried their first cigarette before the age of 10 years. Nearly 100,000 children and adolescents become addicted worldwide every day. In the United States alone, the tobacco industry spends more than one million dollars an hour, 24 hours a day, seven days a week, marketing its products.<sup>9</sup>

Fortunately, thanks to the rigorous educational, scientific and advocacy efforts of dedicated tobacco-control activists worldwide, many nations of the world are taking a stand against tobacco by supporting the world's first global public health treaty—the Framework Convention on Tobacco Control (FCTC).<sup>10</sup> In fact, the campaign to reduce the global burden of tobacco-related disease celebrated a significant victory in November 2004, when Peru became the 40<sup>th</sup> nation to ratify the FCTC. Developed by the WHO and

formally adopted by the World Health Assembly in 2003, the treaty required ratification by 40 nations before it could become legally binding on the countries that have adopted it. Ratification of the FCTC was a tremendous milestone for global public health, putting us on the track to saving the millions of lives we know we can save each year just by reducing tobacco consumption.

The FCTC hits the tobacco companies where they live by restricting their unscrupulous marketing tactics. It gives nations—particularly the low-income nations the tobacco companies have targeted as their most promising markets—powerful new tools to protect their citizens from the tobacco industry's deception. The treaty commits nations to ban all tobacco advertising, promotion and sponsorship (with an exception for countries with constitutional constraints). It also requires that warning labels cover at least 30% of cigarette packaging.

In addition to aggressively combating tobacco marketing, the FCTC requires many other measures to protect the citizens of the world, including shielding citizens from secondhand smoke, increasing tobacco excise taxes, preventing cigarette smuggling, promoting public awareness of the deadly consequences of tobacco use, providing greater access to treatment for nicotine dependence and providing more stringent regulation of tobacco products – an especially important action since these products will continue to be freely and legitimately available to youth and adults worldwide.

## CONCLUSIONS

In combating tobacco trends, it is crucial to understand that increased knowledge about cancer prevention, cancer treatment or tobacco control does not equal successful cancer survi-

vorship. If the growing cancer burden is to be reversed in the Middle East and other areas of the developing world, cancer and tobacco control agencies must work together and surpass political and cultural barriers. The benefits of international collaborations to achieve cancer and tobacco control initiatives are reaped globally. International efforts to build the capacity of emerging cancer societies and to enhance worldwide tobacco control efforts lay the necessary foundation for healthy, peaceful, prosperous and productive societies.

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## C. COMMENTARY ON THE GLOBAL EPIDEMIC OF TOBACCO, A MANUFACTURED DISEASE. WHAT IT LOOKS LIKE TODAY AND WHAT'S TO COME

**Abstract:** An estimated 1.2 billion citizens of the world are smokers. In developing countries, half the males smoke. WHO projects a global smoking population of 1.6 billion by the end of the next two decades. Collectively, today the world's smokers annually consume nearly 1,000 cigarettes for every man, woman and child on the planet. Almost 5 million people die as a result of smoking, half during their productive working years, with half occurring in developing countries. Two decades hence, tobacco products will kill an estimated 10 million people every year, 70% of them in the world's poor nations. During the 20<sup>th</sup> century, smoking killed 100 million people. Without significant public health progress, cigarettes will claim the lives of an estimated one billion during the 21<sup>st</sup> century. Progress can be achieved, however, through the adoption and enforcement of effective tobacco control policies. Such policies are embedded in the Framework Convention on Tobacco Control, the world's first international health treaty. They include protecting nonsmokers from the hazards of secondhand smoke in all indoor workplaces and public places, banning tobacco advertising and sponsorship, raising tobacco taxes and eliminating the smuggling of untaxed cigarettes. The future health of the world's population rests on the success that will be achieved in global tobacco control. (*Ethn Dis.* 2007;17[Suppl 3]:S3-10-S3-12)

**Key Words:** Tobacco, Cancer

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### PATTERNS OF CIGARETTE SMOKING AND ASSOCIATED MORTALITY

Cigarette smoking is a remarkably prevalent behavior around the world. Currently, nearly a billion men smoke, as do a quarter of a billion women or 1.2 billion people altogether.<sup>1</sup> Thirty-five percent of males in developed countries are smokers, as are 22% of women. In developing countries, half the males smoke (including some 300 million in China alone), while the smoking rate among women is much lower (9%).<sup>1</sup> Of great concern, however, is the fact that the smoking rate for females in the world's poorer nations is growing. Considering projected population growth, WHO estimates a global smoking population of 1.6 billion by the end of the next two decades.<sup>1</sup>

Collectively, the world's smokers consume approximately 5.5 trillion cigarettes per year or nearly 1,000 for every man, woman and child on the planet.<sup>1</sup> The toll is enormous. Currently, according to the World Health Organization, close to 5 million people annually succumb to diseases caused by smoking, half of them during the productive working years of ages 35–69, with half of the deaths occurring in developing countries. This huge figure pales in comparison, however, with WHO's estimate for the toll two decades hence, when the smoking epidemic will have "matured" within the developing world – smokers will have been smoking long enough and intensively enough for smoking to wreak its maximal damage. At that time, barring major changes in smoking trends, tobacco products will kill 10 million citizens in the world every year, 70% of them in the world's poor nations.<sup>2,3</sup>

Kenneth E. Warner, PhD

During the 20<sup>th</sup> century, smoking claimed the lives of a phenomenal 100 million people. However, without significant public health progress, that figure will increase to one billion human beings during the 21<sup>st</sup> century. Among them will be millions of nonsmokers, the victims of passive or involuntary smoking, the inhalation of smoke from the cigarettes of others. Passive smoking increases the risk of death from lung cancer and heart disease by 20–30%.<sup>4</sup>

Smoking patterns vary significantly by region, with male-female differences in prevalence rates being far smaller in Europe and the Americas, for example, than they are in Asia and the Middle East. Still, patterns diverge among countries within regions, as is seen in Table 1, which presents male and female smoking rates in 18 Arab countries. The predominant pattern is one of substantial male smoking and very little smoking by women. However, in two of the countries, Lebanon and Yemen, nearly a third of women are smokers. The high rates of smoking among children in countries throughout the world, with male-female differences in prevalence far smaller than in the adult population are of greatest concern.<sup>5</sup>

### THE FUTURE OF GLOBAL TOBACCO CONTROL

In many of the developed nations of the world, education about the dangers of smoking emerged 40 years ago. Over subsequent decades, tobacco control policies emerged to the point that, today, roughly a dozen countries ban smoking in all workplaces, including all bars and restaurants. Many more are certain to follow over the next decade. The impact has been substantial and

**Table 1. Smoking prevalence in Arab countries**

Country	Male (%)	Female (%)
Algeria	44	7
Bahrain	24	6
Djibouti	58	5
Egypt	35	2
Iran	27	3
Iraq	40	5
Jordan	48	10
Kuwait	30	2
Lebanon	46	35
Morocco	35	2
Oman	16	2
Qatar	37	1
Saudi Arabia	22	1
Sudan	24	1
Syria	51	10
Tunisia	62	8
UAE	18	<1
Yemen	60	29

Source: Mackay and Ericksen, 2002.<sup>1</sup>

profound, with smoking converted from a common, highly public, sociable behavior to one that is increasingly rare and increasingly viewed as anti-social behavior. Control of the tobacco epidemic in the developed world is one of the great public health success stories of the past half century.<sup>6</sup>

The same is not the case in the developing world. With smoking on the rise in many countries, where knowledge of its hazards is limited and policies discouraging smoking are a rarity, the purveyors of cigarettes have found fertile ground for expanding their markets and their profits. A handful of poor nations are implementing serious tobacco control measures (eg, India and South Africa), but the norm is to ignore smoking as one of the “small, affordable pleasures” for the globe’s impoverished peoples.

This is likely to change in the coming years. On February 27, 2005 an unprecedented international health treaty, the Framework Convention on Tobacco Control (FCTC), took effect.<sup>7</sup> According to Article 3 of the treaty, its purpose is “[T]o protect...future generations...by providing a framework for tobacco control measures...to reduce continually and substantially the preva-

lence of tobacco use...” Negotiated over a three-year period, the treaty has been ratified by 125 countries (as of April 12, 2006) that are now parties to its multiple tobacco control provisions.<sup>8</sup> Among others, these include the following policy mandates:<sup>9</sup>

- Adoption of “effective measures” to protect nonsmokers from the hazards of secondhand smoke in all indoor workplaces and public places.
- Banning all tobacco advertising and sponsorship, direct and indirect, within 5 years, save for those countries in which national law prohibits banning commercial speech.
- Consideration of health objectives in setting tobacco taxes (with the treaty’s noting that higher prices discourage tobacco consumption).
- Implementation of rotating health warning labels covering at least 30% of the fronts and backs of all cigarette packs.
- Prohibition of sales to minors, distribution of free samples and sale of “loosies” (single cigarettes).

As well, the treaty calls for product regulation (tobacco products being among the few consumer products currently subjected to virtually no

product regulation throughout the world) and measures to reduce cigarette smuggling (cigarettes constituting the most widely smuggled legal product of any); in recent years, it has been estimated that fully 30% of all legally exported cigarettes were never imported legally anywhere.<sup>10</sup> Legal procedures to diminishing the toll of tobacco, including product liability lawsuits, are also encouraged in the treaty.

## CONCLUSIONS

The degree to which participating nations will effectively implement the provisions of the FCTC remains to be seen, as does the ultimate impact of implementation on smoking and its disease sequelae. Nevertheless, it seems safe to conclude that the existence of this internationally binding treaty and the genuine enthusiasm for it in many countries will moderate the future growth in the world’s tobacco disease pandemic. Particularly, in many countries in Africa, in which poverty has limited the spread of intensive smoking thus far, and in countries in Asia and in the Arab world, where social convention has produced low, but growing smoking rates among women, the potential to short-circuit much of that pandemic is significant. For the foreseeable future, tobacco use is likely to grow, the world’s best efforts notwithstanding, and the mortality burden of tobacco will grow too. But making even a sizable dent in this enormous burden would represent a public health achievement of prodigious proportions. Public health professionals around the world will invest heavily in global tobacco control and eagerly await the outcome of their efforts.

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## D. GLOBAL EPIDEMIOLOGY AND HEALTH HAZARDS OF TOBACCO USE: ARAB WORLD PATTERNS

Omar Shafey, PhD, MPH

*Ethn Dis.* 2007;17[Suppl 3]:S3-13-S3-15

**Key Words:** Tobacco, Arab World

### INTRODUCTION: SMOKING PATTERNS

Between 1990 and 1997, cigarette consumption increased 24% in the Middle East. The Middle East and Asia are the only two regions of the world where cigarette sales increased during that period. This trend reflects the high male smoking prevalence in the Arab world and the uptake of smoking by a growing number of women.<sup>1</sup>

Male smoking prevalence in the Arab world remains significantly higher than female smoking prevalence. Almost all the large Arab countries (Yemen, Lebanon, Jordan, Egypt, Tunisia, Syria, and Iraq) have very high adult male smoking prevalence rates. Yemen and Djibouti have some of the highest male smoking prevalence rates in the world, above 75%. Rates of male smoking are also exceptionally high, above 40%, in Jordan, Tunisia, Egypt, Syria, Lebanon and Palestine. Smoking prevalence among women in Arab countries is generally low, under 10%, with only three exceptions: Egypt, Lebanon and Yemen. A larger percentage of women in Lebanon and Yemen smoke tobacco than women in the United States. Ominously, there are more than 12 Arab countries where at least 10% of girls age 13–15 smoke. This seems to indicate a dangerous trend toward more widespread female smoking in the Arab World.<sup>2</sup>

### THE HOOKAH PROBLEM

The hookah (also known as the water pipe, shisha, nargileh, argileh or hubble-bubble) poses a special tobacco problem in the Middle East. Cigarettes are the most widely used form of

tobacco in the world but in the Arab countries, the hookah is also used widely. Jordan, Tunisia and Iraqi Kurdistan are the only places where cigarette smoking prevalence is higher than hookah use.<sup>3</sup>

The hookah is often perceived as the “traditional” Arab way of consuming tobacco, often while socializing. Arab American youth use the hookah as a form of ethnic identification and because hookah smoking meets with less parental disapproval than cigarettes. Among non-Arabs in the United States and elsewhere, hookah smoking is seen largely as an exotic novelty but the practice may serve as a gateway to cigarette addiction. There is a common misconception that water filtration reduces carcinogen content of tobacco smoke, making hookah smoking “safer” than cigarettes.<sup>4</sup>

In Egypt, also, perceptions about the hookah are couched in gender roles and expectations. Many people think it is indecent for women to smoke and that smoking reflects badly on the character and morality of women. The Arab world’s economy is becoming more globally integrated and the social pressures of encroaching western cultural values are being felt through the media, consumerism and promotion of neoliberal values including Western feminism. The reaction to that is to sometimes turn inward and resolve self-identity by reasserting traditional values and practices and advancing the tenets of Islamic feminism. Women who smoke shisha may believe they are making strides for gender equality.<sup>5</sup>

The immediate health effects of hookah smoking include: increased expired carbon monoxide, plasma nicotine and higher heart rate. Short-term health risks associated with spreading

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From the International Cancer Control Research, Atlanta, GA.

infection (if the hookah is shared) include tuberculosis, hepatitis and respiratory tract infections. Long-term health risks of hookah smoking include: nicotine dependence/addiction, cancer of the lung, trachea, bronchus and oral cavity, cardiovascular disease, respiratory disease/emphysema/chronic obstructive pulmonary disease (COPD) and heavy metal poisoning from arsenic, cadmium, cobalt, chromium and lead.<sup>6</sup>

### TOBACCO INDUSTRY ACTIVITIES

Women in the Middle East represent one of the last great untapped markets for the tobacco industry. The tobacco industry sponsors female-oriented events, such as fashion shows, and increasingly employs advertising techniques that exploit the tropes of freedom, equality and modernity to seduce women into adopting the traditionally male behavior of smoking.

Cigarette smuggling remains a significant problem in the Middle East. Much of the region's cigarette-smuggling operations are conducted through Cyprus, Jordan and the Gulf emirates. Large-scale cigarette smuggling would not be possible without collusion by the tobacco industry. In 2002, the European Union filed a lawsuit against RJ Reynolds, Japan Tobacco and Philip Morris, claiming that they were violating UN sanctions by smuggling billions of cigarettes into Iraq. The lawsuit claimed that smuggling was often carried out with the aid of terrorist organizations. After the United States invasion of Iraq in 2003, the charges were dropped.

Tobacco industry collusion in the Middle East began in the late 1970s with the formation of the Middle East Tobacco Association (META). The Association engaged in sophisticated campaigns to plant pro-tobacco articles in regional newspapers and defeat or water down advertising ban proposals

throughout the region. The industry also sought to "identify Islamic religious leaders who oppose interpretations of the Quran which would ban the use of tobacco and encourage support for these leaders."<sup>7</sup>

### TOBACCO CONTROL EFFORTS

The WHO Eastern Mediterranean Regional Office (EMRO) has a strategy of linking religion with health promotion. *The Right Path to Health; Health Education through Religion; Islamic Ruling on Smoking* was published in 1996 to confront tobacco addiction with religious edicts. Because smoking is injurious to the smoker and others, it is considered haram (forbidden) under Sharia (Islamic law). Some religious scholars believe that tobacco is only makhrouh (undesirable) rather than forbidden. Statements against smoking from Eastern Orthodox priests and the Vatican are also used to promote health behavior in Arab Christian communities. For more information, visit <http://www.emro.who.int/tfi/emroleads.htm>

As mentioned previously in this section, the WHO's Framework Convention on Tobacco Control (WHO FCTC) requires countries that ratify the treaty to take specific measures to control tobacco consumption, production and advertising. The treaty was activated on February 27, 2005 and as of July 2006, 168 countries had signed the treaty and 134 had become parties to the treaty. Nineteen out of 22 countries in the WHO EMRO have signed and 14 countries have become parties to the treaty: Afghanistan (ratification pending), Djibouti, Egypt, Iran, Iraq (ratification pending), Jordan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Morocco (ratification pending), Oman, Pakistan, Qatar, Saudi Arabia, Sudan, Syrian Arab Republic, Tunisia (ratification pending), United Arab

Emirates, and Yemen (ratification pending). Bahrain, Palestine, and Somalia have yet to sign the treaty. Other Arab countries party to the treaty include the Comoros and Mauritania.<sup>8</sup>

The American Cancer Society (ACS) and other public health groups are campaigning worldwide for all governments to sign and ratify the FCTC. United States ratification would be an enormous success and would have a great impact on the global tobacco epidemic. Citizens of every country need to hold their own tobacco companies responsible for the millions of death worldwide that their products cause and make sure that they are regulated appropriately. The main goal is to see widespread ratification and implementation of the FCTC.

### CONCLUSIONS

Male cigarette smoking prevalence in the Arab World is relatively high but female prevalence remains generally low. Hookah use is widespread and appears to be increasing rapidly among youth and women. Tobacco-related disease will become more prevalent as the course of the epidemic continues. Legislative measures and religious exhortations are being used to control tobacco use but smuggling operations and advertising campaigns threaten to undermine tobacco control measures. Commitment to tobacco control is lacking in some influential countries.

Despite a lack of commitment, actions can be taken. ACS has been instrumental in changing the social acceptability of tobacco in the United States. Americans smoked even more heavily than Arabs did a few decades ago. Ratification and implementation of FCTC offers the best strategy for stemming the tobacco pandemic. Change is not only possible; it is vital if we are to circumvent a toll of unnecessary death and illness in the Arab world.

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## E. A REVIEW: DEPRESSION AND SMOKING

**Abstract:** The association between depression and smoking has been well-documented in multiple countries and age groups. This review examines recent publications that address the magnitude of the association and its causal patterns (ie, due to lowered success of quitting in people with depression, depression causing smoking, smoking causing depression or third factor related to both smoking and depression). We conclude that the association may be multi-factorial with each of the causal directions possibly contributing to the observed association. Also, the association extends beyond depression to other mental disorders, including consumption of illegal drugs and non-medical use of prescription medications. Although the studies emphasize cigarette smoking, it is plausible to generalize the findings to other tobacco delivery systems involving deep inhalation, such as a hookah, due to the pharmacodynamics of nicotine. Although this review did not examine any studies specific to Arab Americans, the findings should generalize if smoking is stigmatized or, alternatively, as stigmatization increases. The good news is that even with the robust association between depression and smoking, people with depression can quit smoking and continue to be smoke-free. Because 44.3% of cigarettes in the United States are consumed by individuals with mental illnesses<sup>1</sup>, mental illness deserves a prominent focus to allow our public health goal of reducing the prevalence of smoking to be reached. (*Ethn Dis.* 2007;17[Suppl 3]:S3-16-S3-18)

**Key Words:** Depression, Smoking

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### INTRODUCTION

As smoking becomes a less-accepted behavior in different societies, the people who continue to smoke are more likely to be identified by certain characteristics. One characteristic is mental illness. The purpose of this review is to examine the association between mental illness and smoking and factors contributing to it. The association or observed co-occurrence between smoking and mental illness is robust across countries and within them, across age, race and sex. As a testimony to its robustness, the association is found even across different measures of mental illness and different measures of smoking. The data presented in this review will draw upon these studies, with an emphasis on more recent studies, and their various measures of mental illness and smoking.

### BACKGROUND

One of the first national reports in the United States used results from the 1990–1992 National Comorbidity Study, an in-person survey estimating the prevalence of mental illnesses in a national representative sample between 15 and 54 years of age.<sup>2</sup> In that survey, data were collected on mental illness by highly trained lay interviewers using a structured interview with coded responses that followed Diagnostic and Statistical Manual of Mental Disorders (DSM) IIR criteria.<sup>3</sup> A diagnose of smoking and nicotine dependence were assessed for those who reported they smoked daily. Lasser et al reported that of those with either a history of or current mental illness, 34.8% smoked daily.<sup>1</sup> For those with a current mental illness, 41.0% smoked daily. This prevalence of daily smoking was higher than that of individuals without a history of mental illness (22.5%). In addition,

people with mental illness consume 44.3% of the cigarettes in the United States.<sup>1</sup>

Mental illness comprises multiple specific disorders, whether DSM-IV or the International Classification of Diseases (ICD) criteria are used. From the most recent United States national estimates (from the years 2000–2003 with DSM-IV criteria),<sup>4</sup> anxiety disorders have the highest 12-month prevalence of mental disorders (18.1%) followed by mood disorders (9.5%). Within mood disorders, there are various disorders, including Major Depressive Disorder (MDD). It is estimated that 6.6% currently meet criteria for having MDD, with 16.2% either having current MDD or a history of it. Highlighting its importance, a high proportion of individuals with MDD has severe or very severe impairment (50.9%) and few are adequately treated (21.7%).

In the 1997 National Household Survey on Drug Use, which sampled individuals aged  $\geq 12$  years of age living in households, Richter et al found MDD, as well as the use of illegal drugs or non-medical use of prescribed medications, to be associated with smoking in the past 30 days.<sup>5</sup> This association held even after controlling for age, sex, race, education, regular source of care, ever in drug treatment, perceived risk of smoking and alcohol binges.

### STUDY REVIEWS

Lasser et al found the quit rate for people with current mental illnesses to be lower (30.5%) than those with history of mental illnesses (37.1%) or those without a history of mental disorder (42.5%).<sup>3</sup> Specific to depression, Breslau et al followed a cohort of young people in southeastern Michigan

and found the five-year quit rate did not vary by depression status at baseline (19.0 vs. 21.6%).<sup>6</sup> In contrast, Glassman et al found a statistically significant difference of successfully quitting smoking by depression status when investigating clonidine as an aid for smoking cessation.<sup>7</sup>

Hitsman et al conducted a meta-analysis and found no difference in the quit rate for those with or without depression in the short term (three months) or longer term (six months).<sup>8</sup> It is possible that the meta-analysis did not examine a long enough timeframe. It has been reported that people, who relapsed after successfully quitting smoking, were more likely to report that they smoked when having a negative mood.<sup>9</sup> To help predict who will relapse, Abrams et al used laboratory procedures with former smokers and current smokers. They found the former smokers displayed better coping and less physiologic responses to stressful situations than current smokers.<sup>10</sup>

Because research has demonstrated that lower quit rates are found for those with depression, relapse was related to negative mood and that one of the withdrawal symptoms from smoking is depressed mood, it was logical that antidepressants be examined as a smoking cessation aid. In 1997, the US Food and Drug Administration approved Bupropion for the treatment of smoking. This approval was based upon three clinical trials that found 18% of those assigned to bupropion quit smoking vs 5% of those assigned to a placebo.<sup>11</sup>

Other antidepressants were subsequently examined. One, fluoxetine, was investigated in Detroit.<sup>12</sup> In 150 daily smokers, who received cognitive-behavioral therapy and nicotine patches, there was no difference in smoking cessation between those who received placebo and either of two doses of fluoxetine. The antidepressant was associated with ameliorating weight gain among those who quit smoking. It was also associated with

ameliorating self-reported withdrawal symptoms. However, it had no impact on smoking cessation, either for the entire sample or sub-samples defined as people with history of MDD or current depressive symptoms. The use of cognitive behavioral therapy (and nicotine patch) may have played a major role in addressing coping strategies and dealing with negative affect.

If the quit rate is not responsible for the association between depression and smoking, does smoking cause depression or depression cause smoking? To answer this question, observational studies must be used. The cohort assembled by Breslau et al, as described above, would be ideal to examine these questions. They reported that MDD predicted progression to daily smoking (23.0 vs. 9.3%, OR=3.0).<sup>13</sup> In addition, smoking status at baseline predicted MDD five years later (12.1 vs. 6.5%, OR=1.9). Although controlling for conduct disorder weakened the associations; they still showed consistent dose-responses for both directions of the association.

In Norway, Klungsøyr et al recently reported on a cohort of adults followed for 11 years.<sup>14</sup> Consistent with Breslau et al, they found a dose-response between smoking quantity and years and later development of ICD-10-defined depression. The risk of developing a first episode depression was four times higher in the heavy smokers compared to those who never smoked.

The temporal sequence of depression predicting later smoking has also been found in children. In Australia, Patton et al surveyed 2032 children and found depression and anxiety predicted smoking in both boys and girls when their peers smoked.<sup>15</sup> In California, Weiss et al followed an ethnically diverse sample of children between 6<sup>th</sup> and 7<sup>th</sup> grade.<sup>16</sup> Among other factors, they found depressive factors at baseline predicted smoking the next year and more frequent smoking among those already smoking.

In addition to cohort studies where data are collected from different time points, cross-sectional surveys can address temporal sequence. Using data from the National Comorbidity Study, Breslau et al examined the sequence of mental illnesses and smoking using self-reported timing of these events.<sup>17</sup> They found consistent and strong associations between current or active mental illness and progression to daily smoking or to nicotine dependence. This latter diagnosis is defined by criteria such as difficulty quitting, presence of withdrawal symptoms when abstaining, excess time spent smoking/acquiring cigarettes and tolerance of smoking symptoms.<sup>18</sup> The associations held across a variety of mental illness, including MDD.

From these studies, it appears that smoking predicts depression and depression predicts smoking. However, the association may not be causal if a third factor could explain these findings. Kendler et al used a sample of United States White female twins to examine genetic factors predisposing to smoking and depression.<sup>19</sup> They concluded that smoking and depression co-occurred but that the association was due to an inherited predisposition to both. The results, while provocative, have not been examined to our knowledge in other more diverse samples.

In a separate genetic study, Audrain-McGovern et al, found that an interaction of specific genetic variants and depression predicted progressing to a higher level of smoking in adolescents.<sup>20</sup> The genetic variants did not, however, predict smoking initiation.

Others have supported the argument that a third factor contributes to the association of depression and smoking. Covey et al argued in their study of adolescents that high level of stress and specific (maladaptive) coping strategies may encourage both smoking and development of depression.<sup>21</sup> A recent report from China found smoking ("ever had a puff") and past 30-day

smoking in early and late adolescents to be associated with a way to regulate mood, either for relaxing or energizing.<sup>22</sup> Although smoking is not stigmatized in Chinese adults, it is stigmatized for adolescents, especially girls. The observed associations may not have found such a high endorsement if smoking were normative.

## CONCLUSIONS

From the data presented here and the extensive literature not reviewed, it is apparent that depression and smoking are associated, at least in countries or subgroups where smoking is stigmatized, and the association may be multifactorial in nature. Moreover, it appears that the association between smoking and mental illness extends beyond depression to other disorders, including consumption of illegal drugs and non-medical use of prescription medications. Although the studies emphasize cigarette smoking, it is plausible to generalize the findings to other tobacco delivery systems involving deep inhalation, such as a hookah, due to the pharmacodynamics of nicotine. Although the review did not examine any studies specific to Arab Americans, the findings should generalize if smoking is stigmatized or, alternatively, as stigmatization increases. The good news from this review is that even with the robust association between depression and smoking, people with depression can quit smoking and continue to be smoke-free. In addition, with 44.3% of cigarettes being consumed in the United States by individuals with mental illnesses, mental illness deserves a promi-

nent focus if our public health goal of reducing the prevalence of smoking is to be reached.

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## F. COLLABORATIVE RESEARCH OF TOBACCO USE AND ITS PREDICTORS IN ARAB AND NON-ARAB AMERICAN 9<sup>TH</sup> GRADERS

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**Key Words:** Depression, Tobacco, Narghile, Smoking

### INTRODUCTION

This presentation documents the development of a collaborative research effort between the university and an ethnic community center to determine tobacco use and its predictors in Arab and non-Arab American 9<sup>th</sup> graders. Tobacco use, primarily cigarette smoking, is a major preventable public health risk in most of the developing countries of the world<sup>1</sup> even as rates have declined in developed countries like the United States.<sup>2</sup> The WHO reports smoking as the second cause of death and disability worldwide; it responsible for the death of one in ten adults. There are approximately 1.1 billion smokers in the world; about one-third of the global population aged 15 years and over.<sup>3</sup> Worldwide more than half of the adolescents 18 years and under have experimented with smoking.<sup>1</sup> In America, 23% of all high school students reported smoking in the past month with almost equal numbers of boys and girls<sup>4</sup>; this is slightly higher than the 21% reported in 2003.<sup>5</sup> More than half began smoking before the age of 14 and 90% before the age of 19. Twenty-seven percent (27%) of 12<sup>th</sup> graders are current users; one in four is a regular smoker by the time he or she leaves high school.<sup>6</sup>

Cigarette smoking rates among teens declined during the 1970s and 1980s, but increased in the early to mid-1990s among White, African American and Hispanic high school students, especially girls.<sup>6</sup> On the whole, Hispanic high school students were higher tobacco users (18.4%) in the previous month than African American (15.1%) or Asian-American youth (12.8%).<sup>5</sup> In 2006, the overall rate increased from 22.9% to 23%; the only significant

subgroup change was a reduction in current smoking among Black males from 19.3% to 14%.<sup>4</sup> Few smoking behavior data are available for other ethnic groups such as Arab Americans who number almost four million and are one of the fastest growing immigrant groups in America.<sup>7</sup> They live in all 50 states; 66% reside in 10 of them. One-third of the total live in Michigan, California and New York, and approximately 94% live in large metropolitan areas including Detroit, Los Angeles, New York City, Chicago, Washington, D.C. and northeastern New Jersey. Almost 490,000 Arab Americans live in Michigan.<sup>8</sup> As they migrate around the world, Arabs bring with them their cultural traditions and behaviors, one of which is tobacco use. On average, 45% of the men and 5% of the women in the Middle East smoke. Traditionally, tobacco use by women in the Middle East has been very low; it is now on the rise.<sup>9</sup>

Estimated cigarette smoking among 13- to 15-year-old boys and girls in the Eastern Mediterranean region is 35% and 4%, respectively; 25% had smoked their first cigarette before the age of 10.<sup>3</sup> While much is known about cigarette smoking and its dangers,<sup>2,10</sup> less is known about another form of tobacco use commonly used by those in the Middle East (ME), narghile smoking, as described earlier in this section. Today, more than 100 million people of all age groups worldwide smoke a water pipe on a daily basis.<sup>11-12</sup>

Researchers in the Middle East are just beginning to evaluate narghile smoking by the young. Tamim and others<sup>13</sup> reported an overall smoking rate of 40% in 2000 university students in Lebanon; 21.1% indicated using only the narghile; 12% smoked both cigarettes and narghile. In a cross-sectional

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study of university students in Syria, Maziak et al<sup>14</sup> found 62.6% and 29.8% narghile use, respectively, for young men and women. Cigarette-smoking rates were 25.5% for men and 4.9% for women. Seven percent (7%) of the male students reported using the narghile daily. Although the World Health Organization has documented cigarette smoking on a regular basis for a long period of time,<sup>1,3</sup> it has just begun to monitor narghile use. Few data were found for narghile smoking among high school students and those younger in either the Middle East or the United States. As cigarette and narghile smoking rates for Arab adults and college-aged students<sup>15</sup> appear to be high, it is important to examine the patterns and predictors in adolescents of all tobacco use so that effective prevention and/or cessation programs can be initiated early.

## METHODS

Participants in this adolescent tobacco use were 1455 9<sup>th</sup> grade students attending two community high schools and able to read and write in English or Arabic and willing to participate. The average age was 14.54 (SD=0.83); 55% were male and 89% self-identified as Arab American. Information letters describing the study were mailed to parents by the school administration. Those who did not wish their child to participate were instructed to contact the school; there were no parental refusals. In addition, students were given a choice for participation in the classroom and received a Human Investigative Committee (HIC) approved Information Sheet; no students refused to participate. Fifty-seven percent (57%) of the youths reported being born in the Middle East with a mean time in the United States of 6.0 years (SD = 4.3). Reliable and valid bilingual tools<sup>14,15</sup> measured demographic and cultural information (DCI), family and peer tobacco use, Rosenberg's self-

esteem, CESD-Depression, adolescent stress, and tobacco use history were completed in a single session.

## RESULTS

Regular, last 30 days, and experimental use of cigarettes by Arab American youth were 1%, 2% and 9%, respectively compared to 5%, 9% and 27%, respectively, for non-Arab youth. In contrast, narghile use was 8%, 12% and 36% for regular, last 30 days, and experimental use, respectively, by Arab American 9<sup>th</sup> graders compared to 3%, 4% and 11%, respectively, for non-Arab youths. Logistic regressions revealed having three or more close friends who smoked (OR=5.72), brother(s) who smoked (OR=3.52), being US-born (OR=5.08), receiving offers to smoke (OR=3.82) and English not spoken at home (OR=3.21) all contributed to cigarette smoking in last 30 days. Variables predictive of experimenting with cigarettes included having one or more close friends who smoked (OR=3.42), brother(s) smoking (OR=1.48), receiving offers to smoke (OR=1.66), being depressed (OR=1.77), exposed to smoking at home (OR=1.42) and easy access to cigarettes (OR=1.73). For experimental narghile use, being Middle Eastern (OR=8.55), male (OR=1.90), mother smoking (OR=1.82), sister(s) smoking (OR=2.04), having one or more close friends who smoked (OR=1.99), being stressed (OR=1.73) and having easy access (OR=1.58) were all significant predictors. Ethnicity, parents and peers were all significant predictors of the two forms of tobacco use by 9<sup>th</sup> graders.

## DISCUSSION

Tobacco use in the form of experimentation and/or last-30-day use was prevalent for both Arab and non-Arab Americans in the 9<sup>th</sup> grade. However, the type of tobacco smoked differed. One

reason for this may be because narghile use is a cultural form of hospitality among adults of the Middle East. As a youth approaches adulthood, this behavior becomes more and more acceptable.<sup>16</sup> Narghile use was also a strong predictor of current cigarette smoking. This raises serious concerns about the role of this commonly accepted cultural practice in the Arab American community. First, it may be the narghile smoking is a gateway tobacco product leading to higher rates of cigarette use in the long term. It is also possible that narghile smoking may be a substitute for cigarette smoking, but with as yet unrecognized and unstudied health risks. These risks may be equal to, or more harmful than, those related to cigarette smoking. Clearly, further research is needed into this form of tobacco use that is spreading rapidly into the non-Arab community. Finally, tobacco use among friends and family members appeared to have a sustaining effect for current cigarette smoking, while cultural factors, offers and availability of tobacco (in addition to friends' use) contributed more to experimentation. These findings suggest further exploration and direction for the development of community prevention and cessation programs in the very young.

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## G. TOBACCO USE PATTERNS AMONG HIGH SCHOOL STUDENTS: DO ARAB AMERICAN YOUTH DIFFER?

**Objective:** To determine tobacco use rates (cigarette, water pipe smoking [WPS] or narghile) in Arab American compared to non-Arab youth.

**Design/Setting:** A convenience sample of 2,782 14- to 18-year-old high school students from a midwest community completed a 21-item tobacco use history survey.

**Results:** Seventy-one percent of the participants were ArA. Grades 9 through 12 were equally represented. Results included 'ever tried cigarettes [narghile]' (20%, 39%); 'smoked cigarettes [narghile] in the past 30 days' (7%, 22%); and 'regular smoking [narghile]' (3%, 15%) for ArA and non-Arab youths, respectively. Each was significantly related to grade and ethnicity. WPS for ArA and non-Arab youths was (38%, 21%); (17%, 11%); and (7%, 5%) for 'ever used,' 'used in the past 30 days,' and 'regular use,' respectively. Grade, ethnicity, and sex were significantly related to WPS.

**Conclusions:** Cigarette smoking rates for non-Arab youth were lower than current national youth smoking rates but significantly higher than ArA youth. Rates for ArA youth were much lower than current national reported data. Rates of WPS for US youth, regardless of race or ethnicity, are not known. Findings from this study indicate that both ArA and non-Arab youth are experimenting and using WPS regularly. These results underscore the importance of assessing novel forms of tobacco use, particularly WPS, a growing phenomenon among US youth. (*Ethn Dis.* 2007;17[Suppl 3]:S3-22-S3-24)

**Key Words:** Smoking, Arab American Youth

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### INTRODUCTION

The significant progress our nation made in reducing youth cigarette smoking since the mid-1990s has stalled, according to the 2004 National Youth Tobacco Survey results.<sup>1</sup> Overall, youth cigarette-smoking rates, based on the CDC 2005 reported data, were 23% for all 9<sup>th</sup> through 12<sup>th</sup> grade students and 8.1% for 6<sup>th</sup> through 8<sup>th</sup> grade middle school students. While there are well-recognized differences in youth cigarette-smoking rates for the four major racial/ethnic groups, the smoking rates for Arab Americans is generally not singled out. Arab Americans, one of the fastest growing immigrant groups in the United States, number nearly 4 million with approximately 490,000 living in Michigan. Adults from the Middle East have some of the highest reported cigarette smoking rates in the world<sup>2</sup>; ranging from 60% in Tunisia to 40% in Iraq<sup>3</sup> which may translate into higher smoking rates among youth of Middle Eastern descent. In addition, the cultural patterns of tobacco use brought in from the eastern Mediterranean region and Middle East (particularly water pipe smoking [WPS] or narghile)<sup>4</sup> are increasingly being modeled by youth regardless of race/ethnicity<sup>5</sup> in the United States, Brazil and European countries<sup>3</sup> and are of particular interest. Research studies describing WPS among United States youth are essential given the novelty of this rapidly growing form of tobacco use among young people.

Recent studies, mainly conducted in the Middle East, have identified that WPS results in a number of potential negative health consequences, such as the risk of transmission of communica-

ble diseases (eg, tuberculosis, hepatitis)<sup>6</sup> and a variety of life-threatening conditions (eg, coronary heart disease, pulmonary disease and pregnancy related complications) similar to those caused by cigarette smoking.<sup>7</sup> The research conducted by Rice and colleagues is the only known reported research on WPS among adolescents, both Arab American and non-Arab, in the United States.<sup>2</sup> The purpose of this study was to examine tobacco use, (ie, cigarette smoking and WPS in a convenience sample of adolescents (14 to 18 years of age) attending high school with a large immigrant Arab population in a Midwestern community. Data were collected in 2004 and 2005.

### METHODS

#### Design

This community-based, cross-sectional survey examined current tobacco use, defined as "smoked one or more cigarette(s) and/or narghile within the past 30 days," experimentation with tobacco, defined as "ever smoking a cigarette and/or narghile, even a few puffs," and regular tobacco use, defined as "smoked a cigarette and/or narghile once or more per day for the last 30 days" in 14- to 18-year-old adolescents.

#### Participants

Participants were 2,782 youths, 14 to 18 years of age, attending one of two local community high schools that agreed to participate. Ninety percent ( $n = 2504$ ) provided usable data. For this analysis, excluded were 632 students who had previously participated

in a smoking prevention/cessation program. The total sample was 1872. Inclusion criteria were 1) between 14 and 18 years old, 2) able to read and write in English or Arabic and 3) willingness to participate.

Information letters describing the study were mailed to parents by the school administration. Parents, who did not wish their child to participate, were instructed to contact the school; less than 0.1% of parents refused participation. All participants who had parental consent were given a Human Investigative Committee (HIC) approved information sheet describing the study prior to completing the study questionnaire.

### Tobacco Use History Questionnaire (TUHQ)

The Tobacco Use History Questionnaire (TUHQ) is a 21-item survey used to collect information on smoking history. The first five questions ask about demographic information such as date of birth, age, grade in school and ethnicity. The next seven items were adopted from the Youth Risk Behavior Survey.<sup>8</sup> Seven parallel questions ask about WPS. Four items ask about attempts to quit smoking, one question asks about desire to quit, two questions ask about other forms of tobacco use and five questions ask about plans to stop smoking based on stages of change.<sup>9</sup>

#### Data Analysis Procedures

Descriptive statistics were used to present the sample. Prior to analysis, data were weighted so that all ages were equally represented. Significance for all analyses was set at  $P \leq .05$ .

## RESULTS

Cigarette smoking rates were significantly higher for non-Arab American youth for experimenting, current, and regular use ( $P < .01$ ). Thirty-nine per-

cent of non-Arab youth reported having experimented with smoking cigarettes ("even a few puffs") compared to 20.1% of Arab American (ArA) youth. Current cigarette smoking ("smoked a cigarette in the past 30 days") was 21.9% for non-Arab and 6.8% for ArA youth. Regular cigarette smoking ("smoking once or more per day for the last 30 days") was 15% compared to 3.2% for non-Arab and ArA youth respectively. Non-Arab and ArA youth reported WPS for all three outcomes: 'experimentation', 'current' and 'regular use'. WPS rates were significantly higher among ArA youth for experimenting and current use ( $p = < .01$ ) but not for regular use. Thirty-eight percent of ArA youth reported experimenting with narghile, compared to 21.3% of non-Arab. Current WPS ("smoked narghile (water pipe) in the past 30 days") was 16.7% for ArA youth compared to 11.3% for non-Arab youth. Regular WPS ("smoking narghile (WPS) once or more per day for the last 30 days") was 6.9% and 5.1% for ArA and non-Arab youth respectively.

## DISCUSSION

There are no known studies of WPS rates for non-Arab US youth. Nor are there any known studies for WPS rates in the United States for Arab American youth. Therefore, we are unable to make comparisons. However, studies conducted in the Middle East report WPS rates to range from 20% to 30% for adults and adolescents<sup>4,5,10</sup> with rates as high as 40.9% for Iranian boys.<sup>11</sup> Our findings for Arab American youth (ie, 38% for experimentation, 16.7% for current use and 6.9% for regular use) are fairly consistent with the WPS patterns of Middle Eastern college-aged students (ie, 62.6% for boys/29.8% for girls experimentation, 25.5% for boys/4.9% for girls current use and 7% daily use by boys).<sup>5</sup> One reason for the higher pattern of use for this

younger Arab American population may be the modeling of Middle Eastern cultural tobacco use practices as one way to maintain Middle Eastern ethnic identity.<sup>12</sup> Another explanation may be the long-held unsubstantiated belief that WPS is safe<sup>5</sup> and therefore reporting its use is not seen as being unacceptable.

Even more surprising were the high rates of WPS for all three outcomes, experimentation (21.2%), current use (11.3%) and regular use (5.1%) reported by non-Arab 14- to 18 year-old high school students participating in this study. The rates of WPS for non-Arab youth may be due to numerous factors, including the rapid proliferation of water pipes in "hookah" bars and cafes throughout the United States.<sup>13</sup> In this large immigrant Middle Eastern community, the modeling of a behavior by adolescents is viewed as novel and perceived by youth as 'awesome' or 'sweet,' youth experimenting with adult-like behaviors (eg, smoking), and perhaps being misinformed that WPS is a safe alternative to cigarette smoking.<sup>13</sup>

In summary, there is growing national and international recognition about the increased rates of WPS<sup>3</sup> but, there is limited research about the patterns of WPS among this age group in the United States. Evidence suggests that WPS is a rapidly growing phenomenon among the young, regardless of ethnicity and geographic location within the United States. This is the first known study to present data on WPS by US youth, in particular those who are not of Arabic ancestry. These study findings identify the need for further research in order to determine the prevalence and patterns of WPS among all racial and ethnic youth as well as college-aged young adults, its health consequences and its relationship to cigarette smoking and other forms of tobacco use. In addition, effective broad and culturally based interventions, designed to mitigate WPS and its growing use by youth in the United States, need

to be developed and tested before we begin to see an increase in the negative health consequences associated with this growing phenomenon among youth and young adults.

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## H. ABSTRACT: PATTERNS OF SMOKING AMONG ALEPPO UNIVERSITY STUDENTS

Nizar Akil, MD

*Objective.* To determine prevalence and explore the risk-influencing factors for smoking among students, as well as attitudes toward smoking. During Aleppo University's *Campaign Against Smoking*, a survey of the students regarding smoking habits and attitudes toward smoking was conducted.

*Methods.* Of the 60,208 students at Aleppo University, 5.6% (3,378) were surveyed. The survey was conducted among both male and female students.

*Results.* The survey showed that 35.5% of students are smokers (48.5% male and 12% female). Of the students who are water pipe smokers (WPS), 80.5% are male and 19.5% are female. Despite the fact that the majority of WPS are male, there appears to be increasing numbers of female WPS due to approval of adult family members of this method over cigarette smoking. The majority of students (53.9%) started smoking at university age. Friends were the main factor promoting smoking (51.2%). Other factors promoting smoking included relatives (15.3%) and the media (7.6%). The main reasons listed for quitting smoking were health reasons (52.2%), religious reasons (26.7%), and social reasons (21.2%). Despite the large number of smokers, the study showed that the majority of students (smokers and non-smokers) were annoyed by cigarette smoke and felt that smokers should be secluded to specific areas. Many smokers (45.4%) are dissatisfied with smoking and the majority of smokers (67.8%) would like to quit.

*Conclusions.* Interventions targeting students before they reach university age may reduce the number of smokers, since this is the age that students primarily begin smoking. These interventions should address issues such as the influence of friends, health problems associated with smoking and prevention of relapse. It also appears that the majority of students, including those who smoke, support the banning of smoking in certain public areas.

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## I. ACTIVE AND PASSIVE SMOKING DURING PREGNANCY IN ALEPPO, SYRIA: DOES IT AFFECT THE OUTCOME?

Moujahed Hammami, MD; Maed Ramamdan, MD; Ali Sereo, MD

*Background.* Smoking during pregnancy is known to be associated with premature births and low birth weights. However, limited data is known about the attitude and beliefs regarding smoke exposure or the effect of active and passive smoking during pregnancy on newborn babies in Aleppo, Syria.

*Methods.* Three thousand pregnant women who delivered at Aleppo University Hospital for Obstetrics and Gynecology were studied. Each woman answered a questionnaire about smoking and environmental tobacco exposure (ETS). Weight, length, head circumference, as well as gestational age assessment, were measured for the newborns.

*Subjects.* Mothers were divided into four groups: non-smoking (NS) mothers ( $n=1000$ ), active smoking (AS) mothers during pregnancy ( $n=850$ ), active smoking (ASC) mothers who quit during pregnancy ( $n=150$ ) and passive smoking (PS) mothers during pregnancy ( $n=1000$ ).

*Results.* Infants born to mothers in the AS and PS groups had significantly ( $P<.05$ ) lower birth weight, shorter birth length and smaller head circumference in addition to a significantly higher incidence of premature birth, compared to infants born to mothers in the NS group. There was no significant difference in birth weight, birth height, head circumference or the incidence of premature birth between infants born to mothers in the ASC group and the NS group.

*Conclusion.* Our data confirmed past reports on the negative effect of smoking during pregnancy on the newborn. In addition, it emphasized the need for education and awareness of these findings, as well as changing attitudes and beliefs related to active and passive smoking among spouses and family members of pregnant women in Aleppo, Syria.

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# LIFESTYLE AND HEALTH OUTCOMES

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## SECTION IV: LIFESTYLE AND HEALTH OUTCOMES

Section IV has been edited by May Darwish-Yassine, PhD;  
Linda Jaber, PharmD

*Ethn Dis.* 2007;17[Suppl 3]:S3-26–S3-46

**Key Words:** Lifestyle, Health Outcomes, Infertility, Mental Health, Asthma, Depression, Cardiovascular Disease, Diabetes

### A. OVERVIEW

This session offered discussions on risk factors related to cardiovascular disease, with particular emphasis on the relatively higher prevalence of diabetes and tobacco use in Arab Americans and the possible higher prevalence of hypertriglyceridemia. Presentations focused on barriers including: lack of effective communication between healthcare providers and Arab American patients, socioeconomic conditions, cultural myths and misconceptions related to treatment and prevention, insurance coverage, and the complexity of incorporating preventive services into a typical office visit.

Evidence of increased risk for cardiovascular disease associated with genetic predisposition and with lifestyle factors such as tobacco use, nutrition and obesity has been established. The link between depression and cardiovascular diseases is emerging as an area of investigation. One presentation focused on summarizing the evidence for the role of depression or depressed affect in the etiology and in the prognosis of heart conditions.

Findings of an original investigation from Lebanon reviewed the association between male infertility as a chronic condition and a series of culturally specific risk behaviors, such as consanguinity in marriage, a common practice in Arab countries. Other possible risk factors, such as war-related stress, smoking, reproductive infections, caffeine consumption, and occupational exposures, were also reviewed. War-related trauma, episodes of sexually transmitted or reproductive illness and consanguinity were suggested as contributing risk

factors to male infertility based on this clinic-based, epidemiological investigation.

One presentation of a comprehensive, community-wide assessment of mental health needs among communities of Middle Eastern and East African descent in the San Diego, California region included a look at the relationship between psychological symptoms and history of trauma, levels of acculturation and other social factors. Experiencing racial/ethnic discrimination by adopted society, history of torture and harassment in country of origin and language barriers were commonly reported. Difficulty in revealing and seeking help for these stressors were observed and resulted in various psychological problems, including anxiety, anger and aggressiveness in students. The need for improving cultural competency within the healthcare system to enable it to reach out, identify and manage these conditions was discussed.

Utilization of glucose-lowering agents and aspirin in Arab American patients with diabetes was compared to the national utilization rate of these agents as measured by national surveys. The study site was the city of Dearborn, the major hometown for Arab Americans in Michigan. Patterns of utilization were found to be different between Arab American diabetics in the Dearborn area who were less likely to be treated with insulin and more likely to receive oral hypoglycemic medications when compared to the general population. Arab Americans remarkably underutilize aspirin. Better diabetic control is indicated for Arab American patients in order to prevent diabetic complications and to reduce the incidence of

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adverse health outcomes such as cardiovascular disease.

The interaction between quality asthma control in Arab Americans of Detroit and psychological distress was discussed.

Arab Americans with asthma had a higher prevalence of mental health-related symptoms compared to their non-asthmatic counterparts. This association was more marked for foreign-born patients

and patients with indicators of lower acculturation. Language barrier was noted as a risk factor for mental distress including symptoms of anxiety, fear and mood disorder.

## B. MANAGING CARDIOVASCULAR RISK BARRIERS TO OPTIMAL HEALTH OUTCOMES IN THE ARAB AMERICAN PATIENT

Heart disease accounts for 38% of all deaths in the United States. The American Heart Association identified cardiovascular disease (CVD) as the most common cause of hospitalization in 2002. Direct and indirect costs of CVD have reached a total of \$393.5 billion in 2005.<sup>1</sup> Despite great advances in the treatment of CVD, high mortality rates and poor clinical outcomes persist. It has been estimated that a 17-year gap exists for research to reach clinical practice.<sup>2</sup>

More than half a million Americans of Arab ancestry live in Michigan. Similar to other ethnic groups, Arab Americans face challenges within the US healthcare system that hinder optimal clinical outcomes. Evidence-based studies targeting the Arab American population do not exist. Small observational studies provide limited data of questionable value. (*Ethn Dis.* 2007;17[Suppl 3]:S3-28–S3-30)

**Key Words:** Barriers, Health Outcomes, Cardiovascular Disease

### BARRIERS TO OPTIMAL OUTCOMES

Optimal outcomes for patients with cardiovascular disease present a challenge to healthcare providers. Arab American patients and other ethnic minorities face significant barriers due to their relative isolation in our society and lack of scientifically reliable studies and evidence-based strategies to overcome these barriers. The barriers in clinical practice have been classified into issues related to the patient, the physician, and the healthcare system.

#### Patient barriers

##### *Risk factors*

The major cardiovascular disease risk factors dominating the health of the Arab American patient include the high prevalence of diabetes and tobacco use. Many clinicians equate diabetes mellitus with coronary artery disease. A recent study sponsored by the American Diabetes Association documented a 15.5% prevalence rate of diabetes among the Arab American population, compared to 5%–8% found in the general population.<sup>4</sup> Genetic, environmental or dietary causes remain to be explored.

Michigan has the 14<sup>th</sup> highest smoking rate in the nation, and tobacco use among Arab Americans is higher than the general population of Michigan.<sup>5</sup> Factors contributing to this high prevalence include perceptions such as: tobacco use confers maturity status to the smoker; offering tobacco is an expected hospitality gesture; and the water pipe is considered a non-tobacco product.

##### *Communication Issues*

Arab Americans, especially those who are first-generation Arab Ameri-

Walid A. Harb, MD

cans, have a tendency to use an indirect communication approach, similar to that found in their country of origin. Arab American patients answer a direct question by telling an introduction and a story, often without ever addressing the initial question. It is usually left to the listener to formulate a conclusion. This communication approach leaves physicians unclear about patients' main ailment and treatment expectations. The lack of clear communication hinders optimal care.

##### *Socioeconomic Issues*

Two diametrically opposed populations of Arab Americans exist – the highly educated, financially strong group and the poorly educated, often illiterate, financially limited and isolated group. The educationally disadvantaged group lacks the knowledge about the symptomatology and complications of CVD. Financial burdens limit the group's access to health care. Their first contact with health care is usually the hospital emergency room in the late stages of disease. Additionally, the ability to followup or to fill prescriptions remains limited. In addition, this group is ineligible for any type of medical assistance until they obtain citizenship.

##### *Compliance Issues*

Several studies have shown that, as the number and frequency of medication regimen increase, compliance rate decreases. Physicians caring for CVD employ a multitude of evidence-based effective medications. Aside from the financial barriers to compliance, many Arab Americans believe the more medications they take, the poorer the outcomes they will experience. They regard multiple medications as poisonous to their body. They also believe that many

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cardiac drugs interfere with their sexual function.

Although Arab Americans have had a low interest in exercise and diet (possibly linked to lack of role models in their country of origin), this seems to be slowly changing. The traditional diets are healthy with plenty of grains, fruits and vegetables in the countries of origin; however, the abundance of meat and sweets nullify any healthy advantage of these diets.

Another observed phenomenon is doctor shopping. Many physicians rely on follow-up feedback of proposed treatment in order to modify treatment plans. Doctor shopping delays improved outcomes and it adds to the cynicism of both doctors and patients. Possible explanation to this issue is the patient's expectations of cure and the lack of differentiation between chronic and acute diseases. Poor communication and limited educational efforts between patients and physicians contribute to this phenomenon.

## Physician Barriers

### *Communication, Time, Knowledge/Expertise, Attitude*

Many physicians caring for Arab American patients do not speak Arabic. Those who speak the language struggle with the multitude of different dialects. Doctors and patients with differing dialects can exchange words but lack a complete and clear communication. In addition, Arabic-speaking physicians learned medicine and medical terminology in English. If not careful, the Arabic words for gallbladder or liver can easily be confused with words for pancreas or kidneys.

In general, the decreased rates of reimbursement and the increase in documentation requirements have forced many physicians to see more patients in less allotted time. As a result, educational time regarding disease treatments, complications or prevention has been compromised.

Some physicians lack expertise in certain disease management either because of lack of training, certification, or failure to keep up-to-date with the latest research advances. Furthermore, published medical practices lack standardization. Multiple publications of the same subject with many conflicting recommendations add to the confusion of physicians regarding the best approaches for treatment.

In general, physicians harbor poor enthusiasm toward prevention because of lack of emphasis in medical schools and residency training. Furthermore, insurance reimbursement favors procedures at the expense of prevention. Physician reimbursement for patient education and counseling is virtually non-existent, compared to performing simple medical procedures. Even the HMO claim to advocate prevention fails to correct this tendency because reimbursement is too meager to cover overhead expenses, let alone teaching or counseling.

## Healthcare System Issues

### *Medical Coverage*

The United States is experiencing an explosion in the number of uninsured and the under-insured patients. Arab American patients with financial difficulties tend to belong to this group. Those awaiting citizenship are not eligible for any medical assistance. Under-insured patients tend to have low-paying jobs, thus limiting the diagnostic and therapeutic options. It also limits the patients' access to certain hospitals, physicians and sub-specialists. For many HMOs, the lowest medical cost continues to be the leading incentive for healthcare delivery. Many HMOs limit choices to medications of least effectiveness, highest profile of side effects, and most drug-drug interactions simply because of lowest cost. In addition, as our healthcare system moves toward more and more discounted care, doctors are responding by making more ap-

pointments per hour, resulting in poor ratings to the healthcare system and providers.

### *Medical Records, Education Efforts, and Translations*

Nationally, the disastrous and disorganized medical records system is a huge challenge. The great majority of physician offices and hospitals lack electronic medical records. There is no interface between hospital and clinic records. For optimal patient care, it is important to develop systems of evidence-based practices and to electronically prevent medical errors, drug interactions and reminders for better preventive management.

We lack well-coordinated educational efforts to teach the general population about CVD, diabetes mellitus or smoking cessation. The attempts by pharmaceutical companies at some of these topics are often inadequate and have often resulted only in prompting patients to ask for specific drugs, thus driving healthcare costs even higher.

We have a paucity of high-quality, up-to-date translated materials to help educate Arab American patients. The prospects are even worse for those unable to read or write. Audiovisual materials are nonexistent. Translated materials, both in print and audiovisual formats, are essential communication tools for better health outcomes.

## CONCLUSION

Although Arab Americans are presented with unique barriers, they share many issues with the American public. Great strides must be undertaken to overcome such barriers. Suboptimal care is associated with higher morbidity and mortality and hence with decreased productivity and a higher financial burden on the society. Solutions must be comprehensive and effective. Although individuals may have some impact on improving the healthcare

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system, the financial burden of the change requires a legislative mandate and support.

Our healthcare system must assure basic medical coverage for all citizens. To achieve this, we recommend the following:

- Electronic medical records should be available to all practices, hospitals and pharmacies. These records initiate prompts for preventive and better-coordinated services, thus minimizing potential drug errors and saving lives.

- Our healthcare system must create a demand for patient and provider education on most effective practices.
- We must improve healthcare promotions through community campaigns using variety of learning methods and formats to include audiovisual and print materials in multiple languages.

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## C. DEPRESSION AND CARDIOVASCULAR DISEASE

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*Ethn Dis.* 2007;17[Suppl 3]:S3-31–S3-32

**Key Words:** Depression, Cardiovascular Disease

### INTRODUCTION

Mounting evidence of a relationship between depression and cardiovascular disease exists.<sup>1–3</sup> This brief report summarizes evidence for this relationship and describes two possible mechanisms for the relationship.

Although many risk factors for coronary artery disease – genetic factors, diabetes, hypertension, clotting abnormalities, hyperlipidemia, smoking and obesity – have been recognized for many years, the role depression or depressed affect plays has only recently gained attention.

In this paper, we explore: research studies supporting the increased rate of depression in ischemic heart disease; the concept that depression or depressed or negative affect is a risk factor for morbidity/mortality following myocardial infarction; and whether depression or depressed affect is a risk factor for the development of coronary artery disease.<sup>2</sup>

In a groundbreaking study in 1995, Frasure-Smith and colleagues measured multiple variables at the time of a myocardial infarct and identified those associated with mortality. Major depression, smoking status or whether an individual received thrombolysis was not associated with mortality at 18 months. Previous myocardial infarction (MI) and a Beck depression inventory of >10 were highly associated with mortality (previous MI [CI, 1.9–17] and elevated Beck depression inventory (CI, 2.4–25). This work has recently been replicated<sup>4, 5</sup> and has been extended beyond myocardial infarction to include studies of patients following valve replacement<sup>6, 7</sup> or coronary artery bypass grafting.<sup>8</sup> Lesperance et al and Frasure-Smith and Lesperance extended the finding of a relationship between depressive symptoms and MI, demonstrating increased risk of mortality with

each increase in score on the Beck Depression Inventory.

Other types of studies have been conducted, such as the Northwick Park Heart Study. This study included 1,408 White males, between the ages of 40 and 64. At the time of enrollment, none of the subjects had suffered from a MI. Psychological state was measured by the Crown-Crisp Experiential Index (CCEI). One of the major components of this index is obsessiveness. While systolic blood pressure had the largest impact on the likelihood of fatal ischemic heart disease (28% and relative risk [RR] of 8.7–46.8), the obsessiveness factor also significantly contributed to the increased risk (20% and RR, 20–37.3).<sup>3</sup>

Another way of looking at the relationship between depression and cardiovascular disease is to examine hospitalized cardiac-risk patients diagnosed with major depression. Pratt et al looked at the Baltimore cohort of a national epidemiological sample to determine the role of major depression in MI risk, as well as to examine possible role of psychotropic medications in risk. The study participants included 64 with MI and 1,551 without heart disease. The odds ratio for MI in patients with depression was highly significant at 4.54. The use of tricyclic antidepressants (then the standard of care for depression) was not associated with the risk of myocardial infarction risk.<sup>16</sup>

The relationship was also supported by the Johns Hopkins Precursors Study.<sup>9</sup> This study was a prospective, longitudinal study of 1,190 medical students with a 40-year followup. The cumulative incidence of clinical depression was 12%. Men developing depression drank more coffee than those who did not, but did not differ in terms of baseline blood pressure, serum cholesterol levels, smoking status, physical activity, obesity or

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family history of coronary artery disease. In multivariate analysis, the men who reported clinical depression were at significantly greater risk for subsequent coronary artery disease (RR, 2.12; CI, 1.24–3.63) and myocardial infarction (RR, 2.12; CI, 1.1–4.06). The increased risk associated with clinical depression was present even for myocardial infarctions occurring 10 years after the onset of the first depressive episode (RR, 2.1; CI, 1.1–4.0). The authors concluded that clinical depression appears to be an independent risk factor for incident coronary arterial disease (CAD) for several decades after the onset of the clinical depression.

Not all studies have confirmed the association between depression and increased cardiac mortality.<sup>10</sup> Differences in methodology, particularly when the depression is diagnosed (before the MI, in the hospital during the MI, or several weeks after the MI) all lead to different results. In addition, it appears that negative or depressed affects are more powerful predictors of the relationship than are operationalized diagnoses of major depression.

What factors might mediate the relationship? At least two possible mechanisms have been proposed that might provide the pathophysiological link between depression and the rate of increased cardiac mortality. The two, which are not mutually exclusive, are exaggerated platelet reactivity,<sup>11,12</sup> and reduced heart rate variability.<sup>13,14</sup>

Patients with major depression have been found to have increased activation of the thrombotic pathway, in particular, exaggerated platelet reactivity.<sup>11,12</sup> Selective serotonin reuptake inhibitors, currently the most widely used antidepressants, appear to unstick the sticky platelets, at least *in vitro*. In one study, the selective serotonin re-uptake inhibitor sertraline led to significantly de-

creased measures of platelet activation compared with placebo treated patients.<sup>15</sup>

Beat-to-beat heart rate variability reflects a balance between vagal tone and sympathetic activity. Altered heart rate variability has been reported in both psychiatric disorders such as panic disorder and major depression<sup>14</sup> and in patients with cardiovascular disease.<sup>13</sup> Some psychotropic medications, such as tricyclic antidepressants, decrease heart rate variability and might lead to sudden cardiac death, while serotonin drugs have the opposite effect.<sup>14</sup>

## CONCLUSIONS

In summary, diagnosis of major depression or dimensional measures of depressed mood or negative affect is a risk factor for cardiovascular disease. Major depression or depressive symptoms are risk factors for poor outcome following cardiac events. Major depression is associated with several defects in the clotting cascade (increasing the likelihood of thrombus formation). Treatment with selective serotonin reuptake inhibitors, such as sertraline, reverses many depression-associated effects on the clotting cascade. Finally, altered heart rate variability might increase the chance of fatal arrhythmias.

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## D. MALE INFERTILITY IN LEBANON: A CASE-CONTROLLED STUDY

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**Objective.** The impact of risk factors, such as consanguinity and familial clustering, reproductive infections, traumas, and diseases, lifestyle factors and occupational and war exposures on male infertility, was investigated in a case-controlled study conducted in Lebanon.

**Study Design.** One-hundred-twenty males and 100 controls of Lebanese, Syrian or Lebanese-Palestinian descents were selected from two in-vitro fertilization (IVF) clinics located in Beirut, Lebanon. All cases suffered from impaired sperm count and function, according to World Health Organization guidelines for semen analysis. Controls were the fertile husbands of infertile women. Data were collected using a semi-structured interview, laboratory blood testing and the results of the most recent semen analysis. Univariate, bivariate and multivariate logistic regression analyses were used for data analysis, along with checks for effect modification and control of confounders.

**Study Results.** Consanguinity and the familial clustering of male infertility cases, as well as reproductive illnesses and war exposures were independently significant risk factors for male infertility. The odds of having infertility problems in the immediate family were 2.6 times higher in cases than controls. The odds of reproductive illness were 2 times higher in cases than controls. The odds of war exposures were 1.57 times higher in cases than controls. Occupational exposures, such as smoking and caffeine intake, were not shown to be important risk factors.

**Conclusion.** This case-controlled study highlights the importance of investigating the etiology of male infertility in Middle Eastern communities. It suggests the need to expand research on male reproductive health in the Middle East in order to improve the prevention and management of male infertility and other male reproductive health problems. (*Ethn Dis.* 2007;17[Suppl 3]:S3-33-S3-38)

**Key Words:** Male Reproductive Health, Infertility

### INTRODUCTION

Infertility affects more than 80 million people around the globe, with one in 10 couples experiencing primary or secondary infertility. Infertility is more prevalent in those countries defined as the infertility belt, namely the central and the southern African countries, where as many as one-third of the couples in some populations are unable to conceive.<sup>1</sup> Globally, the overall prevalence ranges between 8%–12%, with a core prevalence of primary infertility of about 5%.<sup>1,2</sup> The causes of infertility have been attributed to a variety of anatomical, genetic, endocrinological and immunological factors.<sup>3</sup>

The majority of the gynecological workload in the developing world is attributed to infertility problems.<sup>4</sup> Infertility problems are understudied at all biological, clinical and epidemiological perspectives; up to 30% of the causes of infertility are idiopathic.<sup>5</sup> Prevention and appropriate treatment of infertility in terms of concrete strategies of actions are lacking.

Infertility poses severe ramifications at the cultural, social and emotional levels. It directly affects the lives of married couples resulting in distress, anxiety, blame and marital and sexual problems.<sup>6</sup> This is compounded by the limited availability of infertility treatments especially in the poorest and most affected developing countries.<sup>1,4</sup>

Epidemiological studies assessing the prevalence of, and risk factors for, infertility are relatively scarce in the developing world. On one hand, there is international community neglect, as infertility is considered a natural check on population growth in countries with high fertility levels. On the other hand, a range of logistical and methodological problems exists pertaining to carrying

out epidemiological infertility research in the developing world. Conducting sound studies on infertility, in general, and male infertility, in particular, is significantly controversial in male patriarchal societies, which relate fertility with masculinity. Many cases of male infertility in those societies remain unidentified. As such, the accurate estimation of the prevalence of this condition and its contributing factors or causes is an issue of major uncertainty globally.<sup>1,7</sup> This is especially true in the Middle East, where 10%–15% of all married couples are estimated to have infertility problems.<sup>8</sup>

This case-controlled study seeks to assess the underlying factors of this condition in a Middle Eastern society. It specifically aims to investigate the impact of various risk factors on male infertility – consanguinity, reproductive infections, traumas and illness, lifestyle and occupational and war exposures. Lebanon is a country characterized with both westernized and traditional lifestyles. It has high rates of consanguineous marriage (11%–17%), 15 years of civil war, and high rates of smoking and caffeine intake.

### MATERIALS AND METHODS

#### Study Design and Population

A total of 220 cases and controls (120 cases and 100 controls) of either Lebanese, Syrian, or Lebanese-Palestinian men were selected from two of the busiest and most successful infertility clinics located in Beirut. The American University of Beirut-Medical Center (AUB-MC) is a private, university-based teaching hospital catering to a religiously mixed patient population of Muslims (Sunni and Shiite), Christians, Druze and various immigrant and refugee populations. The FIRST IVF

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is a stand-alone private infertility clinic catering primarily to southern Lebanese Shiites and occasionally Muslim Sunnis and Christians coming from either Lebanon or neighboring Syria. A total of 146 cases and controls were selected from AUB-MC and 74 cases and controls from the FIRST IVF.

There were no major exclusion criteria regarding the demographic, socioeconomic characteristics or history of reproductive infections. Cases and controls were tested for comparability and no remarkable differences in baseline characteristics were observed. The inclusion criteria for the cases were: 1) inability to conceive a child during at least the past 12 months; and 2) confirmed semen results of one or more of these conditions: oligospermia (low sperm count, less than 20 million per mm<sup>3</sup>), asthenospermia (low motility, < 40%, teratozoospermia (bad morphology), and azoospermia (no sperm in the ejaculate). The inclusion criteria for the controls were: 1) confirmed semen results of the absence of these aforementioned conditions; and 2) confirmed results of an infertile spouse or unexplained infertility.

**Data Collection**

Upon obtaining informed consent, data were collected using a combination of methods including structured interview technique, blood testing for toxic metal analysis and semen analysis results.

The interview questionnaire collected information on demographics, socioeconomic parameters, reproductive history, presence of chronic diseases, lifestyle factors, and occupational and war exposures. The laboratory data provided blood analysis for the following heavy elements: lead, arsenic, vanadium, manganese, copper, molybdenum, zinc, and selenium. The most recent semen analysis was reported; the semen analysis results were processed at the time the interview was being conducted or within a few hours following its completion.

**Table 1. Distribution of sociodemographic factors among cases and controls**

Variables		Male Infertility	
		Cases	Control
Age	Mean (SD)	38.6 (6.7)	39.30 (5.9)
		<i>P</i> value=.538	
Years of education	Mean (SD)	13.5 (4.2)	14.2 (5.5)
		<i>P</i> value=.589	
Salary (US\$)	Mean (SD)	1721 (2435)	1885 (2230)
		<i>P</i> value=.380	
		<b>N (%)</b>	<b>N (%)</b>
<b>Current residence</b>			
Beirut		42 (35.3%)	46 (46.0)
South		25 (21.0%)	8 (8.0%)
Mount Lebanon		14 (11.8%)	10 (10.0%)
Else where in Lebanon		13 (10.9%)	8 (8.0%)
Outside Lebanon		25 (21.0%)	28 (28.0%)
		$\chi^2 = 9.39$ <i>P</i> value=.052	
<b>Religion</b>			
Christian		30 (25%)	29 (29.0%)
Muslim		86 (71.0%)	66 (66.0%)
Druze		4 (3.3%)	5 (5.2%)
		$\chi^2 = .949$ <i>P</i> value=.622	
<b>Profession</b>			
Blue collar		16 (13.3%)	6 (6.3%)
Clerical related		19 (15.8%)	21 (21.2%)
Business/teaching		42 (35%)	37 (37.4%)
Doctor/lawyer/diplomat/professor		29 (24.2%)	28 (28.3%)
Government employee		14 (11.7%)	6 (6.1%)
		$\chi^2 = 5.19$ <i>P</i> value=.268	

**Data Management and Analysis**

Data were coded and entered, using the FoxPro version 2.6, and were analyzed using the Statistical Package for Social Sciences (SPSS-v12, Chicago, Ill.). Univariate and bivariate analyses, utilizing chi-square Fisher’s exact test were used to test the association between the main outcome variable (male-infertility) and the different exposure and confounding variables. The Multivariate Backward Logistic Regression model was used where odds ratios, *P*-values and confidence intervals (CI) were computed at type I error, alpha of 5%. The final model incorporated the independent variables that displayed the most significant odds ratios.

**RESULTS**

**Sociodemographic Characteristics**

There were no significant differences in sociodemographic characteristics be-

tween the cases and the controls (Table 1). The average age in both groups was 39 years of age, with the average years of education being 14 years. The average monthly reported income in both groups was approximately US\$1,800. The majority of the subjects resided in Beirut and South Lebanon. The religious backgrounds were similarly heterogeneous between the two groups. The controls were slightly more likely to be in higher-status professions; yet, the professional background of both the cases and the controls was relatively similar.

**Consanguinity and Infertility**

Twenty-four percent of the controls reported being married to a cousin as opposed to 16% of the cases; however, this difference was not significant. The cases were more likely to report cousin marriages among their parents and grandparents. The odds of infertility problems in the immediate family

**Table 2. Bivariate analysis of the various risk factors among cases and controls**

	Male Infertility	
	Cases	Controls
	N (%)	N (%)
<b>Familial clustering of infertility via consanguinity</b>		
<b>Kinship to wife</b>		
Wife closely related	19 (16.2)	24 (24.0)
Wife not closely related	98 (83.8%)	76 (76.0)
	$\chi^2=2.04$ $P$ value=.153	
<b>Relationship between parents/grandparents</b>		
None are related	64 (53.8%)	62 (62.6%)
Parents or grandparents are related	34 (28.6%)	28 (28.3%)
Both parents and grandparents are related	21 (17.6%)	9 (9.1%)
	$\chi^2=3.61$ $P$ value=.165	
<b>Reported infertility problems in immediate family</b>		
Yes	49 (41.2%)	17 (17.0%)
None	70 (58.0%)	83 (83.0%)
	$\chi^2=15.085$ $P$ value=.0000	
<b>Reproductive histories, infections and illnesses</b>		
Age at marriage	Mean (SD)	32.1 (6.4)
		32.3 (6.7)
		$P$ value=.875
Wife's age at marriage	Mean (SD)	25.7 (5.5)
		27.5 (6.4)
		$P$ value=.024
No. of sexual partners	Mean (SD)	38.8
		33.5
		$P$ value=.752
Age of sexual activity	Mean (SD)	22.5 (6.8)
		20.7 (5.35)
		$P$ value=.036
Reproductive health index*		
No event	21 (17.8%)	49 (49.0%)
One event	51 (43.2%)	33 (33%)
Two events	31 (26.3%)	14 (14.0%)
Three events	15 (12.7%)	4 (4.0%)
	$\chi^2= 26.54$ $P$ value=.000	
<b>Lifestyle factors</b>		
Coffee intake (cups/day)	Mean (SD)	3.2 (4.7)
		2.9 (4.7)
		$P$ value=.574
Soft drink intake (bottles/day)	Mean (SD)	2.6 (12.6)
		1.09 (1.4)
		$P$ value=.221
Smoking		
Years of smoking	Mean (SD)	19.66 (6.8)
		20.4 (8.9)
		$P$ value=.621
No. of cigarettes per day	Mean (SD)	27.1 (19.8)
		27.7 (16.0)
		$P$ value=0.868
Water pipe smoking		
Yes	32 (27.1%)	26 (26.0%)
No	86 (72.9%)	74 (74.0%)
	$\chi^2=0.035$ $P$ value=.852	
Exercise		
No	37 (31.1%)	26 (26.3%)
Used to	41 (34.5%)	33 (33.3%)
Yes	33 (27.7%)	27 (27.3%)
Not regularly	9 (7.4%)	12 (12.5%)
	$\chi^2=2.764$ $P$ value=.429	
Self-reported stress		
Stressed	39 (35.1%)	31 (31.3%)
Not stressed	72 (64.9%)	68 (68.7%)
	$\chi^2=.344$ $P$ value=.558	

among the cases was 2.6 times higher than that among the controls, suggesting a familial clustering of male infertility that may be related to consanguinity and possibly a resultant of genetic mutations of the Y-chromosome micro-deletions. (Tables 2 and 3)

### Reproductive History

No major differences between the cases and the controls existed in the age at marriage, number of sexual partners and age of sexual activity initiation. The cases and the controls had an average age of 32 years upon the first marriage, and an average of 34 lifetime sexual partners for the controls and 38 for the cases. The cases were slightly older than the controls upon their sexual activity initiation. The history of reproductive illnesses and infections was shown to be a highly significant independent risk factor. The odds of suffering from one reproductive event were 2.4 times higher among the cases than controls; the odds of suffering from two or more events were 4.8 times higher among cases than controls (Tables 2 and 3).

### Lifestyle Practices

Both the cases and the controls reported similar rates of caffeine consumption. Similarly, there were no significant differences in the smoking habits and practices. Both cases and controls reported similar exercise habits, with 27% engaged in regular exercise. On the other hand, cases were slightly more likely to report that they have stress in their lives; this difference (35% vs 32%) was not significant. (Tables 2 and 3)

### Occupational Exposures

Both cases and controls were equally likely to report some type of occupational exposure. The most common exposures reported were those associated with chemicals used in agriculture or manufacturing. These were followed by driving-related exposures to gasoline and high heat, and construction-related

**Table 2. Continued**

	Male Infertility	
	Cases	Controls
	N (%)	N (%)
Occupational exposures		
None	50 (42.0%)	55 (55.0%)
Chemical exposure	25 (21.0%)	16 (16.0%)
Agricultural-related exposures	8 (6.7%)	6 (6.0%)
Driving-related exposures	18 (15.1%)	13 (13.0%)
Construction-related exposures	11 (9.2%)	6 (6.0%)
More than one occupational exposures	7 (5.9%)	4 (4.0%)
	$\chi^2 = 3.98$ $P$ value = .553	
War exposures**		
No event	45 (39.5%)	51 (51.0%)
One event	44 (38.6%)	32 (32.0%)
Two or more exposures	25 (21.9%)	17 (17.0%)
	$\chi^2 = 2.89$ $P$ value = .236	

\* Reproductive health index is a non-weighted index of the summation of the presence of one of these self-reported conditions: adult onset mumps, varicoceles, testicular injuries, sexually transmitted diseases, spinal cord injuries, impotence, premature ejaculation.

\*\* War exposure index is a non-weighted index of the summation of the presence or absence of one of these self-reported events: close residential proximity to violence, self injury, family injury, taking part in the war as a fighter, being displaced, and being subject to kidnap or torture.

exposures to cement and dust. Occupational exposures were not shown to be a significant risk factor in the etiology of male infertility in this study (Tables 2 and 3).

### War Exposures

War exposures were reported by the study subjects in terms of exposure to one or more of the following war-related events: close residential proximity to violence; self-injury; family injury; taking part in the war as a fighter; being displaced; and being subjected to kidnap or torture. This exposure was shown to be a significantly independent risk factor. Twenty-two percent of the

cases were exposed to two or more war events as opposed to 17% of the controls. The odds of exposure to war events is 57%, borderline significantly higher among cases than controls (Tables 2 and 3).

### DISCUSSION

This study demonstrated that consanguinity, reproductive illnesses and war exposures are important risk factors for male infertility. The odds of having infertility problems in the immediate family were 2.6 times higher in cases than controls. The odds of reproductive

**Table 3. Multi-variate analysis-logistic regression**

Variable	Adjusted OR	P value (95% CI)
Infertility problems in immediate family (yes/no)	2.58*	.057 (.971–6.8)
Kinship between parents and/or grandparents (yes/no)	.865	.756 (.34–2.17)
Reproductive Health Index (No. of events)	1.98*	.009 (1.18–3.1)
Intake of coffee (cups/day)	1.05	.288 (.96–1.14)
Intake of soft drinks (bottles/day)	1.07	.677 (.77–1.47)
Cigarette smoking (cigs × years/day)	.999	.183 (.998–1)
Occupational exposures (yes/no)	1.32	.556 (.527–3.29)
War exposures (No. of events)	1.57*	.056 (.989–2.49)

$R^2 = 29.5\%$   $P$  value = .001.

illness were 2 times higher in cases than controls, and the odds of war exposures were 1.57 times higher in cases than controls. Occupational exposures, smoking practices and caffeine intake were not shown to be important risk factors in this case-controlled study.

A significant proportion of the study sample reported consanguineous marriage patterns, in terms of either having married to a relative or having their parents and/or grandparents married to a relative. Male infertility tended to cluster strongly in families often with several male relatives affected by infertility. This familial infertility could serve as an important proxy of the genetic disposition in the etiology of male infertility. Major studies in the literature relate the micro-deletions along the Y-chromosome to azoospermia, the potential of cystic fibrosis gene mutations among azoospermic men with congenital absence of the vas deferens and seminal vesicles, as well as germ cell alterations associated with inadequate DNA repair that is associated with increased frequency of DNA mutations resulting in meiotic arrest.<sup>9–12</sup> The rates of such mutations substantially increase among consanguineous communities.

Reproductive illnesses, traumas and infections are important risk factors in the etiology of male infertility. The study showed a gradient increase in the odds ratio as the number of reported reproductive disorders increased. Cases were significantly more likely to report more than one reproductive problem than controls, including varicoceles, sexually transmitted infections, spinal cord injuries, adult-onset mumps and testicular injuries.

Various studies have shown the adverse impact of sexually transmitted diseases, mumps, delayed treatment of undescended testes, repair of inguinal hernia and endocrine disorders in the etiology of male infertility.<sup>10,13</sup> Varicoceles have also been implicated in causing direct effect on the testes via

causing ipsilateral testicular damage resulting in reduced testicular volume resulting in a reduction in spermatogenesis and semen counts, as well as poor sperm morphology. These effects are attributed to a decrease in the germ cell/steroid cell ratio, where by the percentage of germ cells in their late stage, (ie, spermatids and spermatozoa) are reduced. The impact of varicoceles tend to be bilateral on both testes, even in men with unilateral varicoceles.<sup>14-16</sup> Varicoceles have also been implicated by having indirect effects on the spermatogenesis process by causing hypothermia, hormonal dysfunction, production of anti-sperm antibodies, and release of oxidative stress.<sup>16,17</sup>

This study demonstrated the importance of war-related exposures in the etiology of male infertility. There was a significant gradient increase in the odds of male infertility as exposure to war-related events increased. This assessment relied on objective measures of exposures, such as close residential proximity to violence, self and family injury, taking part in the war, being displaced or subject to kidnap or torture, that are less likely to be subject to recall bias. This finding suggests the importance of conducting more comprehensive studies specifically in this region of the world, which has been undergoing extensive periods of war turmoil and political instability. The ramifications of war-related exposures on male infertility and developmental disorders can not be taken lightly, as the use of various chemicals with long half-lives will not only affect the fertility of current generations but could extend to future generations.<sup>18-20</sup>

The impact of smoking on male infertility is debatable. Cigarettes contain a range of chemical toxins such as nicotine, carbon monoxide, cadmium and other mutagenic compounds, which can impair the sperm function, motility and morphology. A proposed mechanism for such impairment is the increase in seminal leukocyte infiltration into the

semen as a result of an inflammatory reaction triggered by the smoking metabolites in the male genital tract.<sup>21</sup> Other studies failed to confirm this mechanism and postulated that smoking impacts on male infertility could be attributed to the coexistence of other etiological factors mediating the association such as caffeine and alcohol intakes.<sup>22,23</sup> This study did not find a significant independent association of smoking on male infertility. Both cases and controls tended to be heavy smokers of both cigarettes and water pipes and had approximately the same number of years of exposure to smoking. This suggests the importance of other etiological factors that could be affecting the condition and the need for additional studies to be conducted among heavy smokers.

In terms of occupational hazards, both cases and controls had similar levels and durations of such exposures. Many studies documented the negative impact of chemical and pesticides exposures, radiation, and heat on spermatogenesis resulting in alterations in sperm quantity and quality.<sup>24-27</sup> On the other hand, some studies suggest that the association of certain occupations and male infertility is highly dependent on the organ susceptible and the individual's age at exposure. Accordingly, an observed negative association could either mean that the concentration of a specific chemical may have not reached its latency period for the incurred damage to take place or it could simply reflect a true negative association. Additional studies are needed to further understand the etiology of different occupational exposures in terms of toxic effects, dose and duration.<sup>24, 27</sup>

The major limitation of this study relates to its external validity, since a clinic-based convenience sample was used in contrast to a population-based random sample. However, the fact that the study population was selected from two major infertility clinics in Lebanon

might overshadow the ability to generalize the overall population. A larger sample size is also needed for increasing the power of this study; this problem is difficult to correct, owing to the fact that the actual reporting on male infertility is compromised due to the negative social connotations associated with this condition. For every man who agreed to participate in this study during an 8-month period in 2003, at least one man refused to participate for unspecified reasons. In addition, the quality of the measures is high, due to employing multiple validation techniques. No major problems existed for adjusting for missing and non-response data.

In summary, the current case-controlled study suggests the importance of consanguinity, reproductive illnesses and war-related exposures as risk factors for male infertility. Unlike some studies, no observed associations were made in terms of lifestyle factors and occupational exposures. This suggests the importance of investigating the etiology of this condition in the context of the communities where it arises. It also highlights the need for expanded research targeting male infertility in the Middle East and the development of constructive strategies to alleviate this condition and to resolve social disparities arising from this condition.

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# E. PROJECT SALAAM: ASSESSING MENTAL HEALTH NEEDS AMONG SAN DIEGO'S GREATER MIDDLE EASTERN AND EAST AFRICAN COMMUNITIES

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**Key Words:** Mental Health

## INTRODUCTION

Greater Middle Eastern and East African communities in the United States face multiple challenges. First, many are immigrants and refugees who find themselves in unfamiliar environments. Acculturating to a new country (eg, learning a new language and different societal rules, changes in social status) is often stressful.<sup>1</sup> In Middle Eastern communities, as in other culturally and linguistically distinct groups, related problems can be handed down to second and third generations.<sup>2</sup>

Secondly, many Middle Eastern and East African immigrants have experienced adverse circumstances such as war, persecution, imprisonment and torture in their countries of origin. The 2004 World Refugee Survey, for example, lists Palestinians, Afghans, Iraqis and Iranians as constituting some of the largest refugee groups in the world.<sup>3</sup> Not surprisingly, people in such circumstances can encounter multiple, severe and sustained stressors.

Third, harassment and discrimination aimed at greater Middle Eastern communities increased after the 9/11 terrorist attacks.<sup>4</sup> Anti-Muslim and anti-Middle Eastern biases in the United States are nothing new.<sup>5,6</sup> But given the constant and ongoing public focus on US-Middle Eastern conflicts, it seems unlikely that a heightened negative focus on these groups will abate in the near future. Harassment has included overt hate crimes (eg, beatings, vandalism, murder) and more subtle forms of discrimination.<sup>7,8</sup> These reactions have not been limited to Arabs and Muslims, but have extended to anyone with features similar to those of a Middle Easterner (eg, Indian Sikhs).<sup>9</sup>

Calls to meet the mental health needs of Middle Eastern and East African origin communities in the United States have been made for two decades<sup>10</sup> yet these populations remain poorly understood. Little information exists on the psychological correlates of harassment and accumulated stressors in these groups. Project Salaam assessed such issues among San Diego, California's Greater Middle Eastern and East African groups. It identified relationships between psychological symptoms and history of trauma / adverse experiences, acculturation stresses, and socio-demographics. It further assessed personal coping skills, attitudes toward mental health services, and general healthcare preferences.

## METHODS

Data came from 360 written surveys, 10 structured focus groups (79 adults / 50 adolescents) and 20 key stakeholder interviews. All participants were of Greater Middle Eastern or East African origin or descent. They were recruited through local community- and faith-based organizations, schools, fliers, businesses serving the study's populations, and word-of-mouth. Activities were conducted in English, Arabic, Farsi, Somali or Russian as needed by a fully bilingual / bicultural Project Salaam staff.

The survey asked about demographics, experiences with adverse events, attitudes toward mental health services, personal coping efforts, healthcare preferences and encounters with healthcare systems in the United States. It also included the Traumatic Event Sequelae Inventory<sup>11</sup> and acculturation measures adapted from the literature.<sup>12,13</sup> Struc-

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tured interviews also asked about participants' experiences with any adverse incidents. If such events were reported, respondents were asked to comment on why they believed the events happened, their emotional reactions, and if/how the events affected day-to-day life. Focus group and stakeholder transcripts were reviewed for primary themes. Descriptive statistics provided an overview of survey response patterns. Standard multiple regression then identified predictors of psychological distress. Qualitative and quantitative results were integrated by identifying consistencies across data types.

## RESULTS

Participants in all study groups were largely immigrants (eg, 93% of the survey and 83% of the focus group). Most self-identified as Muslim; but those from Christian denominations (eg, Chaldeans) and the Bahá'í faith were also represented. Ethnic / national background among survey respondents included Somali (22%), Afghan (21%), Arab (17%), Kurdish (7%), Iranian (5%), and a variety of other nationalities (eg, Sudanese, Ethiopian, Lebanese, Turkish, Palestinian, Algerian, Moroccan, Egyptian and Jordanian). Similarly, focus groups and key stakeholder interviews included those from Lebanese, Iraqi, Egyptian, Syrian, Sudanese and other Greater Middle Eastern / East African backgrounds. While a majority of participants across activities described having limited economic means, a broader spectrum of education and income was also represented.

Thirty-seven percent of survey respondents described encountering harassment or discrimination in the United States. They attributed such events to reactions to the 9/11 terrorist attacks and to the continuing public focus on US-Middle East conflicts. Muslims, Arabs and those in traditional clothing appeared most at-risk. Circumstances

**Table 1. Standard Multiple Regression: Predictors of Psychological Symptoms**

Predictors	$\beta$	t	p
Adverse Event in Country of Origin	.27	3.56	<.0001
Adverse Event in the US	.31	4.11	<.0001
Adverse Event in both Home Country & US (Interaction)	.18	2.06	.04
Limited English Proficiency	.17	2.51	.01
Gender (Female)	.15	2.77	.006
Acculturation Stress	.25	4.56	<.0001
US Mainstream Orientation	-.12	-1.67	.09
Home Country Orientation	.08	1.27	.21
Age	.06	1.13	.26
Education	.06	1.00	.32
Monthly Income	-.09	-1.49	.14
Generational Status	-.04	-0.78	.43
Ethnic or National Origins / Descent*	.04	0.48	.63

( $R^2 = .40$ ;  $F=8.39$ ,  $P<.0001$ );  $N=360$

\* Variable was dummy coded.

ranged from subtle discrimination to violent confrontations. Harassment and discrimination in public, at the workplace, near home, at school (among adolescents), and by governmental entities was most frequently mentioned. In addition, 56% of immigrants recounted being persecuted in their home country. Seventeen percent of these described being tortured. Similar patterns were noted among focus group participants and key stakeholders. Almost all participants concurred that adverse experiences in country of origin and/or in the United States were common problems in their respective communities; yet 64% of those experiencing US-based incidents had not reported them to any authorities. Among those who made such reports, only 12% were satisfied with the outcome. Primary reasons for not reporting were: 1) not knowing procedures for doing so; 2) belief that it would be ineffective; and 3) not wanting to draw attention to themselves.

Adults most often described personal difficulties, including: problems expressing feelings (57%); trouble working (55%); helplessness (52%); impaired concentration (52%); nervousness (52%); and detachment (51%). Adverse experiences in the United States were most often connected with anger, loneliness and interpersonal (eg, family) problems. Persecution in country of

origin was especially linked with thoughts of death and difficulties expressing feelings. Adolescents who had been harassed tended to describe increased nervousness, frustration, anger, and acting out (eg, fighting with other students at school).

Standard multiple regression analysis identified being female ( $P=.006$ ), limited English proficiency ( $P=.01$ ), acculturation stress ( $P<.0001$ ), country-of-origin persecution ( $P<.0001$ ), US-based harassment ( $P<.0001$ ), and the interaction between adverse experiences in the United States and country of origin ( $P=.04$ ) as predicting distress. The full regression model is presented in Table 1. Fifty-four percent of those reporting adverse United States and home-country experiences had symptom profiles similar to those diagnosed with post-traumatic stress disorder in the general population. This was also true for 49% of persons reporting home-country persecution only, 35% of those reporting adverse US experiences only, and 14% of those describing no adverse events.

Despite such difficulties, respondents described professional mental health services as unavailable to them. They discussed social stigmas and the lack of culturally, religiously knowledgeable providers as barriers. Other barriers included lack of health insurance,

language difficulties and poor treatment by providers and support staff. Among survey respondents, 16% had stopped going for care because of poor treatment by providers.

## DISCUSSION

Results show mental health needs among the studied groups as substantial. Those who have experienced adverse events in the United States and in their country of origin are particularly affected. This result supports previous findings that vulnerability to new trauma is increased by past trauma.<sup>14</sup> At the same time, culturally effective care is often lacking. Adequate service development will require education of community members, providers and other stakeholders.

Project Salaam's long-term goal is to implement a systematic approach that includes: 1) professional training to increase cultural competence among healthcare providers, educators, social service workers, policy makers and other stakeholders; 2) education of broader society to reduce misconceptions and stereotypes about persons of Greater Middle Eastern and East African background; and 3) psycho-educational activities for community members that expand their ability to access health and social services and enhance their personal means to cope with stressors.

Given the project's partnership with a mosque, the sample is skewed toward Muslims with strong religious adherence. In addition, it is primarily made up of immigrants. Consequently, results may have limited generalizability to persons with no religious convictions, those born in the United States and those from Middle Eastern/East African backgrounds not in this sample. Despite these limitations, the identified number of people in need of mental health care is noteworthy. Overall, the study serves as one empirical effort to bring needed attention to the circumstances faced by Middle Eastern and East African communities in the United States.

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## F. THE USE OF GLUCOSE-LOWERING AGENTS AND ASPIRIN AMONG ARAB AMERICANS WITH DIABETES

**Objective.** Little is known about the health outcomes or the quality of care among Arab American patients with diabetes. The objective of this study is to examine the use of glucose-lowering agents and aspirin therapy in this population compared to the drug utilization patterns reported in nationally representative surveys.

**Research Design and Methods.** A random sample of adult Arab American patients with self-reported diabetes was selected. Complete medication histories were recorded during a face-to-face interview. Medication utilization of the glucose-lowering agents and aspirin were compared to data from the Third National Health and Nutrition Examination Survey (NHANES) and the Behavioral Risk Factor Surveillance System (BRFSS).

**Results.** The study sample consisted of 53 participants (20 males, 33 females) with mean age  $\pm$  SD of  $59.4 \pm 12$  years and A1C levels of  $8.0 \pm 2\%$ . Compared to US adults, Arab American patients with diabetes were less likely to be treated with insulin (27% vs 17%) and more likely to receive oral hypoglycemic agents (65% vs 81%). Similar proportions of participants were maintained on insulin-oral hypoglycemic-combined therapy (10% US adults vs 9% Arab Americans). Aspirin use was significantly lower among the study participants (23%) compared to the reported national prevalence of aspirin intake (64%).

**Conclusion.** The therapeutic management of diabetes in the Arab-American patients with diabetes is suboptimal. The use of insulin and aspirin was lower than that reported by participants in the NHANES and BRFSS national databases. More aggressive approaches for the management of hyperglycemia and the prevention of cardiovascular diseases are needed to improve health outcomes in the Arab-American community. (*Ethn Dis.* 2007;17[Suppl 3]:S3-42-S3-45)

**Key Words:** Diabetes, Glucose, Aspirin

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### INTRODUCTION

Patients with diabetes have a two- to four-fold increased risk of developing cardiovascular disease (CVD). Death from cardiovascular disease accounts for 65% of all diabetes-related deaths, rendering CVD the number one cause of mortality in the United States.<sup>1</sup> Several mechanisms contribute to the link between diabetes and CVD. Hyperglycemia is independently associated with an increase in diabetes-related complications including CVD. Progressive loss of beta cell function leads to the deterioration of glycemic control in patients with diabetes over time.<sup>2</sup> To achieve and maintain glycemic targets, combination therapy with two or more oral hypoglycemic agents are often required.<sup>3</sup> In patients with longstanding diabetes who have sustained significant decline in beta cell function and endogenous insulin secretion, insulin therapy remains the most effective treatment. Additionally, aspirin therapy reduces the risk of CVD in diabetic patients with and without existing CVD.<sup>4-6</sup> Therefore, the prevention of diabetes-related cardiovascular complications requires aggressive use of glucose-lowering agents and antiplatelet therapy.

Arab Americans have a high prevalence of diabetes and other cardiovascular risk factors such as obesity and dyslipidemia.<sup>7-9</sup> Similar to other minorities, Arab American individuals are often faced with cultural barriers, which may hinder their ability to receive recommended medical care and attention. Given the youthfulness of this community, the burden of diabetes and its associated cardiovascular consequences will increase as the population ages, imposing a substantial public health challenge.

The purpose of our study was to examine and compare the use of aspirin and glucose-lowering agents in Arab Americans with diabetes to national trends in the United States.

### METHODS

This was a cross-sectional, population-based study conducted in Arab Americans. The methods for this study have been described in detail elsewhere.<sup>7</sup> Briefly, non-pregnant adults, 20 to 75 years of age, and with a self-reported ancestry of Arab descent were chosen via random sample in two areas of Dearborn, Michigan. Subjects were considered to have diabetes if they reported a previous medical diagnosis of the disease and/or they were using oral anti-diabetic agents or insulin. For the purpose of this study, only individuals with previously diagnosed diabetes were included.

Trained bilingual interviewers administered standardized questionnaires, translated into Arabic, to capture self-reported information, such as demographics, medical diagnoses and medications. The use of medications was further documented by examining all prescription and over-the-counter medication containers during the scheduled home visits. Interviewers recorded the names and the dosages of all prescribed medications.

Medication utilization patterns for aspirin and glucose-lowering agents in Arab Americans with diabetes were compared to nationally representative population-based reports. The use of aspirin in these patients was compared to the 2003 database of the Behavioral Risk Factor Surveillance System (BRFSS).<sup>10</sup> The BRFSS is an annual

**Table 1. Demographics and characteristics of Arab Americans with diabetes**

	Total	Men	Women
N	53	20	33
Age (yrs)	59.4 ± 12	53.7 ± 12.4	62.9 ± 10.2
Duration of diabetes (yrs)	9.2 ± 7.4	7.8 ± 7.3	10.0 ± 7.5
HbA1C	8.0 ± 2.2	7.8 ± 2.4	8.1 ± 2.1
<i>Cardiovascular History (n)</i>			
Hypertension	23	9	14
Dyslipidemia	24	12	12
CHF	6	3	3
Angina	6	1	5
Stroke	1	0	1
MI	2	1	1
PVD	7	2	5

CHF: congestive heart failure, MI: myocardial infarction, PVD: peripheral vascular disease.

random state-based telephone survey of participants aged  $\geq 35$  years. Participants who reported using aspirin were then asked whether aspirin was being used for pain relief or for the prevention of a cardiovascular event. Participants were also asked whether they had a diagnosis of diabetes.

The utilization of glucose-lowering agents in Arab Americans was compared to a database of The National Health and Nutrition Examination Survey (NHANES), collected from 1999–2002.<sup>11</sup> This survey was conducted by the National Center for Health Statistics of the Centers for Disease Control and Prevention and included participants  $\geq 18$  years of age. Household interviews were conducted and patients were identified as having diabetes if they reported being previously diagnosed with the disease.

Statistical analysis was performed to estimate the rates of aspirin and hypo-

glycemic agents use among Arab American patients with diabetes compared to the reported national surveys. Mean and standard deviations (SD) were calculated.

## RESULTS

Among the random sample of 542 Arab Americans, 53 individuals had a previous diagnosis of diabetes. Demographic characteristics for the study population are presented in Table 1. According to the 2003 BRFSS survey, 25,549 of the 84,538 participants surveyed reported taking aspirin daily or every other day and diabetes was present in 10.5% of participants. The 1999–2002 NHANES survey reported 998 of the 11,441 subjects surveyed as having diabetes.

According to the BRFSS sample, 64% of participants with diabetes,

40 years or above, were receiving aspirin therapy. In comparison, the prevalence of aspirin use among Arab Americans was 22.6% (Table 2). Arab American men were more likely to receive preventative therapy with aspirin than women were. Furthermore, two of the subjects received anti-platelet therapy with Plavix, while no combination therapy with aspirin and Plavix was reported.

The NHANES survey reported that 65.3% of those with diabetes were being treated with oral glucose-lowering agents, 27.4% were on insulin alone and 10.4% were on combination therapy with oral agents and insulin together. In comparison, 81.1% Arab American participants were receiving oral glucose-lowering agents, 43.4% received monotherapy and 37.7% were on combination oral agent therapy (Table 2). Insulin use was reported in 17% of Arab Americans and only 9.4% were on combination therapy with oral agents and insulin. The use of oral agents as monotherapy, as well as in combination with other oral agents was similar in Arab American men and women. Insulin use, however, was higher in women than men.

## DISCUSSION

The present study demonstrates an underutilization of aspirin therapy among Arab American patients with diabetes. The observed aspirin use in this population is considerably lower than the reported prevalence of aspirin intake among general US patients with diabetes. Additionally, the use of insulin was also lower in Arab Americans with diabetes compared to national estimates. The mean HbA1C level of 8.0% was above the American Diabetes Association (ADA) recommended goal of  $<7\%$  and reflected the underutilization of combination therapy of glucose-lowering agents in this population. Arab American men were more likely to be treated with

**Table 2. Results: Use of insulin and OHA in Arab Americans with diabetes**

	Total N (%)	Men n (%)	Women n (%)
Aspirin therapy	12 (22.6)	8 (40.0)	4 (12.1)
Oral agents	43 (81.1)	16 (80.0)	27 (81.8)
Monotherapy	23 (43.4)	9 (45.0)	14 (42.4)
Combination therapy	20 (37.7)	7 (35.0)	13 (39.4)
Insulin therapy	9 (17.0)	2 (10.0)	7 (21.2)
Insulin alone	4 (7.5)	1 (5.0)	3 (9.0)
Insulin + oral agent	5 (9.4)	1 (5.0)	4 (12.1)
No glucose-lowering therapy	6 (11.3)	3 (15.0)	3 (9.0)

aspirin, whereas women were more likely to be treated with insulin.

The increased risk of cardiovascular disease in patients with diabetes is the result of a pro-coagulant state, which can be attributed in part to increased platelet aggregation.<sup>12</sup> The production of thromboxane A2 (TXA2) is elevated in patients with diabetes and is responsible for promoting platelet aggregation.<sup>13</sup> TXA2 is also a potent vasoconstrictor. Aspirin therapy prevents the synthesis of TXA2 and irreversibly inhibits the activity of platelets.<sup>14</sup> A large meta-analysis of 145 randomized controlled trials conducted by the Anti-platelet Trialists' Collaboration included patients with pre-existing cardiovascular diseases. This analysis demonstrated that anti-platelet therapy in these high-risk individuals was effective in preventing recurrent cardiovascular events in those patients with or without diabetes.<sup>4</sup> Studies involving patients with diabetes without a prior history of cardiovascular disease have also demonstrated the protective effects of aspirin in lowering the incidence of cardiovascular endpoints, such as myocardial infarction and stroke.<sup>5,6</sup> It was further estimated that increasing the prevalence of aspirin intake to 90% from the current 66% in diabetic patients receiving care from the Department of Veterans Affairs healthcare systems could potentially prevent 11,000 myocardial infarctions and save over 8,000 lives.<sup>15</sup> These studies prompted the recommendation by the ADA for the use of aspirin therapy in all patients with previous CVD for secondary prevention and in those greater than 40 years of age or who have additional risk factors, for primary prevention. While the mean age of Arab American participants in the present study was  $59.4 \pm 12$  years, only 22.6% were receiving aspirin. In addition, only 3.78% of participants reported receiving alternative anti-platelet therapy with Plavix, which is also recommended by the ADA if patients cannot tolerate aspirin. The

majority of patients in this survey were not treated with an anti-platelet agent, thereby increasing their risk of cardiovascular events and death.

The United Kingdom Prospective Diabetes Study (UKPDS) demonstrated that intensive glycemic control prevents or delays the progression of diabetes complications.<sup>16</sup> In addition, the study provided compelling evidence that the progressive loss of functioning beta cells resulted in the gradual increase in HbA1C levels over time and that the effective normalization of hyperglycemia would slow down the decline of these beta cells. Therefore, one of the key messages of the UKPDS was to institute and continually reassess effective hypoglycemic strategies. In order to maintain the targeted HbA1C goal, aggressive use of combination therapy with oral agents and/or insulin is often required in the majority of patients. Combination therapy with oral agents was used by 37.7% of the study participants. The use of insulin was lower in Arab Americans compared to national US data. Insulin and oral agent combination therapy was also underutilized in the present study.

The under-utilization of aspirin, insulin and combination therapy in this population may be attributed to a number of factors, namely linguistic, cultural, social and health belief barriers. System impediments including accessibility and availability of culturally appropriate healthcare and lack of resources may also exist. The high prevalence of diabetes in the Arab American population has been attributed in part to a lack of acculturation in this group of minorities.<sup>17</sup> Whether or not the lack of acculturation has an effect on sub-optimal pharmacologic therapy is not known.

There are some limitations to the present study. First, different population-based surveys with different methodologies were used for data comparisons in this study. The BRFSS was a phone survey, whereas the Arab-American and

the NHANES data were collected during one-on-one interviews. Second, the study participants were exclusively immigrant and therefore may not be representative of US-born Arab Americans.

In conclusion, the use of aspirin and glucose lowering pharmacological strategies in Arab American patients with diabetes is unacceptably suboptimal compared to the nationally representative surveys and does not conform to the ADA recommendations. Targeted efforts to increase aspirin use in Arab American patients with diabetes are needed. In addition, more aggressive glucose-lowering strategies that incorporate combination oral agents and early use of insulin are required. Given the high prevalence of diabetes and cardiovascular risk factors in Arab Americans, strategies focusing on optimization of aspirin and glucose-lowering therapies are imperative for the reduction of cardiovascular burden and other diabetes-related complications.

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## **G. ABSTRACT: ASTHMA, ENVIRONMENTAL RISK FACTORS, AND HYPERTENSION AMONG ARAB AMERICANS IN THE METRO DETROIT AREA**

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*Background.* The importance of environmental risk factors in asthma etiology has been well documented, and certain environmental risk factors have also been associated with hypertension. However, few previous studies have examined the relationship between hypertension and asthma.

*Study Population.* This study explores the relationships between hypertension, asthma and environmental risk factors in a population of 600 Arab American adults in the metropolitan Detroit area.

*Methods.* An Environmental Risk Index (ERI) was used to quantify household environmental risk factors associated with asthma; physician-diagnosed hypertension was self-reported. Asthma status was determined using responses to a validated symptoms checklist and self-reported diagnosis by a physician.

*Results.* Hypertension was significantly associated with asthma after adjusting for age, sex, healthcare access, socioeconomic status (SES) and marital status. The prevalence of asthma and hypertension was not significantly different among men and women in the study population. Comparing the relationship between environmental risk factors and asthma revealed that ERI was significantly associated with asthma among participants with and without hypertension; however, the relationship between environmental risk factors and asthma was stronger among participants with hypertension. This interaction was stronger among women in the study population and was statistically significant adjusting for age, healthcare access, SES and marital status.

These results are consistent with the disproportionate asthma risk associated with obesity among women. Specific risk factors implicated in this relationship will be discussed. An additional consideration was the impact of other potentially mediating factors, such as age and time spent at home. Age was positively associated with asthma and hypertension in the study population; however the relationship between ERI, hypertension and asthma did not vary significantly by age. Using full-time employment as a surrogate for time spent outside the home showed that the relationship between ERI, asthma and hypertension was stronger among study participants who spent more time at home. This effect modification was statistically significant controlling for age, healthcare access, SES and marital status.

*Conclusion.* Results suggest that hypertension may impact asthma not only through shared risk factors, but also through an increased vulnerability to environmental stressors. These findings also suggest that household risk factors may have a stronger adverse effect among individuals who spend more time at home, possibly due to prolonged duration of exposure or a greater degree of vulnerability among those individuals.

This is an abstract of a proposed presentation and does not necessarily reflect EPA policy.

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# REPORT: HEALTH-RELATED POLICY, ENVIRONMENTAL HEALTH, AND CHRONIC DISEASE

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## SECTION V. REPORT: INTERACTIVE PANEL DISCUSSION ON HEALTH-RELATED POLICY, ENVIRONMENTAL HEALTH, AND CHRONIC DISEASE

Summarized by session moderators David J. P. Bassett, PhD;  
May Darwish-Yassine, PhD

*Ethn Dis.* 2007;17[Suppl 3]:S3-47–S3-49

**Key Words:** Environmental Health, Chronic Disease, Health Policy

The session opened with introduction of the panelists: Kimberlydawn Wisdom MD, Michigan Surgeon General; Joseph Harford PhD, director, Office of International Affairs of the National Cancer Institute, Bethesda, MD; Sabri Belgacem MD, director, Health Systems Policy and Development, World Health Organization – Eastern Mediterranean Regional Office, Cairo, Egypt; Ali Mokdad, PhD, Center for Disease Control and Prevention, Atlanta, GA; and Adnan Hammad, PhD, director, ACCESS Community Health and Research.

In introducing the discussion session, David J.P. Bassett, PhD, noted how the early Arab American Health conferences identified a need to collect and collate previously unavailable data on disease prevalence in the Arab American community. An integral part of these biennial conferences has been the ACCESS-based research conducted in collaboration with local universities and healthcare organizations in southeastern Michigan. At each new meeting, a greater participation of health professionals and academics from the Middle East brought many new perspectives to these endeavors.

The 4<sup>th</sup> National Conference successfully recruited a wide range of speakers not only from the Arab world, but also from Michigan, as well as national and international health organizations. Therefore, a unique combination of experiences from non-Arab, Arab American and Middle East populations helped to promote the de-

velopment of effective intervention strategies. Through efforts such as these conferences, programs, especially those that promote better lifestyles for sustained health, are in development. These programs must consider the mental stress due to differences in culture and language, accessibility to health care and the immigration process itself.

In his remarks, Joseph Harford, PhD recalled comments from John Seffrin, PhD on his global perspectives that addressed growing concerns about an inability to deal with chronic diseases in the developing world. He noted a dramatic increase in cancer in Middle East countries and a general prediction of a future overload of the healthcare systems, because such systems have previously focused on short-term treatment of communicable diseases. Harford also noted the establishment of a regional consortium of seven regional NCI cancer registries in the Middle East to prepare for this epidemic. In addition, the importance of community-based programs to address the increasing use of tobacco among young Arabs, in general, and Arab Americans, in particular, was stressed. A lively dialogue between the audience and panelists rounded out the discussion.

A recurring theme was the disconnect between policymaking and the lack of resources and political inclination to address many chronic disease conditions, including the provision of programs to promote healthy lifestyles and increase health screening. The audience

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## PANEL DISCUSSION - Bassett and Darwish-Yassine

first raised the need to promote safe environments that allow people to walk as well as participate in other exercise-related activities. First to respond, Kimberlydawn Wisdom, MD, encouraged the organizers to invite more policymakers to future conferences. She then described how the state of Michigan uses teams that include architects, engineers and public health professionals to design safe places to walk and promote exercise in the development of new living communities and in the remodeling of older ones.

Discussions also focused on the development of programs to address lifestyle changes, including exercise, and pointed out how the cultural strengths of a community might be used to make such programs attractive and sustainable. The panelists stressed the need for early involvement of communities in the design of environments and the establishments of such intervention programs.

The audience raised issues concerning lack of access to early screening programs and long-term management programs for chronic conditions. In the Middle East, political expediency of short-term administrations appears to drive the establishment of new hospitals rather than investment in such programs. Such facilities were important in the past when treatment of infectious diseases was the health priority. In addition to a relative lack of suitable screening programs, Harford commented on the stigma of cancer that delays its early presentation, leading to an inability to apply modern intervention strategies. He indicated that, in comparison with the United States and Europe, a reluctance to seek help still exists in the Middle East and most likely carries over into the older Arab American population. Sabri Belgacem, MD, noted that this stigma and barrier to early treatment also applies to other chronic conditions, including diabetes and cardiovascular disease. Two members of the audience noted that access to

health care to manage chronic diseases is also limited in the United States for many individuals, especially refugees.

Wisdom announced a new initiative designed to assist 550,000 Michigan residents who do not have ready access to health insurance from either government or employer supported programs. Other members of the audience commented on the lack of resources to support research and programs to modify behaviors that include helping individuals to stop smoking, exercise more, and deal with metabolic syndromes associated with obesity and cardiovascular disease.

Ali Mokdad, PhD, continued the discussion on the disconnect between policymaker actions and the actual needs of society by noting the influence and control the tobacco industry exerts on policy decisions for marketing their products. He also noted the power of the media, illustrating how the introduction of satellite TV networks in the Middle East sparked a rapid increase in water pipe use not only in the Arab world but also in Arab communities across Europe and North America. He emphasized the need to focus on the social determinants of health in trying to prevent the increases in ill health. He noted the relative inability of health professionals to influence behavior and reduce the mental stress of their patients and clients. He also indicated that health professionals have failed to lobby effectively to change health policies and to promote research and training in these areas.

Paul Shaheen, who serves on the steering committee of the Michigan Council for Maternal and Child Health, addressed the worldwide increase in tobacco usage, citing ongoing difficulties in getting political action against the tobacco industry. He described the need to work with health professionals and schools to develop suitable educational programs for all grade levels. Such programs would help students learn how to make decisions based on un-

derstanding the context and consequences of what is being offered, and most importantly to make choices independent of media and peer pressure. Based on previous experience with programs to reduce substance abuse, he explained that such intervention programs provide inexpensive ways to combat the promotion of tobacco use in schools worldwide.

Ibrahim Kira, PhD, of ACCESS initiated a discussion on the mental health aspects of dealing with chronic diseases, emphasizing how depression becomes a major barrier to effective intervention and improvement. He noted the importance of an integrative approach in treating the whole person in the context of the family and community, a model used by ACCESS to translate research into evidence-based practice in the Arab American population. Harford followed by emphasizing the need for a similar holistic approach to treating cancer, recognizing the mental health needs of cancer survivors and terminally ill patients and the support needed by their respective families.

A member of the audience noted the importance of seeing cultural differences not as barriers but as opportunities to develop innovative sustainable programs to affect dietary changes, decrease and prevent tobacco use and enhance exercise. Adnan Hammad, PhD, closed this part of the panel discussion by emphasizing the high numbers of immigrants entering Michigan each year. He described the transitions and challenges they experience, especially if they come from rural areas in their country of origin. Many go from living a life filled with much exercise to sitting in a factory, driving instead of walking to work, and switching from eating a healthy diet to one that is rich in red meat and fat. At the same time the immigrants must deal with the stresses of language, cultural change, and the immigration administration process that sometimes can take several years.

May Darwish-Yassine, PhD, led a discussion on how to reduce tobacco use and introduce effective smoking prevention programs. She emphasized the role of family members in influencing children's use of tobacco and the fact that the very high usage and social acceptability of narghile (water pipe) smoking in the Middle East is perpetuated by the immigrant population in the United States.

A participant requested advice on how to deal with patients who use the water pipe. Harford stressed that the message from the medical community should be that there are no safe levels for smoking and that regular and infrequent use of tobacco in any form is risky behavior. He also noted that infrequent water pipe smoking most likely would not have much effect on appetite suppression. Another participant indicated that some water pipe sessions last as long as an hour and involve greater depths of breathing of around 500 mL per puff compared with 50 mL per puff for a cigarette. He also said that research suggests that the water used in the water pipe removes some of the nicotine; therefore a dependent smoker would need to increase usage in order to satisfy

his need for nicotine at the price of being exposed to a greater amount of cancer causing tars.

The recognition of the addictive effects of tobacco smoking was discussed, commenting on the adolescent misperception that it is easy to quit and on the observation that a majority of smokers actually want to quit but have great difficulty doing so. In discussing approaches to cessation and prevention, conference participants familiar with Arab American immigrants in California raised the possibility that the influence of sustained cultural practices and beliefs in the relatively dense community in southeastern Michigan might differ considerably from more dispersed Arab American groups in other metropolitan areas. They also noted that, although California is unfriendly to cigarette smokers, the establishment of narghile lounges in Arab restaurants in San Francisco is on the increase.

The failure of health policies to control tobacco was illustrated by an audience member who compared the rapid removal from the market of useful drugs with relatively low incidents of adverse health effects to the failure to

remove tobacco from the market even though it causes so much chronic disease and death. Harford indicated that lung cancer deaths over time were decreasing in California, an unfriendly state for smokers, compared with Kentucky where tobacco use is promoted. He emphasized the need for community-based group action to lobby local government and national congressional leaders.

Closing remarks by Wael Sakr, MD and the panelists pointed to the need to focus efforts on preventing children from smoking and to apply methods used for treating other addictions to those wishing to quit. The need for health professionals to educate politicians by providing data on effective smoking-cessation program expenditures and long-term savings in health-care costs was discussed. Emphasis was made on the need for health-care professionals to continue to work with community leaders in promoting administrative control of tobacco at the state and local levels by encouraging tax increases on tobacco, denying tobacco access to minors, and banning smoking in public places and restaurants.

# GLOBAL HEALTH FROM ARAB AND DEVELOPING WORLD PERSPECTIVES

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## SECTION VI. GLOBAL HEALTH FROM ARAB AND DEVELOPING WORLD PERSPECTIVES

Section VI has been edited by Wael A. Sakr, MD; Nizar Akil, MD

*Ethn Dis.* 2007;17[Suppl 3]:S3-50–S3-56

**Key Words:** Global Health, Public Health, Chronic Disease

### A. OVERVIEW

The presentations in this section provided an account for the current status and the trends of major public health issues in the Arab world at large, with data from specific countries in the region. The effects of socioeconomic and educational status and the transforming lifestyle factors including tobacco consumption, dietary habits and the lack of physical activity on the incidence of noncommunicable diseases were addressed by the invited speakers. While the major themes were similar, different areas of emphasis along with country-specific data, predictions and statistics were offered in the papers presented.

Sabri Belgacem, MPA, MD, director of Health Systems & Services Development, WHO-EMRO, Cairo, Egypt addressed the steadily growing risk for noncommunicable diseases in the Arab world with the increasing prevalence of high blood pressure, diabetes and obesity due to poor eating habits and changes in economic and social statuses. He emphasized the alarming increase in tobacco consumption among adults and youth in countries across the region. Combating these challenges is complicated by the major financial hardships faced by Arab countries to provide quality healthcare services. A key factor in these efforts involves increasing knowledge and awareness of risk factors to alleviate the impact of the rising rates of noncommunicable diseases.

In his presentation, Hassen Ghanem, MD, chief, Epidemiology, University Hospital Farhat Hached, Sousse, Tunisia, focused on the worldwide

growing rates of mortality due to chronic diseases where 80% of these deaths occurred in low- and middle-income countries compared to 20% share for the high-income countries. He suggested that the findings of a study in the Sousse region showing the three risk factors of tobacco use, diet, and physical inactivity as the dominant and often synergistic role in the development of these chronic diseases to be applicable to trends in the Arab world. He also emphasized that the importance of developing population-wide prevention programs that are community-based and are inclusive, (ie, all age brackets; especially the youth and both the symptom-free and the high-risk individual).

Ali Mokdad, PhD, chief, Behavioral Surveillance Branch at the Centers for Disease Control and Prevention outlined the differences in the approaches adopted by the clinical vs public health disciplines. The clinical world believes in reductionism, which is the basis of medicine, whereby the larger phenomena are studied by looking at the smaller components and the concept is that the more-specialized a service or a hospital is, the better it will serve its people. The public health philosophy, on the other hand, believes in interconnectedness, whereby the large phenomena are visible and can only be studied when they are in the presence of their smaller components. He presented the results of CDC surveys in Jordan on the epidemiology of diabetes, hypertension and other risk factors as they relate primarily to the changes in the behavior and life style of the Jordanian population.

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From Wayne State University, Detroit Michigan (WAS) and Aleppo University, Damascus University (NA).

## B. COMMENTARY: THE GROWING RISK FACTORS FOR NONCOMMUNICABLE DISEASES IN THE ARAB WORLD

Sabri Belqacem, MPA, MD

*Ethn Dis.* 2007;17[Suppl 3]:S3-51–S3-52

**Key Words:** Noncommunicable Diseases, Risk Factors

The Arab population is estimated to be about 280 million. The majority are in the younger age brackets, although in some countries, the aging population is increasing due to changing living standards and demographic transitions. The region is quite diverse with respect to social and economic determinants of health. While these countries are at different stages of development and their economic classification includes many within low-income status, some within the middle-income and few within the high-income categories, the total income of the entire Arab world according to the *Human Development Report* of 2003 and 2004 is less than that of Spain.

All countries in the region face the burden of growing risk factors for noncommunicable diseases (NCD), with statistical evidence documenting a rise of the major risk factors for these diseases such as tobacco, obesity, lack of physical activity and high blood pressure. Unhealthy lifestyles are also growing among young populations and are exacerbated by globalization and extended communication particularly through satellite channels, which are becoming very popular in the region. Ischemic heart and vascular diseases, as well as cancers, represent the major causes of morbidity and mortality. Obesity is also increasing in the Arab world, ranging from 16%–50% and more than 50% in the higher-income countries of the Gulf Cooperative Council (GCC). The lack of, or the very limited, physical activity reported in these countries is also a contributing factor to the rise in NCD.

Statistics related to tobacco use, in particular, are worth emphasizing as the Arab world has seen a steady

increase in its use. Egypt leads the region in tobacco consumption, with an estimated 8% increase consumption annually and a growing number of children starting the habit between 10 to 15 years of age. Estimates show a fivefold overall increase in tobacco consumption in Egypt from 1970 (12 billion cigarettes/year) to 2003 (62 billion cigarettes/year). In Syria, 50% of males and 10% of females consume cigarettes, with alarming smoking rates among medical professionals (40% males, 11% females). In Morocco, tobacco commerce represents 2.1% of GDP and accounts for about 2.5% of total per capita expenditures. In the GCC countries, 45 daily deaths are attributed to smoke-related illnesses. Overall, the increase in smoking in the Arab world has been more pronounced in the rural areas (fourfold), compared to twofold in the urban areas of the region.

The overall burden of morbidity in the low- and middle-income countries of the region is accounted for mostly by NCD (57.1%) compared to infectious diseases (25%) and injuries (17%).

As countries of the region work on developing strategies and programs to control the rise in NCD, their efforts are hampered by the limited financial resources to address risk factors for NCD, which is costly and needs long-term commitment. The emphasis needs to be on health promotion, starting at school and in work settings in line with the cultural heritage and religious practices. Implementing school health programs for youth is essential. Some regional attempts have been made to integrate NCD control activities within the primary healthcare settings and we have seen an increased awareness for the

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From the Health Systems and Services Development, WHO-EMRO, Cairo, Egypt.

## GLOBAL HEALTH PERSPECTIVES - *Belqacem*

need of partnerships with academic institutions, professional associations, NGOs, the food industry, and the media to support strategies to reduce

the burden of NCD in the Arab world. WHO is a major partner in these efforts and provides technical support, promotes established guidelines and recom-

mendations for managing risk factors and noncommunicable diseases, and promotes national and regional NCD registries.

## C. GLOBAL HEALTH FROM THE ARAB AND DEVELOPING WORLD PERSPECTIVES

Hassen Ghannem, MD, MSc

*Ethn Dis.* 2007;17[Suppl 3]:S3-53-S3-54

**Key Words:** Global Health, Arab World

### INTRODUCTION

Thirty-five million people died in 2005 from chronic diseases mainly from cardiovascular disease, stroke, cancer and diabetes mellitus.<sup>1</sup> The worldwide epidemic of chronic diseases resulted in more than 60% of all deaths, at least half of which were considered premature deaths. Only 20% of these deaths have occurred in high-income countries while 80% occurred in low- and middle-income countries. The projected number of chronic disease deaths will increase from 35 million in 2005 to 41 million in 2015, in the same time the disability adjusted life years (DALYs) will rise from 725 to 808 million.<sup>2</sup> (Table 1)

The Arab world is currently facing the epidemiological transition phenomenon that leads to the extension of chronic diseases. For example, in Tunisia, a country in transition,<sup>3</sup> we have observed a hypertension prevalence rate of 28.8% (BP  $\geq$  140/90 mm Hg) among a representative sample of individuals of Sousse ( $N = 957$ ). History of diabetes was found among 10.2%, obesity (BMI  $>$  30) among 27.7% (significantly higher among women: 34.4%), android obesity among 36%, and smoking habits among 21.5% (significantly higher in men: 61.4%). The epidemiological situation is mostly similar for the rest of the Arab countries with respect to chronic diseases risk factors.

Three common and highly preventable risk factors – tobacco use, diet, and physical inactivity – play a dominant and often synergistic role in the development of these chronic diseases. For developing countries, the problem is more serious because many have not yet conquered communicable diseases and their health systems are ill-prepared to provide the costly care required for these

chronic diseases. Despite the new interest and emphasis on public health and prevention, it appears that the challenge of chronic disease control in developing countries remains before us. Urbanization is expected to raise the level of chronic diseases risk factors as a result of the adoption of new dietary habits, lack of physical activity, and stressful work conditions in the urban area.

Many myths about chronic diseases have serious consequences for the health and welfare of people in low- and middle-income countries. In these countries, the costs of chronic disease are often born by patients as out-of-pocket payment leading to more family poverty. From another side, the environment and economic pressures in developing world may result in poor diet choices and limited physical activities, which constitute the unhealthy behaviours that lead to chronic disease morbidities.

### PREVENTING AND CONTROLLING CHRONIC DISEASES

Fortunately, many of these diseases are amenable to successful intervention as is clearly demonstrated in developed countries.<sup>4,5</sup> Evidence indicates that a small number of risk factors and conditions are common to major chronic diseases. This means that integrated actions against selected risk factors implemented within the social context can lead to the reduction of major chronic diseases.<sup>6,7</sup> Low- and middle-income countries should follow these proven concepts of integrated prevention of chronic diseases as an essential component of existing health systems and should focus on health promotion at a general level.

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From the Community and Preventive Medicine Division, Department of Epidemiology; University Hospital Farhat Hached, Sousse, Tunisia.

**Table 1. Projected global deaths and DALYs from chronic disease by age from 2005 to 2015**

	Deaths (millions)		DALYs (millions)	
	2005	2015	2005	2015
0–29 years	1, 7	1, 5	220	219
30–59 years	7	8	305	349
60–69 years	7	8	101	125
≥70 years	20	24	99	116
All ages	35	41	725	808

Available evidence supports the feasibility and effectiveness of population-wide prevention directed toward increasing the proportion of people at low-risk of chronic diseases.<sup>8,9</sup> In addition, chronic disease, and particularly cardiovascular disease (CVD), risk factors can be linked directly to social, economic and environmental determinants of health. Factors that have a major impact on the development of chronic disease include: education, availability and affordability of healthy foods, access to health services, and infrastructures that support a healthy lifestyle.<sup>7</sup> Advances in etiological research of CVD have resulted in numerous intervention projects and programs through the developed world. The scope of these activities is broad, from preventive action on a single risk factor such as tobacco or a disease such as coronary heart disease (CHD) to a more comprehensive approach involving several risk factors common to several chronic diseases.<sup>6</sup> In fact, there is scientific evidence of the effectiveness of such strategies,<sup>8</sup> but, at the same time, a lack of commitment to prevention may undermine the launching of these initiatives.

We can hypothesize that community-based intervention programs designed for the whole population of developing world, where everyone would have access to positive healthy living, smoke free air, healthy nutrition, regular physical activity and supportive working environ-

ments would lead to a reduction in the burden of chronic disease risk factors behaviors and consequently to chronic disease burden. The integrated prevention programs for chronic diseases should target the young, as well as the adults, by the implementation of lifestyle modification and educational activities in the context of a community mobilization perspective. The improvement of the preventive practices of health professionals at the different levels of care must be central to the programs.

This approach addresses all sectors of the community (from symptom-free individuals to high-risk persons) and proposes interventions centered on the promotion of healthy habits (smoking abstinence promotion and control of tobacco addiction, balanced food, sustained physical activity) and the prevention of the main underlying risk factors (arterial hypertension, smoking, obesity, diabetes, hypercholesterolemia). The ultimate goal is to reduce (or to delay) the occurrence of chronic diseases and their related risk factor behaviors (smoking, physical inactivity and unhealthy diet).

The program employs interventions targeting the internal factors under the control of the individual, but also targets environmental factors not under the individual control. The effectiveness of interventions with regard to behavior modifications constitutes the main challenge to the integrated program designed to control chronic diseases.<sup>10</sup>

The prospects of preventing and controlling risks for chronic diseases are relatively very slowly improving.<sup>11</sup> Sustained progress to bridge the gap will occur only when governments, relevant international agencies, non-governmental agencies and civil societies acknowledge that the promotion of public health should include the prevention of chronic diseases and their risk factors. The challenges of chronic disease prevention are enormous and their control efforts must be scaled up proportionally to the increasing burden.<sup>11</sup>

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## D. CHRONIC DISEASES AND THE POTENTIAL FOR PREVENTION IN THE ARAB WORLD: THE JORDANIAN EXPERIENCE

Ali H. Mokdad, PhD

*Ethn Dis.* 2007;17[Suppl 3]:S3-55-S3-56

**Key Words:** Chronic Disease, Arab

In this report, we present data summarizing patterns of chronic diseases in Jordan as found through studies conducted by the US Centers for Disease Control and Prevention (CDC). Data indicated that chronic disease was accountable for >50% of deaths in the country during 2003, with cardiovascular diseases at 38.2% and cancer at 14.3%.

Trends in chronic diseases were evaluated based on these CDC surveys conducting during 1996, 2002 (actual household surveys) and 2004. Diabetes mellitus incidence doubled from 6.8% in 1996 to 15.3% in 2004. The increase is attributed to behavioral changes rather than genetic or family history factors (*Source: CDC 2004 Survey*). Among the risk factors cited were: poor diet with 28.3% reporting no daily fruit or vegetable consumption from the day before their survey; physical inactivity at 63.7%; and a smoking rate of 23% for individuals ages  $\geq 18$  years.

While 26.4% of Jordanian adults have high blood pressure, the surveys indicate that 14.9% suffer from undiagnosed hypertension. High cholesterol levels increased from 9.1% in 1996 to 19.9% in 2004 with undiagnosed hypercholesteremia estimated to be at 6.4%. Of particular concern were the numbers for diabetes: 7.8% of Jordanians knew they had diabetes (were told by physicians) vs an actual 15.3% who were found to be diabetic with blood tests conducted during the survey. The reported obesity rate increased by 50% to a rate of 34.9% in 2004. The problem is further complicated by weight awareness (ie, not perceiving being obese for 19.2% in 2002 and 34.9% in 2004).

Self awareness of chronic disease (*Source: CDC 2004 Survey*) reflects poor screening practices, especially for cancer, including low awareness of mammo-gram and Pap smear procedures.

Of the 26.4% (760,000) adults with hypertension, 67% are uncontrolled (*Source: He J, Whelton PK. Am Heart J, 1999;138:211-219*) and presents a major risk factor for heart disease and stroke. A 12-13 point reduction in blood pressure would help reduce heart attacks by 21%, strokes by nearly 40%, and deaths from cardiovascular disease by 25%.

Nearly 20% (580,000) Jordanians have high blood cholesterol levels (>240 mg/dL) and 26% (~770,000) have borderline high levels (200-239 mg/dL) (*MMWR. 2000;49(33): 750-755*). These facts are important for the Ministry of Health and should assist in guiding programs for people who have borderline hypercholesteremia. Of those with high or borderline high levels of cholesterol, ~65% are uncontrolled, which, again, is a major risk factor for heart disease and stroke. A 10% decrease in total cholesterol levels may result in an estimated 30% reduction in the incidence of coronary heart disease.

Diabetes statistics from Jordan are also alarming, with 440,000 (15.3%) with diabetes and an additional 350,000 (12.3%) having pre-diabetes as indicated by the intolerance glucose test (IGT). High glucose levels are a major risk factor for heart disease and stroke. Clinical trials in the United States have shown that diabetes is also preventable by changing behaviors, increasing physical activity, and eating a balanced healthy diet. These changes are known to be more effective than medications.

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From the Behavioral Surveillance Branch, Centers for Disease Control and Prevention, Atlanta, Georgia.

## GLOBAL HEALTH PERSPECTIVES - *Mokdad*

Finally, 23% of the Jordanian population >18 years of age are smokers, which accounts for 720,000 adults with a high morbidity and mortality cost.

In summary, public health programs in place in Jordan are important to the long-term health of the nation; additional plans to address these

leading causes of morbidity and mortality include an emphasis on community involvement and political commitment.

# INTEGRATED HEALTH CARE DELIVERY: PAST, PRESENT AND FUTURE

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## SECTION VII. INTEGRATED HEALTH CARE DELIVERY: PAST, PRESENT AND FUTURE. *ASSESSMENT OF LOCAL MODELS OF INTEGRATING PHYSICAL AND MENTAL HEALTH CONCERNS*

Edited by Wael Sakr, MD and R. Michael Massanari, MD, MS

*Ethn Dis.* 2007;17[Suppl 3]:S3-57-S3-69

**Key Words:** Arab Medicine, Integrated Health Care

### A. OVERVIEW

This session provided a historical perspective of the philosophy and practice of an integrated approach for the evaluation and management of disease during the golden era of Arabic civilization. Samir Yahia, MD, a rheumatologist by specialty and a student of the history of Arab medicine, highlighted the numerous contributions in medicine from a large number of physicians and scientists across several centuries and vast geographic terrain of the Arabic/Islamic empire. Yahia emphasized the need for the integration of various fields of knowledge in the education and training of future physicians in order to prepare them to adopt a comprehensive approach with consideration for the mental and social background of each patient.

Bringing the concept into contemporary frame, Michael Massanari, MD offered a general assessment for the ability of the medical delivery practice in the United States to account for relevant mental, behavioral and logistical considerations when doctors attempt to manage patients. His report illustrates real life examples of the failure of the current medical practice system to comprehensively address patients' needs. The environment of "reductionism" that focuses on studying, specializing and practicing within increasingly narrowing areas of sub-specialties, results in fragmented care, competition for resources and worse, passing the responsibility of ensuring the delivery of coordinated care

from the medical/health system where it belongs, to the patients and their families who are not equipped to fulfill this task.

Three presentations of this session outlined the approach adopted by two hospital-based systems, (Henry Ford and Oakwood) and one community-based system (ACCESS), for integrating the mental health component, depression in particular, into the assessment and management of patients seen within these facilities and their outpatients satellite and affiliated physicians offices in the Detroit, Michigan area. The first speaker, Edward Coffey, MD, concentrated on the effects of depression on cardiovascular and central nervous system morbidity by presenting mounting data confirming the negative impact, particularly of long-standing untreated depression, on these systems. He also outlined a Ford Health system plan that was implemented to facilitate screening for depression in the primary care setting. The essence of the plan is to identify an effective way for the clinician to diagnose depression for treatment to begin in a timely fashion.

Issam Khraizat, MD, from the Oakwood Health Care System, addressed the issue of depression and women's health. Women have a 25% lifetime risk of developing depression with a high likelihood of recurrence once diagnosed. In addition, pregnancy, delivery, post-delivery period and peri-menopause are events that can often trigger depression in some women. Khraizat also highlighted programs at the Oakwood Health Care Systems designed to in-

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From Wayne State University, Detroit Michigan.

## **INTEGRATED HEALTH CARE DELIVERY** - *Sakr and Massanari*

corporate screening for depression at both the general practice and specialized levels. For Arab Americans, in particular, Khraizat acknowledged the bilingual capabilities of the healthcare professional, social workers and supportive services

within the system to address the needs of this population.

Finally, the presentation by Ibrahim Kira, PhD from ACCESS emphasized the importance of integrating research programs within a community network

with physical and mental health care. His data demonstrated the paradigm shift that resulted from the advances in this area including primarily data from ACCESS but also with reference to national research.

## B. INTEGRATED CARE IN THE HISTORY OF ARAB MEDICINE – A HISTORICAL PERSPECTIVE

Samir Yahia, MD

This presentation featured the highly developed medical knowledge, practices, medical writings, textbooks and institutions (libraries, hospitals and pharmacies) that existed during the enlightened days of the Arabic/Islamic civilization spanning the 8th to 12th centuries.

Ar-Razi and Ibn Sina, two of the great physicians renowned in Arab medicine, were known for a comprehensive approach to medical care based on a vast knowledge from sophisticated writings in a variety of fields and disciplines. They were referred to as Al-Hakim, a term, which means “the wise” and was bestowed on scholars who were recognized as teachers, scientists, philosophers, travelers, linguists, and artists; they were charitable and held the highest moral and ethical values and of course, also medically qualified and licensed. The wide exposure to these disciplines in addition to medicine expanded the perspectives of evaluating patient’s physical ailments and helped to place them into the wider context of the mental and social framework of patients and their families.

Many deserving an Al-Hakim title believed and practiced an integrated approach to patients’ evaluation and care and have also been acknowledged for their achievements and discoveries in medicine. They were also visionaries in term of establishing key medical institutions and medical systems that formed the foundation of today’s counterparts. The hospital and the pharmacy are examples of the former while positions/functions such as the chief physician who administers qualifying exams for aspiring physicians and the inspector who ensures the validity and safety of chemicals and drugs sold in pharmacies are examples of the latter. During the

Omayyad and especially the Abbasid phase of the Arabic rule, institutions devoted to knowledge and care flourished. Of a particular note, is Dar Al Hikma, an extensive multi-specialty library established in Baghdad and housed numerous books initially translated to Arabic; the library books grew rapidly with the numerous contributions from Arabic scholars as the new culture moved from the absorption into the creation phase. This monument was indeed an integrated center of learning that continued growing for centuries.

Also of interest is to learn about the early Arab hospitals, which were documented as having staffs of dozens of specialists including physiologists, oculists, surgeons and bonesetters.

They had special wards for the mentally ill and separate wings for men and women. These hospitals were often incorporated into large charitable foundations and were supported by endowments made by powerful and wealthy individuals. It is indeed intriguing to read the dedication statement of hospitals as articulated by one of the Abbasid Khalif 1200 years ago and compare the text to a 20th century hospital:

“I dedicate this hospital to my peers and inferiors, and constitute this wakf to the benefit of the king and the mamluk; the soldier and the prince; the great and the small; the freeman and the slave; for men and for women.”

*Al-Mansur*

“The 20th century hospital is characterized today as an institution in which every man, woman and child, regardless of race, color, creed or social status, gets the best care that medical

science can offer the sick and the injured.”

*Mac Eachern’s editorial on hospital standardization, 1936.*

It is appropriate to mention a leader of early Arab medicine. He was both a great physician and a believer in psychosomatic medicine. Abu Ali al-Husayn bin Abdallah bin Sina (980–1037) studied and wrote *The Canon of Medicine*, the most important textbook of medicine until the 15<sup>th</sup> or 16<sup>th</sup> centuries. The five-book text was structured in distinct sections:

- Book I: On “universals,” a systematic survey of medical theory, etiology, hygiene, therapy and surgery
- Book II: Simple drugs
- Book III: Diseases arranged from head to toe
- Book IV: Some general conditions
- Book V: Compound drugs

Gerard of Cremona translated the book into Latin; the *Canon* became required reading up to the 17<sup>th</sup> century for the European world.

In closing, Yahia told an anecdote told about Ibn Sina with respect to his psychosomatic medicine skills. He was asked to examine a young man who became increasingly sick and had lost weight without an apparent physical illness. As Ibn Sina examined the pulse of the patient, he talked to him about women and love and monitored the acceleration of his pulse as the conversation became more specific with neighborhood locations and finally, with the house of the young lady with whom the patient was in love. Ibn Sina diagnosed him with “love sickness” and suggested that the only remedy was to unite him with his loved one. Of course, the story ends happily and he is cured.

## C. INTEGRATED HEALTH CARE DELIVERY – A MANDATE FOR SYSTEMS TRANSFORMATION

### INTRODUCTION

Claims that ‘...the US healthcare system is the best healthcare system in the world...’ are not unusual, at least among those who have little reason to seek the services of the system. On the other hand, observations of those who need and depend on the services of the healthcare system portray a much different view. The following scenario provides a stinging indictment of health care in the United States and the implications for patients and consumers when integration and cooperation are lacking. It suggests that describing US health care as a ‘system’ is little more than an oxymoron.

### CASE STUDY

An intelligent, articulate, private music instructor described her frustration and anxiety trying to obtain care for her middle-aged husband who recently developed progressive difficulties with ambulation and early dementia. The teacher and her husband live in a mid-sized, Midwestern city that is the home of a large state university. It is a sophisticated community serviced by two competing health systems. In her first attempt to obtain assistance for her husband, the teacher sought care through her primary care provider in one of the large health systems.

The primary care physician was unable to provide a satisfactory explanation for her husband’s evolving problems. Even more distressing was the physician’s inability to obtain a neurological consultation. The explanation for this barrier was that the health system does not include a neurologist in its professional services. Unwilling to accept this opinion as the final author-

ity, the teacher requested an appointment with a neurologist at a renowned Midwestern clinic only to discover that there were no available appointments in the foreseeable future.

Through personal persistence, she finally obtained an appointment in the neurology department of a prominent medical school located more than 100 miles from her home. While satisfied with the quality of care and services received in the department of neurology, several sophisticated diagnostic studies were requested by the neurologist. Because the diagnostic services were not immediately available in the school of medicine or in her home community, the teacher had to schedule the services at a medical center located approximately 80 miles in the opposite direction from the school of medicine.

A preliminary assessment of the sophisticated scans revealed that the ventricles of the brain were enlarged, and the radiological interpretation suggested that her husband might be suffering from normal pressure hydrocephalus. This is a serious, but potentially treatable disorder if intervention occurs before permanent brain damage ensues. At the time of our discussion, the teacher was trying, on her own initiative, to obtain her husband’s medical records and information from the diagnostic center, to transmit the information to the neurologist in the school of medicine, and to arrange a followup appointment with the neurologist. In the meantime, the husband’s symptoms were slowly progressing and their economic well-being was evermore compromised because of the time that must be devoted to coordinating her husband’s care.

Is this the ‘best’ that the best healthcare system in the world can offer to patients and consumers? Should it be

R. Michael Massanari, MD, MS

the responsibility of the patient and her/his family to coordinate care? Does the patient serve the system or does the system serve the patient? In the scenario described above, the family member was an articulate individual who had more than a passing knowledge of the healthcare system. How would someone from a different culture or someone for whom English is a second language navigate the disjointed health system? To be sure it can be argued that this scenario is but a single, isolated example of poor coordination and integration of health care. Unfortunately, evidence suggests that the experience of the teacher is as likely to be the rule as the exception.

### WHAT CAN BE DONE?

In a recent survey of US citizens, The Commonwealth Fund reported that 40% of respondents complained of inefficiencies and lack of coordination of care during recent encounters with the health care system.<sup>1</sup> Seventy-five percent of respondents agreed that the US healthcare system requires fundamental changes or complete restructuring. The observations of the lack of integration of physical health care are equally true for behavioral health services. And, if the consumer requires both physical and behavioral health services, issues of poor coordination are compounded.

Russell Ackoff, professor emeritus from the Wharton School at the University of Pennsylvania and an expert in operations and systems theory, has described the US healthcare system as a ‘mess’ where a mess is a system of problems.<sup>2</sup> The complex and disjointed health system is the product of reductionist thinking, a paradigm that has

motivated intellectual thought and inquiry since the Enlightenment in the 17<sup>th</sup> Century.

In brief, we seek to expand knowledge by focusing our inquiry on smaller and smaller components of the whole. In the case of health care, knowledge of the human body and disease has been advanced by studying smaller and smaller parts of the whole. From this paradigm of reductionism has emerged a complex array of clinical specialties and sub-specialties, eg, cardiac electrophysiology, with little attention to the individual patient or to the synthesis of the multiple parts of the healthcare process. In this morass of sub-specialties, each entity is competing for limited resources with little attention devoted to the larger enterprise and its engagement with the individual patient. In short there is no system, but rather a potpourri of entities that have few incentives to coordinate and integrate services. Indeed, in some circumstances, reimbursement mechanisms promote competition rather than cooperation across providers. Ackoff argues for a new paradigm in thinking. We must move from a para-

digm of reductionism to a paradigm of synthesis and systems thinking.

The Institute of Medicine, in its series of reviews and recommendations on the *Quality Chasm*, has recognized the issue of integration and coordination as a major barrier to optimal care. The Institute has formulated a list of 10 new rules for redesigning and improving care including the following rule that addresses coordination and integration.

“Cooperation: Those who provide care will cooperate and coordinate their work fully with each other and with you (patient, consumer). The walls between professions and institutions will crumble, so that your experiences will become seamless. You will never feel lost.”<sup>3</sup>

An enormous gap still exists between the current health delivery system and the vision for the ideal system set out in the Institute of Medicine’s recommendations. Achieving the vision for coordinated, integrated health services will require a transformation of thinking and practices at multiple levels of the health system. Systems transformation

will have to include: 1) cooperation and integration among clinicians who provide care; 2) proper alignment of services and incentives in health systems in which clinicians practice and provide services; and 3) alignment of policies and economic incentives among organizations responsible for reimbursing care. While efforts to promote integration at any one of the three levels of the system are essential, changes will not be sufficient to achieve the broader vision without comprehensive systems transformation. Will the teacher’s husband receive a diagnosis and appropriate intervention before neurological damage is irreversible? For the present, the outcome will depend on the teacher’s dogged persistence to coordinate care in a system that can best be described as a ‘mess.’

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## D. INTEGRATING MENTAL AND GENERAL MEDICAL HEALTH CARE - THE HENRY FORD HEALTH SYSTEM EXPERIENCE

C. Edward Coffey, MD

### INTRODUCTION

A brief overview of medical and mental integration within the Henry Ford Medical System was presented in this presentation. The model focused on depression.

Depression in the medically ill is long-standing. It affects the functional status of the individual and has a very serious effect on morbidity and mortality. Most professionals are aware that 10% of patients with depression will die from suicide. Another 10% will die from a variety of other medical conditions at a rate much higher than they would have had, had they not been depressed.

Depression has a significant impact on cardiovascular disease, both ischemic heart disease (IHD) and stroke. Depression is present in about 10% of the general population. In the general medical setting though, depression is present in 30% to 50% of patients with general medical or neurological illness. Depression is recognized in approximately 33% of patients who have been diagnosed with stroke and other chronic illness and is effectively treated in about one third of these patients. One main focus at the Henry Ford Medical System in Detroit, Michigan is focusing on the relationship between depression and general medical illness.

### DEPRESSION IN THE ILL: DEPRESSION AND VASCULAR DISEASE

If a patient has a heart attack and he develops depression in the post-heart attack setting, his risk of dying from that heart attack is increased two- or three-fold, everything else being equal, blood pressure, cholesterol, ejection fraction, or anything that can measure. The single

best predictor of mortality after a heart attack is the presence of depression. The same is true for a stroke. The relationship works the other way also. Having depression increases the risk of having a heart attack, vascular disease or stroke (IHD 1.6, cardiac arrest 1.9, post-MI mortality 3, acute & 1-yr, stroke 1.7, and stroke mortality 3).

The point is, the brain and the heart communicate with each other. A major goal is to understand and leverage that two-way communication within the body to improve the health and well being of the patients at Henry Ford. Scientists have investigated the relationship between depression and vascular disease; findings have emerged. Possible mechanisms include platelet function abnormalities (sticky and clot a bit easier), increased plaque inflammation (worsened plaque inflammatory response), altered cardiac autonomic tone in the autonomic nervous system, altered hypothalamic pituitary (HPA) axis, which is maintained for weeks and months, and information on how psychological stress-induced ischemia and ventricular instability can result in patients without plaque disease.

### DEPRESSION IN THE ILL: THE HFHS PLAN

How should professionals recognize depression in patients with medical illness? In surveys that were conducted through the Henry Ford Health System (HFHS), many professionals were not comfortable in diagnosing mental disorders in general, either because of lack of training or the thought that the patient(s) would die of suicide under their care. Reimbursement was also an issue. If primary care providers coded the primary diagnosis as depression, the insurance

companies would not pay the physician for the visit. While this situation has been changed, it is a good example of fragmentation that occurs in the health-care system in this country. Dealing with and managing depression is also very time consuming. Primary care physicians may not be prepared to respond to a patient's feelings of depression.

At HFHS, a system was implemented that would facilitate the evaluation and treatment of depression in the primary care setting. The strategy was simple. Develop and implement an easy way for the clinician to diagnose depression and make it as easy as possible for treatment to begin at that point in time. Previously, when patients were referred and made appointments to go to a psychiatry specialist, only one third of those patients showed up. The unappealing extra appointment, extra time off work and extra co-pay were reasons for not appearing for the appointment. We developed and implemented an electronic depression screening tool that takes about 10 seconds to fill out, either on paper, online, or in the physician's office. Results of the assessment are scored immediately and provided to the clinician. Algorithm values above a certain number indicate a patient could be depressed; A few extra questions were added to the screening tool to help ensure the clinicians were not missing the emergencies, which include suicide, psychosis, and bipolar disorder.

In terms of enabling treatment, HFHS has established clinical guidelines in the management of depression and have the guidelines electronically available. The HFHS received a grant from the Flint Foundation to develop these guidelines on an IT platform that will be available for all clinicians in the state of Michigan within the next year. In all of HFHS's clinics, there is always

a nurse practitioner and psychiatrist who are available for clinical consultative support in diagnosis or treatment issues for those clinicians who seek help for their patients in this area.

### PLANNED CARE MODEL

One year after the new screening mechanism was implemented, one can

see that the HFHS has some impressive clinical values to share both before and after the initiation of the screening system. Before 2005, little was known about the rates of depression screening, prevalence and treatment. During the first year of its implementation (2006), almost 100% of all patients are screened for depression; it is prevalent in about 30% of those patients; and, about two thirds of those patients are treated for the disease. It is still very

difficult to get the remaining third of the patients back for consistent care. Some patients have difficulty in accepting the idea of depression, possibly due to poorly understood cultural barriers. In all, however, our results have helped us improve health care within a year of using this approach and technology. The HFHS is very optimistic that care in this area will continue to significantly improve over time.

## E. THE OAKWOOD HEALTHCARE SYSTEM EXPERIENCE

Issam Khraizat, MD

A relationship exists between general women's health issues, depression, and aspects of the obstetrics and gynecology care. The prevalence of depression in women is reported to be a 25% lifetime risk of developing the disease, with a high likelihood of recurrence once a woman has been diagnosed. If a woman is diagnosed more than twice, she may need some type of maintenance therapy for a prolonged period of time or possibly for a lifetime. In the specialty of obstetrics gynecology, women go through menarche, pregnancy and delivery, and then through menopause. During these times, some will be at risk for depression when compared to their male counterparts. Pregnancy and the end of pregnancy, including the days, weeks and months that follow, pose major risks for depression. Many patients who report for obstetrics and gynecology services are, in fact, seeking primary care. Therefore, primary care physicians need to be able to screen for depression and need to have access to a system that facilitates timely management for both depression and the increased risk associated with it for heart disease, stroke and co-morbidity.

The Oakwood Hospital Healthcare System has been actively implementing plans to integrate mental health care utilizing system resources and national programs with emphasis on expanding bilingual, bicultural and culturally sensitive and trained employees with its increasing Arab American patient population. We believe this approach to be very important because depression in Western medicine may be defined and understood differently in other areas of medicine and other cultural backgrounds and may be treated differently.

In our system, Family Matters Services (FMS) screens and follows pre- and post-partum women for delivery complications associated with

a baby or fetus having anencephaly, trisomy-18 which is not compatible with life, genetic or chromosomal disorders, etc. Often, the delivery, as harsh as it may sound, is the easy part because the long-term need to deal with the results of the delivery for the mother, father and other family members can be the harder part. FMS works with patients in the intensive care unit, if end-of-life decisions are needed. To address this situation, FMS developed a "My Voice, My Choice" brochure that talks to patients about the rights they have for their end-of-life decisions. FMS has also presented ethics lectures on how to recognize the different ethics that are involved in obstetrics gynecology and other specialties as well.

Other services that are available at Oakwood Hospital include chaplains, imams and other religious figures who are on call for the loss of a loved one or fetus (viable or pre-viable). Bereavement services has a bereavement nurse who follows up with telephone calls in conjunction with a physician, an Oakwood Garden for women who lose fetuses and can grieve their loss at this garden free of charge.

Government programs for Medicaid patients like Moms and Babes II, where bilingual (Arabic, Spanish and English speaking) nurses and social workers follow up with patients from the time they are pregnant (referred to by ob-gyn physician) to try to determine: what programs are needed for the women and babies; what baby products will be needed when the baby is born; transportation to and from the physician office; and other services that may be needed. Without this type of support, anxiety and depression can result, especially if a woman cannot speak the language, does not know how to and/or cannot get to the doctor's office.

Oakwood's Hospital system has identified the ethnic communities they

serve to better serve their patients. To address the patients' cultural backgrounds, the hospital system has taken these steps:

- tripled the numbers of their bilingual and bicultural employees;
- instituted a very intense program of cultural competence, awareness and sensitivity training for those who are residents, staff, physicians, nurses, ancillary providers;
- made lectures mandatory, including *Health Literacy*;
- made cultural competence training and interpretation service available on every floor in every hospital;
- conducted a series of lectures, including: *Patient Safety; Decreasing Medication Errors; Delivering Bad News to Families; Patient-Specific Populations*.

Presently, as mandated by federal law, the Oakwood Hospital System is hiring competent medical interpreters to translate for non-English speaking patients. Bilingual literature is provided, including consent forms; an *Obstetrics Resource Guide* is available in Arabic and English, both on hard copy and online and talks about everything from the time the pregnant patient arrives to the time she delivers and helps patients learn where to go, where to get information and where to seek help. A committee was formed that talks (available in Arabic and English) about ectopic pregnancy, a very serious, often fatal condition when not detected and managed on a timely basis.

Community outreach services help patients cope with other conditions, such as cancer, which is a very feared condition in the Arabic world and can lead to depression. Oakwood has implemented outreach to the community to educate them about cancer prevention and screening for various cancer types. Helping them try to prevent cancer will

ultimately help them avoid depression arising from this disease as well. Videos on breast cancer and simple procedures were made to alleviate fear and to familiarize patients on procedures.

Clinicians in obstetrics and gynecology focus on prenatal assessments, family crisis intervention for domestic violence/abuse, sexually transmitted diseases, and 24-hour psychiatry. A post-partum de-

pression assessment (Edinburgh Post Partum Depression Survey) is available in 12 languages including Arabic and includes physician scoring, follow-up, treatment, etc, from medical staff.

## F. MODELS OF HEALTH AND MENTAL HEALTH INTEGRATION: ACCESS COMMUNITY HEALTH AND RESEARCH CENTER MODEL

Ibrahim Kira, PhD; Adnan Hammad, PhD; Sharifa Abou-mediene, MD

### INTRODUCTION

Integrated physical and mental health care and research in a community network represents a paradigm shift that resulted from the revolutionary advances in our theoretical and applied research. Further, integration highlighted the importance of cross-fertilization between research and practice and translation of research findings to practice and the clinical insights and observation into new advanced research. Integrative health care with research has ecological validity. In this paper, we briefly discuss the evolving models of integration and present the Calgary model and the ACCESS Community Health and Research Center (ACHRC) model, which is evidence-based and ecologically valid.

### BACKGROUND

Health and behavior are determined by the interaction of human genetics, culture and environment. A significant body of evidence refers to the validity of this interaction paradigm.<sup>1</sup> One result of this paradigm is the integration of genes, health and behavior problems, and environmental stressors as one system with different circuits or sub-systems. The direct effects of environmental stressors on health and mental health, as well as the loop of reciprocal effects between them mandate integrating all these elements (environmental stressors or risks, health, mental health etc.) in managing, service planning and provision.

Scientific advances in medicine and behavioral sciences and the translation of these advances to practices are slow due to lack of integration between science and practice.

Unfortunately, the current system of health care in the United States usually

separates mental health from physical health and from scientific progress. Under these circumstances, we experience higher healthcare costs and negative effects on healthcare access and outcomes, and slower translation of scientific advances. Integrated care is a new paradigm shift in how we view health and provide care; it changes the way we conduct research, develop programs and provide education and training to health and mental healthcare professionals.

Ecological and multi-systemic wrap-around holistic and integrated models of care are emerging.<sup>2</sup> Healthcare providers increasingly recognize the need to address behavioral, emotional and environmental effects on physical health to provide effective and efficient services. The environmental or ecological factors include social, political, physical and cultural environments.

### ELEMENTS AND BENEFITS OF INTEGRATIVE HEALTHCARE DELIVERY SYSTEM

Elements of an integrative healthcare delivery system include:

- Early detection by primary screening for both health and mental health disorders;
- Identification of the root cause of the disorders;
- Networking, communication and coordination between different disciplines that are involved in direct care treatment plans and delivery.

Multi-disciplinary health care is more effective and cost-efficient. Primary, secondary and tertiary prevention will be more effective and efficient if it addresses all risk and protective factors. Prevention is important in helping to

develop healthy lifestyles and treatment adherence.

Another promising development is the revolution of information technology and computer-based systems for unified records for health and mental health. Telemedicine technology is yet another development that can enhance the process of integration and consumer outreach.

Still another revolutionary outcome is the alliance between community and university to develop, provide, and promote an evidence-based integrative system of care, which enhances both cost-effective care and science. The development of a scientist/practitioner multidisciplinary model in both medicine and psychology is one of the outcomes of such integration.

Developing an integrated primary care delivery system requires collaboration between mental health professionals, primary care providers, community leaders, environmentalists, and medical and behavioral scientists. Integrating practice and research in health and mental health care is another promising development that enhances discovery and application of evidence-based models of treatment, prevention and integration. One such development is the design and implementation of brief screening tools for health and mental health that can be used in primary care and mental health clinics for mutual referrals. Integration must be evidence-based. Research found positive effects of integration in productivity and in fewer and less costly healthcare visits.<sup>3,4</sup>

### THE EMERGING MODELS AND MOVEMENTS OF INTEGRATED CARE

Varied integration models are emerging. One example is the model from

University Hospital (in Detroit, Michigan) where research is integrated into practice in an academic setting and managed care models combine health and mental health care, for example Blue Cross/Blue Shield, Kaiser and Henry Ford Health System, in a clinic setting. Another model is the Calgary model used in a primary care setting. Another integrative model is known as the *Prescribing Psychologists Movement*.<sup>5</sup> This model, which is now followed in the army as well as in New Mexico and Louisiana, is gaining acceptance. The ACCESS Model of Community Health and Research Center, which takes place in a community setting, is an evolving model. This paper describes two of these emerging models: The Calgary model and the ACCESS model of Community Health and Research Center.

### THE CALGARY MODEL: PRIMARY CARE PHYSICIAN AND SHARED MENTAL HEALTH CARE

In this model the family physician (FP) has the initial responsibility of identifying those patients in need for mental health interventions. The FP discusses the case with the mental health clinician (psychologist, psychiatric nurse or psychiatrist) prior to the mental health clinician's interview of the patient. Either the physician or the clinician conducts the patient interview in the physician's office. Usually care is taken to work within the context of the FP's relationship with the patient.

A summary of the mental health clinician's opinion is given to the FP with the patient present. This consultation is designed to allow the FP or patient to reframe symptoms in terms compatible with the patient perceptions, beliefs and resources. When needed, family assessment, referral and brief interventions are conducted. Severe family disturbances are referred out. This model requires the FP to invest

more time with the patient than is typical.

This model increases accessibility and decreases the stigma associated with mental illness. However, participating FPs indicated the need for concurrent training for skill acquisition and maintenance and noted the additional investment of their time.<sup>6</sup>

### ACCESS COMMUNITY MODEL OF INTEGRATIVE CARE: ACCESS COMMUNITY HEALTH AND RESEARCH CENTER (ACHRC)

On the administrative level, Michigan supports an integrated health and mental health approach; however, the approach has not yet carried down to the service delivery level. At ACCESS, health and mental health began to be integrated administratively in one unit of operation with the appointment of a director of the community health and research center five years ago. Since then, the ACCESS Community Model of Integrative Care from the ACCESS Community Health and Research Center (ACHRC) is multi-systemic and ecological approach that includes health, mental health and environment and research components in a community setting. This model is still developing within the primary care practices.

### ACHRC Mission

The mission of ACHRC is to promote the physical, mental and social health of the community, utilizing a holistic, multicultural approach and respecting the dignity and diversity of those we serve. We believe that a cooperative relationship, which fosters good healthy living at all levels, can best be achieved by an interdisciplinary outreach strategy using high quality healthcare services, educational programs, research, and advocacy.

The ACHRC continues to be the most comprehensive Arab American community-based health and mental health center in North America. Through our 36 health and mental health programs we have provided 83,000 services to 26,000 clients between June 2003 and July 2004.

ACHRC delivers one-stop services to the community that include medical, public health, mental health, environment, research, immigration, social services, employment and legal services. We deliver holistic, community-based, wraparound services. We conduct health and mental health prevention and intervention outreach to community members in their natural environment. The outreach includes home-visits, partnering and coordinating with other community organizations, eg, schools, cultural centers, faith-based organizations, and other community agencies.

### ACHRC Integration of Health and Mental Health Prevention and Research

Prevention of health and mental health is currently fully integrated; intervention is still in the process of integration development. An example of prevention integration projects is depression screening and prevention among youth in schools, which is an ongoing integrated project by mental health, health and Dearborn schools. The project is funded by Blue Cross/Blue Shield.

### ACHRC Integration of Health and Mental Health Intervention

Current integration of health and mental health interventions includes screening for health while providing mental health services and screening for mental health while providing health services and cross-referrals. In this model, psychiatry and case management are integral parts of mental health. Referrals to neurologists and other needed health services are routinely considered. This includes networking

and coordination with other community agencies, eg, schools and hospitals. Procedures require primary care physician notification of mental health services and psychotropic medication recommended and continuous contact with primary care physicians and other specialists in ACCESS and in the community. The model includes systematic, ongoing data collection to develop a database for health and mental health that aids in gathering the statistics required for grants and funding agencies as well as for outcome and community research.

### Integrating Research and Practice in Health and Mental Health

The scientist practitioner model in the community setting includes conducting research on community health and mental health needs, as well as program evaluation and outcome research in collaboration with area universities. The focus is on discovering community needs to better address them, to evaluate program effectiveness and efficiency, and to determine which interventions work or do not work. The end result is following evidence-based, effective prevention and intervention, enriching basic science by new insights and observations from practice, and faster translation of scientific advances to practice.

ACHRC research projects are conducted with collaboration with academia and are funded by local, state and national funding agencies. Integrating community and university efforts through the scientist practitioner model is essential for both developed services and basic science.

#### *Example of the ACHRC Integration: Youth Health, Mental Health and Research*

In the children's health program, we screen for health and mental health using screening tools for environmental traumatic stressors in youth and their parents. We use Columbia University Diagnostic

Predictive Scales (DPS), which is a computerized tool for mental health screening of youth; it also measures for post-traumatic stress disorder (PTSD), depression, anxiety and complex PTSD.

We refer clients to ACCESS physicians and other community physicians and neurologists and followup on our referrals. Primary physician notification for each client is routinely delivered upon opening the case or changing medication, as noted earlier. In the youth health center, we use the Columbia University screening tool for mental health as well as a newly developed checklist for traumas, risk and protective factors. Accordingly, youth health center refers to mental health those who are at risk after consent has been obtained from parents. Further, we are developing a database for mental health and health screening information; data analysis will be conducted using SPSS.

#### *Examples of Research Projects in Mental Health*

Examples of mental health research projects conducted by ACHRC are:

- The effects of cumulative trauma on Iraqi and African American adolescents' health and mental health. This is an ongoing collaborative research projected conducted by Wayne State and ACCESS.
- Two anti-stigma clinical studies to assess the stigma of mental illness in ACCESS clinic mental health clients.
- Two Iraqi refugee community studies. Research has been conducted on samples of 365 and 501 participants, in collaboration with Eastern Michigan and Wayne State Universities.
- Ongoing research on health and mental health needs assessment in the Arabic community, in collaboration with Wayne State University.

#### *Examples of Research Projects in Health*

Examples of health research project conducted by ACHRC are:

- Increasing knowledge of HIV serostatus in Arabic-speaking high-risk population. This research was funded by the US Centers for Disease Control and Prevention.
- Development/evaluation of Arab American cancer awareness. This research was conducted with Wayne State University and was funded by Blue Cross Blue Shield of Michigan.
- Environmental impacts on Arab Americans in metro Detroit. This project is funded by the National Institutes of Health.
- Arab American youth: tobacco use and intervention. This study is conducted with Wayne State University and funded by National Institute for Child Health and Human Development.
- The epidemiology of diabetes and its risk factors among Arab American community of Dearborn, Michigan. This study has been conducted with Wayne State University and funded by American Diabetes Association.
- Expanding cancer prevention through translation and training. This research was conducted with Michigan State University and funded by Susan G. Komen Breast Cancer Foundation.

In addition, ACHRC collaborative research identified, for the first-time, the problem of water pipe smoking among the Arab American community as a culturally specific health risk and started to plan an intervention and prevention campaign.

## CONCLUSION

The service integration movement is evidence-based and is here to stay, grow and advance. There are several models of integration and the ACHRC community-based integration of health, mental health, and research may have several advantages. It provides a promising model that integrates health, mental health and research components in a community setting. The model is unique, ecologically valid and is worth

developing and disseminating nationwide and internationally. However, the ACHRC model is still in the developmental stage. Continued development and evaluation of our model is underway.

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## SECTION VIII. MENTAL HEALTH

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**Key Words:** Mental Health, Arab American, Substance Abuse, Posttraumatic Stress Disorder, Torture Rehabilitation

### A. OVERVIEW

Researchers from various professional backgrounds such as health psychology, behavioral medicine, clinical psychology, social work, psychiatry and nursing have long noted the interwoven facets of the physical and mental health of individuals from various ethnic origins. In this section, we present articles and abstracts pertinent to mental health issues affecting Arab Americans. Recent efforts to include Arab Americans among the ethnic groups studied have resulted in a better understanding of the links between their physical and mental health. Clinicians have also begun considering how best to treat the whole person in their mental health treatment protocols for Arab Americans.

The first paper in this session addresses the epidemiology of Arab Americans in publicly funded substance abuse treatment programs and was written by a team of researchers from Wayne State University in Detroit, Michigan. Using admissions data from Michigan publicly funded substance abuse treatment programs, Arfken et al conducted a comparison study of intake data on various ethnic groups including Arab Americans. Given the historically high concentration of Christian (eg, Iraqi Chaldean) and Muslim Arab Americans in the metropolitan Detroit area and the prohibition of drug and alcohol use by strictly practicing Muslims, the researchers wanted to describe patterns of substance abuse in this community in order to help structure future outreach, prevention and treatment efforts.

The second paper examines physical and mental health symptoms in im-

migrants from Iraq and compares those who immigrated before the 1991 Gulf War with those who immigrated afterward. Led by Jamil, this team of researchers designed questions to obtain data about the participants' health status both before and after their immigration and administered the questionnaires in the participants' native languages. Participants who were unable to read the questionnaires were administered the questionnaires verbally. Data were collected on 29 physical and mental health medical conditions (eg, sleep apnea, chronic headaches, anxiety and depression) and were examined by participant age, sex, marital status, and specific ethnic background.

An article by Kira et al addresses the physical and mental health of refugees from Iraq, with particular focus on the traumatic experiences involved in the etiology of their symptoms. The available literature on refugees, including articles from Iraq, has suggested that this group suffers from elevated rates of physical and mental health problems. The primary objective of Kira's research was to refine the description of the trauma experienced by these refugees and explore the potential causes of their health problems. In addition to considering the demographic characteristics of their sample, Kira et al measured cumulative trauma experiences, media exposure to the war in Iraq, family involvement in war, backlash after September 11, 2001, and perceived discrimination. They examined the relationship between these variables and various diagnostic measurement tools that assist in identifying posttraumatic stress disorders and various other mental and physical health disorders.

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From the University of Windsor (JHL), Ontario, Canada; University of Michigan (NW), Dearborn, Michigan; ACCESS Community Health and Research Center (AH), Detroit, Michigan.

The presentation on hope and well-being of refugees from Iraq introduces the potential promise of hope theory within medical settings for the treatment of individuals with histories of trauma. As part of a larger project on the physical and mental health of immigrants from Iraq, Hakim Larson and colleagues administered measures of hope, depression, anxiety and trauma severity to refugees who were seeking or receiving mental

health treatment. Hope was made operational in accordance with Snyder's definitions, which place emphasis on the person's belief in his or her own agency and capacity to generate plans of action to accomplish personal goals.

The final paper in this section examines the psychosocial rehabilitation treatment approach for survivors of torture. This treatment is currently used by mental health professionals at

the ACCESS Center for Psychosocial Rehabilitation of Torture Survivors. Farrag and a team of clinical researchers examined pre- and post-treatment measures of anxiety, depression and post-traumatic stress disorder in participants who were survivors of torture.

Additional mental health-related articles addressing specific disorders, as presented at the conference, can be found in Sections II, III, IV, and VI.

## B. ARAB AMERICANS IN PUBLICLY FINANCED SUBSTANCE ABUSE TREATMENT

**Objectives.** To determine the characteristics of Arab Americans receiving treatment and to compare them with individuals of other ethnic groups.

**Methods.** We used admission data (FY2005) for Michigan publicly funded substance abuse treatment ( $N=69,989$ ). Arab American ethnicity ( $n=224$  or 0.3% of admissions) was defined by codes for race, ethnicities or primary language of Arabic ( $n=21$ ). Other ethnicities examined were American Indian, Hispanic, African American, and White.

**Results.** The number of Arab American admissions was lower than expected for the population ( $RR=0.25$ ). Admissions were concentrated (81%) in metropolitan Detroit as is the community (82%,  $RR=.99$ ), unlike other ethnicities. Primary drugs of abuse were alcohol (34.8%), marijuana (17.9%), heroin (17.4%) and crack cocaine (15.6%). Mean duration of use (11.2 yrs) was significantly lower than for other ethnicities. Arab American admissions were predominately male (76.3%), unemployed (62.1%) and with criminal justice involvement (58%), similar to other ethnicities.

**Discussion.** Using administrative database has its limits and may misclassify ethnicities. Based upon the available data, it appears that Arab Americans accounted for a small percentage of admissions to publicly funded substance abuse treatment in Michigan. Most of the admissions listed English as the primary language, raising concern that language may be a barrier to entry. Admission profiles were generally similar across ethnicities, except that Arab Americans were entering treatment after shorter duration of use. These data can inform development of treatment programs and outreach efforts. (*Ethn Dis.* 2007;17[Suppl 3]:S3-72-S3-76)

**Key Words:** Substance Abuse, Arab American

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### INTRODUCTION

The Arab American community in the United States encompasses several waves of immigration from 22 countries of origin with diverse socioeconomic status, different religions and, importantly, reasons for migration. In general, however, they have a shared geographic, historical and cultural identity. These cultural beliefs include importance of family and honor.<sup>1,2</sup> Another commonality is, especially recently, heightened exposure to stigmatization and discrimination.<sup>3</sup> Drug and alcohol use is forbidden specifically by strict Muslims who consider misuse to bring shame to the family. According to the 2000 census, Arab Americans are concentrated in 10 states throughout the United States, with Michigan having the largest concentration of any state.<sup>4</sup> Within Michigan, the Arab American population can be found in 82 of 83 counties but is concentrated in the three counties of metropolitan Detroit.

Although research on immigrants has found them less likely to have many chronic diseases (healthy immigrant effect) due to selection of those most fit to migrate, this effect does not extend to the mental health arena.<sup>5</sup> For mental health in general and substance abuse specifically, the reason for migration (eg, refugees) and traumatic experiences overwhelm any healthy immigrant effect. In addition, stress of migration and adjustment to new communities, potential dissolution of protective factors such as employment, intact family structure or religious beliefs and discrimination may heighten the risk of substance abuse or other disorders.<sup>6-8</sup> Lafferty and colleagues present findings from community forums with Arab Americans immigrants who discuss alcohol abuse as a consequence of stress.<sup>1</sup>

Barriers, such as language or denial of problem, however, may impede substance abuse treatment entry for Arab Americans. Knowing the number of admissions by Arab Americans is a starting point for examining barriers. Providers also need this information in order to respond to the need for culturally appropriate treatment. In addition, treatment indicators complement health needs assessment from other sources to provide health status information about a community.<sup>1</sup> Knowing the descriptive epidemiology of Arab Americans admitted to publicly financed substance abuse treatment provides data to help shape outreach efforts and treatment.

The purpose of this study is to determine the descriptive epidemiology of Arab Americans admitted to publicly financed substance abuse treatment.

### METHODS

We used the existing administrative database on all admissions in the state of Michigan for publicly financed substance abuse treatment for fiscal year 2005 ( $N=69,989$ ). Admission data are routinely collected and required by the state of Michigan on all publicly financed substance abuse treatment. Publicly financed treatment is defined as treatment services paid by Medicaid or from the federal substance abuse prevention and treatment block grant. It does not include self-pay or payments from commercial insurers, criminal justice entities, other state or local funds, or federal programs specific for veterans. The data, after examination for completeness, consistency and obvious errors, are then transmitted to the federal government as part of the reporting requirement.

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**Table 1. Ethnic-specific admission and population size in Michigan**

<b>I. Statewide admissions</b>				
	<b>Admissions N</b>	<b>Admissions % within total</b>	<b>% 2000 population</b>	<b>Relative Risk</b>
Arab American	224	0.3	1.2	0.25
American Indian	978	1.4	0.6	2.33
Hispanic	2,510	3.6	3.3	1.09
African American	18,230	26.0	14.2	1.83
Non-Hispanic White	46,774	66.8	78.6	0.85
Missing/refused/Asian/ more than one race	1,273	1.9		
Total	69,989	100%		

  

<b>II. Within ethnicities, percentage in metropolitan Detroit</b>				
	<b>Admissions % within ethnicity</b>	<b>% 2000 population</b>	<b>Relative Risk</b>	
Arab American	80.8	82.0	0.99	
American Indian	10.6	24.0	0.44	
Hispanic	23.9	36.0	0.66	
African American	61.2	72.0	0.85	
Non-Hispanic White	30.8	35.0	0.88	

NB: Asian /Pacific Islander population in Michigan is estimated to be .3%, according to the 2000 census. In fiscal year 2005 admission data for publicly funded substance abuse treatment, .3% of admissions (N=180) were coded as Asian/Pacific Islander.

As required by the state of Michigan, intake assessors located in specific locations around the state collect data using appropriate state-approved forms. The assessors collect the information as part of an intake process to assess eligibility for treatment, eligibility for public funding, level of care required (eg, outpatient, non-hospital residential) and need for specialized services (eg, mental health). The initial assessments may be in person or over the telephone, depending on local requirements.

The intake form covers demographic information such as date of birth, sex, race, ethnicity (ie, Puerto Rican, Mexican, Cuban, other Hispanic, Arab-Chaldean), primary language spoken (469 pre-specified categories), county and living arrangement. It also covers primary drug of abuse (determined through frequency of use and consequences) and age at first use of that drug. Duration of use can then be determined by subtracting current age from age at first use. To assist with placement, data are collected on prior treatment for substance abuse, mental issues, and criminal justice involvement.

Due to increasing interface with drug courts,<sup>9</sup> the assessors also must indicate if the admission resulted from a drug court referral.

Ethnicity for this analysis was determined using a combination of race categories, ethnic categories and primary language spoken. The dominant primary language was English (98.9) or not determined (0.2%). Admissions listing race category of “Arab American” or ethnicity of “Arab Chaldean” or primary language of Arabic were considered Arab American. Only 21 admissions had Arabic listed as the primary language. Admissions with race category of “Hispanic” or ethnicity of “Puerto Rico”, “Mexican”, “Cuban” or “other Hispanic” or primary language of Spanish listed were considered Hispanic. Only 443 admissions had Spanish listed as the primary language. Admissions with the race category of African American, American Indian or White listed were considered African American, American Indian or White, respectively. Excluded from the ethnic categories but included in total admission group were Asians/Pacific Islanders

(0.3%), refused to answer (0.0%), unknown (0.8%) and “multiracial” (0.9%). Because an individual admission could be coded in different ethnic groups, the following hierarchy was used: admissions were coded first as Arab American and if not Arab American then as Hispanic, African American, American Indian and finally White.

Analysis used admission as the unit of analysis. Multiple admissions within a given fiscal year occur but typically constitute a small percentage of total admissions. Admission, as opposed to individuals, has the advantage of better estimating the challenges to the system and individual providers. Descriptive statistics were used to summarize the data. When comparing the proportion of admissions to the population by ethnicities, relative risk (RR) was calculated. Due to the very large sample size and objective of describing the data, analytical statistics were used only to examine differences in age at admission and duration of use by ethnicities. For these analyses, univariate analysis of variance models were constructed with post hoc testing by Tukey’s honestly

**Table 2. Primary drug of abuse by ethnicities**

	Arab American	American Indian	Hispanic	African American	Non-Hispanic White	Total
Alcohol	34.8	59.9	50.8	28.4	48.3	43.2
Marijuana	17.9	13.8	19.6	18.4	16.0	16.9
Heroin	17.4	3.0	9.2	20.8	11.6	13.7
Crack	15.6	5.8	9.2	26.4	9.3	13.7
Other opiates	8.0	10.6	3.3	1.1	7.0	5.4
Powder cocaine	4.0	3.7	5.2	4.1	4.0	4.0
Benzodiazepines	1.8	0.5	0.2	0	0.4	0.3
Other drugs	0.4	2.7	2.5	0.8	3.5	2.7
Total*	100%	100%	100%	100%	100%	100%

\* May not total 100% due to rounding error.

significant difference. All analysis was conducted using SPSS 14.0 (Chicago, Ill).

As the investigators had no part of data collection or access to identifying information that could be linked to individuals, the analysis was not considered human research. It was therefore not reviewed by the Wayne State University Institutional Review Board.

## RESULTS

Arab American admissions constituted a small percentage of the total admissions (0.3%) which was lower than their proportion of the population as measured in the 2000 census (1.2%) for a RR=0.25. The White group was the only other ethnicity to have a RR of less than unity (RR=0.85). Table 1 shows the distribution of admissions and population by ethnicities.

As the Michigan Arab American population is concentrated in metropolitan Detroit (82%), the ethnic concentrations of admission within these three counties were calculated using the 2000 census. Across ethnicities, the RRs were less than unity, indicating smaller proportion of admissions within ethnicities in metropolitan Detroit than their proportion of the population. The RR for Arab Americans came closest to unity (RR=0.99).

The distribution of primary drug of abuse by ethnicities is displayed in the Table 2. In rank order, Arab American admissions listed alcohol, marijuana, heroin, crack, other opiates (ie, prescription painkillers), powder cocaine and benzodiazepines. The other ethnicities had admissions for other drugs, such as prescription stimulants, as primary drug of abuse, but there were no admissions for these drugs by Arab Americans.

Across ethnicities, admissions were primarily for first treatment by males who were unemployed (Table 3). A low proportion of admissions were by homeless individuals with the highest rate in African Americans (17.2%). Mental health issues (20.1%) and drug court involvement (5.8%) were listed on a minority of Arab American admissions. Criminal justice involvement (eg, probation, parole), however, was prominent and included 58% of the Arab American admissions.

Age at admission and duration of use differed significantly by ethnicity (Table 3). From the post hoc test, the mean age of African-American admissions (mean=38.9) was significantly older than that of other ethnicities. The mean duration of using the primary drug of abuse was different and shorter for Arab American (mean=11.2) compared to each of the other ethnicities. The Hispanic and White admissions

**Table 3. Admission characteristics by ethnicities**

	Arab American	American Indian	Hispanic	African American	Non-Hispanic White	Total
Male, %	76.3	58.7	72.1	64.8	64.5	64.8
Age, mean*	31.3	32.5	31.3	38.9	32.5	34.1
Unemployed, %	62.1	60.4	50.4	66.6	54.9	57.8
Homeless, %	5.8	6.7	5.7	17.2	7.1	9.6
Mental health issues, %	20.1	35.0	24.9	16.7	32.7	28.2
Criminal justice involvement, %	58.0	62.8	65.3	39.3	60.6	55.2
Drug court involvement, %	5.8	2.1	5.1	2.9	4.4	4.0
First treatment, %	71.0	66.8	70.1	67.6	65.9	66.5
Duration of use in years, mean**	11.2	16.2	13.8	19.0	14.6	15.7

\* Significantly different across ethnicities. Using Tukey's HSD, African American admissions had higher mean age than admissions for other ethnicities.

\*\* Significantly different across ethnicities. Using Tukey's HSD, mean duration of use was lower for Arab American admissions, followed by Hispanic and non-Hispanic White admissions, followed by American Indian admissions, and then African American admissions.

had the next longer mean duration of use, followed by American Indian and then African American. In stratified analysis, criminal justice involvement had no differential impact on duration by ethnicities (ie, criminal justice involvement was consistently associated with shorter duration of use across ethnicities). However, there was no ethnic difference in duration of use for admissions with residents outside of metropolitan Detroit; the mean duration was 13.2 for Arab Americans versus 14.7 for all other admissions.

## DISCUSSION

Admissions by Arab Americans constituted a small, in absolute number and relative to the population size, percentage of publicly funded substance abuse treatment in Michigan. In addition, their admissions were clustered in the same three counties where the majority of the community lives. Interestingly, the concentration of admissions in Metropolitan Detroit appeared greater than that observed for other ethnicities. This consistency with geographic distribution of the community may be a result of improved outreach locally, more skewed concentration of economically disadvantaged Arab Americans or presence of services in the Metropolitan Detroit area. The concentration of services is supported by the finding that 9 of the 11 Michigan substance abuse treatment facilities offering treatment in Arabic are located in metropolitan Detroit.<sup>10</sup>

The small number of admissions, especially outside of metropolitan Detroit, may be a result of barriers, such as language, to entering treatment. Only 21 admissions listed Arabic as the primary language. The relative lack of admissions with Arabic as the primary language may mean greater outreach efforts are needed. For the providers, they may not be seeing substantial

language burden, as almost all (99.1%) of the admissions did not list a non-English primary language.

A contributing factor to the few observed admissions by Arab Americans is the inherent limitation of using an administrative database. Intake assessors are not research personnel with extensive training and quality control supervision for validity and reliability coding ethnicity. Some assessors may ask for self-reported ethnicity while others may rely upon observations. Individuals accepted for admission have limited motivation for asserting their ethnicity and checking the validity of coded responses. If substance abuse is highly stigmatized by an ethnic group, the individual may purposively deny that ethnicity. The database is also limited to those who were admitted to publicly funded treatment. No information is available on individuals who received treatment with other payment sources.

An additional limitation is the use of the 2000 census, which is known to have undercounted minorities and does not reflect recent population changes. Between 1990 and 2000, the Arab American population, as counted by the census, increased 65%. Between 2000 and 2005 additional changes are likely. Finally, the results are limited to one state where Arab Americans have the largest concentration and may not generalize to the rest of the country.

Cognizant of these limitations, one can still ask why the Arab American admissions were such a small percentage of overall admissions. Is it due to under-identification, language and other barriers, denial of need, seeking other care, or a lower burden of substance use disorders due to cultural factors or healthy immigrant effect?<sup>11</sup> These results raise questions but do not answer them.

Interestingly, the profile of Arab American admissions was quite similar to that of other ethnicities. The admis-

sions were dominated by unemployed men with criminal justice involvement. The recognition of need for mental health treatment was also low. This may be due to the state's new system, which is just beginning the process of integrating mental health and substance abuse treatment. The presence of post-traumatic stress disorder (PTSD), known to be present in recent Iraqi<sup>12</sup> and Lebanese<sup>13</sup> refugees, would probably not be assessed and therefore undercounted.

The primary drugs of abuse reported in the Arab American admissions are drugs associated with high societal costs.<sup>14</sup> They appear to reflect drugs that are available in metropolitan areas, as opposed to country of origin preferences.<sup>15</sup> Unusual drugs, which would necessitate new treatment plans, were not mentioned in the Arab American admissions.

The Arab American admissions, although similar in many ways, differed from other ethnicities on duration of use. Arab Americans are being admitted for treatment sooner after initiating use of the primary drug when compared to other ethnicities. These data do not elucidate the mechanism but suggest it is related to residing in a metropolitan area where better support services are available. More research, however, is needed on assessing the reasons so that it can be maintained, improved and disseminated to other ethnicities.

In conclusion, this short descriptive epidemiology of admission to publicly funded substance abuse treatment by Arab Americans has a number of limitations. The results, however, combined with information on prevalence of substance use disorder and primary drug of abuse within the community could be used to assist development of appropriate treatment programs and outreach efforts. The results raise important questions for future, more-focused research. It also provides a baseline to track changes over

time as outreach and the community changes.

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## C. MEDICAL COMPLAINTS OF IRAQI AMERICAN PEOPLE BEFORE AND AFTER THE 1991 GULF WAR

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**Key Words:** Iraq, Gulf War, Immigrant Health

### INTRODUCTION

Thousands of Iraqis immigrated to the United States before the 1991 Gulf War for a variety of reasons that were predominately economic. Post-1991 Gulf War immigration among this group represents a new wave of immigration from Iraq.<sup>1</sup> Most post-Gulf War Iraqi immigrants, many of them refugees, suffered a sequence of serious traumas in Iraq, either before, during or after the Gulf War. These individuals appear to suffer from a host of physical and mental health maladies, some similar to those affecting other groups such as US Gulf War veterans.<sup>2,3</sup>

To date, there is no published scientific research about the 1991 Gulf War explaining the etiological agents possibly responsible for such complaints.<sup>4</sup> Studies of Iraqi Americans are very scarce, although a few recently published studies conducted with the Iraqi veteran refugee population indicated high levels of medical and mental disorders.<sup>2,5,6,7</sup> However, Iraqis who immigrated after the 1991 Gulf War represent a population with the highest potential exposure to toxic materials during this war. It is imperative to examine closely their physical and mental disorders. Therefore, the objective of the study was to compare the prevalence of medical conditions between Iraqis who immigrated after the 1991 Gulf War (Group A) and Iraqis who immigrated before the 1991 Gulf War (Group B).

### METHODS

Ethical clearance was obtained from Wayne State University. The study is a cross-sectional study among Iraqi

residents in the metropolitan Detroit area. The participants were selected randomly from a list of 5,490 residents. The random sample consisted of 350 participants because of limited funding. Analysis of participants' residences showed that they represent various cities that differ on demographic characteristics, such as socioeconomic status. Also the analysis showed that the participants came from 55 zip code areas within 24 cities in the metropolitan Detroit area. Participants were verbally asked to fill out a series of questionnaires administered in their native language. If the participant was unable to read, the questions were given verbally in an interview format. The questionnaires were designed to obtain information regarding the subject's medical conditions (diseases or symptoms) at the time of the survey and whether that condition was present before or after the 1991 Gulf War. Demographic information was also obtained.

The study was conducted during 2004 and 2005. Group A consisted of 206 participants who immigrated to America after 1991, and Group B consisted of 144 participants who immigrated to America before 1991. The interview questionnaire was based on an instrument from the Iowa Persian Gulf War Study Group, 1997.<sup>8</sup>

### RESULTS

Group A had fewer male participants (51.5%) than Group B (62.5%). More participants were below the age of 40 years in Group A (38.5%) than in Group B (18.6%). There were more married participants in Group A (85.9%) than in Group B (71.5%). More participants had less than high

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school education in Group A (44.7%) than in Group B (32.6%). Most of the participants were Iraqi Americans of Arabic-speaking descent (Group A: 70.4%, Group B: 72.9%), while the remainder were Iraqi Americans of Chaldean descent (Group A: 29.6%; Group B: 27.1%). The occupational category with the highest percentage of people in Group A was professional work (24.4%) when they were in Iraq, but this percentage declined to 9.3% when they came to the United States. The percentage of unskilled workers in Group A was 5.4% when they were in Iraq and 22.4% when individuals immigrated to the United States. Group B showed more or less the reverse trend in these two occupations.

Among the 29 medical conditions (symptoms and illnesses) that could be reported, only one (thyroid problem) was more prevalent in Group B and one (eczema) was equal in both groups. Among the 29 medical conditions more prevalent in Group A, 13 were statistically more prevalent (eg, sleep apnea, memory loss, chronic headache, fatigue). The medical conditions related to mental disorders (PTSD, panic disorder, anxiety and depression) were statistically more prevalent among participants in Group A as compared to Group B.

## DISCUSSION

Significant differences were found for most demographic variables between Iraqis who immigrated after the 1991 Gulf War (Group A) and those who immigrated before the 1991 Gulf War (Group B) ( $P < .05$ ). Also the results of

the study indicate that the prevalence of 13 out of 29 medical conditions (diseases and symptoms) were significantly higher (range between  $P < .05$  and  $P < .001$ ) among Iraqis who immigrated to the United States after the 1991 Gulf War (Group A) in comparison to Iraqis who immigrated to the United States before the 1991 Gulf War (Group B). In particular, the medical conditions related to mental disorders were significantly more prevalent in Group A ( $P < .001$ ). The greater prevalence of the medical conditions among Group A was consistent with previous research.<sup>5</sup> Also the results were consistent with a number of small surveys, which were conducted in Iraq comparing health data from before and after the Gulf War.<sup>9,10</sup>

## CONCLUSIONS

- There were significant differences in more than half of the medical conditions (including mental disorders) between the Iraqis who immigrated before and after the 1991 Gulf War.
- More clinical and epidemiological research among Iraqis who participated in the 1991 Gulf War is needed.

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## D. THE PHYSICAL AND MENTAL STATUS OF IRAQI REFUGEES AND ITS ETIOLOGY

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**Key Words:** Iraq, Gulf War, Immigrant Health

### INTRODUCTION

Iraqi refugees who present as mental health clients provide an educational challenge due to the severity of their problems. In a previous study,<sup>1</sup> we found elevated levels of poor health and mental health in Iraqi refugees. The objectives of the present study were to replicate and to explore potential root causes of such elevation.

### METHODS

Participants included a quota sample of 501 (274 males), with age ranges between 12 and 79 years and a mean age of  $35.7 \pm 13.95$  years. The sample represented Iraqi refugees who came from different channels of refuge. Sixty percent were married, 31% single, 4% separated, and 4% divorced. Of the sample, 5.4% were illiterate, 56% had educational levels ranging from second grade to high school, and 34% were college students or graduates. Ten percent had resided in the United States for up to two years, 32% for 3–5 years, 36% for 6–10 years, and 21% for more than 10 years. Ninety percent were Shiite Muslims, 5.8% were Sunni Muslims and 3.2% were Christians.

#### Measures: Independent variable measures

##### *Cumulative Trauma Measure (CT).*

This measure contains 22 kinds of traumatic experiences, (eg, torture, war, rape, sexual and physical abuse, car accidents, abandonment by parents and natural disasters). Each participant was asked to report the frequency of each kind of trauma experienced. The measure includes 6 sub-scales: 1) collective

identity trauma, (eg, “discriminated against or threatened due to race or ethnicity or religion”); 2) family trauma, (ie, divorce and family history of violence); 3) secondary traumatization or interdependence trauma; 4) personal identity/autonomy trauma, (ie, sexual abuse); 5) survival trauma; and 6) abandonment trauma. The measure was found to have reliability, construct validity and good predictive validity, as it correlated significantly with PTSD and CTD (cumulative trauma disorders) scales.

##### *Media Exposure to War in Iraq Scale (MEWS).*

Media exposure was measured by one question that asked the respondent to report how many hours a day on average the respondent watched/listened to the news about the war in Iraq.

##### *Family/Friends Hurt in the War Scale (FFPWS).*

This scale measured the degree of the individual’s family involvement in the war and how they were affected by the war. Two items ask respondents if they have a family member or friend who has been killed, wounded or lost property due to the war. The scale has alpha reliability of .81. Additional measures for perceived backlash after September 11 and multi-ethnic perceived discrimination were also used.

#### Measures: Dependent variable measures

##### *PTSD Measure (CAPS-2).*

This measure was developed by Blacke<sup>2</sup> and is widely used to assess PTSD. It assesses 17 symptoms, with each symptom rated on frequency and severity on a 5-point scale. CAPS

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**Table 1. Logistic regression for cumulative trauma prediction of diseases**

Independent Variable	Cumulative trauma				
	Dependent variables	B	SE	Odds ratio Exp(B)	Confidence intervals Lower Upper
Neurological disorders	.11	.03	1.12‡	1.06	1.18
Blood pressure and other cardiovascular disorders	.10	.03	1.11†		
Respiratory disorders	.05	.02	1.06*	1.01	1.11
Digestive disorders	.04	.02	1.04*	1.00	1.09
Urinary disorders	.03	.02	1.03	.99	1.07
Musculoskeletal disorders	.07	.02	1.07†	1.03	1.11
Endocrine disorders	.05	.02	1.05*	1.00	1.10

Findings are obtained after the effects of sex, age, marital status, education and income were controlled statistically.

\*  $P < .05$ .

\*\*  $P < .01$ .

†  $P < .001$ .

‡  $P = .06 - .10 +$  (close to significance).

demonstrated high reliability with a range from 0.92–0.99 and proved to have good convergent and discriminate validity.<sup>3</sup> In this study, we used the frequency sub-scale of CAPS-2 that is currently widely reported in psychiatric literature. The scale in this study had a high reliability with an alpha of 0.97.

*Cumulative Trauma Disorders Measure CTD (15 items).*

This measure has been developed in two studies on Iraqi refugees and on clinic mental health clients.<sup>1</sup> The measure was found to have four factors and four sub-scales: executive function deficits, suicidality, dissociation and depression/ anxiety interface.

*Health Scale (12 items).*

Kira and associates<sup>1</sup> developed this measure in a previous study on Iraqi refugees. It includes questions about self-reported health and the kinds of health problems the participant has, (eg, neurological, circulatory, digestive system and endocrine). It has an alpha index value of 0.751.

**Data Analysis**

To explore the effects of potential factors associated with poor health and mental health, we conducted multiple regression and path analysis with cumulative trauma, trauma types, torture, and

media exposure to Iraqi wars as independent variables. We also considered various health and mental health variables as dependent variables controlling for gender, income, education, marital status and age. We conducted a sequence of binary logistic regressions with cumulative trauma and trauma types and “exposure to media news about the war in Iraq” as independent variables and different types of health problems as dependent variables, controlling for the effects demographics. We used structural equation modeling (AMOS 6), with cumulative trauma, trauma types, discrimination, war in Iraq media exposure as independent variables that have direct and indirect effects on health and mental health variables.

**RESULTS**

The results depict an even poorer picture of health than what was found in the study we conducted with Iraqi refugees in 2001.<sup>1</sup> More than 14% in this study met the full clinical criteria for PTSD. Adolescents have higher PTSD prevalence (19.6%) than adults. The high rate of PTSD is accompanied by other serious disorders in their psychiatric profile and complex PTSD symptoms are more severe. The downward social, economic and occupational

mobility and lack of acculturation are some of the factors that may contribute to the high level of symptoms. While torture predicted poor health, it did not predict PTSD or CTD. Cumulative trauma, collective identity trauma/discrimination and exposure to media news of the war in Iraq were the strongest predictors of poor health and mental health (See Tables 1, 2 and 3). Their effects on health are direct effects, independent of the effects of mental health variables, such as PTSD. Cumulative trauma is found to be a significant predictor of neurological, blood pressure and other circulatory, respiratory, digestive, musculoskeletal and endocrine disorders.

We experimented with different path models that are fit to explain the relationships between cumulative trauma and health problems. The model that was found to have a good fit (CFI=.932, RMSEA=.053) describes the central mediating effects of endocrine disorders and neurological disorders. We also experimented with different path models that fit the data to explain the relationships between perceived discrimination as a latent variable explained by backlash, collective identity trauma and multi-ethnic discrimination on health and PTSD. The model that has a good fit (CFI .96, RMSEA .06) found significant positive effects of

**Table 2. Logistic regression for exposure to war news prediction of diseases**

Independent Variable	Exposure to war news				
	Dependent variables	B	SE	Odds ratio Exp(B)	Confidence intervals
Lower					Upper
Neurological disorders	.25	.06	1.28†	1.14	1.44
Cardiovascular & Circulatory disorders	.24	.07	1.27†	1.12	1.45
Respiratory disorders	.05	.06	1.05	.94	1.17
Digestive disorders	.13	.04	1.14**	1.04	1.24
Urinary disorders	.03	.05	1.03	.94	1.12
Musculoskeletal disorders	.20	.05	1.22†	1.11	1.34
Endocrine disorders	-.03	.07	.97	.85	1.11

Findings are obtained after the effects of sex, age, marital status, education, income and previous cumulative trauma were controlled statistically.

\*  $P < .05$ .

\*\*  $P < .01$ .

†  $P < .001$ .

$P = .06 - .10+$  (close to significance).

perceived discrimination (.36) on poor health. We conducted further analysis using the Structural Equation Modeling with the six types of traumas as predictor variables and PTSD, CTD and health as dependent variables. The model has an excellent fit (CFI= 1.000, RMSEA=.000). Illustrations of these models are available from the lead author at [ikira@accesscommunity.org](mailto:ikira@accesscommunity.org).

Collective identity trauma, secondary traumatization/interdependence trauma and family trauma are the strongest predictors of both PTSD and poor health. Collective identity trauma, personal identity trauma and interde-

pendence trauma are the strongest predictors of CTD. Personal identity trauma is uniquely predictive of PTSD, survival trauma is uniquely predictive of poor health and collective identity trauma is a unique predictor of CTD. The scales accounted for 46% of the variance in PTSD, 20% of the variance in CTD and 15% of the variance in health.

Exposure to war on Iraq for Iraqi refugees predicted increasing PTSD, CTD and poor health, after teasing out the effects of previous lifetime traumas and the differences in demographic variables. Path analysis indicated that media exposure to the war news,

compared to other previous traumas, has equal or stronger effects on health and PTSD, after controlling for age, education and income, as this exposure is ongoing.

## DISCUSSION

One of the mechanisms that has been suggested to explain the direct effects of trauma on health and mental health is the effects of stress generated by the traumatic events on the human immune system and on brain structures.<sup>4,5</sup> Besides the direct effects of chronic stress on the initiation

**Table 3. Logistic regression for collective identity trauma prediction of diseases**

Independent Variable	Collective identity trauma / discrimination				
	Dependent variables	B	SE	Odd ratio Exp(B)	Confidence intervals
Lower					Upper
Neurological disorders	.68	.16	1.97†	1.43	2.70
Blood pressure and other cardiovascular disorders	.50	.21	1.65**	1.10	2.48
Respiratory disorders	.50	.15	1.65†	1.24	2.19
Digestive disorders	.32	.13	1.37**	1.07	1.76
Urinary disorders	.22	.12	1.25+	.98	1.58
Musculoskeletal disorders	.48	.13	1.61†	1.25	2.80
Endocrine disorders	-.40	.28	.67	.39	1.15

Findings are obtained after the effects of sex, age, marital status, education and income were controlled statistically.

\*  $P < .05$ .

\*\*  $P < .01$ .

†  $P < .001$ .

$P = .06 - .10+$  (close to significance).

and continuation of diseases, mental health conditions, such as PTSD, have direct effects on diseases. The effects of trauma on mental health mediate further its effects on diseases. These results highlight the urgent need to address the health and mental health need of Iraqi refugees in the United States.

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# E. HOPE AND FOSTERING THE WELL-BEING OF REFUGEES FROM IRAQ

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**Key Words:** Refugees, Iraq, Immigrant Health

## INTRODUCTION

Hope theory seems to be useful in understanding the mechanisms for treatment of refugees from Iraq within medical settings. Hope theory has been proposed by Snyder as a useful way to conceptualize how people adjust to psychological and physical distress.<sup>1</sup> For refugees who have histories of trauma and torture,<sup>2,3</sup> hope theory can be a way to understand the mechanisms by which these individuals can be effectively treated within medical settings. As part of a larger project on the health and well-being of refugees from Iraq, the purpose of the current study was to examine links between refugees' feelings of hope and their symptoms of anxiety, depression, and trauma.<sup>4-6</sup>

According to Snyder, hope can be made operational as "...a way of thinking about your goals in which you have the perceived capacity to come up with the pathways to those goals, along with the mental energy to use those pathways". To measure hope as a state, Snyder developed and validated the State Hope Scale (SHS).<sup>7</sup> This measure can be divided into two scales: Agency and Pathways. The *Agency* scale assesses the belief that one has the capacity, motivation and determination to act in one's own behalf. The *Pathways* scale involves the belief that one has the capacity to identify and generate routes along pathways that will allow one to reach their goals. Because refugees have often been found to suffer from histories of depression, anxiety and post-traumatic stress disorder, and because optimism and hope are often considered antidotes to maladaptation and dysfunction, the study of hope in refugees offers promise as one way that clinicians can address their treatment needs.

## OBJECTIVES

The objectives of this article are: 1) to introduce Snyder's operationalization of the construct of hope as *agency* (the belief in one's own capacity, motivation and self-determination) and *pathways* (the belief in one's own capacity to generate plans that will foster goal attainment); 2) to examine links between refugees' feelings of hope and their symptoms of anxiety, depression and trauma; and 3) to critique the potential promise of hope as an antidote to maladaptation and dysfunction in the treatment of refugees.

## HYPOTHESIS

It was expected that self-reports of hope (SHS; Agency, Pathways)<sup>7</sup> would be negatively related to symptoms of depression and anxiety (Hopkins Symptom Checklist-25, HSCL-25),<sup>8</sup> and post-traumatic stress disorder symptom severity.<sup>9</sup>

## METHODS

After ethical clearance from Wayne State University and from the IRB Review Board of the Detroit-Wayne County Community Health Department, 116 adult Iraqi refugees (46 males, 70 females) were recruited from a community mental health clinic in Michigan. Participants were either seeking or already receiving outpatient services ( $n=87$ ) or were in a partial hospitalization program ( $n=29$ ). Interviews using self-report instruments were conducted by two bilingual (Arabic, English) mental health professionals.

The State Hope Scale (SHS)<sup>6</sup> was used to measure Agency and Pathways.

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The Post-traumatic Stress Diagnostic Scale (PDS)<sup>9</sup> was used to assess post-traumatic stress disorder symptom severity based on the DSM-IV criteria.<sup>10</sup> The Hopkins' Symptom Checklist 25 (HSCL-25)<sup>8</sup> was used to assess anxiety and depression. Internal consistency was good for each scale (alpha coefficients ranged from .88 to .94).

## RESULTS

As anticipated, negative correlations were found between hope: agency and anxiety,  $r(116) = -.43$ , depression,  $r(116) = -.43$ , and trauma severity,  $r(116) = -.55$ , all  $P_s < .01$ , two-tailed. Similarly, negative correlations were found between hope: pathways and anxiety,  $r(116) = -.41$ , two-tailed, depression,  $r(116) = -.36$ , two-tailed, and post-traumatic stress disorder symptom severity,  $r(116) = -.54$ , all  $P_s < .01$ , two-tailed.

## DISCUSSION

The results imply that clinicians may want to target increasing feelings of hope as an antidote to despair and the after-effects of trauma such as anxiety and depression. Snyder et al<sup>1</sup> suggest that clinicians may accomplish this by attending to the advantages of hope

theory for both the client and the clinician (eg, solution rather than problem focus, emphasis on self-worth and dignity, improved rapport).

By focusing on hope, it is possible to assess the strengths in the client's psychological makeup and in the environment to determine how they can be utilized to take constructive action and steps in achieving the client's goals. Being hopeful involves some feelings of uncertainty as one tries to anticipate the outcome and consequences of the actions that have been taken toward achieving a goal.<sup>11</sup>

In conclusion, hope is inversely related to anxiety and depression. Increasing hope involves helping clients clarify their goals toward personal happiness and well-being, and helping them use their personal strengths and supports in their environment to take realistic steps in achieving their goals.

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## F. THE PSYCHOSOCIAL REHABILITATION APPROACH IN TREATING TORTURE SURVIVORS

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**Key Words:** Torture Survivors, Rehabilitation

### INTRODUCTION

Organized torture practiced by oppressive regimes against political enemies constitutes a serious worldwide epidemic. According to Amnesty International, 150 out of 215 countries practiced human rights abuses in 2005.<sup>1</sup> The United Nations defines torture as “any act by which severe pain or suffering, whether physical or mental, is intentionally inflicted on a person for such purpose as obtaining from him or a third person information or a confession, punishing him for an act he or a third person has committed or is suspected of having committed, or intimidating or coercing him or a third person for any reason based on discrimination of any kind, when such pain or suffering is inflicted by, or at the instigation of, or with consent or acquiescence of, a public official or other person acting in an official capacity. It does not include pain or suffering arising only from, inherent in or incidental to lawful sanctions.”<sup>2</sup>

Torture is usually used as a tool in investigation or as a means of harsh punishment to crush political enemies. The torture experience aims at destroying the human being physically, mentally and socially. Victims of torture usually suffer from complicated physical and mental conditions, including medical, psychological, neurological, social and vocational problems.<sup>3</sup> This comorbidity requires a comprehensive treatment approach including medical, psychiatric, neurological, and dental examination and treatment.<sup>4-6</sup>

Torture victims at the ACCESS Center for Psychosocial Rehabilitation of Torture Survivors (hereafter referred to as the Center) suffer from severe

psychiatric problems, such as post-traumatic stress disorder, depression and anxiety.<sup>7</sup> Probably the most common problems among victims of torture are post-traumatic stress disorder (PTSD), depressive, somatoform or anxiety disorders. Studies at the Center<sup>8,9</sup> showed that torture victims, compared with mental health clients and with other refugees, have significantly more problems or needs in many areas of life, functioning, mental health or health. In addition, victims of torture tend to suffer from comorbidity, indicating that they usually have more than one mental health and health problem at the same time. The problems also tend to be very persistent and lead to serious disruption of their social skills. Many complain of over-generalized fear, confusion and, in many cases, shame or guilt. Assessment of torture victims includes comprehensive psychosocial assessment, post-traumatic stress disorder evaluation, and anxiety and depression assessment, in addition to medical and dental examination, if needed.

### TREATMENT OF VICTIMS OF TORTURE

Traditional treatment approaches with torture survivors utilize one form or another of psychotherapy to deal with post-traumatic disorder and other psychological consequences of torture. A treatment plan may include medical services, psychiatric services and case management services. Therapeutic approaches with victims of torture include cognitive behavior therapy,<sup>10</sup> hypnotherapy, eye movement desensitization and reprocessing (EMDR),<sup>11</sup> to deal with posttraumatic disorder. Testimo-

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From the ACCESS Center for Psychosocial Rehabilitation of Torture Survivors, Dearborn, Michigan.

**Table 1. Depression and anxiety levels pre- and post-treatment**

	Pre-treatment		Post-treatment		Significance	
	Mean	SD	Mean	SD	T-Test	P
Anxiety	32.30	5.863	27.40	6.685	3.375	<.001*
Depression	46.2	6.615	38.3	10.174	3.983	<.000*
PTSD	42.9	7.863	33.8	8.548	4.819	<.000*

\* P<.001.

nials, which may be considered as a form of exposure, were also used to help survivors deal with the pain of their torture experience.<sup>12</sup> Wraparound of case management services and supports, which is borrowed from children services, was also suggested for working with torture survivors.<sup>13</sup>

On the other hand, the psychosocial rehabilitation approach aims at helping the torture survivor restore his/her health, mental health and to develop his/her social skills in order to achieve successful integration into the community as a productive member. Psychosocial rehabilitation starts with a comprehensive assessment and develops person-centered treatment planning protocols to direct services. In this respect, the person served identifies problems and needs that will become the focus of treatment, sets goals of the treatment and selects appropriate interventions.

Psychosocial rehabilitation starts with helping stabilize the survivor's condition and healing his/her wounds. At this stage, services may include medical treatment, physiotherapy<sup>14</sup> and dental care, according to client's needs. Neuropsychological examination and rehabilitation may be utilized to help overcome the effects of closed head injuries that may result from torture.<sup>15-17</sup> Psychotherapy addresses post-traumatic stress disorder, depression, anxiety symptoms, or any other symptoms.

The main component of psychosocial rehabilitation is the intensive, short-term social skills' training that is tailored to the survivor's characteristics,

capacities and needs. This may include assertiveness training, anger management and problem-solving skills. The program includes educational skills, language skills, vocational training referrals and learning how to deal with public and governmental agencies, banks, school systems and the legal system. The therapeutic team provides training and coaching to help develop these social skills.

The Center established the Freedom Cultural Club that provides a forum for socialization, psycho-education and activities. The Freedom Cultural Club (Café) offers activities and games, in addition to yoga classes, massage therapy, relaxation training, stress management, conflict resolution and domestic violence prevention and resolution. In addition, the club promotes cultural arts, poetry and talent discovery and development activities to help clients restore their self-esteem, identity and pride. The Center also provides special English language classes (ESL) and tutoring that considers the torture victims' mental health conditions and tries to meet their special needs, deficits or characteristics.

The Center's observations reveal that torture leads to learning difficulties and memory deficits in many victims. ESL classes are adapted to such learning and memory problems. Additionally, the Center also runs a Women's Art and Crafts Group, composed of female clients and families of torture survivors who gather on a weekly basis to learn and to practice sewing, art and other crafts. These group sessions have proved to be very therapeutic to these women,

elevating their self-esteem and social skills.

### EVALUATION OF THE TREATMENT PROGRAM

This study aimed at evaluating the effectiveness of the psychosocial rehabilitation approach in helping clients with their mental health problems. The study compared the scores obtained by a sample of 38 torture survivors before and after receiving services on tests of anxiety, depression and post-traumatic stress disorder. Table 1 shows the results of the study.

As shown in Table 1, significant decreases in anxiety, depression and post-traumatic stress disorder after receiving treatment at the Center. These consistent changes show that helping torture victims is very effective in relieving their pain and suffering. Further studies are needed to help identify the effectiveness of the different components of the treatment and intervention.

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# REDUCING THE CANCER BURDEN IN ARABS AND ARAB AMERICANS

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## SECTION IX. PRE-CONFERENCE WORKSHOP: REDUCING THE CANCER BURDEN IN ARABS AND ARAB AMERICANS

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**Key Words:** Cancer, Arab American, Breast Cancer, Pancreatic Cancer, Liver Cancer

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From the School of Public Health, University of Michigan, Dearborn, Michigan (AS) and the Collaborative Group of Research on Cancer in Arabs and Arab Americans. Members of the group are: Palmer Beasley, University of Texas School of Public Health; Robert Chamberlain, University of Texas MD Anderson Cancer Center; Toby Citrin, University of Michigan School of Public Health; Richard E. Gallagher, Wayne State University School of Medicine; Iman Hakim, University of Arizona Mel and Enid Zuckerman College of Public Health; Stanley Hamilton, University of Texas MD Anderson Cancer Center; Adnan Hammad, The Arab Community Center for Economic & Social Services (ACCESS); Joe Harford, National Cancer Institute, Bethesda; Stephen Hewitt, National Cancer Institute, Bethesda; Elizabeth Holly, University of California at San Francisco School of Medicine; Li-Yu Hwang, University of Texas School of Public Health; Kadry Ismail, Gharbia Cancer Society, Tanta, Egypt; Liz Lehman, University of Michigan School of Public Health; An-Chi Lo, University of Michigan School of Public Health; Sofia Merajver, University of Michigan School of Medicine; Philip Philip, Wayne State University; Virginia Hill Rice, Wayne State University College of Nursing; Wael Sakr, Wayne State University; Kendra Schwartz, Wayne State University; Diane Simeone, University of Michigan School of Medicine; Amr Soliman, University of Michigan School of Public Health; Mary-Fran Sowers, University of Michigan School of Public Health; Ken Warner, University of Michigan School of Public Health; Mark L. Wilson, University of Michigan School of Public Health.

### INTRODUCTION

Because of the variations in genetics of different ethnic groups and the differences in the exposure of diverse populations to environmental carcinogens, the annual incidence, the relative frequency and the subtypes of various cancers, differ markedly from one country, or population subgroup, to another. Moreover, the availability of particular treatments, as well as patients' tolerance to treatment, varies from one country or population group to another. Thus, an improved ability to control cancer among populations groups, such as Arabs and Arab Americans, and to more efficiently use available resources will only be achieved by performing research in these populations. Yet, the lack of resources—both human and financial—has hindered the optimal design and analysis of translational and clinical studies for these groups. Overcoming these deficiencies represents a challenge to those dedicated to cancer control throughout the world.

The paucity of cancer research in Arab populations is a loss not only to cancer patients in these countries, but to all patients with cancer around the world. The variety of environments, lifestyles and ethnic differences provides a spectrum of opportunities, which, if studied adequately, would lead to a much more rapid increase in our understanding of the causes of cancer and our ability to control cancer.<sup>1</sup>

For more than 15 years, the University of Michigan School of Public Health (UMSPH) has engaged in a long-term partnership with the Arab

Community Center for Economic and Social Services (ACCESS) organization. ACCESS is the leading organization providing health, social, economic and educational services to southeastern Michigan's Arab population. This geographic area is home to the largest concentration of people of Arab descent in the United States—a population estimated to be more than 480,000.<sup>2</sup> ACCESS recently opened a new Community Health and Research Center, housing an extensive array of health services, public health programs, and health research, which could facilitate cancer research, education, and management.

The Collaborative Group of Research on Cancer in Arabs and Arab Americans held a workshop in Dearborn, Michigan during May 8 and May 10, 2006. The specific aims of the workshop included the following:

- 1) to bring together clinical oncologists and cancer researchers from Arab countries and the Arab American community in Michigan to present and discuss their current practices and ongoing or proposed research related to specific cancers;
- 2) to discuss the research experience and results of existing collaborations between the cancer centers and universities in Arab countries and US universities and research institutions, as a model for a broader Arab American coalition;
- 3) to develop possible joint research study proposals between Arab countries, the Arab American community, and research institutions in

Michigan and the United States; and

- 4) to discuss possible comparative migration studies between Arabic populations in different Arab countries and Arab Americans in Michigan.

The 35 workshop participants represented clinicians, scientists, and educators from the following national and international agencies: the National Cancer Institute; the University of Michigan Cancer Center; the University of Michigan College of Medicine; the University of Michigan School of Public Health; the Wayne State University and Karmanos Cancer Institute; the University of Texas MD Anderson Cancer Center and School of Public Health; the World Health Organization (Eastern Mediterranean regional office); the University of Arizona; the University of California-San Francisco County Health Department; the Arab Community Center for Economic and Social Services, Dearborn, Michigan; and cancer researchers from Egypt, Tunisia, Algeria, Morocco, and Kuwait.

The workshop included presentations of current research on clinical issues related to four cancer topics: liver cancer, breast cancer, pancreas cancer, and tobacco smoking in Arab and Arab Americans. Presentations were followed by group discussions. By the end of the sessions, summary and conclusions were outlined and developed into recommendations. Within this article, we present a summary of discussions and recommendations from each breakout group.

## LIVER CANCER GROUP

The working group on liver cancer discussed the latest knowledge of liver cancer risk factors. The group reviewed: the International Agency for Research on Cancer (IARC) class 1 carcinogens for hepatocellular carcinoma (HCC); hepatitis B virus (HBV); hepatitis C virus (HCV); aflatoxin; alcohol, and

tobacco affect on liver cancer; HBV vaccine introduction and success in Egypt (1993); and issues related to the fact that Egypt is the epicenter for the HCV epidemic. The group also discussed the gaps in knowledge with respect to liver carcinogenesis pathways and independent or interactive risk factors.

Other discussion topics included host-genetic susceptibility, mathematical modeling as a tool for predicting long-term trends in HCV transmission and chronic liver disease, family clustering of HCV cases. The clustering may suggest the HCV experience in Egypt is quite different from other regions and spatial clustering on a broader scale.

The group recommended that future research should address the following six areas:

1. Investigating HCV epidemiology, with special emphasis on determination of HCV incidence in Egypt. In addition, the definition and characterization of HCV transmission patterns in Egypt and exploring the possibility of implementing HCV vaccine trials in Egypt are also important.
2. Studying a prospective cohort study in Egypt to characterize HCV natural history and additional risk factors/distributions of risk factors for HCV as well as HCC.
3. Quantifying the presence of aflatoxin in food stores to determine its role in HCC etiology in Egypt.
4. Determining the magnitude of HBV/HCV presence in the Arab American community to determine if they have greater risk for liver disease.
5. Performing time-space analyses for HCC and its risk factors in Egypt to see if patterns emerge with respect to time and location.
6. Encouraging further work on population-based registries in Arab countries through:

- a. Improving existing cancer registries;
  - b. Encouraging the development of infrastructure for additional registries.
7. Training and educating healthcare workers, as well as the general population, with respect to HCV/HCC risk factors and the importance of utilizing registries.

## BREAST CANCER GROUP

This group reviewed the available data on age-specific breast cancer incidence rates in different Arab countries with cancer registries and the need for more information from Arab countries without such data. The group also reviewed the conventional risk factors and recent data on the molecular genetics of inflammatory breast cancer in Egypt. The data were generated by the University of Michigan and included information on estrogen receptor (ER), progesterone receptor (PR), human epidermal growth factor receptor 2 (HER2), and RhoC guanosine triphosphatase. The group also reviewed the possible environmental exposures suspected in the epidemiology of breast cancer and the importance of liver disease, increased endogenous, exogenous estrogens, and genetic polymorphism in modulating breast cancer pathogenesis in Arab women. Discussions also included: the latest knowledge of clinical trials for breast cancer treatment and advanced stage breast cancer diagnosis among Arab and Arab American women; advocacy groups; and palliative care for Arab patients with breast cancer.

The recommendations of the group included:

1. Developing public and professional cancer education programs in Arab communities for improving early detection of breast cancer by utilizing local resources.
2. Determining the incidence of IBC from population-based and hospi-

- tal-based registries. Future research should also address the clinical and molecular characterization of IBC in North Africa.
3. Developing novel clinical trials in different countries using common protocols and surrogate end points of efficacy.
  4. Recognizing palliative care as an important part of breast cancer management, especially when due to late diagnosis.

## TOBACCO SMOKING GROUP

This group reviewed the current literature of smoking cigarettes and narghile (water pipe) among Arabs and Arab Americans. Estimates from WHO (2005) showed 45% males and 5% females from the Middle East smoke.<sup>3</sup> The group also discussed ways to encourage collaborative activities with the Arab American Centers for Economic Development in the United States to control tobacco smoking among Arab American communities, especially the youth populations.

The group recommended the following:

1. That the United States and all other countries ratify the Framework Convention on Tobacco Control (see Section V for more information on FCTC). The United States and all other countries must share their research and strategies on tobacco industries.
2. Encourage research and education on narghile smoking as follows:
  - a. Acknowledge water pipe smoking as a form of tobacco;
  - b. Utilize the available literature to make policy recommendations;
  - c. Design and implement further education and research studies that address the perceived protective factor of water filtration.

3. Conduct research on culturally appropriate tobacco prevention/control/cessation in Arab countries, including the translation into Arabic.

## PANCREATIC CANCER GROUP

The purposes of this group was to provide an outline of the group's current research knowledge of pancreatic cancer, discuss opportunities to extend joint collaborative research, and discuss sources of funding with an ultimate goal of maximizing the understanding of pancreatic cancer in Arab Americans and Americans.

The discussion included description of previous research findings in Egypt, including the early onset of pancreatic cancer in the northeast Nile Delta region of Egypt,<sup>4</sup> higher serum cadmium level in pancreatic cancer cases than in the control participants in Egypt,<sup>5</sup> clustering of pancreatic cancer in the northeast Nile delta region,<sup>6</sup> and differences in molecular pathologic profile between pancreatic cancer tumors from Egypt and the United States.<sup>7-10</sup>

Elizabeth Holly, PhD, MPH, presented her research findings from the San Francisco Bay Area, including studies on the history of allergies, severity of allergic syndromes, duration of allergen exposure, and later onset of allergies in association with reduced risk of pancreatic cancer.<sup>11</sup> Other risk factors included higher BMI associated with increased risk of pancreatic cancer in men, but not in women.<sup>12</sup> Other data included the high vegetable consumption, particularly beans, onions and garlic and the association with a reduced risk of pancreatic cancer, whereas high intake of red meat and eggs was associated with an increased risk of pancreatic cancer in the San Francisco, California Bay Area.<sup>13</sup> Another study found that diabetes was associated with very high risks for

pancreas cancer, whereas long-term history of these diseases did not put study participants at increased risk in the San Francisco, California Bay Area.<sup>14</sup> Family history of pancreatic cancer was not associated with increased risk in this study.

Compared to pancreatic cancer in the United States, diabetes and pancreatitis were also related to higher risk of pancreatic cancer in Egypt, particularly short-term history of these diseases. Family history of pancreatic cancer was low in both American and Egyptian populations. There was no association between pancreatic cancer and allergy or BMI in Egypt as would be expected, given the hygiene hypothesis that states that early exposure to allergens and microbes is good if you live through infancy and early childhood.

The working group on pancreatic cancer recommended the following:

1. Investigating the availability of study populations and pancreatic cancer tissues for possible future studies on the following populations:
  - a. Arab Americans in Michigan, including University of Michigan, Michigan Wayne State University, and Henry Ford Hospital;
  - b. Arab Americans, Egyptian migrants to Los Angeles, California; and
  - c. Cancer registry sites in Middle Eastern countries.
2. Focusing on the importance of future research on potential linkage between samples and large data bases, such as SEER and hospital records, using names and SSN, driver license, and other potential patient identification mechanisms.
3. Investigating the possibilities of conducting migration studies and cohort studies of Arab Americans.
4. Encouraging studies on early detection, improving access to treat-

ment, and investigating the etiology and signature molecular and pathologic characteristics of pancreatic cancer.

5. Developing better strategies for cancer prevention and treatment, based on our knowledge of different risk factors in Arab and Arab American populations.

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# HIV/AIDS IN THE ARAB AMERICAN COMMUNITY: BREAKING THE SILENCE!

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## SECTION X. POST-CONFERENCE WORKSHOP: HIV/AIDS IN THE ARAB AMERICAN COMMUNITY: BREAKING THE SILENCE!

Edited by: Adnan Hammad, PhD; Miguel Gomez, MA

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**Key Words:** HIV/AIDS, Arab Americans

### Summary of Post-Conference Workshop Presentations

#### A. OVERVIEW

The Arab American population in the greater Detroit, Michigan, area is the largest Arab community in North America and the second largest outside the Middle East. Arab Americans have a common cultural and linguistic heritage and may have ethnically linked risk factors and disease patterns. Levels of health awareness and efforts to improve health largely vary by socioeconomic and educational factors. This population faces a number of cultural, social, and educational challenges in adapting to the norms and practices of American society.

A post-conference meeting was held on the issue of HIV/AIDS on May 13, 2006. The meeting, called the *HIV/AIDS in the Arab American Community: Breaking the Silence!*, continued work begun at the June 2005 *HIV/AIDS Health Forum: Perspectives and Attitudes of the Arab, Chaldean, and Muslim-American Communities*. This year's meeting was held with the support of The Leadership Campaign on AIDS (TLCA) from the US Department of Health and Human Services (HHS). Taken together, the sessions mark the first time the largest Arab community in the United States has publicly discussed HIV/AIDS.

The disease has been highly taboo. Among other factors, the Muslim religion of the Arab community and the Catholic religion of the Chaldean community teach against some of the behaviors that can result in HIV/AIDS.

In addition, marriage at an early age, large and close-knit families, and other values can make it seem to Arab Americans that the disease cannot make inroads in their community. Yet, HIV/AIDS is known to exist in the Arab world—up to 700,000 cases in North Africa and the Middle East, according to the World Health Organization (WHO). Because the disease is rarely spoken of privately, and until now never publicly, infection rates are unclear closer to home—in Detroit, in Michigan, across the United States.

The goal of the workshop was to shed light on HIV/AIDS in the Arab American community. It fostered discussion among domestic and international healthcare experts, and among Arab people from here and abroad, about HIV/AIDS and ways that Arab Americans can respond to it. It also highlighted current ACCESS efforts to address HIV/AIDS.

In addition to attending the various presentations detailed later in this article, participants joined discussion groups to brainstorm ways the Arab American community can fight HIV/AIDS. Suggestions included: working with religious and community leaders as spokespeople to address the disease; joining with Arab role models, such as celebrities, to conduct HIV/AIDS public service announcements; educating mothers to help raise awareness in their families; finding new and additional venues for testing and outreach; disseminating messages to the media that address denial and its negative impact on the community; incorporating HIV/AIDS education with oth-

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From the ACCESS Community Health & Research Center (AH), Dearborn, Michigan; and The Leadership Campaign on AIDS, Office of HIV/AIDS Policy, Department of Health & Human Services (MG), Washington, DC.

er health issues; and speaking about HIV/AIDS in schools.

Reported in this section are highlights from presentations by:

Loretta Davis-Satterla, MSA, director, Division of Health, Wellness and

Disease Control, Michigan Department of Community Health (MDCH).

Sabri Belgacem, MPA, MD, director of health systems and services development in WHO's regional office for the Eastern Mediterranean.

Nithya Mani, MPA, the Asia Near East development advisor, Office of HIV/AIDS, USAID/Bureau for Global Health.

Raida Rabah, MD, medical director, HIV Intervention Clinic, Brandywine Valley Infectious Diseases, Coatesville, PA.

## B. SUMMARY REPORT: ARAB AMERICANS AND HIV/AIDS IN MICHIGAN

Loretta Davis-Satterla, MSA

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**Key Words:** Michigan, HIV/AIDS, Arab Americans

### INTRODUCTION

The Michigan Department of Community Health (MDCH) estimates that there are 16,200 people living with HIV/AIDS in Michigan. This is extrapolated from the total of 12,182 cases that were reported as of April 1, 2006. Approximately 25%–30% are unaware of their HIV infection. These individuals are either undiagnosed or have been tested for HIV but have not received their results. Michigan is ranked 17 among the US states for the total number of HIV/AIDS cases.

New diagnoses in Michigan have been statistically level since 1998, with approximately 900 new cases diagnosed annually. Risk behaviors for new HIV diagnoses in 2004 were categorized as: men who have sex with men (MSM)<sup>a</sup> - 57%; heterosexuals<sup>b</sup>-25%; injecting drug users (IDU)-12%; no identified risk<sup>c</sup>-10%; MSM/IDU-4%; and other,<sup>d</sup>-1%.

New treatments for HIV disease have meant dramatic decreases in AIDS-related deaths since 1995. This fact combined with level rates of new diagnoses means that the overall number of people living with HIV continues to rise. This trend in Michigan mirrors

the national trend of level of infection, decreased death rates, and increased prevalence.

The Detroit metropolitan area, which includes the city of Detroit and the counties of Oakland, Macomb, Monroe, St. Clair, Lapeer, and Wayne, carries much of the burden of HIV disease in Michigan. Both the highest number of HIV infections and highest concentration of infection are found in the Detroit metropolitan area. Two-thirds of those living with HIV or AIDS reside in the Detroit area, which has only 45% of Michigan's total population. MDCH estimates that 11,200 residents are living with HIV/AIDS and around 600 cases are newly diagnosed annually.

### METHODS

Understanding the scope of the disease in the Arab American community is challenging. Because people of Arab descent are not a federally recognized racial/ethnic group, HIV/AIDS surveillance data specific to the population have not been readily available. At the request of ACCESS, MDCH began to explore ways to review the scope of the disease in the Arab American community. One of the first steps was to conduct a special analysis of existing surveillance data.

A second important step in understanding the situation was to add a question about Arab ethnicity on the HIV/AIDS Case Report form. The State of Michigan has collected this data since 2001. Michigan is one of the few jurisdictions to collect this data in the United States. However, important to note is that this data has a number of significant limitations, and the numbers of HIV-positive people of Arab descent are likely under-reported. As stated

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<sup>a</sup> Men who have sex with men (MSM) is inclusive of all men who have sex with men. These men may or may not also have sex with women.

<sup>b</sup> Heterosexual risk includes individuals whose heterosexual partners are known to be HIV-infected or at high risk for HIV (an injecting drug user, an HIV-positive blood recipient, or, for women, a man who is behaviorally bisexual).

<sup>c</sup> No identified risk includes cases for which there has been no risk consistent with the categories of MSM, IDU, high-risk heterosexual, or blood recipient.

<sup>d</sup> Other risk includes transmission from blood products and perinatal exposure.

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From the Division of Health, Wellness & Disease Control, Michigan Department of Community Health, Lansing, Michigan.

earlier, the initial analysis of historic data depended on identification of names and confirmation of Arab ethnicity, which may not have identified all persons of Arab descent. Data collected via the amended HIV/AIDS Case Report form may be incomplete because of the newness of the variable and interviewer unfamiliarity. Case Report data also depends on how clients self-identify and how they disclose information on race/ethnicity to the interviewer.

## RESULTS

As a result of the data review, 58 individuals with Arab surnames were identified, with 32 confirmed as being of Arab descent. Combining that information with the Case Report data, 54 confidentially reported cases of persons of Arabic descent living with HIV/AIDS in Michigan were derived. One-third have been diagnosed with HIV, and two-thirds have been diagnosed with AIDS. Of these cases, the majority (85%) are in Detroit-area counties: Wayne, including the city of Detroit (48%); Oakland (22%); Macomb (13%); and St. Clair (2%). Other cases are in other Michigan counties, including 2% in each of Ingham, Kalamazoo, Kent, and Ottawa counties. The remaining 6% are in other counties.

In addition to confidentially reported cases, six new cases have been identified through anonymous testing since April 1, 2004. Five of these were in the Detroit metro area. The reported risk behavior for all six was MSM.

## DISCUSSION

Of the confidentially reported cases of persons of Arab descent living with HIV/AIDS, 80% (43) are male and 20% (11) are female. This is comparable to statewide data, which has 74% male and 26% female cases. Age at diagnosis for Arab cases is also similar to the age distribution for all cases in Michigan, with 6% (3) ages 0–19; 24% (13) ages 20–29; 37% (20) ages 30–39; 20% (11) ages 40–49; 11% (6) ages 50 and older; and one with an unknown age at diagnosis.

The distribution of cases across risk behavior is similar for Arab and statewide data, but with a smaller proportion of IDU risk among Arab HIV/AIDS cases. Among the 11 Arab females, more than half were infected heterosexually, and 27% had no identified risk. For non-Arab Michigan females, 40% were infected heterosexually, 22% were IDU, and 34% had no identified risk. Of the 43 Arab male cases, two-thirds were attributed to MSM (60% MSM and 5% MSM/IDU), 19% no identified risk, 7% IDU, 5% heterosexual, and 5% blood recipient. For non-Arab Michigan males, two-thirds were attributed to MSM (60% MSM and 6% MSM/IDU), 17% no identified risk, 10% IDU, 5% heterosexual, and 2% blood recipient/perinatal.

Of the 64 Arab cases in the MDCH database (including both living and deceased cases), 47 have AIDS diagnoses. Of these, 25 were diagnosed with AIDS within two months of their initial HIV diagnosis. Of these 25, 20 (31% of all cases) were diagnosed with HIV and AIDS at the same time. These data show that about one-third of all diagnoses were simultaneous AIDS and

HIV diagnoses, which indicate missed opportunities for treatment and better health outcomes, as well as missed prevention opportunities.

MDCH's Division of Health, Wellness, and Disease Control responds to the HIV/AIDS epidemic and sexually transmitted diseases (STD) on multiple fronts, using prevention, education, and care programs to effect a decrease in HIV/AIDS-STD morbidity and mortality. Michigan's HIV/AIDS care-related programs include the AIDS Drug Assistance Program, Michigan Dental Program, provider education, primary medical care, mental health and substance abuse services, case management, and supportive services, including transportation, emergency financial aid, food banks, client/legal advocacy, and psychosocial support. Michigan's HIV/AIDS prevention-related programs include HIV counseling, testing, and referral to ensure that individuals learn their serostatus (400 sites statewide); partner counseling and referral programs at local health departments to facilitate early notification of HIV exposure to at-risk populations; and evidence-based primary prevention programming at 20 community organizations targeting both people of unknown status and people living with HIV/AIDS.

## RESOURCES

For more information on HIV/AIDS statistics, visit the Bureau of Epidemiology, Michigan Department of Community Health at <http://www.michigan.gov/mdch>. Last accessed: 04/09/07.

## C. SUMMARY REPORT: HIV/AIDS IN THE ARAB WORLD

Sabri Belgacem, MPA, MD

*Ethn Dis.* 2007;17[Suppl 3]:S3-96

**Key Words:** HIV/AIDS, Arab Americans

Most Arab nations have a relatively low prevalence of HIV/AIDS (~2%), although some countries, such as Djibouti and Sudan, are known to have higher prevalence. However, HIV/AIDS is on the increase in most countries of the region and remains a source of concern for public health program managers and decision-makers.

Patients infected by HIV are young; the source of contamination is mainly through heterosexual intercourse. The other causes of infection including unsafe blood, men having sex with men, and intravenous drug users occur with less frequency.

All countries of the region have developed national HIV/AIDS control programs with technical and financial support from WHO, UNAIDS and major donor agencies. The focus of national strategies is on health education particularly among adolescents and high-risk groups, on strengthening surveillance systems, on improving blood safety and laboratory support, and on

securing antiretroviral (ARV) treatment for AIDS patients.

In view of the important role played by media in health promotion, efforts are being made to involve them in the various components of the HIV/AIDS control programs. The involvement of the media aims at minimizing stigmatization of infected people while generating support to patient and providing accurate and appropriate information to the general public.

Civil society organizations and NGOs are also playing a proactive role in health promotion and in lobbying to secure access to care for HIV/AIDS patients. In some situations, WHO and funding agencies are making contractual arrangements with NGOs to implement control program components. WHO is also advocating more support to national initiatives and programs in order to improve epidemiological knowledge, to strengthen surveillance systems, to improve promotion, and to secure access to ARV treatment when needed.

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From the Health Systems and Services Development, WHO-Eastern Mediterranean Regional Office, Cairo, Egypt.

## D. SUMMARY REPORT: HIV/AIDS IN THE MIDDLE EAST AND NORTH AFRICA

Nithya Mani, MPH

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**Key Words:** HIV/AIDS, Middle East, North Africa

### INTRODUCTION: THE GLOBAL IMPACT

The “simple” number of HIV/AIDS cases in the Arab world may not seem alarming. Comparisons, however, are cause for great concern. In North Africa and the Middle East in 2005, there were 510,000 adults and children living with the disease. To the south, where HIV/AIDS is rampant, there are 25.8 million people living with the disease in sub-Saharan Africa. This disproportion may obscure the fact that the Arab-world figures are closer to par with other regions. In Western Europe there are 720,000 people living with HIV/AIDS; in East Asia and the Pacific, 870,000; North America, 1.2 million; Eastern Europe and Central Asia, 1.6 million; Latin America, 1.8 million; South and Southeast Asia, 7.4 million; the Caribbean, 300,000; and in Oceania, 74,000. Combined, there are 40.3 million people around the world living with HIV/AIDS.

### IMPACT IN NORTH AFRICA, MIDDLE EAST

The disease is also continuing to spread in North Africa and the Middle East much as it is across the world. In 2005, 67,000 new diagnoses were reported in this region; in other terms, about 13% of all the region’s HIV/AIDS cases were diagnosed just last year. By comparison, there were 3.2 million new diagnoses in sub-Saharan Africa, or 12% of all cases. In Western Europe there were 22,000 new diagnoses, or 3–4% of all cases; in East Asia and the Pacific, 140,000, about 16%; in North America, 43,000, less than 3%; in Eastern Europe and Central Asia, 270,000, or about 15%; in Latin America, 200,000, about 11%; South and Southeast Asia, 990,000, or about

14%; the Caribbean, 30,000, or 10%; and in Oceania, 8,200, or about 9%. All together, there were 4.9 million new HIV/AIDS diagnoses around the world in 2005, or about 12% of all cases. While the Arab world accounted for a small percentage of the world’s new cases, its rate of new infections exceeded the world average.

HIV/AIDS-related death rates for the region are even more alarming. In 2005, about 58,000 children and adults died from the disease, or nearly 12% of all people with a diagnosis. Even in sub-Saharan Africa, “only” about 9% of people died (2.4 million). In Western Europe, 12,000 people died, less than 2% of all cases; East Asia and the Pacific, 41,000, less than 5%; North America, 18,000, less than 2%; Eastern Europe and Central Asia, 62,000, less than 3%; Latin America, 66,000, less than 3%; South and Southeast Asia, 480,000, about 6%; the Caribbean, 24,000, about 8%; and Oceania, 3,600, about 5%. Thus, Arab nations currently have the highest HIV/AIDS-related death rates in the world.

Other telling facts are found in a year-to-year comparison of the Arab world. In 2003 there were 500,000 adults and children living with HIV/AIDS in North Africa and the Middle East. In two years, this grew to 510,000. In 2003 there were 230,000 women living with the disease. But enough died in the intervening two years to counter the growing HIV/AIDS contraction rate, leaving 220,000 women with the disease in 2005. In 2003, 62,000 new diagnoses among children and adults were reported; by 2005, 67,000 new cases were reported. As mentioned earlier, 58,000 deaths from the disease were recorded in 2005, an increase from the 55,000 deaths reported just two years earlier. The adult preva-

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From the Office of Development in Asia, Near East; U.S Agency for International Development.

lence rate remained static at around 0.2%.

HIV surveillance remains weak in the Arab world, especially in the Middle East. More comprehensive information is available in some countries, notably Algeria, Libya, Morocco, Somalia, and Sudan. Except for Sudan, national HIV prevalence levels are low in all Arab countries. Those countries with the most reliable information also show trends of increasing HIV infections, especially in younger age groups. This leads to speculation that trends may exist "under the radar" in much of the rest of the region, not just in Algeria, Libya, Morocco, and Somalia.

The main mode of HIV transmission in the Arab world is unprotected sexual contact. Injecting drug use is becoming an increasingly important factor and is the predominant mode of infection in at least two countries, Iran and Libya. Most of the disease is concentrated geographically and among most at-risk populations, including sex workers and their clients, IDU, and MSM. Infections from contaminated blood products, blood transfusions, or lack of infection control measures in healthcare settings remain a problem in the region.

There are many barriers to fighting HIV/AIDS in the Arab world. Already mentioned, there is a paucity of good, detailed information across the region on patterns of HIV transmission, especially the roles of sex work and of sex between men. Better information likely would reveal that HIV is passed through other risky behaviors or in other contexts. Also mentioned, there are strong sociocultural taboos against sex between men, making discussion and information gathering difficult. Little is known about HIV transmission in prisons, but some data suggests elevated risk in this setting. HIV prevention programs and services remain sparse and sporadic; substantive efforts are needed throughout the Middle East and North Africa.

### FINDING SOLUTIONS FOR PREVENTION, TREATMENT, AND CONTROL OF HIV/AIDS

The United States Agency for International Development (USAID) funds activities in Egypt, Jordan, and North Africa Region. USAID also has missions in the West Bank and Gaza, Morocco, Lebanon, Yemen, and Iraq, although without designated HIV funding. Through its Asia Near East Bureau, the agency provides assistance to governments, nongovernmental organizations (NGOs), and individuals in most countries in the region.

USAID's experience in Egypt is emblematic of both the HIV/AIDS problem in the Arab world and of the agency's work in the region. The adult HIV-prevalence rate in Egypt is lower than 1%. The difference between reported cases and estimates may indicate weaknesses in the surveillance system and barriers to HIV testing. Again, data are scarce on MSM, largely because of the stigma attached, and on migration and IDU. There are also a large number of Egyptians living abroad, making data collection for them problematic.

USAID's budget for the country included \$3.5 million in fiscal year 2004 for infectious diseases, HIV/AIDS, and tuberculosis, and \$3.1 million in 2005. Among other things, funds support: an HIV/AIDS hotline that receives more than 1,000 calls per month; the establishment of new epidemiological surveillance units in Egypt's governorates; and development of a sentinel behavior surveillance site for HIV/AIDS and sexually transmitted infections. Funds are also helping to: renovate HIV/AIDS inpatient wards in Cairo, Alexandria, and Minia Fever Hospitals; expand the HIV control program to 14 demonstration hospitals; extend an information campaign and provide education on infection control and safe injection practices; enhance care and support for people living with

HIV/AIDS; and bolster quality control of public laboratories. USAID also helped prepare and release a set of booklets about proper home-based care for people living with HIV/AIDS.

The agency also supports human capacity development: training hospital staff to manage HIV/AIDS patients and developing clinical curricula for doctors and nurses. It backs a local NGO that is managing Egypt's first outreach center for IDUs by helping to train outreach workers and peer educators. It hopes to increase access to anonymous HIV/AIDS counseling and testing, supporting the first counseling and testing center at the central laboratory of the Ministry of Health and Population; develop policies and guidelines for all counseling and testing centers and materials and curricula for training counselors; and establish a national monitoring and evaluation plan for counseling and testing.

In Jordan, HIV prevalence is also low, less than 1%, with the majority of cases found in populations engaged in high-risk behavior. Sexual relations are thought to be the primary mode of transmission, accounting for 53.5% of all infections. USAID's challenges in Jordan are similar to the sociocultural and religious factors found in other Arab nations. For example, the concept of anonymous testing is foreign, and not an acceptable means of surveillance; condoms are promoted only as a family planning method; high-risk behaviors are not acknowledged officially and the social consequences for some are severe; there is no systematic access to vulnerable subpopulations and NGOs are unwilling to work with them; data about the disease and its control are inadequate for decision making; and where HIV/AIDS knowledge gaps exist, there is little community dialogue or involvement to fill them in.

USAID provided Jordan \$1.7 million in 2001–2004. The allocation for 2005 was \$0.8 million, and for 2006–2009 is anticipated at \$0.8 million or

more. Related activities include support to the Ministry of Health to purchase laboratory equipment to test viral loads in individuals living with HIV; support to the Jordanian National AIDS Program Counseling and Testing Hotline Center, for a day clinic to provide antiretroviral drugs and condoms; and training for health educators.

Other work includes strengthening collaborations with local organizations; behavior-change communication, namely peer-education workshops to raise HIV/AIDS awareness among young adults; coordinating World AIDS Day activities with the Ministry of Health and NGOs; helping the ministry develop protocols and relevant materials to begin surveillance; providing technical assistance for a limited behavioral surveillance survey within a single at-risk population; and supporting the National AIDS Program and its partner NGOs to ensure that monitoring and evaluation systems remain in place and are valid.

USAID's Asia Near East Bureau activities include projects such as the Health Policy Initiative: People Living with HIV/AIDS, International HIV/AIDS Alliance: Men Who Have Sex with Men, and Family Health International: Behavioral Surveillance.

The Health Policy Initiative included a five-day seminar in Tunisia, in February 2006, *Training for Leadership and Networking in the Middle East and North Africa*. Participants, some of them women, came from nine countries in the Middle East and North Africa, representing NGOs recognized organizations.

Activities under the International HIV/AIDS Alliance include capacity building for organizations to promote HIV/AIDS prevention among MSM in Algeria, Lebanon, Morocco, and Tunisia. In the first three of those countries, other work promoted rapid assessment of MSM, followed by a regional workshop in July 2004 to review and validate the data collected. A report on the assessment was distributed in French, but is also available in English. Also in Algeria, Lebanon, Morocco, and Tunisia, Participatory Community Assessments training was supported by USAID in late 2005.

For the Behavioral Surveillance initiative, USAID, in conjunction with UNAIDS and WHO provided regional training on integrated HIV surveillance systems in 2005. For 2006, planned activities include translation of behavioral surveillance survey manuals, related supplements, and generic protocols into Arabic; providing technical assistance to one or two countries to build local capacity; developing national surveillance systems; promoting rapid assessments of the current situation and response to HIV/AIDS; providing technical assistance to develop national HIV/AIDS and STI surveillance plans; holding consensus meetings with all relevant stakeholders to gain approval for the developed surveillance plans; expanding services; and improving monitoring and evaluation of HIV/AIDS programs to improve understanding of successful interventions, their cost, and how they can be replicated and sustained.

USAID is also allied with the Global Fund to Fight AIDS, Tuberculosis and Malaria, a program that has been active in the Arab world. Recent grants have gone to Algeria, Jordan, Mauritania, Morocco, Sudan and Yemen.

Looking ahead, USAID plans to focus on information and its dissemination. It will continue to improve surveillance systems in the region to glean better data for decision-making, and will conduct surveillance in high-risk groups and link them to prevention activities. The agency will review past programs to determine lessons learned and gaps, help develop national policies and strategic plans, encourage proper social-behavioral studies of vulnerable populations, "learn how to reach hidden groups in quiet ways" (in USAID's own words), make better use of NGOs and regional expertise, and develop a framework for addressing regional issues such as migration and the drug trade.

## RESOURCES

For more information:

International Programs Center, Population Division, U.S. Census Bureau, HIV/AIDS Surveillance Data Base, June 2000

USAID/Jordan Website: <http://www.usaidjordan.org>

USAID HIV/AIDS Website for Jordan: [http://www.usaid.gov/our\\_work/global\\_health/aids/Countries/ane/jordan.html](http://www.usaid.gov/our_work/global_health/aids/Countries/ane/jordan.html)

USAID/Global Initiatives: [http://www.usaid.gov/our\\_work/global\\_health/aids](http://www.usaid.gov/our_work/global_health/aids)

## E. SUMMARY REPORT: TREATING HIV/AIDS

Raida Rabah, MD

*Ethn Dis.* 2007;17[Suppl 3]:S3-100–S3-101

**Key Words:** HIV/AIDS treatment

### MEDICAL PERSPECTIVES

The HIV epidemic, as it enters its 25<sup>th</sup> year of global devastation, has demonstrated that no one is safe regardless of his/her age, gender, sex, ethnicity or color. By the time this epidemic runs its course, if it ever does, it will be looked upon as an annihilating scourge that dwarfs everything from the past. In fact, occasional comparisons to the black plague of the 14<sup>th</sup> century are nothing but wishful thinking. By the time it takes you to read this paragraph, almost 14 seconds, AIDS will turn a child into an orphan. To date, HIV has orphaned more than 13.2 million children worldwide. With 14,000 persons acquiring HIV each day, it is estimated that 40 million adults and children are currently living with HIV and, despite our efforts, almost 3.5 million succumb to this virus each year. The worst hit areas are sub-Saharan Africa and southeast Asia.

On June 5, 1981, five cases of unusual pneumonia called PCP (pneumocystis carinii) in gay men at the University of California at Los Angeles (UCLA) were reported in *Morbidity and Mortality Weekly Report* from the Centers for Disease Control and Prevention (CDC). Shortly thereafter, reports of similarly immunocompromised men and women, as well as blood transfusion recipients from other cities and countries, followed. In 1982, the term AIDS was given to this condition but the HIV virus was not isolated until 1983. In 1985, the US Food and Drug Administration (FDA) approved the first commercially available HIV antibody test. AZT (Zidovudin) the first drug to be FDA-approved for the treatment of HIV did not become available until 1987.

Currently, the world is affected by two types of HIV: HIV1, which is the most common worldwide; and HIV2, which is found mostly in sub-saharan

Africa. Risk factors of HIV include men having sex with men (MSM), illicit drug use, unprotected heterosexual sex, blood or blood product transfusion, being born to HIV-infected mothers, and working in healthcare settings.

The HIV lifecycle is complicated and requires infection of certain human cells and incorporation of the virus's RNA (genetic code) into the human cell's DNA. The DNA transforms these cells into viral factories from which new viruses are released into the blood stream where new cells become infected. The most important target is the T4-lymphocyte, or CD4-helper cells, which provide the earliest warning to the immune system when invaded by microbes. With time, the CD4 lymphocyte cell count decreases as the reservoirs are depleted and the immune system is weakened leading to AIDS and its complications.

Although we have not won the war against HIV yet, we did win some battles along the way. One very important advancement is the significant decrease in mother-to-child HIV transmission (from 30% to 0.3%) by treating those mothers and their newborns with antiretrovirals.

HIV-infected individuals remain asymptomatic for many years (usually nine years) until significant immune deficiency leads to complications. However, about 5% of HIV-infected individuals will never progress to AIDS due to inherited resistance to HIV and those are labeled over the years as non-progressors, while a small percentage of patients will progress very rapidly and within two years of infection develop full blown AIDS and opportunistic complications. Several causes for death have been reported but those are changing as patients with HIV are living longer with healthier immune systems, in fact the significant reduction in HIV-related mortality, which was reported to

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From the HIV Intervention Clinic, Brandywine Valley Infectious Diseases, Coatesville, PA.

be around 90% in the late 1980's, to less than the 5% in developed countries in recent years, represents another battle the human race has won in the war against HIV.

The CDC has developed several clinical criteria, such as viral and fungal infections as well as malignancies, and laboratory (CD4 count of 200 cell/cm<sup>3</sup> or less) criteria to define AIDS. Complete physical and laboratory evaluation will help stage the patient and detect any complications. Appropriate vaccines and antibiotics can protect AIDS patients from certain infections and should be used when indicated. There are several issues that complicate the care for HIV-infected individuals, mental health, drug and alcohol, homelessness, partner and family notification, availability and affordability of medical care and finally treatment adherence.

## HIV TREATMENT

Although use of antiretrovirals (ARV) has increased worldwide, the

need remains great. It is estimated that only 8% of the 4 million infected people in Africa are actually receiving ARV.

Advances in treating the HIV virus were achieved by better understanding this virus's replication cycle and the way it affects the human cells. Drugs that target different stages and steps in viral replications have been developed and are best used in combinations to prevent the emergence of resistance. Combinations of three drugs or more, which is now considered to be the standard of care, are called highly active antiretrovirals (HAART) and commonly known as the HIV cocktail. In the United States, only 36% of the 480,000 HIV-infected individuals who are eligible to receive HAART are actually receiving them.

About 27 drugs have been approved by the FDA to date; several more drugs are in different stages of clinical trials. Initiating treatment with these regimens depends on clinical and laboratory criteria with the help of the frequently updated HIV treatment

guidelines by the DHHS (Department of Health and Human Services) and the IDSA (Infectious Disease Society of America).

In terms of prevention, obviously reducing risky exposures via sex and drug use remain the cornerstone since attempts to develop protective vaccines have been disappointing. However, a therapeutic vaccine which may help in treating HIV-infected patients seems more possible based on several clinical trials to date.

Workshop attendees learned about the impact that HIV/AIDS has in the Arab-American community and heard the perspective of national and international speakers in their quest to fight the disease and diminish its impact on families and communities. ACCESS also released a report outlining the discussions and outcomes of the June 2005 HIV/AIDS Health Forum. This report was available to workshop attendees. We will continue this dialogue locally, nationally, internationally especially due to our affiliation with WHO-EMRO.

## SECTION XI. APPENDICES

### FOURTH BIENNIAL NATIONAL CONFERENCE ON HEALTH ISSUES IN THE ARAB AMERICAN COMMUNITY

#### CONFERENCE COMMITTEES

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# FOURTH BIENNIAL NATIONAL CONFERENCE ON HEALTH ISSUES IN THE ARAB AMERICAN COMMUNITY

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ACCESS would like to acknowledge and thank the following sponsors, partners, and supporters for their generous sponsorship, financial contribution, and participation to this significant conference:

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# ETHNICITY & DISEASE MANUSCRIPT SUBMITTAL INFORMATION

rev. 1/06

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## Introduction

*Ethnicity & Disease (Ethn Dis)* is an international, peer-reviewed journal that provides information on causal relationships in the etiology of common illnesses through the study of ethnic patterns of disease. It is distributed to readers in more than 15 countries and reaches healthcare professionals interested in improving health outcomes for ethnic minority populations. *Ethn Dis* publishes original reports, reviews, editorials, special articles, reviews and commentaries, book and other media reviews, and letters on such topics as ethnic differentials in disease rates, the impact of migration on health status, social and ethnic factors related to healthcare access, and metabolic epidemiology. The journal also provides information in special sections dedicated to legislative and regulatory issues, grants and funding resources, clinical trials, and agency updates. Authors wishing to submit a manuscript for consideration should follow the guidelines herein.

## Editorial Process

Each manuscript submitted to *Ethn Dis* enters the journal's peer-review process, which is governed by an editorial board. Authors can expect to receive a letter acknowledging receipt of manuscript within 2 weeks of submittal. Once received in the *Ethn Dis* editorial office, an article is submitted to a minimum of 2 reviewers who rate each article on merit of content; scientific validity and integrity of data; appropriateness to *Ethn Dis* subject matter; and general presentation and readability of informa-

tion. The first review is generally completed within 2 months from original submittal. Once reviewers' comments are collected, the author will receive all feedback and will be asked to make revisions as recommended by the reviewers and resubmit within 3 weeks (or earlier, as determined by the editorial calendar). The revised manuscript is then returned to the reviewers to ensure compliance with suggested changes (a process that generally takes 2–3 weeks); subsequent revisions may be necessary. Upon acceptance, the author is invited to submit the final version of the manuscript, adhering strictly to the guidelines listed herein.

## Types of Submittals Accepted

**Original Reports:** Original works describing results of clinical trials, investigations, community-based research, or epidemiologic study. Manuscripts are evaluated and accepted through the peer-review process. *Guidelines for Original Reports* are provided herein.

**Commentaries/Reviews:** Original works providing comment of existing policies, procedures, or observation of clinical approaches. This category also includes reviews of scientific literature. Manuscripts are evaluated and accepted through the peer-review process. Guidelines for Commentaries/Reviews are the same as those for Original Reports.

### *Guest Editorials (invited only)*

Letter of invitations are issued to individuals with expertise related to an issue's scientific focus. Editorials are accepted by the editor-in-chief.

### *Letters to the Editor*

*Ethnicity & Disease* prints letters to the editor regarding issues important to health care in ethnic minority populations or letters related to manuscripts published in the journal. Guidelines for content can be found herein.

### *Book and Media Reviews*

Individuals may submit reviews on books and other media related to the subject matter of *Ethn Dis*. Guidelines for content can be found in *Guidelines for Book and Other Media Reviews*.

### *Updates on Health Agencies, Health Legislative News, Grants and Funding Information, Clinical Trials*

Individuals obtaining information on the areas of focus for these sections of *Ethn Dis* are invited to call the editorial office to discuss relevance of material for an upcoming issue.

## Manuscript Criteria and Preparation

Researchers and authors who would like to submit an article for publication in *Ethn Dis* must abide by the following guidelines when preparing and presenting their article for consideration by the journal's scientific and editorial review board. Authors should carefully refer to each section before final preparation and submittal of a manuscript.

### *Content Requirements of Manuscript*

When preparing a manuscript for submittal to *Ethn Dis*, an author should develop text in the following sequence and as described below: title page,

## MANUSCRIPT SUBMITTAL INFORMATION

introduction, methods, results, discussion, acknowledgments, references, figure legends, tables. *Ethn Dis* does adhere to strict word limits. Submissions do not exceed 5,000 words, including references. Each table/figure counts as 500 words of the total count.

### *Title page*

The title page should carry in this order:

- 1) a short running head of no more than 40 characters (count letters and spaces);
- 2) the title of the article, which should be concise but informative;
- 3) the name of each author with his or her highest academic degree (see Authorship below);
- 4) the abstract (see Abstract below);
- 5) key words (see Key Words below);
- 6) the name of the department and the institution to which the work should be attributed followed by the initials of the lead author(s) in parenthesis;
- 7) the department(s) and institution(s) of each additional author, followed by the initials of related author;
- 8) the name, address, phone, fax and email address of the author for correspondence and requests for reprints of the manuscript. If reprints will not be available, provide a statement that reprints will not be available from the authors;
- 9) word count (inclusive of references, tables, figure legends) number of figures, number of tables, number of references;
- 10) date of submittal (include date of revision submittal, if applicable).

### *Authorship*

Each author listed should have participated sufficiently in the work to take public responsibility for appropriate portions of the content. The lead author should take responsibility for the integrity of the work as a whole, from inception to published article. Authors are required to identify each author's contri-

bution to the manuscript. The *Author Responsibility, Contributions and Financial Disclosure Form* must be submitted with each manuscript.

**Group Authorship.** In some cases, authorship of multi-center trials is attributed to a group. All members of the group who are named as authors should fully meet the criteria set forward on the *Author Responsibility and Contributions Form*. Group members who do not meet these criteria should be listed, with their permission, in the Acknowledgments.

### *Abstract and Key Words*

**Abstract.** The abstract should appear on the title page and should be no more than 250 words for structured abstracts. The abstract should state the purposes of the study or investigation, basic procedures (selection of study subjects, observational or analytical methods), main findings (giving specific data and their statistical significance, if possible) and the principal conclusions. It should emphasize new and important aspects of the study or observations. A structured abstract will include the following headings: Objective(s); Design; Setting; Patients or Participants; Interventions; Main Outcome Measures; Results; Conclusions.

**Key Words.** Below the abstract, authors should provide 3 to 10 key words or short phrases that will assist indexers in cross-indexing the article. Key words are published with the article. Terms from the medical subject headings (MeSH) list of Index Medicus should be used.

### *Introduction*

State the purpose of the article and summarize the rationale for the study or observation. Give only strictly pertinent references and do not include data or conclusions from the work being reported.

### *Methods*

Describe your selection of the observational or experimental subjects (patients or laboratory animals, including controls) clearly. Identify the age, sex, and other important characteristics of the subjects.

Identify the methods, apparatus (give the manufacturer's name, city, and state in parentheses), and procedures in sufficient detail to allow other workers to reproduce the results. Give references to established methods, including statistical methods; provide references and brief descriptions for methods that have been published but are not well known; describe new or substantially modified methods, give reasons for using them, and evaluate their limitations. Precisely identify all drugs and chemicals used, including generic name, dose, and route of administration.

Reports of randomized clinical trials should present information on all major study elements including the protocol (study population, interventions or exposures, outcomes, and the rationale for statistical analysis), assignment of interventions (methods of randomization, concealment of allocation to treatment groups), and the method of masking (blinding).

### *Statistics*

Describe statistical methods with enough detail to enable a knowledgeable reader with access to the original data to verify the reported results. When possible, quantify findings and present them with appropriate indicators of measurement error or uncertainty (such as confidence intervals). Avoid relying solely on statistical hypothesis testing, such as the use of P values, which fails to convey important quantitative information. Discuss the eligibility of experimental subjects. Give details about randomization. Describe the methods for, and success of, any blinding of observations. Report complications of treatment. Give

numbers of observations. Report losses to observation (such as dropouts from a clinical trial). References for the design of the study and statistical methods should be to standard works when possible (with pages stated) rather than to papers in which the designs of methods were originally reported. Specify computer programs and software used.

Restrict tables and figures to those needed to explain the argument of the paper and to assess its support. Use graphs as an alternative to tables with many entries; do not duplicate data in graphs and tables. Avoid non-technical uses of technical terms in statistics, such as “random,” “normal,” “significant,” “correlations,” and “sample.” Define statistical terms, abbreviations, and most symbols. For requirements on figure/chart submittals, please see *Illustrations/Figures*.

#### *Results*

Present your results in a logical sequence in the text, tables, and illustrations. Do not repeat in the text all the data in the tables or illustrations; emphasize or summarize only important observations.

#### *Discussion*

Emphasize the new and important aspects of the study and the conclusions that follow from them. Do not repeat in detail data or other material given in the Introduction or the Results section. Include in the Discussion section the implications for future research. Relate the observations to other relevant studies.

Link the conclusions with the goals of the study, but avoid unqualified statements and conclusions not completely supported by the data. In particular, authors should avoid making statements on economic benefits and costs unless their manuscript includes economic data and analyses. Avoid claiming priority and alluding to work that has not been completed. State new hypotheses when warranted, but clearly identify

them as such. Recommendations, if appropriate, may be included.

#### *Acknowledgments*

List all contributors who do not meet the criteria for authorship, such as a person who provided only technical help (eg, writing assistance, data input, or general support). Authors must have written permission from each person listed in the Acknowledgment section. Financial and material support should also be acknowledged.

#### *References*

References should be numbered consecutively in the order in which they are first mentioned in the text. Identify references in text, tables, and legends by Arabic numerals (in superscript font, outside of punctuation marks including periods and commas). References cited only in tables or in legends to figures should be numbered in accordance with the sequence established by the first identification in the text of the particular table or figure.

#### **Do not use the Footnote, Endmark, or Citation command in software.**

References should be prepared according to style guidelines based on Uniform Requirements style and presented in the American Medical Association Manual of Style, 9th edition (1997). Two examples of the most commonly used citations follow; please note and precisely employ text enhancements, capitalization, spacing, and punctuation.

Standard journal article.

Vega KJ, Pina I, Krevsky B. Heart transplantation is associated with an increased risk for pancreatobiliary disease. *Ann Intern Med.* 1996;124(11):980–983.

If more than 6 authors, present the first 3 authors followed by “, et al.”

Chapter or article in book.

Philips SJ, Whisnant JP. Hypertension and stroke. In: Laragh JH, Brenner BM, eds. *Hypertension: Pathophysiology, Diagnosis, and Management*. 2nd ed. New York: Raven Press; 1995: 465–478.

The titles of journals should be abbreviated according to style used in *Index Medicus*. This list of journals can be obtained through the National Library of Medicine’s website (<http://www.nlm.nih.gov/>).

#### *Figure Legends*

Type or print out legends for figures using double-spacing, starting on a separate page, with Arabic numerals corresponding to the figures. When symbols, arrows, numbers, or letters are used to identify parts of the illustrations, identify and explain each one clearly in the legend.

#### *Tables*

See Tables, found in “Technical Requirements of Manuscripts.”

#### *Technical Requirements of Manuscript*

##### *General*

- Double-space all parts of the manuscript (except tables, which may need to be single-spaced).
- Review the sequence and make sure the manuscript is presented in this order: 1) title page (including abstract and key words), text, acknowledgments, references, figure legends. Tables and figures should be contained in a separate electronic file.
- Include permission to reproduce previously published material or to use illustrations that may identify human subjects.
- Submit the original manuscript and electronic file in required format.
- Use only standard 10- or 12-point font size.

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- The text of original reports is usually divided into sections as described under "Content of Manuscripts."
- Submit the typed manuscript on white bond paper 8½ × 11 in (216 × 279 mm) or ISO A4 (212 × 297 mm), with margins of at least 1 in (25 mm). Print on only one side of the paper.
- Use double-spacing throughout, including the title page, abstract, text, acknowledgments, references, and legends.
- Number pages consecutively, beginning with the title page. Put the page number in the lower right-hand corner of the page.
- Leave right margins unjustified (jagged edge).

### *Tables*

- Prepare each table on a its own page in an electronic file separate from the main text file.
- Do not submit tables as photographs.
- Number tables consecutively in the order of their first citation in the text, and supply a brief title for each.
- Give each column a short or abbreviated heading.
- Place explanatory matter in footnotes, not in the heading or body of the table.
- Explain in footnotes all nonstandard abbreviations that are used in each table. For footnotes, use the following symbols, in this sequence: \*, single dagger, double dagger, section marker, parallel bars, paragraph marker, \*\*, 2 single daggers, 2 double daggers, etc.
- Identify statistical measures of variations such as standard deviation and standard error of the mean.
- Do not use internal horizontal or vertical lines.
- Be sure that each table is cited in the text.
- If you use data from another published or unpublished source, obtain permission and acknowledge them fully.

### *Illustrations/Figures*

- Submit 2 complete sets of figures.
- Figures should be professionally drawn and photographed; freehand or typewritten lettering is unacceptable.
- Instead of original drawings, x-ray films, and other material, send sharp, glossy, black and white photographic prints, usually 5 × 7 in (127 × 173 mm) but no larger than 8 × 10 (203 × 254 mm).
- **Illustrations prepared in PowerPoint** must be submitted as a sharp, glossy, black and white photographic print. Electronic files of PowerPoint figures are **not** acceptable.
- Do NOT send figures embedded in other word-processing software. If figure is sent as an electronic file, it must be submitted in one of the following formats: \*.tif or \*.eps, with file resolution of 350 dpi for grayscale. Files of lower resolution will be rejected. Please check with your institution's audiovisual or graphics department to ensure the correct file format and print. A printout of the electronic file must accompany the file.
- Letters, numbers, and symbols should be clear and even throughout and of sufficient size that, when reduced for publication, each item will still be legible.
- Titles and detailed explanations belong in the legends for illustrations, not on the illustrations.
- Each figure should have a label pasted on its back indicating the number of the figure, author's name, and top of the figure.
- Do not write directly on the back of figures or scratch or mar them by using paper clips.
- Do not bend figures or mount them on cardboard.
- Figures should be numbered consecutively according to the order in which they have been first cited in the text.
- If a figure has been published, acknowledge the original source and submit written permission from the

copyright holder to reproduce the material. Permission is required irrespective of authorship or publisher, except for documents in the public domain.

- Currently *Ethn Dis* publishes only black and white illustrations/figures.

### *Abbreviations and Symbols*

- Use only standard abbreviations.
- Avoid abbreviations in the title and abstract.
- The full term for which an abbreviation stands should precede its first use in the text unless it is a standard unit of measurement.

### *Style*

Writing style should follow guidelines outlined in the *American Medical Association Manual of Style, 9th edition* (1997).

## Submittal Requirements

### *Where to submit*

Manuscripts and supporting documents as described herein can be submitted:

- 1) Via USPS mail or courier delivery service. Include the original and electronic file(s) on disk. Disk must contain the full manuscript in one file; tables in another file; and other supporting files. Files should be prepared in PC-compatible word-processing software, preferably WordPerfect or MS Word. Name each file with the lead author's last name, followed by an abbreviation of a key word (eg, smith-cvd.doc or for tables, smith-cvd-tables.doc).
- 2) Via *Ethnicity & Disease* web site. Access <http://www.ishib.org/ethndis/> and follow submittal instructions.

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#### *Cover letter*

All manuscripts should be submitted with a cover letter that identifies the individual responsible for correspondence with the editors. Provide an exact postal

address, telephone and fax numbers, and email address.

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#### *Responsibility, Contributions, and Financial Disclosure Forms*

Each listed author must complete and submit a *Author Responsibility, Contribution, and Financial Disclosure Form*, which certifies the role each author has taken in the preparation of the article. It also includes a financial disclosure statement ensuring that the article is not in conflict with financial interests of the author.

#### *Copyright Transfer*

Manuscripts considered for publication have not been previously published or submitted elsewhere for publication. It is a condition of acceptance that the papers become the copyright of the publisher; authors will be asked to transfer copyright of accepted manuscripts to the publisher, ISHIB. A copyright transfer form must be submitted with the final version for publication.

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Authors must provide a written statement that permission has been obtained from each person or organization listed in the acknowledgments.

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All manuscripts must be accompanied by a list of at least two potential reviewers with expertise in the subject matter of the paper. Please provide reviewer's email, mail and phone contact information.

#### *Manuscript Submittal Checklist*

Authors must submit the completed checklist as the first page following the cover letter.

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*Ethnicity & Disease* is pleased to print letters to the editor regarding issues important to health care in ethnic minority populations or letters related to manuscripts published in the journal. Please send letters submitted for possible publication to:

Editor-in-Chief, *Ethnicity & Disease*  
100 Auburn Avenue, NE; Suite 401  
Atlanta GA 30303

You may also submit your letter electronically to [ethndis@ishib.org](mailto:ethndis@ishib.org) or submit online at [www.ishib.org](http://www.ishib.org). Letters are subject to editing. When preparing a letter to the editor, please keep the following in mind:

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- Letters presenting opposing opinions to a recent article may be sent to the article's original author to request a rebuttal/comment.
- Letters must not duplicate other materials published or submitted for publication.
- Letters must not exceed 400 words of text and 5 references. Please include a word count. Figures and tables are not allowed in letters.
- Include a cover letter with a signed statement of author responsibility and financial disclosure (if applicable).

Authors will receive a brief response via e-mail or fax that the letter was received. Decisions regarding publication of letters will be made within 1 month of receipt. Prepublication proofs are not available for letters to the editor. Sub-

mission of a letter constitutes permission for ISHIB, its licensees, and its assignees to use it in *Ethnicity & Disease's* print publication, in collections, revisions, and any other form or medium.

### **Guidelines: Book and Other Media Review**

Follow these specifications to prepare a book or other media review.

Word count: 750–1000 words

Title, author(s). City/State/Country of Publication. Publisher, year of publication.

ISBN#, # pp. \$\$

Introduction to book/media, could include:

- Author's intended purpose for writing the book (publishing media)
- Targeted readership
- Other books/media by the same author, if a connection can be made

Contents, could include:

- Synopsis of topics found in book/media (Starting with Foreword and Preface)
- Accuracy of information (Research based? Include information on literature references cited)
- Strengths (Highlight pertinent quotations)-Weaknesses (Pertinent information omitted?)
- If appropriate, compare the contents of book with a previously published book on the same topic.

Style of presentation, could include:

- Organization of topics
- Literary skills (Is the writing concise, to the point, clear and understandable by the target audience?)
- Point out humor or humorous episodes

## MANUSCRIPT SUBMITTAL INFORMATION

Conclusion, could include:

- Has book's intended purpose been reached? Emphasize important conclusions reached.
- Recommended—why or why not?

### Guidelines: Supplement Publication

*Ethnicity & Disease* will publish supported supplements, as both a freely bound standalone and as an add-on to regular editions, which relate to issues surrounding ethnicity and health. Below are guidelines for determining the appropriateness of material as a supplement.

1. **Content.** In order to be considered for a supplement, the papers must collectively make a contribution to the understanding of ethnicity and health. Topics might include ethnic differentials in disease rates or treatment patterns; socioeconomic factors related to healthcare access; or effects of migration and acculturation on health. The editor-in-chief, in consultation with the associate editors, will determine appropriateness.
2. **Source.** Supplements may come from a variety of sources, such as conference proceedings or manuscripts resulting from a clinical trial supported by academic or research institutions. In the interest of preserving the journal's integrity, *Ethn Dis* will not accept industry-generated content.
3. **Review.** All supplement materials will be subject to *Ethn Dis* editorial review and will be made compliant with *Ethn Dis* editorial standards and styles.
4. **Length.** The sponsor can propose to publish either as standalone (ie, as a separate, self-contained issue) or as an add-on to a regular issue of the journal. Material longer than 100 pages should be published as a standalone, and supplements longer than

150 pages may only be published as standalone.

5. **Cost.** The publication costs for supplement are \$225 per page for an add-on supplement and \$250 per page for a standalone supplement.
6. **Copyright Transfer.** ISHIB retains the copyright for all papers published in *Ethn Dis*, including those published in supplements. Sponsoring agencies of a supplement must agree to secure copyright transfer forms from all authors of the articles intended for the supplement.
7. **Process.** To propose a supplement, the sponsor will submit a proposal outlining: topic and manuscript contents, number of papers, estimated number of pages (including introductions and summaries), anticipated number of graphs/charts, whether the supplement should be standalone or add-on, and the anticipated date the materials will be available. The lead investigator/author must agree to provide at least an introduction to provide background as to the purpose of the program/trial. In the case of conference proceedings, the conference agenda should be included in the introduction. Supplements reporting on study findings should include all study sites, private investigators, study design and protocols.

Once accepted, it is the sponsor's responsibility to make timely payment and to submit all papers and copyright transfer forms to *Ethn Dis*.

### General Information

Guidelines for Manuscript Submittal to *Ethn Dis* are based on The Uniform Requirements for Manuscripts Submitted to Biomedical Journals, 5th Edition, developed by the International Committee of Medical Journal Editors and appearing in *JAMA*.1997;277:927-934.

*Ethnicity & Disease* is an international journal that exclusively publishes information on the causal relationships in the etiology of common illnesses through the study of ethnic patterns of disease. This peer-reviewed journal publishes original reports, reviews, editorials, special articles, commentaries, brief reports, book reviews, and letters on such topics as ethnic differentials in disease rates, the impact of migration on health status, social and ethnic factors related to healthcare access, and metabolic epidemiology. A major priority of the journal is to provide a forum for exchange between the United States and the developing countries of Europe, Africa, Asia, and Latin America.

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Correspondence concerning advertising or submittal guidelines should be addressed to Editorial Assistant, Ethnicity & Disease, ISHIB; 100 Auburn Avenue, NE; Suite 401; Atlanta, GA 30303.