

CONFERENCE LECTURES

New and Emerging Infections: Catalysts for Change in Public Health

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From the mid-point of the 20th century, the focus of interest in public health progressively shifted from concerns about the infectious diseases and sanitation to chronic diseases – primarily cancer and heart disease – and the exploration of alternative systems for health care. The reasons for this are understandable. During the 1950s to 1970s, many infectious diseases, at least in the industrialized world, declined sharply or even disappeared. The causes were several – new vaccines and antibiotics, improved nutrition and housing, better sanitation and health care. Optimism, at least in some quarters, was unbridled. In fact, Sir Macfarlane Burnet, the Australian Nobel Laureate stated: *“One can think of the middle of the 20th century as the end of one of the most important social revolutions in history, the virtual elimination of the infectious diseases as a significant factor in social life.”* Although we knew that progress in the developing countries was modest, at best, resources for research and education in the infectious diseases steadily eroded.

In 1981, however, a small dark cloud appeared on the horizon in the form of the first cases of AIDS and by April 1984, the responsible virus was identified. The U.S. Secretary of Health and Human Services proclaimed this to have been “the triumph of science over a dread disease” and predicted confidently that a vaccine would be available in two years. Time passed and the unwarranted hubris among researchers and politicians began to ebb. Now, some 20 years later, a world-wide pandemic is in progress; AIDS is the fourth leading cause of death world-wide; there is no vaccine in sight and the quest for a curative drug still continues.

Other microbial agents have appeared: SARS from Asia; transmissible spongiform encephalitis (“mad cow disease”) from England; H5N1 influenza from Asia; monkeypox from Africa. Indeed some 30 new or emergent agents have been identified during the past 25 years. Increasingly, we are coming to appreciate that there are countless microbial agents, known and unknown, constantly evolving and adapting themselves to new hosts and, more readily than ever, being transmitted across the world. At the same time, it has been recognized that there is a markedly increased risk of microbial agents being used as weapons of terrorism. The microbial threat was aptly characterized by Dr. Joshua Lederberg, formerly President of Rockefeller University and a Nobel Laureate, in solemnly pointing out that man’s only competitors for the dominion of the planet are the viruses and that the ultimate outcome of that competition is not foreordained.

Why is the threat becoming apparent at this time? Few, today, appreciate the profound and increasingly rapid societal changes that are taking place across the world. Four are of particular significance. The growth in urban populations is staggering. Fifty

years ago, there were only two cities with a population greater than 5 million persons – New York and London. Today, there are 20 with populations larger than 10 million and 6 that have more than 15 million. Many of these cities are in tropical and subtropical regions where crowding is most severe, malnutrition is common and sanitation is minimal – a fertile soil for a mutant organism to gain a foothold and to be transmitted. Second is the logarithmic growth in international travel – 18 million commercial flights each year carrying 1,600 million passengers, some coming from the most remote parts of the world. No town on earth is more than 36 hours from any other town, well less than the incubation period of most infectious diseases. Third is the fact that we are witnessing an unprecedented growth in hospitals and health care facilities everywhere. Although this could bode well for better health, many of these facilities have limited equipment and trained personnel; provisions for sterilization are often limited; and cross-contamination is not uncommon. Thus, many, unfortunately, serve as a focal point for transmission of blood-borne disease and antibiotic resistant organisms. Finally, foods of all types are moving across the globe in unprecedented quantities, sometimes carrying with them, microbes of many types. An internationalized food supply is not an unmitigated advantage. At the same time, food production and processing has been moved from small farms and animal herds to enormous farms, large herds of animals and food processed in factories of a size, hitherto unknown. With these developments has come the possibility of contamination and spread of disease across large areas and to large populations.

A further threat has emerged over the past decade – the possible use of microbes as biological weapons. This was a threat that was essentially ignored until the mid 1990s in the belief by many that it was so difficult to grow and disseminate highly virulent organisms that none would try to do so and, in any case, biological organisms had seldom been used by nation states in warfare. However, as rapid advances began to be made in biotechnology, the capacity and expertise for producing potential weapons became ever more widely available and potentially possible in laboratories around the world. A watershed event was the discovery in 1995 that a little-known religious cult in Japan had produced and endeavored to disseminate both anthrax organisms and botulinum toxin throughout Tokyo and were planning to acquire Ebola virus so as to be able to disseminate it in an aerosol spray. Meanwhile, the cult released sarin gas in the Tokyo subway inflicting many casualties.

An equally disturbing revelation was made in the 1990s by the former Deputy Director of a hitherto unknown USSR bioweapons program after he had defected. Prior to his revelations, it had been thought that, since 1973, as a result of the Biological Weapons Convention, all countries had ceased research and production of biological weapons. He brought the alarming news that the Soviet Union had had a biological weapons program, that employed some 60,000 persons at 50 laboratories. It was, in fact, as large as the Soviet nuclear weapons program. The weaponization and production of large quantities of smallpox virus were an important part of this effort. Subsequent to the Russian economic crisis, support to the laboratories sharply diminished and many scientists left to take positions elsewhere in Russia and the rest of the world, bearing with them, knowledge of biological weapons.

In our own country a 2000 review of programs needed to deal with disease outbreaks of any substantial size, especially those involving large numbers of patients, revealed that few municipalities, states or countries were at all well-prepared. The potential release of biological weapons was a real concern but the SARS outbreaks served to illustrate the fact that Mother Nature herself could potentially precipitate no less a major human infectious disease catastrophe even in this present era. If complacency prevailed briefly as the SARS threat receded, we now have the even more ominous challenge posed by H5N1 influenza and its potential for pandemic spread and casualties that could rival or exceed in number the 1918 outbreaks when tens of millions died world-wide.

Given the diverse possible array of agents that could conceivably result in large enough numbers of cases to threaten civil integrity, it is impossible to be fully prepared to deal with each. However, there are basic preparations that can be made that would be relevant to threats, whatever their origin. Of principal importance is the need to greatly heighten the level of public health and emergency preparedness and a special program with this in mind was initiated in the United States four years ago. This is a complex and long-term task and, as evidenced this month in New Orleans, it is clear that our own country has a very great deal yet to be done. The essence of such a program is based on the development of mechanisms for rapid detection of a problem and its immediate investigation and characterization by public health teams, diagnosis by experts and requisite laboratories, plans to respond with large scale deployment of vaccines or antibiotics and well-defined plans to provide medical care for much larger numbers of patients than are normally accommodated.

To effect an operable plan requires participation of a diverse array of different groups including health care workers, hospitals, voluntary organizations such as the Red Cross and Red Crescent, law enforcement to assure order, methods of transportation for patients and refugees, methods for essential communication among the principal participants and with the general public. Who should lead such an effort whose principal objective is the prevention and alleviation of human suffering? In an earlier era, the public health department was usually expected to take a predominant role in orchestrating the diverse organizations and talents necessary to meet the challenge. However, in our own country and I know in many others, public health departments have diminished in size and expertise; many now lack skills in epidemiology and management; and surveillance systems that might detect problems have languished.

Change is needed in the perception of and respect for public health. Today, an important opportunity is offered for public health to reaffirm its role and to take a lead in fostering the needed community and national programs for emergency preparedness measures for public health and medicine. Regrettably, Schools of Public Health, as a whole, have not been distinguished for their leadership in policy development, in research and in needed public advocacy. And this, I would note, is from the perspective of one who has spent 14 years as a Dean of a School of Public Health and, who, more recently, has been involved at the highest level of government in endeavoring to initiate national

and local programs of public health preparedness. It seems to me that there is not only a need but an important opportunity for a fuller mature development of Schools of Public Health that are professional schools; that work closely with those who are dealing with real world problems; that are truly dedicated to educating tomorrow's professional leaders in public health; that undertake research to bridge the now cavernous gaps between basic research and its application; and that define and actively advocate for needed public policy. The need is international.

A final caution is in order and, for this, I quote from a statement published two years ago by the U.S. Institute of Medicine – as you know, one of our National Academies of Science:

“Today’s world is truly a global village, characterized by growing concentrations of people in huge cities, increasing global commerce and travel...One can safely predict that infectious diseases will continue to emerge...Depending on present policies and actions, this situation could lead to a catastrophic storm of microbial threats.”

New and Emerging Infections: Catalysts for Change in Public Health

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- *Man's only competitors for the dominion of the planet are the viruses – and the ultimate outcome is not foreordained.*

Joshua Lederberg
Nobel Laureate, USA

The competitors are increasing

- New and emerging infections have been increasing in number
- The sources of the threat:
 - Natural mutation of microbes
 - Emergence of organisms from remote areas
 - Biological terrorism
- The threats are international

"Conquest" of the infectious diseases 1950s-70s

- Dramatic changes: 1950-1970
 - Vaccines
 - Antibiotics
 - Nutrition
 - Housing
 - Sanitation
- Decline or elimination of many diseases in the industrialized world
 - Smallpox, diphtheria, whooping cough, tetanus, polio, measles, *et alia*

- *"One can think of the middle of the 20th century as the end of one of the most important social revolutions in history, the virtual elimination of the infectious diseases as a significant factor in social life"*

Sir Macfarland Burnet
Nobel Laureate, Australia

A cloud on the horizon

- June, 1981 – first cases of AIDS diagnosed
- April, 1984 – HIV is identified
 - "the triumph of science over a dread disease"
 - "a vaccine will be available in 2 years"
- 2005 -a world-wide pandemic in progress
 - 4th leading cause of death world-wide
 - No vaccine
 - No curative drug

HIV is not the only surprise

- 1989 Conference on Emerging Infections
- An illustrative additional inventory
 - SARS – from Asia
 - Monkeypox – from Africa
 - TSE – “mad cow” disease – from UK
 - *H5N1 influenza* – from Asia
- More than 30 new agents in 25 years

Why now?

- Growth in urban populations
 - Population of cities
 - 1975 – 5 with more than 10,000,000
 - 2005 – 20 with more than 10,000,000
 - 6 with more than 15,000,000
 - By 2015
 - 5 cities with more than 20,000,000 persons
 - 55% of world's population in urban areas

Why now?

- Growth in urban populations
- International travel
 - Volume
 - 18 million commercial air flights yearly
 - 1.6 billion air passengers per year
 - Remote area destinations
 - All cities less than 36 hours from others

Why now?

- Growth in urban populations
- Travel
- Growth of hospitals in endemic areas
 - Major sites for disease distribution
 - Problem of blood borne diseases
 - Development of antibiotic resistance

Why now?

- Growth in urban populations
- Travel
- Growth of hospitals in endemic areas
- Food supply
 - Internationalized
 - Industrialized
 - Animal husbandry
 - Food processors

Intentional release of biological agents

- A threat, largely ignored until 1995
 - Too difficult to grow organisms
 - Technologically difficult to disseminate
 - Not used because of a moral barrier

What has changed?

- Advances in biotechnology
 - Numbers and sophistication of laboratories
 - Information access – internet
 - Trained microbiologists
 - Aerosolization devices
- Growth of independent terrorist groups

Watershed events Aum Shinrikyo -- Japan

- Religious cult released Sarin gas in Tokyo subway (1995)
 - Cult - previously unknown to intelligence
 - Thousands of members, well-funded
 - Tried to aerosolize anthrax and botulinum toxin throughout Tokyo at least 8 times
- *Concern – unknown, non-state sponsored organization, acting without concern for moral deterrents*

Watershed events USSR Bioweapons Program

- A secret program – unknown until 1989
- 1992 – Ken Alibek, Deputy Director of bioweapons program, deserts
- 1995 – Full scope of program apparent
 - 60,000+ persons in 50 different labs
- *Concern – Expertise and possibly specimens now dispersed world-wide. Still a secret program*

“On May 8, 1980, WHO announced that smallpox had been eradicated..Soon after, **smallpox was included in a list of biological weapons targeted for improvement in the 1981-85 Five -Year Plan...**

Where other governments saw a medical victory, the Kremlin perceived a military opportunity...the military command issued an order to maintain an annual stockpile of 20 tons (of smallpox virus).”

Alibek, 1998

A recurrent menace -- influenza

- Influenza – 1918 – H1N1
 - Case-fatality rate - about 2 %
 - Deaths -- U.S. 675,000
World >40,000,000
- Influenza – 2004/2005 – H5N1
 - ~100 cases/ 53 deaths

Responses to the threat

- Detection
 - Mechanisms for reporting “24/7”
 - Team for emergency investigation
- Diagnosis
 - Known and identified experts
 - Laboratory capability
- Response
 - Vaccines, antibiotics
 - Isolation and quarantine
 - Provision of medical care

Coping with the New Threats-- public health leadership is key

- Planning and preparation
 - Collaborative participation of many groups needed
 - Health care staff and hospitals
 - Voluntary organizations such as Red Cross/Red Crescent
 - Pharmaceutical and medical supply providers
 - Law enforcement agencies
 - Education and transportation departments
- Execution and the role of a command center
- Communication
 - Public
 - Local, national, international – political and professional

Special needs for the future

- Greatly strengthened network of international cooperation and communication
 - Cooperative international centers for epidemiology and laboratory diagnosis in all countries
 - A far more generously supported WHO effort to orchestrate the many national initiatives
- A focused research and development program

- “Today’s world is truly a global village, characterized by growing concentrations of people in huge cities, increasing global commerce and travel...One can safely predict that infectious diseases will continue to emerge...Depending on present policies and actions, this situation could lead to a catastrophic storm of microbial threats.”

*Institute of Medicine/ National Academy of Sciences
Microbial Threats to Health, 2003*

- *International collaboration and cooperation is not an option for dealing with infectious diseases. It is a necessity if mankind is to survive.*

Reaching Beyond Boundaries in Academic Public Health:
The case of the American University of Beirut
Huda Zurayk
Keynote presentation: 27th Annual Conference of ASPHER
American University of Armenia
September 20, 2005

I am happy to be participating in the 27th Annual Conference of the Association of Schools of Public Health in the European Region (ASPHER) in Yerevan, and to be addressing this august audience this morning. The Conference theme on development perspectives of public health schools is an issue at the heart of my current concerns as Dean of the Faculty of Health Sciences at the American University of Beirut, and the Conference inclusion of the Middle East and Africa regions together with its main concern for the European region brings our perspectives closer together. This is an opportunity for me to share with you some of my experiences in academic Public Health in the Middle East region, and to draw from these experiences lessons that would hopefully be relevant, useful, and interesting for you too in your various environments. At the outset, I would like to thank in particular Dr. Haroutune Armenian, President of the American University of Armenia, for this invitation. Dr. Armenian is a colleague and a friend who was a faculty member and who served as Dean of the Faculty of Health Sciences at the American University of Beirut, leaving a strong valuable mark on FHS that is well appreciated at the Faculty and the University to date.

The title of my presentation this morning is “Reaching Beyond Boundaries in Academic Public Health: The case of the American University of Beirut”. “Reaching beyond boundaries” is the theme we adopted for the 50th anniversary celebrations that we organized last year for our Faculty of Health Sciences, mainly a school of public health which was established at the American University of Beirut in 1954. [Slides 1, 2, and 3] For it is my experience that as we strive to bring about health and well being to the populations of the world wherever they may be, we encounter boundaries that engulf our work as individuals and groups, boundaries that present us with contours that we sometimes work within and that we sometimes must choose to reach beyond. Dealing with boundaries requires a delicate act of balancing and choosing, and to make choices, we need to have a clear vision of where we want to go and an understanding of what is involved in getting there.

In my presentation, I will speak of five situations in my life where I have observed or have been part of processes of dealing with boundaries. Although I am recounting a particular case drawing from my own professional life in academic public health in a developing region of the world, I believe the case has relevance to development perspectives of schools of public health that is the concern of this Conference.

Let me begin by introducing where I come from briefly. I am really lucky to have been born in Lebanon, a beautiful country on the Mediterranean sea [Slide 4] which has offered me a wonderful childhood and adolescence, and where I happily continue to live

today despite the turbulences the country has passed through and continues to experience. I am also lucky to have been born into a family with strong educational resources where the stage was set for me from early on to pursue a University education and a specialization. This was not the case for the majority of women in my country and in the Arab region at the time I was growing up, and it is still not the case today.

1. The first situation I would like to consider here is the situation of being a woman in my region of the world and the boundaries that that imposes on the potential for professional involvement and growth. Indeed, it has been a concern of mine to observe these boundaries as they are experienced and negotiated by women, not only in developing countries, but worldwide. I see the boundaries between family and work as an issue for women everywhere, even though they may be experienced differently in the different regions of the world. I believe that not enough support has been offered to women to help them harmonize their dual roles.

My region of the world is complex particularly where lives of women are concerned. I will therefore consider here what I see as the most important issue in women's lives, namely, the extent to which women have the valuable resource of education that opens up possibilities for their lives. For without education, choices are very limited and this, I believe, should not be allowed in our day and age. The international agenda for women in developing countries has included education for girls as an integral issue especially recently. But in actual fact, on the public health front, I have seen issues for our region such as family planning and female circumcision take priority and precedence on the

international scene. Setting priorities is difficult when resources are limited but to my mind nothing can replace education in opening up the boundaries that surround women's lives in developing countries with all the positive consequences that follow.

I will review data from our region on selected countries [Slides 5] beginning with Lebanon, Jordan and Syria, that are relatively smaller countries with mainly service-based economies, to Egypt, Morocco and the Sudan that are largely agricultural and have substantial rural populations, and finally to Bahrain, Kuwait and Saudi Arabia that have oil-based economies.

It is clear that for all these countries except for Lebanon, the great majority of adult women were illiterate in the 1960's and early 70's. Men everywhere fared better. This situation has changed drastically and we find that all countries shown here have made big leaps forward in terms of reducing illiteracy levels of adult females and males. Yet still in some countries like Egypt, Morocco and the Sudan, a majority of adult women remain illiterate to date. Taking a historical perspective presents a more positive profile of the current status of educational levels in our region especially for women. It is clear, however, that we have a long way to go in providing women with the education and with university education [Slide 6] that enables them to have choices in their lives.

I was extremely lucky to have had the opportunity of good secondary and University education, which exposed me to diversity and opened up boundaries of mind and space for me. Since I did not get married, I did not face the boundaries standing between the

home and work that the majority of women face in all countries of the world. These are constraining boundaries for women in our region where marriage is highly prevalent and fertility, though recently declining, still stands at three or more per woman for most of the region. Two other features of family life in our region add to women's housework and caring burden: first children tend to stay at home until they marry and second parents and/or parents-in-law either reside with or are a responsibility for women. Thus married women are faced with tight boundaries within which to plan their lives.

I see that everyday around me among the young women faculty at AUB and among wives of faculty, and they make difficult choices. Some choose to pursue careers and have a hard and stressful time in coping. Others decide to stay at home or take less demanding positions to balance between family and work, which is sometimes difficult and equally strenuous. I know that the situation is similar for women all over the world and I believe that the world has failed women in providing support for their dual role. To my mind these boundaries on women's lives should be an important public health concern. On the one hand, women offer the best care for families, which is certainly desirable and an advantage. On the other hand, women need the support systems to enable them to go beyond the boundaries they willingly impose on themselves in marriage and raising a family. Education and support systems are important to promote women's health and well-being, and also family health, and must become more of a priority public health issue worldwide.

2. I move to an entirely different dimension as I present the second situation, which is currently coming up to the forefront of my concerns as Dean of the Faculty of Health Sciences, and that is the situation of dealing with the boundaries **between public health practice and research in academic public health**. The constraints drawn around public health practice in academic public health are loosening, while there is still a definite emphasis given to public health research. Balancing between research and practice may not be as much of an issue for professionals in academic public health in the European region. In Lebanon, in the Middle East region, and in developing countries generally, it certainly is. I observe this balancing act continuously at FHS where faculty members carefully negotiate the boundaries imposed on their practice activities in choosing careers in academic public health. The reason they challenge these boundaries is because they are public health experts in a situation of scarce human resources and they are called upon by their governments and by civil society organizations to contribute directly through programmatic involvement to improving public health in their countries and region. For a committed professional this is hard to resist. I would like to illustrate this situation by taking the extreme case of a University in the middle of civil war.

The civil war occurred in Lebanon between 1975 and 1992 and left a serious mark on the country [Slide 7]. We were there a School of Public Health- and Dr. Armenian was the Dean of the Faculty of Health Sciences for a crucial part of that period- we were there within a warring city and as much as we struggled to survive as a teaching institution, we could not also stay away from direct involvement in the public health problems of the city [Slide 8]. Of course, we as faculty tried to publish as much from these experiences as

possible but our involvement on a daily basis eroded the time available for reflection and writing. It took seventeen years for the civil war to end in 1992, leaving huge problems behind.

I left Lebanon in 1987 after experiencing 12 years of civil war (and actually one year after Dr. Armenian left for the US) to work with the regional office of the Population Council in Cairo, and remained there until 1998 when I returned to AUB as Dean of the Faculty of Health Sciences. After an absence of over ten years, I found the Faculty still largely committed and engaged in reconstruction efforts resulting from the war situation. Aiming to strengthen the academic programs at FHS, I had to negotiate with the faculty a return to the boundaries of academic work giving research activities and particularly writing and publication their due time. These were hard negotiations with a young and committed faculty who see part of their role as contributing to improving public health in such a needy situation. It is a hard boundary to negotiate for several reasons:

1. I do appreciate that faculty cannot easily extract themselves from the position of a highly demanded expert, in a situation of such scarce resources.
2. Public Health practice activities are often consultancies that bring in additional income to faculty members who are struggling with an ever-increasing cost of living.
3. It must be recognized also that it is often hard to foresee the impact that research activities, as an alternative development strategy, may have on actual programs and policies, particularly when the mechanisms that support the translation of research findings into public health improvements are weak.

I must emphasize that it is not the involvement of faculty in development projects that is the problem, for having faculty involved in public health practice is certainly a desirable process for a school of public health graduating public health practitioners with an MPH degree. However, in our part of the world involvement often means carrying the heavy burden of the work since in most situations there are no qualified counterparts to work with, and sustainability of such programs becomes also a major worry.

At FHS, we are now working at many levels to alleviate this difficult process of boundary balancing between research and practice. At the University level, we are leading the way in advocating for more engagement of the University with the community it is serving, and for more recognition of community service and professional practice in promotion criteria. We are taking up the challenge of developing modified promotion criteria that take practice activity into account in addition to teaching, research, and service to the University and community. It is a big challenge to develop measurable performance indicators for practice activities, but we need such indicators to be able to pass the modified promotion criteria for FHS through the various University boards, and we recognize that there is likely to be some resistance in this process. On the other hand, we are also trying to fund raise and put a cost to practice activities, so we can recruit “practice” faculty on soft funds who would have the main responsibility of implementation of projects and of working towards their sustainability. However, both funding and human resources are not easily available in our region. Thus expanding our involvement in practice activities is proving a particularly challenging boundary for us to negotiate. Dealing with it, however, is pressing on us as we seek accreditation for our

graduate public health program from the US Council on Education for Public Health (CEPH), where integrating practice with teaching and research is a main requirement.

3. I move to my **third situation for this morning, where I shall consider the boundaries imposed on us by our disciplinary specializations**. Moving beyond the boundaries of disciplines, through interdisciplinary collaborations, is a process that is increasingly being supported especially in academic public health. However, in my opinion that support is not yet strong enough.

I have a rich experience to recount in this respect from my association with the Population Council program in the Middle East region. Following obtaining the PhD degree in Biostatistics from the Johns Hopkins School of Hygiene and Public Health, I returned to Lebanon in 1974 a very quantitatively oriented professional. On my return, I was invited by the Population Council program in the region to participate in its activities, including serving on research committees and attending workshops that included sociologists, anthropologists and other social scientists. What a shock it was for me to hear particularly the anthropologists speak about their research over a few cases and hear what seemed like soft descriptions of results. With time, however, and also especially after being involved in a truly interdisciplinary study, the Giza women's reproductive morbidity study, while living in Egypt between 1987 and 1998, that my perspective totally changed to an appreciation of the diverse methodologies that can be applied to understanding public health problems.

I collaborated on this study with a leading medical anthropologist and a prominent Obs Gyn physician from Egypt. The study also included participation of other social science, medical, and public health researchers. The experience of this study provided me with very positive perspectives to interdisciplinary collaboration between public health, medical, and social science disciplines, perspectives that I have been able to put to good use in my current position as Dean of FHS. For while concerned with developing the classical public health disciplines of epidemiology and biostatistics, health behavior and education, health management and policy, and environmental health, I am at the same time building the social science disciplines at FHS. I have been recruiting sociologists and anthropologists to provide our students with an appreciation of the socio-economic and cultural context of public health, so important for our region. On the other hand, I am also rebuilding strong bridges with the Faculty of Medicine at AUB both to benefit from this sister specialization in our teaching and research programs, and also perhaps to help bring a more holistic approach to the teaching of Medicine at AUB.

So I am whole-heartedly in support of going beyond disciplinary boundaries. However, I find that interdisciplinary collaborations still face constraints that are not easily overcome in academic public health. First, building an interdisciplinary team and undertaking interdisciplinary research is time and effort consuming, and this is often not considered an investment worth making. Second, interdisciplinary collaboration may sometimes require compromises to be made in research methodology, which may not be readily acceptable. For example, in the Giza Study since we undertook medical examinations, which are very expensive, we had to restrict our sample to 500 women. To us the insights

we got from the medical component of the study are worth any shortcomings imposed on generalizability of results. However, the issue of representativeness of our sample was always brought up as a shortcoming whenever we presented our findings anywhere in the world. Finally, those seriously engaged in interdisciplinary collaboration, may find that their ability to contribute to their own discipline has diminished. I am no longer the mathematical statistician that I was, and the anthropologist on our team is not considered theoretical enough, and the Obs Gyn physician is considered “soft” by some of his medical colleagues. Since the three of us had attained professor rank and professional status in our countries and the region before conducting the Giza study, we were not worried. In fact, we were able to get the message across quite effectively. However, that might not be the case for a young professional beginning work in academic public health. Such a young professional would have to negotiate carefully the boundaries between disciplinary validity, which receives primary recognition in promotion considerations, and interdisciplinary collaboration. I believe that everywhere in the world support and academic recognition for the value of interdisciplinary collaboration should be enhanced. Our educational, research and practice programs need to fully face interdisciplinary challenges for a better preparation of our students to address the complex public health problems and realities they will face in their work.

4. The fourth situation I would like to bring here this morning is a new and ongoing experience that I will only recount briefly and will not elaborate on, as I feel that more time is needed for reflection and for drawing lessons learnt. We have recently embarked at FHS on a research program, supported as part of a grant by the Wellcome Trust

Foundation, and the aim of the program is to design and implement intervention studies in impoverished communities on the outskirts of Beirut directed at improving dimensions of health for adolescents, for reproductive age women and for older adults in these communities. Moving beyond the boundaries of classical research designs to incorporate a more participatory research approach has been both fascinating and trying, especially as we are funded by a foundation used to work within the boundaries of research designs imposed by the medical sciences. We are seeking community participation at every stage and are developing quasi-experimental intervention research designs that are more amenable to community implementation. I am sure there will be many lessons learnt from this experience of taking up the challenge of community-based intervention studies.

5. Finally I come to my **last situation of concern, which involves a University trying to go beyond its geographical boundaries**, as is the case for the American University of Beirut and that is part of its continuous history [Slide 9]. We at the Faculty of Health Sciences have been carefully considering our two goals of offering excellent education and relevant education: relevant primarily for contributing to developing the workforce in Lebanon and the Middle East region. We recognize that these goals call upon us to reach beyond the boundaries of Lebanon in attracting students from the region, and also in building networks with public health professionals and institutions from the region and internationally. We are thus dynamically moving outside of our geographical and cultural boundaries to satisfy our primary mission of preparing qualified public health professionals, and of contributing to the development of public health in the region. We willingly cross geographical and cultural boundaries for a partnership approach which

recognizes that these boundaries have meaning and that global does not negate the local and the regional.

Within this effort comes my participation in this ASPHER Conference to share experiences, to learn from the rich experiences available here, and to develop linkages and networks for the future. I believe that such exchange and networking make us all better Schools of Public Health, and enable us to collaborate in meeting the huge challenge of contributing to improved health and well-being in our societies. It is important to recognize, however, that successful networking is a time consuming process and that it is best to choose strategically the most efficient, productive and meaningful networks to invest in. At FHS, we have chosen to invest in regional research networks, with international contribution, around particular research interests such as reproductive health, childbirth, tobacco control, environmental issues and others. These networks are dynamic and flexible and have greatly contributed to enhancing the research environment, including research training for our students, to increasing research productivity and to opening up opportunities for engagement with policy.

These are networks that support the mission of the University which is to bring excellent education and quality services to the peoples of Lebanon and the region, so that, as the words engraved in stone at the main entrance of the university read, so that they may have life and have it more abundantly [Slides 10 & 11].

Thank you.

Slide 1- History AUB
1866 Syrian Protestant College
1920 American University of Beirut

Faculty of Arts & Sciences	1866
Faculty of Medical Sciences	
Faculty of Medicine	1867
School of Pharmacy	1871 (until 1979)
School of Nursing	1905
School of Dentistry	1910 (until 1940)
School of Public Health	1954
Faculty of Engineering and Architecture	1951
Faculty of Agriculture and Food Sciences	1952
School of Business	2001 (out from FAS)

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Slide 3- FHS Departments and Academic programs
Enrollment: fall 2004-2005

Department	Undergraduate		Graduate	
	BS	MS	MPH	TOTAL Graduate
Medical Laboratory Technology	102			
Environmental Health	107	12		12
Epidemiology & Population Health		13	17	30
Health Behavior & Education			28	28
Health Management & Policy			54	54
(General MPH)			5	5
TOTAL	209	25	104	129
Grand Total	338			

**Slide 2- Public Health at
AUB**

1954 School of Public Health

(Faculty of Medical Sciences)

1978 Faculty of Health Sciences

1978 Faculty of Medicine

- Public Health
- Nursing
- Allied Sciences

- Medicine

1982 Faculty of Health Sciences

1982 Faculty of Medicine

- Public Health
- Allied Sciences

- Medicine
- Nursing

**Slide 5- Illiteracy rates for Adult Women and Men
in Selected Arab Countries**

Country	Illiteracy rate (15+) in %			
	1960-1973		2000-2004	
	Women	Men	Women	Men
Lebanon	42 ¹	21 ¹	18 ²	7 ²
Jordan	85	50	15	5
Syria	88	53	26	9
Egypt	88	60	56	33
Morocco	94	78	62	37
Sudan	81 ³	49 ³	50	31
Bahrain	82	64	17	7
Kuwait	90	79	19	15
Saudi Arabia	99	95	31	13

UNESCO, Statistical Yearbooks, 1976 & 2005

1. For Lebanon 10+; 2. UN Statistical Yearbook, 2003; 3. For 1980



Slide 7- War Impact 1975-1990

Lebanon 3.6 million

Estimates:

- | | |
|----------------------|---------|
| • Killed | 150,000 |
| • Injured | 200,000 |
| • Seriously disabled | 50,000 |
| • Displaced | 500,000 |
-
- Psychological trauma
bombing, assault, torture, kidnapping
 - Infrastructural damage
physical economy
 - Migration

UNDP. 1998. National Human Development Report: Youth & Development.

Slide 6- Illiteracy Rates and Gross Enrollment Rate (GER) in Tertiary Education for Youth in Selected Arab Countries

Country	Illiteracy rate in % (15-24)		GER –Tertiary education in % (18-20)	
	2000-2004 ¹		1998-2001 ²	
	Women	Men	Women	Men
Lebanon	7 ³	5 ³	47.6	41.8
Jordan	1	1	31.3	30.7
Syria	7	3	-	-
Egypt	33	21	-	-
Morocco	39	23	9.2	11.4
Sudan	31	18	6.5	7.1
Bahrain	1	1	27.8	15.0
Kuwait	6	8	31.6	12.2
Saudi Arabia	6	2	26.5	17.7

1. UNESCO Institute for Statistics, 2005; 2. UNESCO, EFA Global Monitoring Report, 2005; 3. Human Development Report, 2001



Slide 8-FHS Activities in Endemic War Time

- Emergency and Epidemiological Surveillance
- War Situation Research
- Disease Control Activities
- Evaluation of Services
- Institutional Development

Armenian HK. & Acra A. 1998. "From the missionaries to the endemic war: public health action and research at the American University of Beirut". *Journal of Public Health Policy*, 9(2): 261-272

