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Dr Pedro Ordúñez, a leading public health expert and internist, is Director of the Cienfuegos Provincial Teaching Hospital and Associate Professor at the National School of Public Health in Havana. Dr Ordúñez has published extensively in Cuban and international peer-reviewed journals, most recently in the *American Journal of Epidemiology*, as co-author of Impact of Energy Intake, Physical Activity, and Population-wide Weight Loss on Cardiovascular Disease and Diabetes Mortality in Cuba, 1980–2005.[1] In 1994, he was selected as a Pan American Health Organization (PAHO) post-graduate fellow at Johns Hopkins University School of Public Health. Thereafter, he obtained a Doctorate in Health Sciences from Cuba's National School of Public Health. Dr Ordúñez has traveled throughout the Americas as a chronic disease consultant for PAHO and has served locally in the PAHO-coordinated CARMEN Network, which focuses on the integrated prevention of chronic non-communicable diseases and their risk factors. He is a member of the Cuban Academy of Sciences and has received the national health award on several occasions.

Dr Ordúñez sat down with *MEDICC Review* for an exclusive interview to discuss his insights into the complex relation between poverty, development, and chronic disease.

MEDICC Review: You recently published an article on the Millennium Development Goals (MDGs) and health in Cuba.[2] Can you talk about the concepts of health, development, and poverty?

Pedro Ordúñez: These three concepts are closely linked, since to a large extent, human development conditions the health of a nation. Although Cuba is a country with very limited natural resources, it's not one of Latin America's poorest. On the contrary, by the middle of the 20th Century, there was significant technological development in Cuba. Nevertheless, there was such inequity in terms of human development nationally that health indicators suffered and enormous disparities existed. While the cities enjoyed a certain level of affluence and the private health sector offered good services, the countryside and the poor were left completely unattended. This pattern is common in many places throughout the world today and a clear distinction should always be made between rural and urban poverty because they're different.

Cuba continues to be extraordinarily poor in natural resources, but in the last 50 years, high human development has manifested itself in a highly-developed health system and substantial progress in health. The first changes made in 1959 were public health measures: massive immunization programs, potable water, rural health programs closely linked to literacy, and education programs. These fundamental elements to mitigate poverty explain the change in the country's trajectory. And even though Cuba has endured deep economic crisis, distribution of resources and health services has always been a priority. To a certain degree, I think access to health services helps keep people from sliding deeper into poverty in times of crisis. In health systems where people are forced to spend more and more out of their own pockets, the poor are, obviously, the most vulnerable to the vicious cycle of declining health and worsening poverty.

The message of the Millennium Development Goals is clear: investing in health is an investment in development; in fact health, development, and poverty are components of what can be called a circular model where each element exerts mutual influence on the others.

MEDICC Review: According to the WHO, 80% of chronic disease deaths occur in low- and middle-income countries.[3] Yet the MDGs, described as a blueprint to meet the needs of the world's poorest, don't address chronic disease at all. Why is that, especially considering the literature suggests these countries are already coping with a double burden of disease?

Ordúñez: Communicable diseases, due to their frequency, severity, and acute onset, make a marked public impression and exert political pressure; they produce deaths and patients in an episodic and dramatic way. Maternal and child health are also dramatic and together with infectious disease, carry considerable

weight in world health. But chronic diseases have yet to rank as high on the global health agenda. I think it's because chronic diseases have a very long, slow latency period – it may be years between the onset of disease and its first clinical manifestations. As a result, chronic diseases lack a sense of urgency and governments often set short-term health agendas – chronic diseases don't make it onto those agendas.

In non-communicable chronic diseases, risk factors are key. Nutrition and diet, for example, are a challenge for both rich and poor countries. Poor people who in the past experienced under-nutrition and malnutrition for lack of food, are now experiencing malnutrition due to an excess of empty calories resulting in increasing obesity rates. The issue of diet exemplifies the complexity of chronic disease risk factors, which are inherently multi-causal. That is, there are micro level factors such as individual behavior and, simultaneously, macro level factors including food production and distribution, which are paramount. In Cuba we're facing particular challenges. Our data show that in the 1980's our obesity rate was about 14% to 16%, but during the Special Period it dove to 7% [2]. We're barely overcoming Special Period conditions now, but our obesity rate is back at 14%. These rates mean that there was a metabolic adjustment due to lack of food, but there was never deliberate behavioral or attitudinal change regarding diet and exercise. Now obesity is a growing problem again.

Another major risk factor is tobacco. If anyone asks me what Cuba's greatest health enemy is, the answer is tobacco. The first cause of death for Cubans is cardiovascular disease (CVD) and the second is cancer. Of course, lung cancer and CVD are closely related to tobacco use. Our historic and cultural ties to tobacco production are some of our greatest challenges in combating this enemy.

MEDICC Review: Cubans have been so successful in so many other health areas, why has tobacco been so hard to fight?

Ordúñez: I think the efforts around tobacco use have been episodic, isolated, and diffuse. It's a great imbalance. In a country with one of the largest number of health facilities, one of the highest physician-per-capita ratios, with a tradition and culture of public health, and yet, we've learned to live with our greatest enemy.

Another factor affecting chronic disease rates in Cuba and other developing countries is the aging of the population. Cuba may have one of the fastest aging populations in the world, infant mortality has declined very quickly, as has mortality due to communicable diseases. This, coupled with a good health service infrastructure has contributed to the population's extended longevity.

MEDICC Review: Community participation has played a pivotal role in contributing to Cuba's positive health indicators. For example, people play an active role in mass immunization programs. How do chronic diseases differ and what role can people play in their prevention?

Ordúñez: Going back to risk factors, it's not enough for people to know about healthy eating; it's about producing the necessary healthy foods at prices people can afford. Additionally, one major element in Edward Wagner's Classic Chronic Disease Care Model is self-care/self-management. This is about the patient participating in their own care. We have good experiences with diabetes care but they're isolated. We have to do much more in the areas of asthma, hypertension, and cardiovascular self-management for example. Our model has been almost exclusively physician-centered, and maybe physicians aren't the right professionals to best address self-management issues.

We haven't yet achieved the levels we've reached in other areas in terms of community participation. I think in Cuba we're doing more in diagnostics and treatment than in prevention. I understand that we have very legitimate needs to invest in the improvement of health facilities, because of course, at the end of the day, if a person suffers a heart attack he or she may need angioplasty and here everyone has free access to such advanced technology as MRIs or CT scans. But these don't cure, and ultimately only a relatively small group of people benefits – those that already have the disease. In order to address the problem in an integrated and comprehensive way, we need to continue pursuing primary and secondary prevention. We also need to continue modernizing and expanding our therapeutic arsenal, diversifying essential medications so that we don't have to depend on multinational pharmaceutical corporations.

MEDICC Review: Are developing countries going to follow the same chronic disease patterns as industrialized countries?

Ordúñez: In industrialized countries, disease-related mortality from cardiovascular and cancer is declining, whereas it's increasing in developing countries. Therefore, the few health resources these countries have will need to be divided between still-prevalent infectious diseases and emerging chronic diseases (see Tables 1 & 2). In the majority of developing countries, one of the greatest deficits is the lack of data gathering systems; there are very few countries with a national risk factor surveillance system, where time trends analysis can be conducted. Vital

Table 1: Leading Causes of Death in Cuba (2006 Preliminary)

Cause of death	Rate per 100,000
1. Heart disease	188.2
2. Malignant neoplasms	174.6
3. Cerebrovascular disease	74.0
4. Influenza and pneumonia	54.6
5. Unintentional injuries	36.1
6. Chronic respiratory diseases	24.3
7. Arterial and capillary vascular disease	24.2
8. Diabetes mellitus	18.2
9. Intentional self-harm	12.1
10. Cirrhosis and other chronic liver diseases	9.0

Bold signifies chronic disease.
Source: Annual Health Statistics Yearbook, 2006. National Health Statistics Bureau. Havana: 2007.

Table 2: Leading Cause of Death in the USA (2005 Preliminary)

Cause of death	Rate per 100,000
1. Heart disease	219.1
2. Malignant neoplasms	188.7
3. Cerebrovascular diseases	48.4
4. Chronic lower respiratory diseases	44.2
5. Unintentional injuries	38.8
6. Diabetes mellitus	25.2
7. Alzheimer's disease	24.2
8. Influenza and pneumonia	21.2
9. Nephritis, nephrotic syndrome and nephrosis	14.7
10. Septicemia	11.5

Bold signifies chronic disease.
Source: Kung HC, Hoyert DL, Xu J, Murphy SL. Deaths: Preliminary Data for 2005. NCHS Health E-Stats, September 2007.

statistics are not collected systematically, affecting the quality of the data and its precision. Therefore, it's difficult to predict the actual epidemiological state of chronic diseases in the developing world. It's not entirely clear if these countries will follow the same pattern of industrialized countries. It does seem, though, that some patterns will emerge at an accelerated pace because of the effects of consumerism. For example, even here in Cuba where globalization has not been felt as strongly as elsewhere, the proliferation of fast food restaurants signals the adoption of cultural values regarding food choices. Furthermore, this adoption of values may be seen as a false sense of progress, which may not be unique to Cuba.

MEDICC Review: And First World interventions: are they going to be replicated in developing countries?

Ordúñez: I think we need to look for a theoretical model on which to build a service model. We also need to construct models to prevent chronic diseases. Here in Cuba we need to look hard at our family medicine model and examine it carefully. We know how to prevent infectious diseases, but chronic diseases have other dimensions. It's interesting – I see many similarities between the chronic disease issues we're facing and the environmental problems the world is facing. We're killing ourselves with the food we eat, with tobacco, and by avoiding exercise. Likewise, the planet is being killed by our way of producing and using fuel, by destroying the flora and fauna, and by air pollution.

MEDICC Review: How are doctors in the Third World being trained to deal with these issues?

Ordúñez: Even today, physicians-in-training may not have a lot of curriculum time for chronic disease. For example, they may spend the same amount of time learning about hypertension as giardiasis, when hypertension is much more complex. On the other hand, there have been positive changes in medical training. When I was in medical school, I thought all the diseases that existed were the ones I saw in the hospital. Today, especially here in Cuba, medical students are exposed to working with patients very early in their training; they see real patients in a multitude of settings. I think this gives them a great advantage. Also, it's essential that future physicians take more of a prevention approach.

Many Latin American and African students being trained here in Cuba come from remote rural areas; infectious diseases and maternal and child health are and need to be prioritized in their curriculum. They'll be better able to have a tangible impact on the health of their communities with merely increased health services coverage, early detection of problems, and timely treatment, especially of infectious diseases. However, I think that these physicians-in-training need to keep alert about chronic diseases because when they return to their respective countries they'll be in the middle of the epidemiological transition.

MEDICC Review: Cuba may be seen as a model in other public health spheres. What is your assessment?

Ordúñez: I am not satisfied. In terms of risk factors, we should be doing much more. We need to understand that addressing chronic disease risk factors is not solely the responsibility of the health ministry. Health is a social and political problem, not exclusively a medical one. Ministries of health are generally designed from a disease perspective and not from a health perspective.

We've made some progress in the diagnosis and treatment of chronic disease. For example, in Cienfuegos, 40% of those with hypertension are controlled whereas rates in North America are around 28%. However, for us, it means that 60% of hypertensive patients are not controlling their hypertension. There are also many people who may be suffering from diabetes and don't know it or are poorly controlled. Again, working in multidisciplinary teams, with behavioral professionals, can help patients with adherence issues.

And although this may sound trite, we need health professionals beyond physicians. Here in Cuba we have taken a first step by incorporating health psychologists into the clinical team. If society understood that health is not only a medical problem, then there would be shared responsibility for health. And it won't be until people and communities take ownership of their own health and engage in advocacy that concrete changes in chronic disease will be seen.

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