# Non-Communicable Diseases

## Prevention and Control of Cardiovascular Diseases and Cancer



**REGIONAL WORKSHOP REPORT**



Organized by:

ACADEMIA BRASILEIRA DE CIENCIAS

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IANAS INTERAMERICAN NETWORK OF ACADEMIES OF SCIENCES

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**Edited by:**
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# Preface

In response to a call from the InterAcademy Medical Panel (IAMP), the Brazilian Academy of Sciences and the National Academy of Medicine organized in Rio de Janeiro, on 3-5 May 2012, the Regional Workshop "Non-Communicable Diseases: Prevention and Control of Cardiovascular Diseases and Cancer". The overall objective of the workshop was to strengthen the idea that prevention and control should be a priority among governments, international organizations, civil society and the private sector, who should all join forces to improve the health conditions of our people. Another crucial goal of the workshop was to stimulate cooperation among the Academies of Medicine of the Americas, encouraging them to adopt a more proactive role in the coordination and mobilization of their national societies, aiming towards promoting actions focused on prevention and control of non-communicable diseases.

Non-communicable diseases represent a new frontier in the fight to improve global health. Worldwide, the increase in such diseases means that they are now responsible for more deaths than all other causes combined. As recognized by the World Health Organization (WHO), this invisible epidemic is an under-appreciated cause of poverty and hinders the economic development of many countries. The burden is growing - the number of people, families and communities afflicted is increasing both in developed and in developing countries. Common, modifiable risk factors underlie the major NCDs. They include tobacco, harmful use of alcohol, unhealthy diet, insufficient physical activity, overweight/obesity, raised blood pressure, raised blood sugar and raised cholesterol. The NCD threat can be overcome through the use of existing knowledge. The solutions are highly cost-effective. Comprehensive and integrated action at country level is the means to achieve success. Science and Medicine Academies can play a key role in this process, advising and assisting national governments in coping with this challenge.

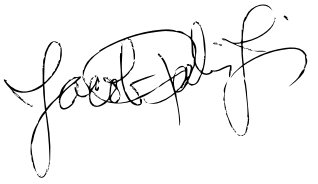
In order to promote the exchange of experiences, Academies that are members of IAMP and ALANAM were invited to send two high-level experts (one on cancer and the other on cardiovascular diseases) to the workshop. We were glad to see that a most positive response came from the Academies, and experts from all except one of the Academies sent representatives to the meeting: Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Guatemala, Mexico, Trinidad and Tobago, USA, and Venezuela. As the workshop was hosted in coordination with a meeting of the IAMP Executive Committee, we also had the privilege of having representatives from France, Germany, Italy, Malaysia, and Turkey.

Besides discussing the state of the art of prevention and control of cancer and cardiovascular diseases in the Americas, participants also discussed collaboration opportunities among the Academies of Medicine in the region. It is our hope that, inspired by the most successful experience of the Inter-American Network of Science Academies (IANAS) in mobilizing the Science Academies of the hemisphere to work in a collaborative manner, the Academies under the IAMP umbrella will be stimulated to engage in a similar process, building a powerful interaction among them. The Brazilian Academy of Sciences is most willing to support this initiative and the organization of this workshop is in itself a clear evidence of this commitment. Let us help that the seeds that were planted in the days we spent together in Rio germinate and grow into a robust tree.

The Latin American Association of Academies of Medicine (ALANAM), the Inter-American Network of Academies of Sciences (IANAS), and IAMP were all co-organizers of the workshop, providing a strong support for the successful organization of this activity. We would hereby like to thank them for this support. We also acknowledge and thank the important support received from the following agencies and organizations: the Global Network of Science Academies (IAP); Financiadora de Estudos e Projetos (FINEP), who supports Science and Technology in Brazil, international scientific cooperation, and is a key Brazilian innovation agency; the Cancer Foundation of the National Institute of Cancer; the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), a Brazilian agency that supports the development of Science and international scientific cooperation and is in charge of the evaluation of graduate programs; the Botanical Garden of Rio de Janeiro; the Ministry of Health; the Ministry of Education; and the Ministry of Science, Technology and Innovation. Without the support of these partners it would have been impossible to host the workshop.

Finally, I would like to thank Marcello Barcinski, who is a full member of both the Brazilian Academy of Sciences and the National Academy of Medicine, for chairing the Scientific Committee of the workshop and putting together a stimulating and interesting agenda. Thanks are also due to Marcos Moraes, at the time of the workshop, president of the National Academy of Medicine, who was instrumental in helping to build strong collaboration ties between the National Academy of Medicine and the Brazilian Academy of Sciences. I am also happy to thank Eduardo Krieger, a former president of the Brazilian Academy of Sciences, for his long engagement in promoting Science and Health in Brazil, as well as at regional and global levels.

I conclude reaffirming the Brazilian Academy of Sciences' commitment to such a good cause: the promotion of collaboration ties between the Academies in the Americas. The Brazilian Academy of Sciences and the National Academy of Medicine have been working very closely and effectively in the past recent years. Let us now work and help promote similar relationships between Science and Medicine Academies in the Americas.



*Jacob Palis*
*President*
*Brazilian Academy of Sciences*



# Preface

The latest Global Status Report on Non-Communicable Diseases (NCDs), issued by the World Health Organization (WHO), states that NCDs are the leading global causes of death, causing more deaths than all other causes combined, and that they strike hardest at the world's low- and middle-income populations. These diseases have reached epidemic proportions, which, however, could be significantly reduced, with millions of lives saved, and untold suffering avoided, by means of decreasing risk factors, improving early detection, and timely treatments.

Prevention and control of non-communicable diseases must be given priority, and commitments must be made at the highest levels by governments, private sector, civil society, the United Nations, and international organizations, which should all work together. The WHO document was mainly referring to cardiovascular disorders, diabetes, different types of cancer and respiratory diseases and it is of special concern that "a vicious cycle is created by the epidemic, whereby non-communicable diseases and their risk factors worsen poverty, while poverty results in rising rates of such diseases". With these considerations, it became timely that the Brazilian National Academy of Medicine and the Brazilian Academy of Sciences, responding to a call from the InterAcademy Medical Panel (IAMP), have organized a regional workshop focusing on the prevention and control of cardiovascular diseases and cancer. It seemed to us as an unique opportunity to bring together local experts in non-communicable diseases, indicated by the Academies that are members of the Latin American Association of Academies of Medicine (ALANAM) and the InterAmerican Network of Academies of Sciences (IANAS) for exchanging experiences and ideas. The main purpose of the present meeting was to try to define strategies by which the local Academies could aid their respective health authorities in developing and implementing programs aiming the prevention and control of cardiovascular diseases and cancer. From our perspective, the meeting could also provide the opportunity for the design of programs to be simultaneously implemented by local Academies, in different countries, with mutual synergistic effects.

Our great expectation is that some fruitful action will emerge from the meeting in addition to the usual solely definition of the place for the next gathering. Only time will say if the expectations were fulfilled.

*Marcello André Barcinski*
*Chair*
*Scientific Committee of the Workshop*



# Preface

The National Academy of Medicine, who since its foundation has as one its main objectives to advise the Government and contribute to solving public health problems of the country, felt extremely honored in being able to participate, together with the Brazilian Academy of Sciences (ABC), the Association of Academies of Medicine in Latin America (ALANAM), the InterAcademy Medical Panel (IAMP) and the Inter-American Network of Academies of Sciences (IANAS) in an event that addressed the non-communicable diseases, one of the most important health issues in the current globalized world.

The environment, sedentary lifestyles, the constant stress, poor nutrition, in addition to the increase of use of tobacco and alcohol, have all directly contributed to the increase of the incidence of cancer, cardiovascular diseases, hypertension, respiratory syndromes and diabetes. This can clearly be seen throughout all social classes, however the lower classes pay the highest price because all of the above mentioned diseases are serious risk factors.

In current days, teenagers and even children have the habit of smoking and of using alcohol, a behavior often mirrored from their parents, who aside from serving as very bad examples, many times even encourage their children to do so. A concrete example is the increased use of cigarettes by women, leading to indices of pulmonary emphysema and lung cancer in the same proportion to that of men, a fact which greatly differs from previous decades, in which incidences in men were four times more than that in women.

A diet rich in fat and carbohydrates, in addition to preservatives found both in solid foods as well as in liquids, together with a sedentary lifestyle, all favor the accumulation of abdominal fat that leads to obesity, to diabetes and to hypertension, creating what we call a "metabolic syndrome" which can be frequently observed in adult life, but that may also begin in adolescence.

Constant stress, anxiety and decreased amounts of sleep, all contribute to the excess release of the adrenaline and cortisol hormones, secreted by the adrenal gland, which will act upon the blood vessels and the body fat. The increase of blood pressure to levels above those considered normal can lead to consequences to the brain, resulting in cerebrovascular accident (CVA) and myocardial infarction. It is estimated that 57 million deaths annually and approximately 50% of all diseases are due to the pathology attributed to chronic non-communicable diseases.

Therefore, the Academies, the Universities and the Federal, State and Municipal Governments, in addition to other scientific and cultural organizations, need to join forces in order to try to reduce the risk factors through preventive medicine and provide adequate treatments in a timely fashion.

Thus, in due time, the above mentioned institutions got together to address an issue of utmost importance for the survival of a great part of our population; an issue, which us physicians, and other health professionals as well as agencies responsible for the Public Health of our country, have been very concerned with.

*Pietro Novellino*
*President*
*National Academy of Medicine*

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# Executive Summary

Due to the "urgent need for greater measures at the global, regional and national levels to prevent and control non-communicable diseases" and attending a call from IAMP, the Brazilian Academy of Scienceas and the Brazilian National Academy of Medicine organized a Regional Workshop on Non-Communicable Diseases: Prevention and Control of Cancer and Cardiovascular Diseases, which was held in Rio de Janeiro on May of 2012. This urgency is stated in the "Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases", adopted by the United Nations General Assembly in its sixty-sixth session. This document recognizes that people's lifestyles influence their health and quality of life. Considering the "essential need for the efforts and engagement of all sectors of society to generate effective responses for the prevention and control of non-communicable diseases", it was more than natural that a call for the Academies of Medicine to fulfill their responsibilities in such an endeavor was issued.

The format of the meeting was such as to allow the presentation and discussion of the regional Academies' activities and their relationship with local health authorities in the development of programs aiming at the prevention of cardiovascular diseases and cancer. As stated by the Brazilian representative at IAMP, "the most important task [of the Academies] is that of sharing information. Academies need to advise society, advise the nation, and provide solid evidence regarding the issues of concern. But in order to do so, they need to be active and competent, therefore they need to be capable of presenting reports, need to promote working groups and need to focus on ethics".

After hearing all the presentations and the discussions that followed, it became clear that successful government/Academies interactions could eventually serve as examples to be followed and that, on the other hand, presentations of failures in such endeavors should be taken as words of caution for actions not to be reproduced. Of course, local peculiarities must always be considered. One of the important points raised during the meeting was the one related to the possibility of having similar programs proposed and implemented simultaneously by different Academies in different countries. Within this background, it was pointed out that in order to achieve inter-Academy collaboration the Academies need to think globally, but act locally. This means that a coordination of activities among Academies is a real need and that this is the role to be played by IAMP.

As stated, IAMP should link the Academies in a regional manner. This approach will allow a better coordination of collaborative actions that take into account local cultures, as well as environmental and health problems that might be common, or similar, in the different countries. With IAMP as the main umbrella, Academies could be encouraged to create working groups focusing on regional issues, which would facilitate the exchange of information and of operational experiences, thus helping in the design of strategies for common control programs.

The experience of IANAS was highlighted at the meeting. Created in 2005 as a strategy for reinforcing capacity building in the Americas, this network aids in the emergence of new Academies in different countries and in the

empowerment of existing ones. IANAS operates as the network for the Academies of Science for the American continent and besides providing evidence-based recommendations for the networked Academies, it also runs different programs through the support of the regional network.

A key question that permeated the entire workshop was on the strategy to induce a common proactive participating response from most of the IAMP member Academies. The common sense was that the definition of a small number of projects tackling problems afflicting most of the participating countries - be them in prevention, education, lifestyle, or any other health issue that is of common concern -, would provide a unity for action among the Academies. The challenge is to define the core problem to be tackled.

A situation of concern and that may reflect a lack of governmental integration with the Academies is the poor administrative support and adequate infrastructure that some Academies present. In many situations this happens due to the administrative nature of some Academies, whose leadership positions are of very short terms, generating a frequent change in leadership. This can cause a lack of continuity in the establishment of proposed or ongoing projects.

And last, but not least, the Brazilian program to control smoking was presented and discussed. Numbers showing that the mortality attributable to NCDs in Brazil declined between 1996 and 2007 by 20%. Among the Brazilian initiatives to respond to the challenge of chronic diseases, the control of smoking is a prominent success and is probably responsible for a significant fraction on the decline in NCDs in the country.

The final remarks of the meeting were of encouragement to IAMP, IANAS and ALANAM to hold formal meetings to, in addition of discussing issues of common interest, to add to the agenda the sharing of regional networking facilities, thus avoiding duplication of efforts and extra costs for the Academies' operation.

Prevention and Control of

# Cardiovascular Diseases



REGIONAL WORKSHOP REPORT

# SESSION 1

## State of the Art in Prevention and Control of Cardiovascular Diseases in Argentina



Marcelo V. Elizari (Argentina)

In Dr. Elizari´s opening statement, he explained that the cardiovascular disease (CD), as a component of Non-Communicable Diseases is, and will persist in being, the leading cause of mortality in the Western world. Detection, prevention and management of CD as developed in the last century has significantly reduced its impact on younger age, but have displaced its manifestations to the elderly population.

Dr. Elizari identified a changing pattern in the epidemiology of the disease, the relative importance of various risk factors (RFs), and preventive strategies. Due to this changing pattern that will modify the RFs, there is still a lot to be done in this area to identify newer RFs in the elderly, women, and different ethnic backgrounds individuals.

Dr. Elizari reaffirmed that hypertension, vascular disease of the coronary, cerebral, and peripheral circulation are the most significant non-communicable diseases in the Western world. Although some populations demonstrate a genetic predisposition to develop hypertension and accelerated atherosclerosis, the vast majority of these conditions is acquired through lifestyle behaviors, and their clinical manifestations appear in later life.

**RFs AND ATHEROSCLEROSIS**

| Unmodifiable Factors | Modifiable Factors | Contributing Factors |
|---|---|---|
| Genetics | Smoking | Obesity |
| Age | High Cholesterol | Sedentary lifestyle |
| Sex | Hypertension | Stress |
| Race | Diabetes | Pollution |

In Argentina, NCDs account for more than 60% of deaths. Cardiovascular diseases are responsible for 32% of deaths, most occurring in productive age. Cardiovascular diseases represent an important public health load since they account for a significant loss (16%) of healthy productive years, which results in high costs not only for the health system, but also for the society on the whole.

Since it is of paramount importance to weight the magnitude of the determining factors of CDs in the population, two national RFs surveys were carried out in Argentina, one in 2005 and the other in 2009.

In 2009, the National Ministry of Health conducted the second National RFs Survey. The aim of the 2009 national survey was to monitor the evolution of the main RFs of chronic diseases, and describe the distribution of major RFs in subgroups. A probabilistic sample was performed including general urban population in cities with more than 5,000 inhabitants, aged 18 and over across the country. The survey included 34,372 respondents with a response rate of 75%. Out of 304,525 deaths in 2009, 89.916 were due to cardiovascular causes.

The main results of this survey are of paramount importance for the decision-taking in health at a national, provincial, and municipal level, as well as for other ministries (Interior, Education, Social Welfare, Sports Secretariat, etc.). It is necessary to strengthen the response to stop and revert the advance of obesity and diabetes, which are the result of a reduction in physical activity, less healthy eating, and a decrease in fruit and vegetable intake. The increased monitoring of blood pressure, glycemia, and cholesterol levels, results in more significant advances. It was observed that smoking prevalence was reduced. This reduction could be even more important if smoking control actions were strengthened.

| Main indicators (1) | 2005 | 2009 |
|---|---|---|
| Social security or private health insurance coverage | 64.6% | 74.9% |
| Poor or fair general health | 19.9% | 19.2% |
| Low physical activity | 46.2% | 54.9% |
| Smoking 18-64 years | 33.4% | 30.1% |
| Exposure to second-hand smoke | 52.0% | 40.4% |
| % daily fruit intake | 36.3% | 35.7% |
| % daily vegetable intake | 40.0% | 37.6% |
| Intake of 5 daily fruit and vegetable portions | ----- | 4.8% |
| Always salt | 23.1% | 25.3% |
| Overweight (body mass index -BMI >25 and <30) | 34.4% | 35.4% |
| Obesity (BMI ≥30) | 14.6% | 18.0% |

| Main indicators (2) | 2005 | 2009 |
|---|---|---|
| Blood pressure control in the last 2 years | 78.7% | 81.4% |
| Prevalence of high blood pressure | 34.5% | 34.8% |
| Cholesterol level control (occasionally) | 72.9% | 76.6% |
| High cholesterol levels (among those measured) | 27.9% | 29.1% |
| Glycemia control | 69.3% | 75.7% |
| Diabetes (overall population) | 8.4% | 9.6% |
| Anxiety depression (moderate to severe) | 21.8% | 19.2% |

Based on the results of the NSRFs, the Ministry of Health designed and approved the National Program of Prevention of Cardiovascular Diseases by Resolution 801/2011. The expenses resulting from the performance of this program will be financed by the Ministry of Health, special money items assigned by law, and occasionally by other international or national agencies. The National Program on Prevention of

CDs of the Ministry of Health of the Argentine Republic offers an integral approach of this issue, involving all the main aspects that determine the heavy load of cardiovascular morbi-mortality in Argentina.

The main strategic guidelines of the program are:

1. Promotion and regulation of healthy processed foods;
2. Promotion of a healthy diet and an active life;
3. Surveillance of RFs and CD;
4. Epidemiology and surveillance of health systems, health care quality, and strengthening of health care networks;
5. Mass communication and intersectoral articulation. Development of communication strategies and material for different audiences;
6. Health professional training in medical residencies and other pre- and post-grade training instances.

The program comprises a set of components operating on these main determinants, such as:

1. Promotion of a healthy diet. Promotion and regulation of processed healthy foods;
2. Promotion of physical activity and an active life;
3. Promotion of smoking control;
4. Prevention and control of RF in the health system;
5. Surveillance and control of RF in CDs;
6. Health care: epidemiology/surveillance of health care, health care attention and strengthening of health care networks;
7. Community actions and of mass communication;
8. Training for health professionals and pocket guidelines for prevention of CDs;
9. Prioritization of research areas.

Dr. Elizari concluded that, in order to guarantee sustainability it will be necessary to coordinate strategies with the areas devoted to nutrition and food in the Ministry of Health, such as maternity and infant care regimen, food control (National Food Institute) and the National Food and Nutrition Commission. At the same time, it will be indispensable to coordinate an effective institutional articulation with other state actors in this area: the National Institute of Industrial Technology, the Ministry of Agriculture, Livestock, Fisheries and Food, the Ministry of Economy, the Ministry of Social Welfare, and the Sports Secretariat. It is important to carry out actions that truly guide the health care system toward a more comprehensive integrated approach among these entities.

Regarding local interventions, it is necessary to articulate with the provinces in the framework of the Federal Council of Health, and with the different municipalities through the Argentine Network of Municipalities and Communities. Agreements with the food industry are under discussion to refine processed foods by reducing sodium, in addition to all the above mentioned measures. It is worth highlighting that all bars, restaurants, discos, and public institutions are already smoke-free in Argentina. It is also necessary to work hard in health promotion and concentrate on the development of healthy environments.

The evidence presented for changes that have already occurred in Argentina in health behavior, RFs and CD positively indicates that a continued decrease in cardiovascular risk can be achieved. However, some

pessimism can be engendered by the awareness of barriers intrinsic to social norms, commercial, and political pressures. Political action to education aimed at the entire public, with emphasis on precursors to RFs is the most important step for the prevention and control of CD.

*Video - Part 1*

*Video - Part 2*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

## Prevention and Control of Cardiovascular Disease in Bolivia



Luis A. Mercado Maldonado (Bolivia)

Dr. Maldonado initiated his presentation indicating the frequency of Non-Communicable Diseases (NCD) at a National Level in Bolivia in 2011. He highlighted the high incidence of Chagas Disease positive serology having 10-50% rate among the population, and Chronic Chagasic Cardiomyopathy - with a 21 % rate.

Dr. Maldonado briefly explained Chagas Disease in Bolivia, indicating that the transmission of the parasite *Trypanosoma cruzi* is done by means of the triatomine insect, in its many species, such as the *Triatoma infestans* and the *Rodnius prolixus*, which serve as vectors. The infected human population varies from 10-50%, depending upon their region. It is estimated that approximately 20-30 % of the Bolivian population will develop the disease in the next 10-20 years.

He then concluded that in order to overcome Chagas rheumatic fever, Bolivia needs to continue with educational campaigns and improve living conditions. It is also of extreme importance to eradicate the *Triatoma infestans vector*, by administering benznidazole during the acute phase, and on children below the age of 15. The government also needs to establish primary prevention campaigns on rheumatic fever, with a massive outreach to urban, suburban, and rural areas.

Dr. Maldonado specified the types of Cardiovascular Disease in Bolivia, as Rheumatic Heart Disease, Chagas Disease and Atherosclerosis, which are the Coronary Heart Diseases (CHD), Chest pain (angina pectoris), Acute Myocardial Infarction (AMI), Congestive Heart Failure (CHF) and Transient Ischemic Attack (TIA) – Stroke.

He emphasized the importance of cardiovascular risk tables, explaining that the Risk Tables are simplified methods of calculations based on mathematical equations from different population cohorts followed over a period of time (usually 10 years). The majority of tables derives from the Framingham Equation (American cohort), however today there are some European cohorts such as SCORE, REGICOR, REYNOLDS, QRISK1, and QRISK2

Most tables include traditional cardiovascular factors, but lack other risk factors. Their predictive value is not the same according to the geographic regions.

Some of the main reasons why Dr. Maldonado recommends a Global Assessment of CV risks are to identify the individual CV risk factors and estimate the global risk of this person having a CV episode. The Global Assessment of CV risk is also important for providing calculations to prepare adequate therapeutic plans for individuals, and to establish health policies.

The use of CV risk tables assists in deciding which drugs to use for the main CV factors, *i.e.* hypertension and hypercholesterolemia, especially when in moderate phases. They are also adequate for displaying to patients, to motivate them to what would happen to them would they change the risk factors.

Dr. Maldonado also indicated that the risks of cardiovascular disease can be greater than that indicated on the table, specifically for people undergoing hypertension treatment, for women with premature menopause, for people who are nearing the next category of age or physical activity score (PAS), and for those classified as obese (particularly central obesity). Additional risks will also be indicated for those leading a sedentary life, for those who have a first degree family history of coronarian disease (men < 55 years old, women < 65 years old), those with triglycerides (>180 mg/dL), HDL Cholesterol (men: < 40 mg/dL, women: < 50 mg/dL), C-Reactive Protein, fibrinogen, homocysteine, apolipoprotein B or Lp (a), fasting hyperglycemia and glucose intolerance, and microalbuminuria and increased heart rate.

To prevent coronary and cerebrovascular episodes, Dr. Maldonado specified some of the focus areas that are necessary, as follows: to abandon tobacco or never starting it, to eat a healthy diet (Fat < 30% Calories, 5 g salt, 400 g/day of fruits and vegetables), do physical activities for at least 30 minutes five days a week, reduce body mass index (BMI), waist/hip measurement and waist circumference; reduce blood pressure (BP): angiotensin converting enzyme inhibitor (ACE-inhibitor), angiotensin II receptor blocker (ARB), diltiazem, and amlodipine besylate; decrease the levels of Total Cholesterol, LDL, Triglycerides: Atorvastatin – Rosuvastatin – Fibrates; Glycemic control: Diet, Exercise, Metformin and use of antiplatelet agents when necessary: aspirin or clopidogrel.

Dr. Maldonado indicated five increasing problems in Bolivia, classified within a Metabolic Syndrome. These include visceral obesity, with central obesity in men being above 40 inches (102 centimeters) of waist circumference, and in women above 35 inches (88 centimeters) of waist circumference; high triglycerides greater or equal to 150 mg/dL; Low HDL Cholesterol in men of less than 40mg/dL and in women of less than 50 mg/dL; Hypertension, with blood pressure greater or equal to 130/85 mm Hg; insulin resistance of fasting glucose being greater than 110 mg/dL.

In conclusion, Dr. Maldonado said that it is crucial to adapt a risk table to their current situation and prevalence. Bolivia also needs to create programs for educating its population to establish primary and secondary preventive measures, aside from programs to decrease the impact of obesity, metabolic syndrome and sedentarism. In addition, the country should invest on national campaigns to eliminate the consumption of tobacco.

Equally crucial is the need for monitoring and managing hypertension, diabetes and dyslipidemia. He strongly recommends the implementation of a low cost polypill: Lisinopril, Acetyl Salicylic Acid (ASA), Diltiazem, Atorvastatine - Amlodipine, Atenolol, Angiotensin II Receptor Blocker.



*Video - Part 1*



*Video - Part 2*

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# Prevention and Control of Cardiovascular Diseases in Brazil



Adib Jatene (Brazil)

Dr. Jatene started his presentation indicating three myths about cardiovascular diseases as a public health problem. First, that cardiovascular disease is a health problem of the developed countries; second, that cardiovascular disease is exclusive to rich people; and third that infectious diseases entail a greater burden than cardiovascular diseases.

Proving that this information is a myth, Dr. Jatene cited the World Health Report of 2002, where the total amount of deaths caused by cardiovascular diseases was 17.4 million – in other words, 30% of the total amount of deaths. In countries under development this represented 13.9 million – 80%, as opposed to the amount registered for developed countries which was of 3.5 million – 20%. For the third myth, which referred to infectious diseases accounting for more deaths than cardiovascular diseases, Dr Jatene pointed to the World Health Report of 2002, by the World Health Organization, which shows that the percentages of death related to atherothrombosis surpass those indicated for infectious diseases. The projections in death rates for areas under development indicate a considerable increase of non-communicable diseases in the years to come.

In the same way that risk factors have an adding effect where, for example, blood pressure added to advanced age would present a greater risk than high blood pressure alone, or blood pressure added to advanced age summed to the fact of the individual being a smoker, would further increase his risk factors; changes in life styles can also decrease risk factors. A few interventions which would greatly decrease the risk factors of cardiovascular diseases are: physical activities, healthy diet with fruits and vegetables, rich in fibers and omega 3, or Indo-Mediterranean diet, elimination of tobacco, and decrease of alcohol.

In Brazil, the World Health Organization surveyed 996 cases of cardiovascular diseases and the interventions implemented, and presented the following conclusions: 18% of all patients were recommended physical activities and cardio protective diets, 70% were prescribed ASA, 55% were prescribed beta blockers, 60% ACE inhibitors, and 30% statins. The costs of treatment also vary considerably, as per data supplied by Incor in 2008. The percentage of treatment of Atherosclerosis in proportion to the minimum wage using statins was 26%, ASA 0.4%, beta blockers 20.3%, and ACE inhibitors 37%.

According to the Brazilian Cardiovascular Registry, the current life style of Brazilians who present cardiovascular diseases indicates that 20.3% of the patients consume alcoholic beverages, 51.5 % are sedentary, 35.3% do not eat vegetables and greens on a daily basis, and 33.9% do not consume fruits on a daily basis.

Dr. Jatene explained a multifaceted strategy implemented in Brazilian Hospitals which has provided positive results. Upon admission to the hospital, the first step consisted in indicating on the patients form a highlighted label with the reminder: "Chest pain" on it. Step two was an algorithm for the stratification

of the risk of the acute coronary syndrome and recommendations for therapies based on the evidences for each risk category. This checklist would be handed over to the assistant doctor together with the admissions form. Step three was based on the stratification of risk. For each risk, the patient would receive a different colored bracelet, i.e., red, yellow, or green. Step four focused on assigning a nurse from the institution, who was trained to ensure that all the components of the intervention for the improvement of quality were being followed correctly. This professional would verify the implementation of effective procedures, providing the necessary support when required. The next step consisted in supplying the attending physician with a pocket protocol which contained the evidence-based recommendations for the treatment of acute coronary syndrome (ACS). Posters were also placed in Emergency Rooms (ERs) and Hospitals, with information on effective therapies in the treatment of ACS.

The main idea behind a clinical care program, was to offer specialized multidisciplinary assistance, based on the guidelines of clinical practices, with continuous care, educating not only the patients, but also their families and/or care takers, ensuring quality, safe (by reducing episodes), and efficient treatment, in search for a better quality of life.

Another interesting data presented by Dr. Jatene, was a comparison between Sardos, Okinawans and Adventists who all present specific characteristics that lead to longevity. Sardos drink wine moderately, share their work with their partners and eat pecorino cheese (and other food rich in omega 3); Okinawans have friends for life, eat small portions of food, and find meaning for life; Adventists eat nuts and beans, rest on Saturdays and have faith; and all of them in common do not smoke, prioritize family, practice physical activities, have a social life, eat fruits, vegetables and whole grains.

In summary, Dr. Jatene stated that we have become efficient in becoming ill.

*Video - Part 1*

*Video - Part 2*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

## Short Term Effects of Coconut Water and Cocoa on Blood Pressure



Trevor Anderson Alleyne (Trinidad and Tobago)

Dr. Alleyne initiated his presentation indicating that hypertension (high blood pressure) is affecting 55% of the population over the age of 40 in the Caribbean. He also stated that high blood pressure (BP) is endemic in black populations worldwide. In addition, blacks, in comparison to Caucasian blacks, are twice as likely to being affected by blood pressure, have an earlier age of onset of the problem, present more severe forms that are harder to control, and respond poorly to some treatments, such as ACE

inhibitors and Beta Blockers. Poorly controlled hypertension leads to kidney diseases, heart diseases, stroke and death.

Dr. Alleyne, based on the fact that prescription medication was many times beyond the patients capabilities, and the fact that many disliked lifelong need for medication and, therefore, reverted to traditional folklore treatments, decided to invest on a study to determine which (if any) folklore (traditional) treatment decreased blood pressure.

He studied the effects of coconut water and mauby[1] on patients considered border-line hypertensive within three categories: those not taking anti-hypertensive drugs, those taking hypertensive drugs but not well controlled, and those under control (normal, non-hypertensive patients). He administered 300 mL of either coconut water, mauby, a mixture of coconut water and mauby, and of drinking water with brown dye. He then measured the blood pressure with the following criteria for each patient: blood pressure was always measured by the same person; it was measured 2 weeks before and 2 weeks during the treatment/drinks, a minimum of 5 readings were measured in each 2 week period, the measurements were obtained on the same days of the week and approximately at the same time, and all patients rested for 15 minutes before each reading.

Dr Alleyne was able to conclude that both coconut water and mauby were effective in lowering blood pressure (40-70% of patients). He also concluded that blood pressure decreases were increased when the two beverages were administered as a mixture. There was, however, an indication that the effective dose was related to the weight of the patient.

In order to determine the mechanism of action, Dr. Alleyne continued his study. He discovered that when the volume of coconut water was doubled (600 mL per day), patients complained of a large increase in the amount of urine passed. The placebo (600 mL) did not have this effect.

Therefore, perhaps coconut water could be/contain a diuretic. Preliminary studies detected increase of serum potassium in the group taking coconut water. Therefore, perhaps coconut water could be/contain a potassium sparing diuretic. More Preliminary Studies found that the BP of normal patients returned to baseline levels 30-60 minutes after exercise, however, not for hypertensive individuals. If coconut water was consumed before exercise, then the BP of hypertensive individuals also returned to baseline.

He also explained his study on short term effects of cocoa consumption on blood pressure. Regular and long term (2 weeks or more) use of cocoa/cocoa based products lowers BP. This is attributed to the flavonoid content; however, the flavonoid content varies with processing. His study had two main objectives: first, to compare the flavonoid content of seven popular brands of cocoa/cocoa based products; second, to determine whether or not one drink of such products has any short term effects on the blood pressure of hypertensive patients.

It was found that all seven brands tested contained flavonoids. This suggests that all brands have potential health benefits. Four brands had approximately 2-4 times the flavonoid content of the others tested. Dr. Alleyne recommends that some companies may wish to review their production methods. The study of cocoa´s short term effect on BP was performed using a cross over study of brand A or placebo to determine if/how soon after the consumption of cocoa, blood pressure is lowered, and by how much and for how long. Twenty nine patients were selected, 15 female and 14 male, aged 35-60 years. Of all the patients, 15 were classified as hypertensive, and 14 were classified as normal. Patients who were smokers, had end-stage disease, alcohol abuse, *diabetes mellitus*, HIV-positive or any cardiovascular disease, were not considered for the test.

[1] *Revision Note (RN): A type of tea or syrup made on many Caribbean islands.*

During the test, each patient was fitted with a Welch Allyn automatic blood pressure monitor for 12-hour periods for two or three days. Measurements were taken every 30 minutes for 12 hours from 8 am. Cocoa or placebo was taken 3 h after 1st reading.

Dr. Alleyne concluded that a single cocoa drink lowered the blood pressure in hypertensive who normally took medication and in those who did not take medication. However, a single drink did not appear to lower the blood pressure in non hypertensive subjects. Therefore cocoa has both a short term (an immediate) effect and (from previous studies) a cumulative long term effect on BP. Most probably two different mechanisms are involved.

*Video - Part 1*

*Video - Part 2*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

## Secondary Prevention of Coronary Artery Disease



Benjamin Stockins (Chile)

Dr. Stockins presented on the epidemiology of coronary artery disease, explaining that its prevalence in the world today reaches 100 million people. It is currently the first cause of death in the world, and occurrences are increasing in low income countries. The main causes include hypertension, high cholesterol and tobacco, contributing to ¾ of all cases. Dr. Stockins highlighted that 50% of patients do not receive effective medication and that in Chile, coronary artery disease accounts for 37% of all deaths, while in Temuco for 26.1% of all mortality.

Upon studying the National Health Survey of 2010 in comparison to the survey held in 2003 one can perceive that the only two main factors which lead to coronary diseases, which actually decreased over the years, were hypertension and the amount of smokers. All other main indicators either remained the same or increased slightly. Repeatedly, one can indicate that sedentarism and overweight problems are the two main areas which require additional focus. With regards to obesity, Coronary Artery Disease (CAD) is more associated with abdominal girth; general measurements indicate risks for measurements above 102 centimeters for men and 88 centimeters for women, while in Chile this measurement decreases to 87 centimeters for men and 83 centimeters for women.

The World Health Organization has a preventive strategy focused on three main prevention actions: the first being prevention for the whole population; the second would focus more specifically on high risk individuals, and the third refers to secondary prevention, which aims at being complementary to the

first. Most interventions are performed on individuals who belong to the group of high risk and/or are undergoing secondary prevention.

The AUGE (GES) Plan for secondary prevention has the objective of guaranteeing proper treatment to people with prevalent diseases which have an effective treatment. In the case of myocardial infarction, for example, the aim would be to provide at least thrombolysis at any hospital of the country during the acute episode. This plan also aims at providing effective drugs for secondary prevention at any primary, secondary or tertiary care facility in the country.

Dr. Stockins mentioned that the resources at Primary Care Facilities in Chile consist of a general or family doctor, a nurse or nurses, a nutritionist, electrocardiography, basic lab, and effective drugs. He also explained that controls at tertiary centers are difficult and that people remain most of the time under treatment at centers like these.

A survey conducted in Temuco, Chile, in 2011, with 245 patients who had previous ACS or medical or surgical revascularization, showed that one year after the event, all patients were under control at the PCC in Temuco.

The objectives of secondary prevention of CAD would be to increase life expectancy, reduce morbidity, and improve the quality of life. In order to attain these objectives, it is crucial to aim at team work between primary, secondary, and tertiary care centers; also equally important is to start prevention before discharge and recognize nurses as being key actors for the success of the preventive measures.

Dr. Stockins concluded stating that it is very difficult to control the risk factors of coronary artery disease, even for those who are at a higher risk or those who are well informed about the risk factors. Dr. Stockins highlighted that, unfortunately, most interventions today focus on the use of medication as opposed to changes in life style and, therefore, he believes that the future relies on intelligent interventions at a younger age in life.



*Video - Part 1*



*Video - Part 2*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

# SESSION 2

## Demography and Diseases: The Epidemiological Transition



Alvaro Moncayo (Colombia)

Dr. Moncayo explained why there are different disease patterns in different population. Based on the demographic transition, human populations are dynamic, and changes in mortality and nativity are reflected in the sizes. A reduction in the mortality rate together with a reduction in the nativity rate will result in a low growth increase of the population.

Upon analyzing the relation between the demographic transition and the epidemiological transition, Dr. Moncayo concluded that it is not easy to determine whether the epidemiological transition is a consequence of the demographic transition, in other words if it occurs after the demographic transition. He believes that most probably they occur simultaneously and mutually influence each other. What is actually clear, however, is that sanitary and nutrition conditions improve the defense system of human organisms, and contribute to increasing life expectancy of both children and adults – and in the long run increase the proportion of people reaching or surpassing the age of sixty.

An additional factor indicated by Dr. Moncayo with regards to the relation between demographic transition and epidemiological transition is the fact that urbanization improves women´s access to employment, which contributes to decreasing fertility. The increase of older population group logically increases the frequency of chronic diseases, many of them of degenerative nature.

Many things contribute to an epidemiological transition, among them Dr. Moncayo indicated: demographic changes, change in the risk factors, new infectious agents (AIDS), changes in antigenicity (*Influenza*), resistance in microorganisms (tuberculosis), changes in life styles such as physical inactivity and the impact of scientific research with regards to early diagnosis.

Dr. Moncayo presented data regarding the population growth in the world, indicating that in 1804, the world population was at 1 billion, and it took 123 years to reach 2 billion (1927) – however, only 33 years later (1960), it had already reached 3 billions, and 14 years later (1974), 4 billion. The current average of a growth today, is of 1 billion every 12 years. In comparison, he indicated that in 1960, the fertility rate (x1000) was 4.8, and in 2011, this rate decreased to 2.1.

Dr. Moncayo also explained the age structure of populations. He explained that a population pyramid is a graph that reflects the age and gender structure at a given moment. The population structure is the result of the relation between nativity and mortality. In developed countries, mortality rates are low, and life expectancy is high, whereas in countries under developments, mortality is high and life expectancy is lower.

Dr. Moncayo also supplied data on the per capita income compared to life expectancy. In High income countries, such as the USA, with a population of 977 million people, the gross national income per capita (in international dollars) is of $31.253 and the life expectancy is of 79.4 years. Low and middle income countries, such as those from the African region have a population of 738 million people, with a gross national income per capita of $1782 and life expectancy of 49.2 years. In the Americas, also classified within the low and middle income countries, with a population of 545 million, the gross national income per capita is $8438, with life expectancy of 71.7 years. Countries in the Eastern Mediterranean region (low and middle income countries) with a population of 489 million and a gross national income per capita of $3738 have life expectancy of 61.7 years. Countries in the European region (low and middle income countries), with a population of 476 million, have a gross national income per capita of $8434 and life expectancy of 67.6 years. Also in the low and middle income countries, the South-east Asia region with a population of 1672 million, has a gross national income per capita of $2313 and life expectancy of 62.5; and countries of the Western pacific region, also classified and low and middle income countries, have a population of 1,534 million, with a gross national income per capita of $5,760 and a life expectancy of 71.4 years.

Dr. Moncayo narrows the information to reflect the per capita income and life expectancy in Latin American countries in 2010:

| Country | Per capita income (US) (2009) | Life Expectancy (years) (2010) |
|---|---|---|
| Chile | 9,510 | 79.0 |
| Mexico | 10,000 | 77.0 |
| Uruguay | 8,020 | 76.1 |
| Argentina | 7,515 | 76.0 |
| Ecuador | 3,730 | 75.7 |
| Venezuela | 9,170 | 74.5 |
| Peru | 3,990 | 74.1 |
| Colombia | 4,610 | 73.8 |
| Bolivia | 1,450 | 66.8 |

Upon analyzing the morbidity patterns compared to the economic development of the countries, Dr. Moncayo stated that the most common causes of death in developed countries are cardiovascular diseases, cancer and diabetes, while in countries under development, the most frequent causes of death are infectious and parasitic diseases.

The main causes of death in developed countries are ischemic heart disease, responsible for 22.9% of all deaths; cerebrovascular disease 13.3%, lung cancer 4.5%, respiratory infections 3.4%, chronic pulmonary obstructive disease (COPD) 3.1%, colon cancer 2.6% and *diabetes mellitus* 1.1%. With regards to the causes of death in Countries Under development, the percentages are as follows: Ischemic heart disease 9.5%, cerebrovascular disease 8.5%, Respiratory Infections 7.9%, HIV/AIDS 6.3%, prenatal conditions 5.5%, pulmonary obstructive disease 5.3% and Diarrheal diseases 4.1%.

*Video*

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# Secondary Prevention of Coronary Artery Disease



José Emilio Fernández Britto Rodríguez (Cuba)

Dr. Rodríguez initiated his presentation indicating some features related to the Cuban Health System. He specified the evolution of measures taken by the Cuban Ministry of Public Health for the prevention and control of Non-Communicable Diseases (NCD).

From 1981-83, the Cuban government launched a campaign for the surveillance of Risk Factors (RF) of NCD. Then in 1992, health authorities established the objectives, purposes and guidelines of the Cuban health, prioritizing NCD, their RF and surveillance. During the years of 1995 and 1996, the country performed the first National and Provincial Survey of Risk Factors, and in 1996, MINSAP (Ministerio de Salud Pública) implemented and organized a Program for Prevention and Control of NCD.

By the year 2000, the Governmental Order 3,790 on Health and Quality of Life in Cuba was approved. In 2001, the country completed the second National Survey on Risk Factors and NCD, which greatly contributed towards the improvement of national strategies. In 2006, the government finalized the Design of Projections for Cuban Public Health for 2015, with goals and fundamental objectives based on the National Surveys of RF. The third National Survey of Risk Factors was completed in 2010, which then enabled the setting up of the National Surveillance System for NCD in 2011.

The health situation in Cuba according to 2011 indicators reveals that Universal coverage through family doctor-and-nurse program benefits all citizens. The current Cuban population is of 11,230,000 inhabitants, administratively divided into 15 provinces and one special municipality. Seventy five percent of the population is currently living in urban areas.

The percentage of the population aged 60 or more is of 17.6%. Life expectancy at birth is 77.97 years. The survival of females is of 4.02 years, and the level of human reproduction is low. Births decreased by 1990 as compared to 2009. Birth rates are 11 births per 1,000 inhabitants. General fertility rate is of 43.4 births per 1,000 women within the reproductive age. The average offspring per woman is of 1.70. Women percentage in the health workforce is of 69.5% with 76,506 doctors (1 per every 147 inhabitants), and 12,144 dentists (one per every 925 inhabitants).

In 2010, general mortality presented a gross rate of 8.1/1,000 inhabitants, with the first five causes of death being: Heart-related diseases, malignant tumors, cerebrovascular diseases, *influenza* and pneumonia, and accidents, representing 72% of all deaths. The total heart related deaths is of 80%, composed by ischemic disease being above 5% and hypertensive disease being above 14%.

The largest increases in mortality rates are: 1$^{st}$ heart related diseases and 2$^{nd}$ malignant tumors, but the largest increases in rates of potential years of life lost are 1$^{st}$ malignant tumors and 2$^{nd}$ heart related diseases.

Following the statistical results of the three surveys of Risk Factors on Cardiovascular (atherosclerosis) Diseases, together with the result of a whole population research in a Cuban Island of Youth (one

municipality) CVD and C. Kidney D., and some results of researches from CIRAH, Dr. Rodríguez highlighted the importance of studying CVD (atherosclerosis), its risk factors, and consequent diseases.

Dr. Rodríguez explained that the classic approach to this health care problem has basically been "reactive", and not preventive. The relative success in Cuba and the world has been due to secondary prevention based on the control of risk factors. Nevertheless, actions have been focused on risks inherent to the subject (behavior-habits-lifestyles), and not structural factors which generate risks (causes of causes).

There are two contemporary approaches to social epidemiology: the social determinants and the course of a lifetime. A research and action model of an "epidemiological observation and intelligence" device which allows us to learn about the temporal tendencies of these diseases, their risk factor and markers, create the basis on which to develop programs and interventions to reduce the burden of conditions consequent of atherosclerosis and its aggregation factors, which are geographical, socio-economic, socio-demographic, and socio-cultural.

Lalonde´s proposal was based on the analysis of the main causes of mortality and morbidity and their main proximal determinants identified in longitudinal mega-studies such as Framingham's Cohort. Factors are considered as self-imposed as if the subjects chose their lifestyles with total autonomy and independence from the coercion of external circumstances, but the sources of risk, deeply embedded in society and on determinants of risk behaviors, remained intact.

With regards to the clinical approach vs. the epidemiological or health approach, Geoffrey Rose noted that this approach disregarded the conditions which determine the incidence and the shape of the population distribution of risks, suggesting the "population approach". He observed that the causes for individual cases are not the same as the causes of incidence and that the majority of cases in a population are recruited from subjects with average risk levels. The idea of "vulnerable populations approach" comes up and the beginning of understanding of contextual risk generating factors. Alternatively, we could use the term "risk of being at risk".

Identifying these factors, their aggregation patterns and temporary tendencies, generating new insight and serving as a basis for the design of effective interventions, define the central problem that this project tackles.

Dr. Rodríguez concluded that what is needed is a surveillance system of risk factors and markers of atherosclerosis including not only biological factors (individual level), but also background factors (family, communities, workplace, schools), and latent dimensions of social stratification. An instrument of "epidemiologic intelligence" intended to provide the basis for the design and implementation of plans and programs.

This would enable one to reach full coverage of the burden of diseases related to atherosclerosis in terms of prevalence and incidence. It would also supply time trends, geographical patterns, familiar and sociodemographic aggregation patterns of atherosclerosis related diseases, and risk factors or risk markers. It would provide objective and practical bases for decision making. In summary, it would bring us closer to the ultimate goal of designing effective and efficient interventions to reduce mortality and morbidity due to atherosclerosis-related diseases.

*Video - Part 1*

*Video - Part 2*

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## *Cardiovascular disease in Guatemala: Epidemiology, control, and prevention*



Joaquin Barnoya (Guatemala)

Dr. Barnoya identified a pressing need for strengthening evidence-based informed decision making (EIDM) by encouraging the support and training of researchers to provide research and syntheses, and to disseminate their results. In addition, decision makers need to be trained and supported to use and demand the appropriate researches and synthesis. This link among decision makers and researchers needs to be increased.

Epidemiologic publication rates per million inhabitants by country – in other words, the number of articles published by country per million inhabitants, indicate that scientific production in Guatemala went from a publication rate of 0.90 per million inhabitants in 1990, to 2.35 in 2010. During the same timeframe, Argentina presented an increase from 1.20 to 4.14 number of articles per million inhabitants, whereas Brazil ranged from 1.20 to 6.33; Chile from 8.19 to 7.78; Cuba from 4.44 to 5.09; and Costa Rica from 5.20 to 6.99.

The Strategic Plan for Non-Communicable Diseases (NCD) Control drafted for 2010-2015, consists of a National Program for NCD Control, with the general objective of hindering the increase of NCDs, and reducing by 5% NCD morbidity and mortality. The specific objectives include the creation of an epidemiologic profile, strengthening of the local healthcare system capacity, intervention on the determinant risk factors to promote a healthy lifestyle, supporting NCD research, and the development of NCD treatment and prevention guidelines. However, their first main problem they need to address is that there is no budget or funding provided for the plan.

Dr. Barnoya shared some of the cardiovascular disease (CVD) prevention strategies which have occurred, such as the Framework Convention on Tobacco Control, which was signed and ratified. However, he highlighted that Guatemala does not have a national smoking prevalence survey, in other words, no longitudinal data. Additionally, the progress in implementing tobacco control is very slow, and Guatemala is the only country with no taxes on tobacco.

Dr. Barnoya also shared that according to the Chronic Disease Control Research Fellowship Program – UNICAR, tobacco is the number one risk factor in the country. It is necessary to establish, through mentorship, a new generation of young researchers. Mentorship would lead to capacity building, and a mentorship culture would lead to multiplier effects reaching individuals, organizations, institutions, and networks. Currently, research in this area is only funded by international development research centers.

| Perceived barriers |
| --- |
| 46.4 % Lack of time |
| 31.3 % Inadequate resources for the patients |
| 23.5 % Lack of patient's interest |
| 13.8 % Low self-confidence |
| 11.3 % Mistrust on services' effectiveness |
| 10.1 % Forgetfulness |

As per the Regents of the University of California, the average cost of a pack of cigarettes containing 20 cigarettes is US$1.70. In comparison, some of the smoking cessation medications available, such as the nicotine patch (with 7 patches) costs US$2.36 per day; nicotine gum (with 30 gums) costs US$4.33 per day; varenicline (1mg x 28) costs US$4.95 per day and bupropion costs US$3.93 per day. It is also worth mentioning that the minimum wage in Guatemala is US$ 7 a day.

In conclusion, Dr. Barnoya considers the NCD in Guatemala as being a "double burden". He believes there to be a lack of political will to address the epidemic due to undocumented epidemiologic data, and do to the lack of funding, leading them to rely on international funds. He strongly encourages an increase in research capacity, considering it crucial to address the NCD epidemic. In summary, research should be turned into policies.

*Video - Part 1*

*Video - Part 2*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

## Hypertension in Mexico



Juan Verdejo (Mexico)

Dr. Verdejo provided a bit of background regarding the main mortality causes in Mexico. Out of the 10 main causes, seven are related to food intake or daily lifestyle. The three causes not related to food or lifestyle are use of tobacco, being the 5$^{th}$ cause of mortality, urban air pollution, being the ninth cause of mortality, and unsafe sex occupying the tenth position. First on the list of death causes is high blood glucose, responsible for 14% of all deaths. High BMI is the second cause of death, responsible for 12%,

followed by high blood pressure with10%, Alcohol use with 8%, low intake of fruit and vegetables 5%, physical inactivity also about 5%, and high cholesterol 4%.

Dr. Verdejo explained that the blood pressure increases continuously with age (Framingham: People with normal BP age 55 carry a 90% risk of becoming hypertensive). A number of studies have demonstrated that CVD mortality increases progressively as the levels of blood pressure raises.

Lifestyle modifications, such as weight reduction, exercise, DASH diet or similar, salt intake reduction, alcohol intake reduction, and quit smoking, can reduce the risk of developing hypertension.

Obesity in Mexico is an increasing problem. Overweight status and obesity contribute to the prevalence of hypertension in the adult Mexican population. Currently, hypertension affects 43.5% of the obese population, 31.7% of the overweight population, and affects 19.6% of people with normal weight.

Some basic lifestyle modifications include non pharmacological treatments, such as weight control, exercise, quitting smoking, and having a balanced food intake. The most recommended diet is referred to as DASH (Dietary Approach to Stop Hypertension). The DASH diet is rich in fruits, vegetables and low fat dairy products, with reduced saturated and total fat. It focuses on the reduction of sodium, aiming at no more than 2.4 grams per day. Physical activity refers to a regular aerobic activity for at least 30 minutes per day most days of the week. Moderation of alcohol consumption is also strongly recommended, to no more than 2 drinks per day for most men and no more than one drink per day for women.

All these recommendations have a direct influence on the reduction of systolic blood pressure. A population based strategy for the reduction of systolic blood pressure by 2 mmHg, could result in a percentage of reduction in mortality of - 6% for strokes, - 4% for coronary heart disease; for greater reductions of systolic blood pressure, of 3 mmHg, for example, the reduction in mortality for strokes would be - 8% and for coronary heart disease - 5%.

Trials of non pharmacologic interventions showed that by reducing sodium, there was a 31% decrease of the incidence of hypertension on cardiovascular events; for weight reduction, there was also a 30% reduction of incidence. For patients who combined both trials, the reduction of cardiovascular events and hypertension incidence was 53%.

Dr. Verdejo cited some of the measures taken by the Mexican government in the last three years to decrease the risk factors within their country. Among them, he emphasized the agreements signed with industries of processed foods, to eliminate trans fatty acid, reduce sodium in production, and reduce high-energy carbohydrates. Agreements were also signed with snack industries to reduce salt in final products, and to modify advertising to promote healthy diets.

In addition, other measures such as the prohibition of tobacco in closed public areas, and the prohibition of advertising of tobacco, also contributed towards targeting coronary heart diseases. The government is currently strengthening relationships with education authorities in order to increase the amount of exercise practiced in public elementary schools, who currently only do 30 minutes of exercise per week. Their attempt is to triple this amount. This proposal has already been sent to the Congress. An agreement was also made with the restaurant industries in Mexico City, that currently no longer place saltshakers on the table. This measure alone has decreased the consumption of salt by 25% within the industry and consequently decreased blood pressure of the Mexican population.

Dr. Verdejo finalized his presentation with a few recommendations. Among them, he cited that one should lower the consumption of animal fat; increase the use and consumption of monounsaturated polyunsaturated fat (fish, nuts, olive oil, etc.), lower the consumption of high energetic density food, exercise at least 30 minutes every 4-5 days a week, avoid eating over 5 grams per day of salt, avoid soft

drinks with additional sugar, eat at least three portions of vegetables and two portions of fruit daily, and consume antioxidants.

He then concluded that about 4 out of every 10 Mexican adults suffer from high blood pressure in Mexico. He also explained that hypertension affects both rich and poor; there are no social differences. Currently, hypertension prevalence is up to 50% in some states, and is 30% in all other states, and that this percentage is still rising. The increment in 6 years has been 36% in women and 13.8% in men.

Dr. Verdejo added that the control of hypertension is difficult and requires multidisciplinary actions that involve the entire society, along with government actions. The industry plays a key role with modifications in salt, sugar, and sodium content in products that may have enormous benefits for the population. The adequate control of hypertension clearly reduces CV mortality and morbidity, and lifestyle modifications are a cheap and effective strategy.

The country´s main challenge is to raise awareness about the risk factors and the way they can be controlled in the adult population, since 8 out of 10 Mexican adults have at least one risk factor. Mexico needs continuous medical education for health professionals who work with therapeutic options that have demonstrated real benefits; these options should be encouraged and the population should adhere to them. Mexico also needs to involve all the social elements that can contribute to the development of interventions and increase adherence to treatment options.

*Video - Part 1*

*Video - Part 2*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

# SESSION 3

## *Surveillance system, key element to fight cardiovascular diseases*



Juan Ricardo Granero Delgado (Venezuela)

Dr. Delgado presented a comparison of the death cases in Venezuela, indicating that cardiovascular diseases are still the main cause of death in the country, affecting both men and women. Ischemic Heart disease and Acute Myocardial Infarction are also among the causes of concern.

In order to avoid premature cardiovascular disease, Dr. Delgado listed the well known actions one should focus on in order to decrease the risks, such as avoiding overweight or obesity, keeping fat and salt intake low, eating fruits and vegetables every day, never using tobacco – or quitting as soon as possible, doing exercises as often as possible, checking blood pressure and glucose, controlling high blood pressure, and controlling diabetes.

Upon analyzing the behavioral pattern of physical activity and leisure-time among the students of 7th, 8th, and 9th grades in the State of Lara, in Venezuela, to determine whether students were active at least 60 minutes on five or more days a week, he observed that only about 26% of the 9th grade boys were active, about 20% of the 8th grade boys were active, and only about 9% of 7th grade boys were active. Rates for girls were even lower, all ranging below 10%. In comparison, the prevalence of middle school students that spend 3 or more hours either watching TV or chatting in a normal school day had their lowest averages ranging at 21% for boys in 7th grade, and their highest for boys in 9th grade, with about 37%.

The prevalence of middle school students that are obese or at risk of being obese indicates that 17% of boys in 7th grade are at risk, and 2.3% are obese. In 8th grade, the percentages for boys at risk are 13%, and 5.8% are obese. The calculations for girls do not differ much, showing 11% of females in 7th grade as being at risk, and 1.8% being obese, and in 8th grade, 15% at risk and 2.0% obese.

Dr. Delgado also presented the prevalence of high blood pressure in the adult population in Venezuela, with alarming results indicating that in Lara State, for example, 52.6% of the male population currently suffers from high blood pressure.

Dr. Delgado emphasized that in cities that have cardiovascular control programs, 75% of people suffering from high blood pressure actually knew about their condition, as opposed to patients from cities who did not possess such programs, only 50% of the individuals were aware of their condition. Out of the total of 75% who were aware, it was also seen that 90% of them were currently taking medication – whereas in cities with no awareness programs, out of the 50% who knew about their condition, only 25% were being treated.

One of the solutions presented by Dr. Delgado was a surveillance system. He believes that there is a need for a paradigm shift from disease prevention to health promotion. There is a need for evidence to support public health initiatives. According to Dr. Delgado, surveys indicate relationships between factors, whereas surveillance indicates the actual changes in factors. While surveys report subpopulation based results at a specific point in time, showing what was happening, surveillance is continuous, population based, and results indicate how things are changing.

Health Surveillance would be the tracking and forecasting of any health event or health determinant, through the continuous collection of high-quality data, the integration, analysis and interpretation of those data into surveillance products, and the dissemination of those surveillance products to those who need to know. Surveillance products are produced for a specific public health purpose, or policy objective, like health promotion and disease prevention.

The essentials for a successful Surveillance System on Chronic Non-Communicable Diseases and Risk Factors requires technical basis, political will, and community empowerment. The ideal would be that, as a result of policies, programs and services designed and evaluated using information provided by surveillance, people and communities, would be able to improve their quality of life and life expectancy. Additional factors for the success of a surveillance system include adequate budget, trained personnel, and infrastructure.

Dr. Delgado concludes his presentation indicating the seven themes to be considered and build upon for enhancing global capacity in surveillance, prevention, and control of chronic diseases:

**Strategy:** Action plan, big picture thinking/planning, coherent response, integrative approaches, leadership, long-term funding, making the case, marketing skills, resource mobilization, selling stories to our masters.

**Collaboration:** Engaging providers and users, multidisciplinary expertise, networking, partnership, promoting dialogue between countries, 2 plus 2 equals 5.

**Information:** Accessible information, accurate data, comparability, data standard, local needs, quality information products, relevant data, right-to-know versus right-not-to-know, timely data.

**Education:** Creating user pulls, not provider push, enhancing local capacity, raising awareness, training young researchers and practitioners.

**Novelty:** Innovation, new ideas, new thinking, thinking outside the box.

**Communication:** Clear message, connecting the dots, consistent message, knowledge translation, mechanism to consult silent groups, media relations, packaged information, simple language, timely dissemination.

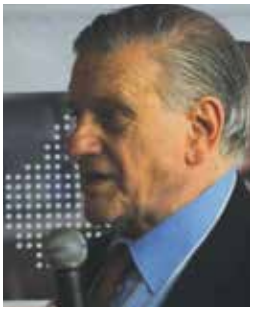
**Evaluation:** Achieving goals and objectives, built-in evaluation system, evidence-based policy, monitoring data utilization, participatory action research, putting knowledge into action.

*Video - Part 1*

*Video - Part 2*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

## Control and Prevention of Cardiovascular Diseases in the United States and Some Collaborative Programs with Countries from the Developing World



Valentin Fuster (USA)

Dr. Fuster initiated his presentation mentioning that whenever the heart is discussed, it is evident that we are also talking about the brain. He indicated the mortality in the world, underlining the predominance of cardiovascular diseases, responsible for 30.5% of all deaths. He adds that this should take into account myocardial infarction and strokes.

Dr. Fuster indicated that the U.S. is trying to contribute to less developed countries, however, he raised the question as to what they are doing to assist United States itself. He denies the information stating that deaths caused by cardiovascular diseases are decreasing. He explained that life has been prolonged by six years in three decades, but if the measurement is calculated beyond those six years, one can note that mortality is actually an epidemic. What is important, however, is to point out that the price that is paid for prolonging life this far is mainly a result of interventions – which are quite expensive.

Upon comparing the expenditure on health care compared to life expectancy, Dr. Fuster indicated that the U.S. spends approximately 16% of GDP and achieves life expectancy of about 78 years of age, whereas other countries in Western Europe, Canada, and Australia spend considerably less (about 6-12%), and have life expectancies ranging from 79 years to 82 years. Basically, he points out a paradox between spending a lot of money on technology without obtaining any success in actually improving life expectancy.

Dr. Fuster mentioned at least seven risk factors currently predominant in the U.S. He stresses that most relate to human beings' behavior, explaining that obesity, blood pressure, dietary surveillance, diabetes, and cholesterol elevation, sedentary life, and smoking are all factors that can be controlled based on individual's behavior. In summary, he states that the focus needs to be placed on behavior and not on the genetic aspect of heart diseases.

With regards to the book "Promoting Cardiovascular Health in the Developing World", on which he collaborated, he features a few aspects related to finance. First, that we are in a society that is in high risk because of behavior or rather misbehavior due to the fact that we are in a world of consumption, and this is hard to change. Secondly, governments have not been particularly interested in chronic diseases because they take too long to occur. The third issue is lack of communication among the different sectors of government; the ministry of health is not communicating with the ministry of agriculture, with education, industries, etc. The fourth issue focuses on the tremendous heterogeneity that exists within the country, or from country to country, or even within a city, with regards to the delivery of health care.

With regards to the first aspect mentioned above, from a genetic point of view, these aspects are beginning to be approached, since today we are talking about behavior and its effects on health. In summary, Dr. Fuster identified that today in the United States, less than 1% of the population is actually within the group considered as perfect behavior, in other words, are actually focusing on addressing the seven aspects that lead to risk factors.

The second concern mentioned by Dr. Fuster, emphasizes that there are no real governmental policies addressing chronic diseases, at least not on a worldwide aspect. Despite the guidelines which are published annually, very little seems to be addressed by policies. It would be highly recommended that Academies around the world actually got together to address this.

Communication, as mentioned by Dr. Fuster, is not only lacking within ministries of a same country, but also among health specialists around the world. Major health organizations are not communicating with each other. In order to have an impact on the world, it is necessary to integrate the strengths of each organization.

It is necessary to establish Centers of Excellence to fight chronic cardiovascular and pulmonary diseases (CVPD) in developing countries. Centers of Excellence would enable capacity building, would train future chronic CVPD investigators, and would conduct research on new or improved approaches, programs, and measures to prevent or treat chronic CVPD.

Dr. Fuster also mentioned that education is a key element in the issue of health. In one of the researches performed in Colombia, with six thousand children, he taught the importance of how the body works, nutrition, and physical exercises. Upon assessing the results within the children aged 3-5, the aspects of attitude, habits, and knowledge were outstanding. It was concluded that children have a higher impact on the behavior of parents than parents do on the behavior of children. He believes it to be crucial to invest in health education at a preschool age level.

Following the program held in Colombia, Dr. Fuster was invited to conduct a similar study in Spain. In addition to the aspects focused upon in the study in Colombia, this research also addressed the aspect of emotions. The reason behind this being that at the age range between 10 and 15, children are exposed

to drugs, and the questions were whether or not it was possible to teach them to control their emotions at this stage. Dr. Fuster was pleased to report on yet another story of success.



*Video - Part 1*



*Video - Part 2*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

Prevention and Control of

# Cancer



**REGIONAL WORKSHOP REPORT**

# SESSION 4



## *Instituto Nacional de Cancer*

Manuel L. Martí (Argentina)

Dr. Martí presented the aims of the National Cancer Institute as being to diminish the incidence and cancer mortality in Argentina, as well as to improve the quality of life of the oncological patients and their families through universal and equal access to health. The institute also intends to establish and implement health policies at a national level, as well as to coordinate integrated actions to prevent and control cancer, and to involve all social and scientific entities in the fight against cancer.

According to Dr. Martí, their goals are to improve the information system and the epidemiological registry, and to improve the quality of patient care. They wish to strengthen the availability of diagnostic and therapeutic media; to improve cancer prevention policy; to promote the importance of early detection; to emphasize a communication strategy in cancer at all levels; to facilitate access to support measures (e.g. palliative care); to ensure the education and availability of specialists in the whole country; and to stimulate cancer research.

Currently in Argentina, cancer is the main cause of mortality for people aged 45 to 64. They have accounted for more than 100,000 new cases every year, with almost 60,000 deaths per year. They have also determined that poverty and lack of education influence mortality rates. Based on population based registry, the incidence of new cases estimated on Argentina for 2008 shows that breast cancer would account for 17.8% of cancer cases, followed by prostate cancer indicating 13.1%.

Studies on mortality rate caused by cancer show that from 1980 to 2009, the numbers of cases have decreased, both for men and women. However, it is important to underline that despite the total decrease, lung cancer mortality rates have increased for women over the last 30 years. Dr. Martí associates this directly to the tobacco industries, explaining that the government has adopted a federal law to address this, forbidding the use of tobacco in closed areas.

Further investments in the area of cancer include 25 fellowships for initiation in cancer research; 22 fellowships for education in cancer care; 4 fellowships for registry formation (IARC); program for nursing education; and program for early diagnosis in pediatric tumors. Cancer is the second main cause of death in children, only losing to deaths caused by accidents.

Regarding cancer control, Dr. Martí mentioned the project for the introduction of HPV test (province of Jujuy), and explained that in Argentina there is a law that demands that all girls aged 12 need to be vaccinated against HPV. Additional programs include situational diagnosis for control of colon-rectal cancer, program for breast cancer control, hereditary and familial cancer control plan and palliative medicine chapter, especially with access to opioids.

Communication efforts have also been made by means of wide distribution of 4 bulletins per year, the development of a web page for the National Cancer Institute, the exhibition of the film on "Women who talk about their Cancer Experience", and short films promoting cervix cancer prevention and detection. In addition, surveillance is strengthening population based registries, training for migration to CanReg5 in population based cancer registries (RITA), and on oncopediatric hospital based registry (ROHA).

Efforts in the area of research in Argentina include 25 fellowships, doctorate and post doctorate studies. Grants for basic and clinical research and international Fellowship 2012 are also available, in addition to travel support for researchers. In the field of human resources, there are long term fellowships, workshops in adult and pediatric cancer nursing, training of navigators and workshops for hospital pharmacy personnel to improve access to opioids.

Dr. Martí explained that regarding patient care management, they have focused on the creation of Regional Reference Centers. They have also elaborated a project for certification of labs doing PAP, and on the quality control of units of breast cancer diagnosis. Surveillance is a key element, and they have implemented education plan for technicians working in cancer registries, and worked on the expansion of hospital registries.

In order to improve early diagnosis, there is now a program for breast cancer control, a program for colon-rectal cancer control, and a program focused on the expansion of HPV test. They have also invested in a program for familial and hereditary cancer control. The National Pediatric Cancer Program is currently improving the network of reference center at a regional and national level. Governmental effort can be seen in communication campaigns to decrease tobacco use, and to promote a healthy life-style.

*Video - Part 1*

*Video - Part 2*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui



## *Prevention and control of cancer in Bolivia*

Eduardo Aranda Torrelio (Bolivia)

Dr. Torrelio seeks changes in attitudes. He believes that governmental policies are not taking on the responsibility needed to address both cancer and cardiovascular diseases. Without trying to criticize the government, he feels co-responsible as a physician, for trying to change attitudes. In order to address this problem, he performed two surveys in which he included the government.

The first aspect related to prevention, stateed Dr. Torrelio, lies in having the adequate knowledge about the etiology and the different types of cancer, which lies in the hands of physicians and medical centers

specialized in oncology. The problem is when doctors cannot identify the factors that lead to cancer, or when they do not address the infectious agents that are known to influence cancer, not forgetting that cancer does not discriminate for age.

Dr. Torrelio emphasizes that if there is a desire to promote campaigns for the prevention of cancer, one cannot, as currently occurs in Bolivia, focus only on specific hospitals. Campaigns need to be made at a global level, and as official governmental programs. Unfortunately, in Bolivia today there are no statistical data on cancer. In rural areas, for example, cancer is only identified if individuals go to urban areas. He also stressed the importance of investing in specializing professionals, in other words, in education at a university level.

Two surveys were recently conducted in Bolivia, with the Oncology centers and with the Preventive Medicine Units, and with information obtained for the Ministry of Health and important hospital data. Results were obtained with regards to several types of cancer such as cervical, breast, prostate, colon and others.

Dr. Torrelio summarized some of the strategies required to address cancer. With regards to cervical cancer, he mentioned that it is the only area where official programs are available for promoting campaigns and researches, aiming at an early diagnosis of the disease. He adds that international cooperation has allowed for the issue to be addressed in vulnerable areas such as the rural areas. International cooperation has also enabled that teenagers be vaccinated against HPV. In addition, currently in Bolivia, the Ministry of Health, through the social security program, has also engaged in programs of early diagnosis of this cancer. The only area lacking specific attention is with regards to updated statistics in order to determine the magnitude of the problem.

Other cancers have very few strategies for prevention. In the private sectors, there are some campaigns, which basically only benefit the institution or the sponsors themselves. Unfortunately, there are no accessible treatments to the population in general. Approximately less than 1% of the Bolivian population currently has access to adequate equipment in the treatment for cancer, or seeks treatment abroad because they have the financial means to do so.

Incidence of conditions such as leukemia and lymphomas also only have partial registry. One of the great problems is the lack of campaigns which are actually understood by the population, aimed at the early diagnosis of the disease. Dr. Torrelio emphasized that preventive actions done by hospitals are scarce, and that there are neither parameters for the assessment of patients, nor any planned strategy for follow-up.

In addition, Bolivia ignores some of the environmental aspects which contribute to the disease. There is very little information or dissemination of information regarding the genetic aspect of the disease. In order to address some of these aspects, an urgent effort should be made in the area of research, in finding support from NGOs, and in relying less on isolated external donations. Dr. Torrelio is grateful to being able to participate in regional workshops, not only to share his knowledge, but to gather access to ideas for possible low cost treatments and actions.

In summary, Dr Torrelio indicated that the current public policies are not considering this health problem as a priority. They have not assessed the actual risk it implies to the population, nor have they focused on education for the community in general, or analyzed the prevalent environmental risks leading to the development of the disease. Once they focus their efforts in improving official policies centered on the prevention of cancer, invest in specialized professionals and in obtaining the support from private sectors, they will be able to benefit the Bolivian population. Basically, what is really needed is a change in attitude.



*Video*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui



# Tobacco Control in Brazil: Advances and Challenges

Marcos Moraes (Brazil)

Dr. Moraes attended the United Nations meeting on Non-Communicable Disease (NCDs) – prevention and control, in September 2011, where he gathered information that 36 million people die annually from NCDs. Among the causes of death, tobacco was considered one of the main low cost and effective responses to tackle NCDs. In Brazil, the impact of the national tobacco control policy resulted in decreases of NCD.

Dr. Moraes shared that mortality attributable to NCDs in Brazil, declined between 1996 and 2007 by 20%, primarily because of decreases in cardiovascular (31%) and chronic respiratory (38%) diseases. Of the Brazilian initiatives to respond to the challenge of chronic diseases, the control of smoking is a prominent success and is probably responsible for much of the decline in NCDs.

Brazil is a member of the World Health Organization Framework Convention on Tobacco Control (FCTC). Brazil made it a legal obligation to implement the measures determined by the Convention, and created National and State policies to control the use of tobacco. The National Commission for the implementation of FCTC, created by a presidential decree in 2003, had representation from 18 different sectors of the government, in addition to the support of the Ministry of Health, and the National Cancer Institute.

Dr. Moraes explained that a great part of the WHO FCTC measures has already been implemented, but some still need to be improved. One of their main challenges is related to the interference of the tobacco industries. Some of the measures adopted in the country were to completely forbidding smoking in closed places, tobacco advertising, and prohibiting events to be sponsored by tobacco products. Starting in 2001, strong health warnings with photos were also placed on tobacco products, and a national survey held in 2008 indicated that 65% of smokers became motivated to quit smoking due to these health warnings.

Since 1999, all tobacco products are regulated by a National Sanitary Surveillance Agency (*Agência Nacional de Vigilância Sanitária* - ANVISA) regarding their contents and emissions. Anvisa has prohibited the use of terms such as "light", "ultra light" and similar terms to classify cigarettes. They also prohibited additive flavors in cigarettes and other tobacco products. The National Cancer Institute created a hotline to assist those who wish to quit smoking, and Public Health Care Units provide treatment for those who wish to quit.

All these advances were only possible due to a strong educational basis built since the end of 1980 through national campaigns, networking with states, building capacity, school and workplace based programs as part of actions coordinated by the INCA (*Instituto Nacional do Câncer*) nationwide. There were also several national campaigns targeting the youth through arts and sports in the decade of the 90´s. The campaigns were so successful that they caught the spontaneous interest of the media, who then began writing about the issue.

Dr. Moraes also explained that several school-based programs were created, with over 14,000 schools, involving more than 118,000 teachers, reaching over 2.300,000 students. These campaigns transformed teachers and students into transformation agents. A survey regarding the knowledge on the harms

caused by tobacco in teenagers aged 15 or more, indicated that 94.7% of the population knows that smoking causes lung cancer; 85.6% knows that smoking causes heart attack; 73.1% knows that smoking causes stroke; and 91.4% knows that exposure to tobacco smoke causes serious risks to nonsmokers.

The percentage of smoking prevalence in Brazil has consistently been decreasing. A National Survey of Health and Nutrition showed that while 37% of men were smoking in 1989, only 21% were smoking in 2008. The comparison for women indicates that in 1989, 24% were smoking while in 2008 only 13%. The total percentage of smokers in 1989 was 32%, and in 2008, this percentage has decreased to 17%. An additional survey performed by the Ministry of Health, on these 17% which remained, indicated that the prevalence is higher in rural areas, and among low income and low education population. Despite the decrease, 17% in a county like Brazil represents 24 million smokers. This same survey indicated that 24.5% of students between the ages of 13 and 15 had already tried cigarettes.

Dr. Moraes said that in Brazil, networking was the basis for a strong tobacco control policy. Networking meaning the decentralization of the tobacco control management Health Offices in states and municipalities; meaning the capacity building under the coordination of the Instituto Nacional de Cancer (INCA). A network of multi leadership in the decade of 1990, another key element, was the partnerships with the civil society and the scientific societies, in addition to the media and universities.

One of the great challenges to control tobacco in Brazil is the fact that there are over 200 thousand small farms involved in the business. If governmental support is not given to these farmers to encourage them towards another business, we are faced with yet another problem. Strategies are needed to encourage these agricultures to aim at a different direction.

*Video*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

## *Investigating herbs with anticancer properties in the Caribbean*



Yuri N. Clement (Trinidad and Tobago)

Dr. Clement explained that Cancer is among the leading cause of death in the Caribbean and throughout the world. The ideal anticancer drug would prevent cell growth or kill neoplastic cells with minimal effects on normal cells. The search for phytochemicals with anticancer properties has provided drugs which are widely used in clinical practice for various cancer types.

Today, over 80% of the developing world uses herbal remedies as part of their routine healthcare practice. Recently, there has been resurgence in the use of herbal medicine in patient-directed

complementary and alternative approaches. There is a heightened search for new drugs from natural sources, including plants.

Dr. Clement indicated that, in pharmacology, researchers try to find drugs that will kill cancer cells without affecting normal tissue. Therefore, currently three plants that have shown properties relevant for treating different types of cancer are being studied. The ***P****odophyllum peltatum*, commonly known as mayapple plant or American mandrake, possesses podophyllotoxins containing two derivatives, etoposide and teniposide, which show promising aspects in treating several types of cancer. The second plant called *Catharanthus roseus*, commonly known as periwinkle, has alkaloids containing vincristine and vinblastine, which have been effective in the treatment of the diabetes. In the last of the three plants being studied, the *Taxux brevifolia*, known as Pacific Yew tree, they have found taxanes containing paclitaxel which has been around for many years.

The preparation process consists in having the plant material authenticated at the National Herbarium, then washed, oven dried at < 50ºC and pulverized to 40 µm. It is then extracted in methanol for over three days, filtered, and rotavapored to dryness to produce the crude extract. Extraction can also be performed in water, pet ether, chloroform, ethyl acetate and butanol to find where the activity might be in that plant.

Dr. Clement stated that there is one human T-cell leukemia cell-line obtained from a lab in the U.S. Normally it is kept in liquid nitrogen from which we extract samples to use in experiments. In experimental phases it is incubated in carbon dioxide, at 37 ºC and sub-cultured twice a week. Cells are harvested 24 hours after sub-culturing. Cells are prepared by aseptically transferring cryogenically-stored cells into a centrifuge tube, and centrifuged for 5 minutes at 3,000 rpm. Then the supernatant is discarded, and the pellet is resuspended in 10 mL media. For cell counting and viability test, 10 µL of cell suspension is mixed with 90 µL of trypan blue, and then 10 µL of this mixture is added to hemocytometer chamber.

In order to obtain a cell culture, crude methanol (MeOH) extract/fraction was dissolved in minimal dimethylsulfoxide (DMSO) and water obtaining serial dilutions of extract; 100 µL extract (50 µg/mL to 500 µg/mL) was then added in triplicate to 96-well plate. For highly colored extracts, sample blank was prepared by adding 100 µL extract to 100 µL growth media. Readings were obtained from this colored sample blank subtracted from the corresponding sample value 4 x 105 cells/mL MT4 cells (in log phase). Then 100 µL cell suspension was added to wells containing extracts. Reagent blank, as well negative control (100 µL cell suspension, 100 µL media). Incubation was over 3 days in CO2 at 37 ºC.

Following incubation, 100 µL solution was removed from each well and 10 µL MTT [3-(4.5-dimethylthiazol-2-yl)-2.5-diphenyl tetrazolium bromide] dye was added, and the plate was incubated for an additional 4 hours. After that, 150 µL 0.04N HCl in isopropanol was added to each well to dissolve formazan crystals to determine cell viability. Plate were read on Multiskan® plate reader at 570 nm. The color intensity is directly correlated to the proportion of viable cells. A comparison was made with control to determine the percent of cell survival. The percent of cell survival = [optical density of wells with treated cells / optical density of control well] x 100.

Dr. Clement presented the result of the preliminary screening, with the determination of 0% survival ratesethanolic extracts of: *Solanum triste, Pisonia cuspidata, Swartzia pinnata, Mollinedia laurina, Andira inermis, Guarea guidonia, Psychotria marginata, Spermacoce verticillata, Flemingia strobilifera, Ficus pumila, Psychotria uliginosa* (methanol extract partitioned into petroleum ether, chloroform, and ethyl acetate fractions gave 0% survival rates at 1,000 µg/mL, 250 µg/mL and 275 µg/mL respectively. Water extracts of: *Azadirachta indica, Cecropia peltata, Petiveria alliacea* presented 0% survival rates > 130.000 µg/mL

Three of the methanol extracts mentioned above are currently being used for medicinal purposes. The *Spermacoce verticillata*, commonly known as Shrubby false buttonweed is used in Brazil as vermifuge and

against hemorrhoids, and in the Dominican Republic to treat uterine fibroids. The *Flemingia strobilifera*, known as wildhops or luck plant, is used in Trinidad in the treatment of kidney stones and in India for epilepsy and hysteria. And the *Ficus pumila*, known as the creeping fig or the climbing fig, is used in Japan to treat diabetes and hypertension, aside from being one of the traditional Chinese medicines against breast cancer.

Dr. Clements concluded his presentation offering some data for discussion. He said that currently over 20 plant species native to Trinidad are screened for cytotoxic activity against leukemia cell line. A first study was conducted to show the cytotoxic activity of *S. verticillata, F. pumila* and *F. strobilifera* against human leukemia cell line. It was found that the highest cytotoxic activity was in chloroform and butanol fractions of *F. pumila*. The phytochemical analyses of *F. strobilifera* show the presence of several compounds including chalkones, flavonoid glycosides, aurone glycosides, and epoxy chromenes. Flemingiaflavanone and ß-sitosterol-D glucoside have been isolated in *F. strobilifera roots*. These compounds had significant antimicrobial activity against bacteria and fungi.

Additional discoveries are that the *F. pumila* leaves contain at least five flavonoid glycosides (including rutin). Rutin was previously shown to prevent carcinogen-induced single-strand breakage in nuclear DNA in rats. Ethanol extract of *Lactuca indica* (with polyphenolic compounds, including rutin) had cytotoxic effects against HL-60 human leukemia cell line by inducing apoptosis. Dr. Clements suggests that rutin, also found in *F. pumila,* is responsible for the observed cytotoxic activity. We have also found three novel sesquiterpenoids glycosides which were isolated from *F. pumila* fruit. In another study, sesquiterpenoids have been shown to possess cytotoxic activity against HL-60 human leukemia cell line, with one being three times more potent than etoposide. He further suggests that *F. pumila* cytotoxicity may be due to the presence of sesquiterpenoids, probably concentrated in chloroform and butanol fractions.

Dr. Clements stated that there are few published work on *S. verticillata,* but methanol extracts of *S. exilis* and *S. articularis,* showed strong antioxidant and free radical scavenging properties. Polyphenolic compounds occurring in plants have received much attention as potential chemoprotective agents. Dr. Clements believes that S. verticillata may possess similar properties, which may account for its cytotoxic activity. Bioactivity guided fractionation and isolation would identify which of these previously characterized compounds were responsible for the observed cytotoxic activity in *F. strobilifera* in our assay. For all three plants studied, phytochemical analyses indicate the presence of antioxidant compounds, including flavonoids and triterpenoids. It is probable that antioxidant compounds trigger intracellular signaling pathways which induce apoptosis in the cancer cell line and may explain the observed cytotoxicity.



*Video - Part 1*

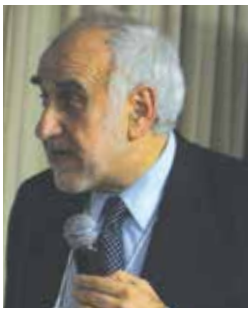


*Video - Part 2*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

# SESSION 5

## Public Policies for the Prevention of Cancer and other Chronic Diseases



Ricardo Uauy Dagach (Chile)

Dr. Dagach initiated his presentation by indicating the deaths attributable to the 16 leading risk factors, blood pressure, tobacco use, cholesterol, underweight, unsafe sex, lack of fruit and vegetables, high body mass index, physical inactivity, alcohol, unsafe water (hygiene), indoor smoke/fuels, iron deficiency, urban air pollution, zinc deficiency, unsafe health (injections).

He then indicated the percentage of deaths caused by cancer, attributable to environmental and behavioral factors in low and middle income countries, such as tobacco (35%), diet (30%), infections (15%), hormones (7%), natural radiation (4%), alcohol (3%), occupation (3%), ultraviolet light (2%), and medical radiation (1%).

With regards to diets, he added that the most frequently investigated nutrition related exposures in cohort studies is the Body Mass Index, followed by vitamins – in particular vitamin D & folates, then alcoholic drinks and physical activity, and macronutrient with most articles is lipids; the most investigated mineral is calcium, and the food group with the highest number of articles is meat.

Dr. Dagach stated that about 30% of the cancers are related to diet and physical activity. The excess of salt and nitrate/nitrites in one´s diet increases the risk of stomach cancer. The unbalance between the intake of energy and the energy expended leads to obesity and increases the risk of colon, breast, prostate and endometrial cancers. Therefore, the consumption of fruits and vegetables, together with leading an active life and maintaining a healthy weight, decreases the risks of several types of cancer.

In Chile, according to the registry of cancer incidence in Valdivia from 1998 to 2002, it was noted that the top cancers for men were prostate (59.6%), stomach (46%), skin (19.1%), lung (10.8%), and bone marrow (10.8%). For women, the incidence was breast (32.3%), gall bladder (26.2%), cervix (22.5%), skin (20.9%), stomach (17.1%), and ovary (11.2%).

In order to decrease the incidence of Cancer in Chile, Dr, Dagach recommends a few actions. He believes that decreasing the use of tobacco from 43% to 30%, would prevent 2,694 deaths per year and 31.599 DALY; decreasing 4 mm Hg of the national systolic pressure average, would prevent 1,254 deaths per year and 35,281 DALY; and reducing the average consumption of alcohol by 20%, would prevent 1,380 deaths per year and 105,063 DALY.

The types of cancer incidence can vary from place to place within a same country. Dr. Dagach related the cancer types in Antofagasta, for comparison purposes, with Valdivia, which were already cited. The

most common cancer incidence for men in this location was skin (74.7%), lung (49.8%), prostate (32.95), gall bladder (24.8%), and stomach (23.1%). For women the main types of cancer were skin (59.5%), breast (31.9%), ovary (15%), lung (12.4%), and gall bladder (11%).

Dr. Dagach also highlighted the dangers of arsenic exposures throughout the world. With regards to Northern Chile, he explained that this is where the driest dessert in the world is, which evidently indicates the very low availability of water resources. Thus, most people consume water from a few central sources, which have already presented a historic registry of water arsenic content.

Arsenic in drinking water was measured in several places in Chile in 1994 and 1995, with some alarming results. Surveys have also been conducted associating skin cancer mortality to arsenic exposure in several locations in Chile. Bladder cancer mortality caused by arsenic exposure is also alarming and continues to increase. Additional surveys also indicated lung cancer mortality due to arsenic exposure.

Dr. Dagach indicated a few very simple requirements to improve the current incidence of cancer in Chile. It is crucial to decrease the consumption of total fat, saturated fatty, trans fatty acids, added sugars, refined starches, sodium/salt and preserved meat and increase the amount of fruits and vegetables, fibers PNA, W3 fatty acids (LNA, EPA, DHA), iron, zinc/folate, and physical activity.

Several surveys have been conducted to indicate risk factors and how they affect the population of each country. The amount of trans fatty acid in a portion of French fries and chicken nuggets for example, in several fast food restaurants around the world also vary. The variation is shocking as can be seen for example in Poland, where the content in French fries is 42%, and in chicken nuggets 24%, when compared to Germany, for example, where they each contain only 1%.

Upon analyzing the history of cigarette consumption in Chile compared to historic events, one can also note a relationship between the two. A clear increase in consumption can be seen in the decade of the 40´s, which coincides with the country´s economic depression. One can also notice that there was a slight decrease following World War II, and a further decrease when publications linked smoking to cancer. However, it is quite evident that official public policies have the greatest effects, when a real and consistent decrease was only noticed following the prohibition of cigarette advertisement, the increase of tax paid for cigarettes, and the launching of the policy which makes smoking in closed public places against the law.

Dr. Dagach explained why preventive strategies are not being considered and are poorly used. Basically, because adequate knowledge is not in the hands of those that need it. Sick people demand to be treated and ignore prevention. The achievements of preventions are not clear, and are seldom visible. In addition, there are powerful commercial and union interests that obstruct the attempts for change. Health professionals also seem to prefer the curing strategy, rather than the strategy of prevention, and treatment novelties seem to make the news.

In conclusion, Dr. Dagach mentioned that today, people in Chile consume about 12 grams of salt per day, when the World Health Organization recommends a maximum of 5 grams per day. If salt consumption were reduced by half, it is estimated that 430,000 cases of cardiovascular diseases could be avoided. One of the campaigns promoted in Chile was to consume bread from specific bakeries that were part of their program for reducing salt/sodium. He closed his presentation by indicating some of the successful campaigns that have taken place around the world, such as the "Trans Fat Ban" in New York; the inclusion of information on menus, about sodium and Kcal; Frontal Nutritional label – Smart Choices; the role of the presidency Michelle Obama in "let's get moving"; and taxation on sweetened drinks and on fatty foods.



*Video - Part 1*



*Video - Part 2*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

# Prevention and Control of Cardiovascular Diseases in Colombia



Alvaro Moncayo (Colombia)

Dr. Moncayo opened his session by presenting some data on mortality by non-communicable diseases in 2008. He shared that Non-Communicable Diseases (NCDs) are the leading cause of death in the world, responsible for 63% of the 57 million deaths that occurred in 2008. Most of these deaths - 36 million or 57% - in 2008 were attributed to cardiovascular diseases and diabetes, cancers and chronic respiratory diseases.

In most middle- and high-income countries, NCDs are responsible for more deaths than all other causes of death combined, with almost all high-income countries reporting the proportion of NCDs deaths to total deaths to be more than 70%. Age-standardized death rates are highest in countries with low incomes. In lower and middle income countries the proportion of premature NCDs deaths under 60 years rose to 28%, more than double the proportion in high-income countries. In low-income countries the proportion of premature NCDs deaths under 60 years was 41% or three times the proportion in high-income countries.

Dr. Moncayo also analyzed some of the trends in risk factors presented by WHO´s country profile. It has been observed that the prevalence of insufficient physical activity is correlated to the level of income. High income countries had more than doubled the prevalence compared with low-income countries, for both men and women, with 41% of men and 48% of women insufficiently physically active in high-income countries compared to 18% of men, and 21% of women in low income countries.

The leading causes of death in Colombia, registered in 1990 were: ischemic heart disease (15,853 cases); cerebrovascular diseases (9,459 cases); heart failure (6,052 cases); pneumonia (5,198 cases); hypertensive disease (4,794 cases); motor transport accidents (4,410 cases); and stomach cancer (3,605 cases). In 2003, the order of the leading causes were pretty similar, however the number of cases have increased in some areas, showing ischemic heart disease (23,532 cases); cerebrovascular diseases (13,949 cases); heart failure (6,052 cases); pneumonia (5,198 cases); hypertensive disease (5,576 cases); stomach cancer (3,605 cases), and trachea, bronchus, and lung cancers (3,324 cases).

Dr. Moncayo explained that the prevalence of behavioral and metabolic risk factors in Colombia are similar to that of other countries, affecting both men and women, among them, the lack of physical activity, high blood pressure, high blood glucose, overweight, obesity, and high cholesterol. He also explained that cardiovascular diseases are caused by disorders of the heart and blood vessels, and include coronary heart disease (heart attacks), cerebrovascular disease (stroke), high blood pressure (hypertension), peripheral artery disease, rheumatic heart disease, congenital heart disease, and heart failure. The major causes of cardiovascular disease are tobacco use, physical inactivity, unhealthy diet, and alcohol abuse.

Less than 50% of Colombian adults aged 18–64 actually exercise the minimal amount recommended for generating a beneficial impact on their health. Less than one tenth of the above population engages in physical activity during their free time in a regular way. And less than one fifth of the above population has a regular routine of walking as a means of transportation.

Policies at a local and national level, with multisectoral collaboration, are necessary for the sustainability of programs which will have an impact on promoting physical activity. For example, the community has been a great advocate for bikeways, by reclaiming the streets every week. This continued support makes it difficult for any policy-maker to risk making an unpopular decision concerning the program.

The interaction of community and government is very significant for the sustainability of the programs. Both are necessary, but neither is sufficient on its own. For example, the bikeways have now been replicated in at least 98 cities of the Americas, yet only a few well-done research studies have been conducted on its effects.

Programs like bikeways are examples that community activities with public health benefits can exist in sectors different from health, such as recreation and sports, urban planning, or education. Annual operational costs for making these bikeways is USD 1,714,591; the total number of users per event: 600,000 to 1,400,273; the total cost per user per event USD 0.08 to USD 0.09. Cost benefit ratio: for every dollar invested in the Bikeway Program in Bogota (operational and user costs): USD 3.23 to US 4.26 dollars are saved on direct medical costs due to physical activity. Mean annual benefit for mortality prevention: USD 3,196,956 to 21,292,660.

Dr. Moncayo proceeded by explaining prevention and control of cancer in Colombia. He indicated that more than two thirds of all cancer deaths occur in low- and middle-income countries. Lung, breast, colorectal, stomach and liver cancers cause the majority of cancer deaths. In high-income countries, the leading causes of cancer deaths are lung cancer among men and breast cancer among women.

*Video - Part 1*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

## Cuban National Health System



Maria del Carmen Barroso Alvarez (Cuba)

The humanistic and solidarity principles that characterize Cuban Public Health are endorsed by the Constitution of the Republic of Cuba. As per Article 50, "Everyone has the right to receive health care and protection". The state guarantees this right.

Dr. Alvarez informed that the total population of Cuba is 11,236,336, of which 75.4% is located in urban areas. The expected growth indicates that by 2030, Cuba will have a population composed of elderly people, which in itself indicates that they will have more people with cancer to be treated. She also indicated that the West Havana Scientific pole consists of 40 health organizations, 12,000 people working in the field of health, 7,000 scientists and engineers, and 150 research projects going on.

The scientific pole has been successful in several areas: they have created preventive vaccines such as antimeningococcal, antileptospirosis, antityphoid, recombinant antihepatitis B, Haemophilus influenza (type B), tetravalent (DPT + HB), pentavalent (DTP + HB + Hib). They also have other biotechnological products as recombinants interferons alpha and gamma, suma equipment, leuferon collyrium, intacglobin, recombinant streptokinase, transfer factor, heberprot-p, and pharmaceutical industries including cytostatic plants. In addition, the pole has cancer related treatments such as vaccines (EGF, gangliosides, Anti Her 1, 1E10), and monoclonal antibodies against cancer (antiEGFR, anti Her2-Neu, anti-CD 20), and supportive care as erythropoietin, colony stimulator factor, and antiemetic. Furthermore, monoclonal antibodies for non cancer diseases, as rheumatoid arthritis, psoriasis, and blood tests.

Dr. Alvarez explained that cancer is a national health problem in Cuba. To explain why, she provided a brief explanation of the history of the disease, indicating that the Cuban Oncological School began in 1930, and was open to the world´s advances on the topic. During that time, public medical services were deficient, and private care was the best option available. Some private doctors cared for cancer patients at their offices and at public hospitals, as a social work. At this time, three facilities were built for treating cancer patients, partially supported by the government, but mainly funded by private donations. It was mandatory to obtain information from important international centers around the world, and these experiences and results were published in the "Archivos de Cancerologia", a journal with international circulation.

As of 1959, medical care began to improve. Public hospitals and clinics were converted into centers, providing high standards of service and easy access to patients, and totally free of charge. This lead several professionals to leave the country, but the qualification and devotion of those who remained, resulted in a new generation of professionals dedicated to medical care.

In 1960, through the MINSAP´s section of the Fight Against Cancer Campaign, a program was elaborated to try to develop a National Oncology Network and a National Cancer Registry. In addition, they aimed at purchasing equipment for the treatment and prevention of cancer, and aimed at updating the knowledge of professionals. The program also had the objective of achieving a theoretical and practical update on technologies related to the management of cancer, and to promote the research related to cancer.

Dr. Alvarez explained that based on the objectives of the program to fight cancer, they created the National Institute of Oncology and Radiobiology (NIOR), the Cuban Society of Oncology, Radiotherapy and Nuclear Medicine, the National Group of Oncology (NOG) and the National Cancer Registry (NCR). After 1970, with the integration of the oncological services of the country and the onset of the National Institute of Oncology and Radiology (NIOR) in Havana, a new era of development began.

With regards to data on the main causes of death in Cuba (registered in 2010), Dr. Alvarez emphasizes that cancer is the second main cause of death, only surpassed by cardiovascular diseases. The incidence of cancer affects twice as many men as it does to women, with approximately 5,104 new cases occurring every year. Data from 2006 of the National Registry of Cancer showed that breast cancer was the most common cancer among women, followed by skin cancer, whereas for men, the most common cancer was lung cancer, followed by skin cancer.

Mortality rates due to cancer also indicate a higher incidence among men than among women. In fact, twice as many men die of cancer. Lung cancer is responsible for 23% of all deaths in Cuba. Out of these 23%, 86% percent of the lung cancer deaths are caused due to the use of tobacco. In summary, avoidable deaths represent over 3,000 people, which means that 92% of men who die of cancer could have been saved, and 75% of women who die of cancer could have been saved. The cancer with the

highest percentage of deaths associated to it is lung cancer, for both men and women, followed by breast cancer for women and prostate cancer form men.

Dr. Alvarez also highlighted that the comparison of mortality rates of cancer in Cuba, to the rest of the world, indicates that while 38% of men around the world die of cancer, in Cuba this percentage represents a total of 60%. For women, despite being lower than that of men around the world, the percentages of mortality in the world indicates a total of 35%, while in Cuba the number rises to 48%.

The National Unit for Cancer Control (UNCC) and the Comprehensive Cancer Control Program (IPCC), created by the Ministry of Health in 2006, belong to MINSAP. UNCC´s main objective is to provide guidance to the IPCC. Their mission is to integrate, in a National Strategic Program of Health, the action and intersectoral collaboration of the population, in order to generate a systematic and coordinated response with the aim of decreasing cancer mortality, and contributing towards increasing high quality life expectancy for Cuban population. This unit is a coordination institution that works with teams in different locations and in distant places. They use INFOMED as their guide for patient management.

Dr. Alvarez explained that this unit converts the data into evidence to assist in the decision making process. Based on the evidence they supply, administrative actions from Medical and Social Care levels are generated, in close relations with all MINSAP´s areas. This team is composed by a Chief and 4 specialists (Programs, Cancer Registry, Development and the Observatory). In addition, 369 experts with different professional profiles work as collaborators, organized into 23 Special Groups of Work (GET), and 498 medical physicians work in the Cancer Control in Primary Care. All of them work part time.

For scientific management and innovation, they have the support of the Knowledge Management and Advanced Technology (GESIT), the National Group of Oncology, the National School of Public Health (ENSAP) and the Scientific Council of NIOR, each one with a specific development of a specialty. This program possesses much more than just rules to improve the oncological medical care (even though it has rules too); it is an organized effort designated to modify the "harsh indicators" of mortality and survival incidence.

Above all, they contain multisectoral actions at all levels of the health system; in other words, the educational system, the local governments, the social scientific institutions, the social and political organizations and other key members of the Cuban Society.

Dr Alvarez closed her presentation indicating some of the efforts made by Cuba to overcome cancer. Among them, she highlighted the National Program for uterine cervical cancer screening, the integration of the cancer control program, the printing of educational books on cancer, specific focus on the main cancers in the country, their desire to ban tobacco, and most of all, that cancer is preventable through simple measures such as vaccines, exercises, healthy diets, not smoking or drinking alcohol, and by avoiding exposure to the sun.



*Video - Part 1*



*Video - Part 2*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

# SESSION 6

## *Actions against Cervical Cancer in Rural Guatemala*



Erick Jacobo Alvarez Rodas (Guatemala)

Dr. Rodas emphasized that cervical cancer remains a major public health problem in many developing countries, even though it is preventable. Cervical cancer death is unnecessary, since effective, safe, low cost outpatient treatment of precancerous lesions has been available for many years. However, available and accepted screening methods are not practical or accessible to the majority of women living in many countries.

Based on some historical data about Guatemala, supplied by GLOBOCAN in 2008, 717 women aged 25 or older died due to cervical cancer. Mortality rate of cervical-uterine cancer is directly related to poverty, lack of schooling, unemployment, residency in rural areas, and lack of effective access to health services. In addition, this cancer is the leading cause of death among women in Guatemala. This not only causes concern with regards to the disease itself, but also to the fact of it being a clear example of inequality and discrimination.

Guatemala's population today is of 14,017,057 million people. The total amount of women within this group is of 7,148,699 million of which 4,520,490 are in their reproductive phase. Among these women in the reproductive phase, approximately 5,000,000, aged 25 or older are at risk of developing cervical cancer. Another important data is that 54% of the populations are currently living in rural areas, and throughout the country there are 23 different cultural groups. Poverty and inequity are two priority issues for the government of Guatemala, with goals clearly set out in the National Development Plan and the National Health Program of 2008-2011.

Dr. Rodas highlighted some of the challenges of Cervical Cancer screening, such as very little coverage in rural and marginalized urban areas; large quantity of false negative HPV results associated with the Pap tests; inaccurate histopathological diagnoses, and low quality of colposcopy evaluations in addition to a poor follow-up strategy with patients.

A few measures can be adopted towards the prevention of cervical cancer. In addition to vaccines, one could also attempt measures to educate women to reduce sexual risk behavior, and promote the use of condoms. A secondary preventive measure would be to identify and treat pre cancerous lesions, before they actually become cancer, and to identify and treat cancer in its early stages.

Dr. Rodas pointed out however that basic testing is not enough to overcome the situation in Guatemala. It is necessary to provide an effective system to the population, with adequate treatments made available

in the existing centers. The ideal would be to provide all the basic principle; in other words, a good testing system spread throughout the country, with no patient loss, and with a reasonable cost.

According to Dr. Rodas, a basic issue is that if Guatemala is expecting their National Plan to be effective, all tests performed on women should be linked to treatment, and this treatment should start immediately after the test, and not delayed until a future medical visit. The National Plan referred to above, as part of the National Health Policy to overcome cervical cancer, has an overall purpose of reducing the mortality rate. Between the year 2009 and 2015, the plan is to implement a few strategies: improve the communication and the campaigns providing information; improve coverage of cervical screening, mainly in rural and poor areas; improve the training of personnel dealing with screening, diagnosis and treatments; promote adequate infrastructure for appropriate screening; increase access for screening, diagnosis and treatment; encourage partnerships with other public health institutions, health organizations and social organizations; and focus on correct monitoring and assessment.

The objective of the National Plan is to increase institutional readiness for implementing efforts towards the broadening of cervical cancer prevention. It wishes to build capacity to sustain and widely expand coordinated efforts towards the prevention of cervical cancer. Above all, it aims at increasing access to high quality Pap smear, VIA and cryotherapy at health care centers, and improve the entire program´s performance.

In order to do so, Dr. Rodas indicated that the plan needs to progress in phases. The first phase refers to institutional receptiveness. The government needs to establish the testing for cervical cancer as being mandatory. Phase two would focus on capacity building, properly training specialist to perform the tests, followed by a phase to improve the performance of the program as a whole, and then being able to expand the service to all areas of the country.

Additional strategies of the National Plan, include the creation of a data base to record data of women screened for cancer; monitoring and assessment of the steps taken to implement the plan, and of the acceptance of the plan; initiate the attempts towards vaccinating the population; and perform clinical trials with HPV testing jointly with other institutions. Evidently, all decisions rely on the assessment of the risks involved and on the costs of the program. A key element for the success of treatment relies on obtaining results in a speedy manner, performing necessary additional tests and supplying immediate treatment.

Dr. Rodas also mentioned a few issues that need to be considered in the future, such as targeting women who are at a higher risk; in other words, those who are the poorest and who do not have regular access to health services. He recommends that school-based adolescents, who have not initiated their sexual life, should be provided the HPV vaccine. He also recommends that all women aged 35 to 65 should be required to have an HPV test. However, taking into account that there are currently 195,000 girls aged 10 in Guatemala, the cost of the 3 series vaccine would be unsustainable to the current health organizations. In addition, there are other vaccines that are considered more important on this phase in life, and prior to investing in HPV vaccines, it would be more appropriate to invest in good quality cervical cancer screening.

Dr. Rodas concluded his presentation by emphasizing the importance of capacity building. Clinical training is crucial to help health care providers gain the knowledge, skills and the right attitude to provide high quality clinical care. The ideal would be for doctors to "see one... do one... and teach one", thus gradually increasing the number of trained professionals available to treat cervical cancer. According to Dr. Rodas, "Each woman at least has the right to a cervical screening once in her life". High investments in workshops for the training of professionals are crucial.

However, Dr. Rodas stated that what is needed the most is support. There is a need of training courses in standardized screening methods such as Pap smear, IVAA, screen and treat, educational material.

There is also a need for assistance in technology, to create a unified system of information. Infrastructure and equipment for the diagnosis and treatment like cryotherapy, electrosurgery and colposcopy is also needed. Assistance in research and with trial HPV DNA in specific cohorts is also necessary. Dr. Rodas emphasized yet again the need to start discussing the possibility of HPV vaccines as a primary prevention, and the need to start a process for the reintegration of women to daily routine following cancer. Lastly, he expressed the needs for treatments using principles of palliative cares at decentralized levels.

*Video - Part 1*

*Video - Part 2*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

## Cancer Prevention in Mexico



Lizbeth Lopez Carrillo (Mexico)

Dr. Carrillo pointed out that Mexico is an aging country, and that cancer is a disease that is correlated to age. Currently, the population in Mexico is of about 130 million, of which 20 million are found in Mexico City alone. The country´s annual growth is decreasing, and the group of elderly people is increasing. She emphasized that from a health point of view, this data is very important in the decision making process of issues related to health.

Dr. Carrillo shared that the three major diseases in Mexico are the diseases of the circulatory system (23% of total deaths), *Diabetes mellitus* (14% of total deaths, caused mainly by obesity, which is an increasing concern in the country), and malignant neoplasms (13% of total deaths). With cancer occupying the third position among the main causes of deaths in the country, Dr. Carrillo also emphasized that this represents approximately 130,000 cases per year, of which 78,000 die. The most common cancer in Mexico is prostate cancer, followed by breast cancer, cervical and uterine cancer, lung cancer, and stomach cancer.

Upon analyzing the data supplied by GLOBOCAN (2008), Dr. Carrillo also indicated that with regards to prostate, breast, cervical and uterine cancers, one can identify a significant variation between the number of incidences and the number of deaths – which clearly indicates that medical attention in those areas has prevented a considerable number of deaths. However, in contrast, lung and stomach cancer incidence compared to the number of deaths, is shockingly almost the same – meaning that almost all patients suffering from these cancers die.

Additional data supplied by the WHO on cancer mortality in Mexico indicated that from 1995 to 2005, lung cancer in men has decreased, and that prostate cancer is continuously increasing – making it

evident that the current health system in Mexico is not taking action with regards to prostate cancer. Stomach cancer trends for both males and females seem to show a steady trend. Among women, the leading cause of death are cervical malignant tumors, followed by breast cancer.

Dr. Carrillo added that Mexico has promoted a few campaigns to address cervical cancer, and that the results are promising, having already shown a decrease in mortality rates. Among the actions taken, she said that the two most successful were the educational programs promoting the use of condoms and the encouragement of taking the Pap smear.

In addition, Dr. Carrillo reinforced that cancer is a preventable disease that requires major lifestyle changes with regards to tobacco use, infections, obesity, alcohol consumption, diet, and others. Among the category of others, she highlights the contaminants. Dr. Carrillo also indicated that one of the causes of cancer in Mexico is related to the arsenic in Mexico´s groundwater. She also indicated that one can identify different types of cancer depending on the region of the country, and explained that they are closely related to the dietary habits of each region. As an example, she added that in the North of Mexico, the availability and consumption of green leaves is greater than in the South, therefore women are able to eliminate the arsenic by means of consuming nutrients. The more arsenic is eliminated, the lower the risk of cancer.

Dr. Carrillo mentioned that currently they are trying to investigate the water in the North of the country, since something in the water clearly indicates a strong correlation to breast cancer. Additional research in that area includes studying cosmetics, the use of deodorants, lotions and several other personal care products, which are made with plasticizers, since that also indicates a relation to breast cancer. It has also been noted that passive smoking increases the risk factors of breast cancer.

Dr. Carrillo shared that several studies have been made in order to better assess the issue of cancer in Mexico. Studies on dietary factors and their relation to gastric cancer risks, the consumption of folate and its effect in decreasing gastric cancer – and the genetic factor which prevents risk from being decreased, are some of the studies which were conducted among many others.

Governmental efforts to reduce cancer are currently focused on three main aspects. The first, to reduce by 27% the number of deaths related to cervical cancer. The second, to increase up to 21.2% the number of mammography in women aged 45 to 65. And last, to provide practical guidelines to assist primary and secondary preventions of prostate, lung, colon, stomach, testicle and pancreatic cancer.

With regards to cervical cancer, by law all health centers need to provide Pap smears and visual checks with acetic acid on women aged 25 to 64. Inadequate cytology should be repeated no later than four weeks after the first. Women with two consecutive negative Pap smears do not require another test for the following 3 years. Definite diagnosis requires histopathology.

Not too long ago the guidelines for breast cancer were revised. The coverage for mammography was 20%, meaning that about 80% of the female population was not performing the test. After the revision of the guidelines, mammography should be offered biannually to all women aged of 40 to 69, who are within the risk group or not, and should be offered to women aged 70 or more who are survivors of cancer. This change actually decreased the number of tests being performed, since previously, women within the risk group were expected to test at least once a year, if they were within the age group of 40-49 for example. This was due to both lack of education and lack of resources.

Dr. Carrillo highlighted that the prevalence of cancer risk factors in Mexico, indicates that about 50% of the population smokes, alcohol is consumed by about 30% of the population, and obesity is becoming the current major cause of mortality in the country. She expressed her concern about the fact that if the

country doesn´t take action now, not only cancer should be a cause for concern, but also cardiovascular diseases, since the three indicators she had just mentioned, tobacco, alcohol, and obesity, are the leading causes of mortality within the non-communicable diseases. She adds that if no major intervention takes place, 6 out of every 10 Mexican will die by 2030 of either *diabetes mellitus*, cerebrovascular disease, heart disease, or cancer.

In the past, cancer was considered as a rich person´s disease, since incidences were only diagnosed among those in urban centers. However, this no longer is the case, and cancer today affects people from all areas and all social groups. With that in mind, they are working on a program called "Closing the Cancer Divide: a Blueprint to Expand Access in Low and Middle Income Countries", a Report of the Global Task Force on Expanded Access to Cancer Care and Control.

Dr. Carrillo shared that this program aims at prevention, by integrating health promotion activities including tobacco control and health lifestyles into anti-poverty and social welfare programs; and by promoting HPV vaccination through adolescent, sexual, and reproductive, and maternal and child health programs.

They also aim at early detection, by integrating early detection programs for breast and cervical cancer into anti-poverty, maternal and child health, sexual and reproductive health, and HIV/AIDS programs; training expert patients, community health workers, nurses, and primary care physicians to provide early diagnosis, especially for high-risk women.

The program focuses on diagnosis as well, by using telemedicine to expand the capacity for breast imaging by liking specialist and specialty centers for primary and secondary providers of health care for diagnosis, and training where pathology processing facilities exist, strengthening these by using telemedicine for pathology consultation.

Treatment would consist of training primary and secondary care providers and facilities to safely provide some chemotherapy and adjuvant therapy with a strong link to specialist and specialty centers, thus reducing cost for patients, the need for young women to leave children for long periods, and the demand placed on tertiary facilities.

Survival consists of training expert patients, community health workers, nurses, and primary care physicians to provide long-term emotional support, guidance in symptom management, and patient guidance, including acknowledgement of rights and health care benefits.

And last, focus on pain control and palliation by putting systems in place to enable the safe and effective management of pain medications at the primary and secondary care levels, including administering drugs through simpler presentations.



*Video - Part 1*



*Video - Part 2*



*Video - Part 3*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

# Epidemiological Profile and Cancer Control Program of Venezuela



Luis Guillermo Capote Negrin (Venezuela)

Dr. Negrin started his presentation by supplying some background on Venezuela, sharing that currently it has a population of 28,000,000 inhabitants, and a territorial extension of 950,000 $km^2$ divided into 23 states. He proceeded by supplying a few details on the historical background of the Cancer Control Program in Venezuela.

The program was established in the beginning of the sixties, as a component of the chronic disease program of the Health Ministry. When the program started it was dedicated to promoting the practice of the Pap smear and supplying the resources required for this test, at a first level of medical care in Caracas. In 1976 the program obtained an extraordinary impulse as a result of the Presidential Decree establishing an Oncology Direction within the Ministry of Health.

With the National Oncology Program, guidelines were established for a cancer control program. The program was defined as being a process directed at organizing resources, aiming at meeting attainable objectives, and at using valid strategies to reduce morbidity and mortality for the most frequents types of cancer, and especially for the most vulnerable localizations of cancer; all focused on the major risk groups. The Cancer Control Program was established based on the principles of promoting a healthy life style, of preventing the illness and on improving the treatment for cancer cases.

The main objective of the cancer control program was aimed at promoting health by encouraging people to live a healthy lifestyle. It focused on promoting cancer screening tests in order to obtain an early diagnosis of the disease. It also aimed at increasing people´s access to adequate treatment for cancer by providing effective medical attention. Furthermore, it aimed at improving the quality of the information system in order to obtain proper control and assessment of the end results.

Dr. Negrin presented an analysis of the different types of cancer in Venezuela, broken down into whether they present the proper requisites to undergo cancer screening. Some of the criteria analyzed were, common cancer, knowledge of natural history, effective testing, acceptable test type, effective intervention, areas in which health system could facilitate service and resources, evidence of change in survival rates and a comparison on favorable cost and benefit ration. Cervical cancer, breast cancer and oral cancer fit all the criteria for screening, whereas ovary, lung and prostate cancer do not, and are therefore not being screened for.

The five major causes of death in Venezuela are: heart diseases, with 20.61%; malignant neoplasms, with 14.81%; suicides, homicides, and other intentional injuries with 14.21%; accidents in general with 8.14%; and cerebrovascular diseases with 7.49%. All other causes represent 34.74%. The 14.81% of cancer deaths represent a total of 19,796 cases resulting in mortality.

Upon breaking down this analysis of mortality between males and females, Dr. Negrin indicated that mortality was considerably greater among men, with a total of 83,325 deaths, with the main causes being acute myocardial infarction, homicides, car accidents, cerebrovascular diseases, *diabetes mellitus*,

followed in 6th place by the first main cancer cause, prostate cancer. In comparison to women mortality, he indicated a total number of deaths of 51,406, of which the main causes were acute myocardial infarction, cerebrovascular diseases, *diabetes mellitus* and in fourth place, breast cancer.

Deaths specifically related to cancer in Venezuela indicate that for men the main cancer types are: prostate, trachea–bronchus–lung, stomach, colon, and leukemia. For women, the main causes for cancer related deaths are breast, cervix, trachea–bronchus–lung, stomach and colon.

Dr. Negrin explained that the components of a Cancer Control Program are chosen based on the knowledge of which are the main types of cancer that affect the population, and the accessibility of early detection or preventive actions. The five main cancer types identified were lung, cervical, breast, prostate, and gastrointestinal cancer.

Several programs were then created to target these types of cancer. The lung cancer control program started in the seventies, and focused on decreasing cigarette smoking. In order to achieve this, public educational campaigns were created, the government restricted advertising and smoking was prohibited in public places. The aim of the cervical cancer control program was based on screening women aged 25 to 64, with the Pap test. The target was to reach 80% of the female population within that age group in a period of three years. The program created for controlling cervical cancer was divided into two levels based on the attention required by the patient. On the level one of the program, they assessed the female population aged 25 to 64 who were at risk and level two and three, all other women. The program focused on breast cancer promoted self examination, clinical examination and mammography every two years on women aged 50 to 65. Screening with mammography is not accessible to the entire population due to limitation of resources. And lastly, the control program of gastrointestinal cancer had the goal of reducing late diagnosis by means of clinical and endoscopic evaluation of people within the age risk group of gastrointestinal symptomatology.

Dr. Negrin also added that a common goal among all the types of specific programs created to control and prevent cancer, was to create a registry of cancer. Basically to improve a data base of information on cases of cancer registered in hospitals that treat over 100 cases a year. Based on the trend of mortality registered from 1965 to 2010, and as a result of the efforts reported above with the different types of programs and their specific focus, death rates for several types of cancer have decreased.



*Video - Part 1*



*Video - Part 2*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

## Cancer Prevention in the United States



Jo Ivey Boufford (USA)

Dr. Boufford is not a specialist in cancer or in cardiovascular diseases; she is a pediatrician whose work has been focused on public health and health policies. Thus, she presented a perspective of looking at the context in which decision making occurs and how to affect that context to support broader health goals.

Dr. Boufford indicated that the four main killers throughout the world, in low, middle and high income countries, both for males and females, all fall under the category of non-communicable diseases, and they are heart disease, cancer, diabetes, lung disease, and associated obesity. Premature deaths and loss of human capital and economic development capacity has been an issue that requires attention. In the United States alone, the medical and loss productivity cost attributable to cancer in 2010 were estimated at 264 billion dollars.

The risk factors for almost all the main causes of death mentioned above are the same. Tobacco use, unhealthy diets, harmful use of alcohol and physical inactivity all affect cardiovascular diseases, diabetes and cancer. Chronic respiratory disease is the only one affected only by tobacco use. Dr. Boufford highlighted that the only intervention, aside from clinical intervention, which that can address this issue, is the challenge of creating environments in which individuals have the right information to make the right choices.

In the United States, Dr. Boufford explained that only 10% of avoidable mortality is a direct result of lack of access to health care. Genetics is responsible for about 20%, and another 20% is due to natural environment and 50% are related to premature mortality due to risk factors, of which many can be exacerbated by socioeconomic factors. Basically, poor people or individuals in relatively deprived communities do not have the healthy choices that wealthier people have. So it is necessary to make it easier for them to make those choices of leading to a healthy life.

Dr. Boufford highlighted that the public health system is not able to address the issues of risk factors alone. In order to have a positive impact on people, it needs to work in partnership with the community itself, with the health care delivery system, with governmental public health infrastructure, assuring the conditions for populations health, working with employers and businesses, with the assistance of academics and the media.

The history of Global Health has largely been focused on infectious disease and maternal child health, and there have been enormous public health successes in this area globally. However upon looking at the Global Millennium Development Goals, where countries came together to set collective goals on health issues, unfortunately the non-communicable diseases were not explicitly addressed. Dr. Boufford expressed that for the 2015 revision of the goals, there is a lot of interest in trying to insert attention to NCDs.

Dr. Boufford also shared that in the recent General Assembly of 2011 held in New York, the concern over NCD was discussed. This is only the second time where a specific health issue has been discussed

with Heads of States, the previous discussion was in 1988 discussing HIV/AIDS. The WHO has set up a monitoring mechanism with annual recordings over the next three years to see how countries are progressing with regards to the goals they had set. The case has been made, and the evidence for the economic benefits of addressing NCDs as well as the important social and development benefits for the country seems to have caught the attention of decision makers.

One the major problem in the U.S., with regards to public health, is the percentage of GDP invested in the area. Currently only 3% of the health expenditure is for public health. When aiming at changing policies related to health, in the United States, one needs to address the economic aspect related to the chance due to the considerable financial aspect of investment currently set up.

An analysis performed by a company called Trust for America´s Health of the financial return on investments, showed that for every ten dollars invested per person per year, in a strategic investment in proven community based prevention program to increase physical activity and good nutrition and prevent smoking and other tobacco use, there was a return of US$ 5.60 for every dollar. This represented a 16 billion dollar annual save nationally, within 5 years. In the State of New York alone, this represents a saving of about 7 billion dollars a year over 5 years.

Dr. Boufford highlighted that these financial calculations get people's attention. Because most elected officials work in 2, 4, 6 year terms, prevention plans have been very hard to sell because results of preventive campaigns usually take about 8-10 years to be seen and by then the elected officials will no longer be working to collect the merits of the campaign, so they are not interested.

With regards to cancer in the USA, Dr. Boufford shared that it is the second major cause of death, only preceded by cardiovascular diseases. There are 1.5 million cases diagnosed each year, with a visible disparity among ethnic groups, affecting many more African Americans than any other race within the country. The reasons for this are not fully known; however they are partially associated to social status.

With regards to tobacco use and cancer risk, there is solid evidence that smoking causes cancers of the lung, oral cavity, pharynx, larynx, esophagus, bladder, kidney, pancreas, stomach, cervix, and acute myeloid leukemia. Cigarette smoking causes an estimated 30% of all cancer deaths in the United States. Some of the benefits of smoking cessation compared to continuing smokers are: cessation by age 50 reduces the risk of dying within 15 years by up to 50%; the risk of lung cancer is 30-50% lower after 10 years of abstinence; the risk of oral and esophageal cancer is reduced by 50% within 5 years of cessation.

Upon analyzing obesity related to the risk of cancer, it has become evident that obesity is convincingly linked to postmenopausal breast cancer, cancers of the esophagus, pancreas, colorectum, endometrium, and kidney. Body fat is a probable risk factor for gallbladder cancer as well. Weight loss has yet to be shown to reduce the risk of obesity-associated malignancies.

Alcohol is also a risk for cancer. There is strong evidence that drinking alcohol increases the risk of cancers in mouth, esophagus, breast, and colorectum. There is probable evidence that drinking alcohol increases the risk of liver cancer and, in women, colorectal cancer. Daily consumption of around 50 g of alcohol doubles or triples the risk for mouth, larynx, and throat cancer compared to nondrinkers.

Diet related to cancer risk indicates that both fruits and non-starchy vegetables are associated with probable decreased risk for cancers of the mouth, esophagus, and stomach. Fruits but not not-starchy vegetables are associated with probable decreased risk of lung cancer. Vitamin and dietary supplement use have no proven benefit.

With regards to physical activity and cancer risk, there is convincing evidence that increased physical activity protects against colorectal cancer. And there is probable evidence that physical activity is associated with lower risk of postmenopausal breast cancer and endometrial cancer.

Based on some of the evidence, in an attempt to put some of the protection into practice, the national reform under the name Affordable Care Act (ACA) was passed in 2010. The first action was to provide universal financial coverage to almost 95% of the population, however this never happened. The ACA, Clinical Preventive Services included expanded support for primary care, including immunizations and screening; full coverage for age-appropriate preventive services, and free annual wellness visits for Medicare beneficiaries.

Decisions on which immunizations, and which screening activities are to be paid for by the new health care reform, unfortunately are very controversial, because a lot of people have money at stake on these decision, and there are many active lobbyists for various diseases, so the evidence faced for these decisions are often highly contested. The mechanisms for these decisions is called the U.S. Preventive Task Force, and this is an independent panel of non federal experts in prevention and evidence based medicine, and they make recommendations for certain preventive strategies where they believe the evidence is convincing.

As one example of the changes that are occurring, the implementation of the Take Care New York, aims at promoting quality health care for all; being tobacco free; promoting physical activity and healthy eating; being heart healthy; stopping the spread of HIV and other sexually transmitted infections; recognizing and treating depression; reducing risky alcohol use and drug dependence; preventing and detecting cancer; raising healthy children and making all neighborhoods healthy places.

Campaigns to achieve all this, include the promotion of smoke-free places, showing suffering caused due to smoking, and campaign against trans fat with regulations since 2006 to eliminate artificial trans fat from all the restaurants, and legal requirements to post calorie counts on menus and on menu boards. Additional measures have included NYC green carts, promoting access to fresh fruits and vegetables; media messages about sugary drinks (which have already proven effective with a decrease in consumption), the promotion of free or low cost physical activities and improvement of air quality in Times Square after the conversion to a pedestrian plaza.

*Video - Part 1*

*Video - Part 2*

http://www.abc.org.br/article.php3?id_article=2436&recalcul=oui

# Regional Workshop on Non-Communicable Diseases

Rio de Janeiro, 3-5 May, 2012

## SESSION 7

**Strengthening Regional Collaboration**

*Chair: Dr. Eduardo Krieger*

# SESSION 7

## Strengthening Regional Collaboration

*Chair: Dr. Eduardo Krieger*

The final session of the Non-Communicable Diseases Workshop opened with a brief introduction by Eduardo Krieger, who addressed the topic on how to strengthen regional collaboration. Representatives from IAMP, ALANAM, IANAS and ANM were invited to share their thoughts regarding the future of the collaboration among the Academies.

Prior to sharing the stand with his guest speakers, Krieger pointed out key elements, which he believes to be crucial for promoting the desired partnership. First he discussed the role of the Academies, indicating that the most important task at hand was that of sharing information. Academies need to advise society and their national governments, providing solid evidence regarding issues of concern. In order to do so, they need to be able to mobilize the best experts in the countries to prepare recommendations and reports that will feed policy and decision making processes.

He then indicated the key role that IAMP has to play. As a global network, it needs to envisage health from a global perspective, but at the same time it needs to be able to act locally. IAMP has the challenge of engaging Academies in collaborative work, coordinating their action. With IAMP having been created in 2000, and now encompassing over 70 academies, Krieger believes it is important that the network stimulate Academies to link in a more regional manner, as Academies in the same region tend to have similarities among them. This will allow a better approach when dealing with local health issues and challenges, as communalities can be explored. Basically, with IAMP being the main umbrella, he encourages the creation of sub-umbrellas focused on regional issues to facilitate the exchange of information.

At the regional level, we have ALANAM, but we also have IANAS, which was created in 2005 and has been extremely effective in engaging Academies in the region to work together. Krieger highlighted the role IANAS has been playing in developing capacity building and enhancing the visibility of Science Academies in the Americas.

Finally, Krieger raised a key question: How can we work together? He emphasized the fact that academies can profit from each other´s experiences, through workshops and by means of strengthening networks. He believes there needs to be one or maybe two IAMP programs, which may provide a platform over which Academies in the region can work together. These can focus on prevention, control, education, life style, health, overcoming smoking habits, or any other issues of common concern. The important thing is to stimulate Academies to work together, to become more proactive, to play a role in advising policy and decision making processes in the region on issues related to health.

In order to be successful in attaining the desired collaboration, he added, it is important to encourage that IAMP and ALANAM hold formal meetings with IANAS, to discuss how to work together, generating a synergetic relationship between these organizations that will be beneficial to all.

**Jo Ivey Boufford (IAMP)**

Jo Ivey Boufford opened her presentation by expressing her gratitude to the Brazilian Academy of Sciences for hosting the workshop on Non-Communicable Diseases, and emphasized the importance that such events have, on promoting integration.

As an IAMP representative, one of the issues Boufford shared was with regards to the fact that by being a global entity, many times it is a tremendous challenge to deal with issues at a regional or country level. She highlighted how IANAS and ALANAN have been active forces in bringing together Academies in the Americas, and emphasized how IAMP wishes to strive on building upon the strengths that both networks have already established.

She explained that IAMP is a global structure that was established under the request of Kofi Annan when he was Secretary General of the UN, in order to provide an adequate place for UN agencies and international bodies to go to in order to get evidence based advice on critical health issues. Professional and adequate information needs to be provided by adequate organizations such as IAP, which provides sound advice based on science-based evidence; IAC, located in the Netherlands, which convenes high-level experts to develop specific studies and recommendations; and IAMP, which is responsible for providing a Medical perspective.

Boufford reinforced that IAMP´s challenge, as a global network, is to bring together Academies of Science and Medicine to work together at the national and regional levels. It is important that Academies increase their visibility and relevance, being seen as actors that should be considered on projects and initiatives carried out by international organizations as the WHO, Unicef or any other major international agency. In addition, Academies should be able to address local governments, providing them advice on issues being addressed. Currently, she stated, it has been noted that individual members might be very influential within a specific government, but the Academy as a whole has not been successful in making the shift to work as an organization in influencing decision makers.

A major difficulty highlighted by Boufford is that many Academies just do not have the infrastructure to provide the administrative support needed to get things done. Additionally, members of the Academies work in a voluntary basis and have their own professional responsibilities that consume their time. The constant change in the leadership of the Academies is also a problem. Upon changing leaders, foci and priorities are changed, and many projects that were being implemented are left behind.

As an example of a positive transformation Bouffard cited the ASADI Programme, which is a ten-year programme funded by the Bill and Melinda Gates Foundation intended to assist African science Academies develop their capacities as advisers to their governments and societies. On this project, the US Institute of Medicine has been working with seven academies in total. With three of them, the work has been intensive – Uganda, Nigeria and South Africa -, and with the other four - Cameroon, Kenya, Ghana and the African Academy of Sciences -, the work has focused on setting strategies, working on grants, and promoting planning tools. Some of the efforts implemented were the issuing of progress reports, the performance of annual meetings and regular capacity building workshops.

Boufford concluded her remarks by sharing that currently the ASADI Programme is working with the development and strengthening of 14 Academies. She further emphasizes that most of these academies started at the same level (with the exception of South Africa), needing administrative support, financial management, needing to learn how to communicate with policy makers and not knowing how to raise money for their projects. Today, she stated, eight years later, a few of them are very effective addressing controversial issues and are successful in implementing necessary interventions. However, she states once more, work needs to be focused towards capacity building.

### Alvaro Moncayo (ALANAM)

Alvaro Moncayo reinforced the importance that the meeting on Non-Communicable Diseases had in bringing together a set of Academies and organizations. He believed the meetings greatly promoted integration among them.

He shared that the meeting enabled participants to amply identify and discuss similarities among Latin-American countries and Academies. ALANAM currently represents 14 Academies of Medicine in Latin America, and he referred to Latin America he clarified that he specifically meant Spanish-speaking countries, including those in the Caribbean.

One of the key issues addressed by Moncayo was the need for a better relationship between ALANAM and IAMP. He strongly believes that this issue will be solved following the coming ALANAM Executive Committee meeting in Madrid, where discussion will focus on attaining an official recognition from IAMP.

He also mentioned that currently ALANAM's main challenges lie within budgetary issues. As opposed to IANAS and the Academies of Science, he expressed that the Academies of Medicine, ALANAM and IAMP are currently under financial stress and need to find better ways to fund their projects. With no budgets allocated from international multilateral organizations towards ALANAM and IAMP, he believes the most appropriate approach would be to obtain assistance from local private organizations, such as that of the Gates foundation in Africa.

### Juan Pedro Laclette (IANAS)

The IANAS co-chair expressed how happy he was to be back in Rio, and thanked the Brazilian Academy of Sciences and the National Academy of Medicine for the fantastic organization of the workshop.

He shared that he believes that all the Academies need to be intercommunicative, by means of networks. Academies provide local based information that is critical to both Science and Medicine. Global organizations are not able to tackle problems if they are not connected locally through the academies.

As an example, he mentioned IAP, which has divided the world into four regional networks; a network for Africa, one for Asia, one for Europe and one for the Americas. Through these networks, it is possible to replicate the actions and programs of the Global Network of Science Academies within the different regions and countries.

IANAS, he explained, is the network for the Academies of Sciences for the American continent, focused on providing evidence-based recommendations to governments and national societies through the support of the Science Academies of the region. Through the collaboration between member IANAS Academies, it is possible to identify common goals and common problems and address them appropriately due to their proximity to the problem itself.

Laclette explained that IANAS has five major goals which are shared with their bigger umbrella, the IAP organization. These goals are defined as programs. Their first program is focused on Science Education. Their aim is to radically improve the teaching of Science in Elementary Schools, and they are currently promoting this program in 17 different countries. Yet, he highlighted, each country has its own particularities, its own educational system, therefore the engagement of local Academies is crucial in assisting IANAS in adapting their general model to meet the needs of individual countries.

The second program that IANAS is currently engaged is focused on Water. Due to the common knowledge that this resource is rapidly becoming scarce, IANAS has focused on creating a diagnosis on the water resources available in the Americas. Similarly, their third Program, on Energy, also deals with a possible stress of oil resources and therefore focuses of finding renewable and sustainable resources for the future.

Program four encompasses Women for Science and Gender equity. Laclette expressed the importance of having women become more involved in the area of science, not only because today they represent half of the population, but also because they see the world in a different way. This program is closely related to all other programs, being considered a horizontal program in that by engaging women, you also get them involved in all the other projects mentioned above.

The final program shared by Laclette relates to Capacity building. He indicated that while we have a monster Academy of Science in the US, in Canada and in Brazil for example, there are many underdeveloped countries which don´t even have an Academy of Science. Therefore, the core philosophy of IANAS is that the concept of capacity building be that of helping each other in a joint effort.

Laclette concluded his talk, by addressing one of the concerns expressed by ALANAM, with regards to budgets. He explained that their financial resources derive from several different organizations, foundations, agencies and even governments. He shared that it is crucial to know who the political actors involved in the issues are, and identify a common goal in order to present their programs to them. If there is a regional organization, a common goal, and an adequate proposal, money will be made available.

Laclette also reinforced the importance of this ongoing collaboration among Academies of Medicine and Academies of Science and ensured all members present that IANAS will undoubtedly take their recommendations into account and do their utmost to provide their support.

### Marcos Moraes (ANM)

Marcos Moraes started his speech by thanking everyone for the great opportunity provided by the workshop for all to discuss the important issues of science and health.

He emphasized the importance of increasing the role of national Academies of science and medicine, and asked all those present to think about what they could do to improve the way they worked together, to ponder over the challenges and come up with adequate strategies to promote such goal.

Moraes also complimented the quality of the presentations made during the conference, but threw light on a very important issue, which is the fact that due to our everyday routines, the probability that most would return to their home countries and forget what had been discussed, was immense.

Therefore, his key message focused on follow-up. He emphasized the need to create a strategic action plan in order to implement everything that had been discussed. If these strategies are efficient, the workshop will have been successful in helping to empower the Academies in the region. Furthermore, he added, Academies are not social clubs; they hold the obligation of helping the government and national societies in solving important issues.

### Discussion

Eduardo Krieger, who was chairing the session, proceeded by providing members of the audience the opportunity of sharing their thoughts. Some of the key issues mentioned were:

- The mission and the vision of most Academies are very similar. However, some Academies are way ahead of others in terms of organization. A recommendation was to promote activities that can stimulate a stronger interaction between the Academies, allowing them to share experiences and learn from each other. As a tool to promote integration, Academies should maintain dynamic websites, sharing information on what they are doing.

- There is a strong need for a common project to all Academies. Designing a common project will lead Academies to join forces and work in a collaborative manner. This will promote integration and help strengthen IAMP in the Americas, by building capillarity at the national and regional levels. However, it is necessary to focus on a feasible specific program, one that will capture the interest of all Academies.

• Another issue put forth was the need to first assess the health problems and issues in the Americas, and then see how Academy can contribute. PAHO has significant influence in all issues related to health in the region. However, Academies seem to not be integrated with PAHO. If we are looking towards leverage on having impact on health issues, we should not be irrelevant players, we need to see who are the key actors and how can we influence them. PAHO issues an annual paper; perhaps Academies can act as referees of those papers, appraising if goals are being achieved, and assisting in determining what needs improvement. Position papers on current health issues should come from the Academies.

• It is important that we assess what is going on in the region. We do not need to invent new things; an important step would be to identify what is going on and what are the hot topics for the region. We should identify in what areas our countries are doing good or wrong things, to then discuss how Academies can contribute. This overview is essential to allow us to be actors in the field. It is critical that a strategic plan is developed, in order to translate the ideas that were discussed in the workshop. But an action plan requires cohesiveness, common goals, dialogue, and choices, which need to be made, as it is impossible to cover all fields. A focus is needed so that we can have an impact in what we do.

• The member of the Caribbean Academy of Sciences shared that many governments pay high sums of money to get specialists to develop assessment of issues of concern. Costs could be greatly reduced if the Academies were used for this instead of private institutions, and this would result not only in a better involvement, but also provide an independent and non-political perspective. Statements from strong Academies could be made available to smaller Academies to assist them on how they sell themselves to their own governments. Projects held by other Academies would be made available, with costs and strategies that would enable smaller academies to make their proposals in easier ways.

## Concluding Remarks

Alvaro Moncayo stated that he strongly supports the idea of promoting a stronger integration between the Academies in the region through the adoption of a common project, which he believes should be a research project. His understanding is that ALANAM should play a leading role on this process.

Juan Pedro Laclette addressed the audience pointing the need of a thorough reflection on the discussion held during the last days. IANAS has a very positive experience in organizing programs and mobilizing Academies in the region to work together. If IAMP and the Medicine Academies in the region consider that it would be appropriate to establish closer collaboration ties with IANAS, the network of Science Academies will be most willing to engage in collaboration. As an example of potential common action, he mentioned a possible integration with the IANAS Science Education program, which could incorporate Health Education. This topic could provide an interface where there would be a clear common interest between Science and Medicine Academies. If IAMP Academies consider that the focus of the program should be other, IANAS is open for suggestions and discussion. The Academies of Medicine of the region need to decide if they want to strengthen their collaboration, what they can obviously do by their selves, but IANAS is available and willing to collaborate, if this collaboration is desired.

Jo Ivey Boufford raised two points related to the discussion on the joint project. The first one was that evidence is something that can be created through collaborative research, or we can use evidence that already exist to take it to a state of testing or measuring a program or a policy. So there is a whole spectrum as a possibility on what could be done in terms of joint work, and this needs to be considered. The second aspect to which she called attention is that usually Health and Science are seen and understood as two separate and independent issues, which they aren't. To most people Health means medical care and when this vision prevails, Health ends being seen as a topic of interest to health professionals only. As we have seen during the discussion of this workshop, Health is a much broader issue that connects to many other issues, such as Science. Boufford stressed that Medical Academies should link across governmental and non-governmental agencies, together with Science Academies, to contribute to the discussion of

policies. This is the kind of service and the kind of role that Medicine Academies should play, and many of the participants throughout the workshop expressed this common vision.

Eduardo Krieger closed the meeting pointing the need of practical decisions. A first aspect that is clear is the understanding that regional networking needs to be implemented. In order to allow a quick implementation of this networking effort, collaboration with IANAS is important. This does not mean that the Medicine Academies will not have their own network, with its individuality and specific mission. Notwithstanding, the collaboration between the Medicine and Science Academies is important to boost up their impact and capacity to influence policies. Therefore, the networks of Medicine and Science Academies should collaborate with each other. In short, as noted by Krieger, what we need to do is to implement what is already developed at the global level, where we have IAP and IAMP working together and collaborating with each other. Doing this at the regional level will allow us to avoid duplication of efforts and funds, generating a synergetic relationship that will be beneficial to all.

Marcos Moraes, president of the National Academy of Medicine, thanked participants for coming to the meeting and closed the workshop.

# Regional Workshop on Non-Communicable Diseases

Rio de Janeiro, 3-5 May, 2012

## APPENDIX

# Regional Workshop on Non-Communicable Diseases

Rio de Janeiro, 3-5 May, 2012

## AGENDA

### MAY 3, 2012

| | |
|---|---|
| 14:30 - 15:00 | Opening Ceremony |
| **Session 1**<br>Prevention and Control of Cardiovascular Diseases<br>*Chair: Lai-Meng Looi*<br>*Rapporteur: Cláudio Buarque Benchimol* | |
| 15:00 - 15:30 | Marcelo V. Elizari - Argentina |
| 15:30 - 16:00 | Luis A. Mercado Maldonado - Bolivia |
| 16:00 - 16:30 | Adib Jatene - Brazil |
| 16:30 - 17:00 | Trevor Anderson Alleyne - Caribbean |
| 17:00 - 17:30 | Benjamin Stockins - Chile |
| Joint Session of The National Academy of Medicine and the NCD Workshop<br>*Chair: Marcos Moraes*<br>*Rapporteur: Marcello Barcinski* | |
| 17:30 - 18:00 | Afternoon Academic Tea |
| 18:00 - 19:00 | Brazilian Amazonia:<br>A New Frontier for Health and Education<br>José Rodrigues Coura |

### MAY 4, 2012

| | |
|---|---|
| **Session 2**<br>Prevention and Control of Cardiovascular Diseases<br>*Chair: Juan Pedro Laclette*<br>*Rapporteur: Milton Ary Meier* | |
| 09:00 - 09:30 | Alvaro Moncayo - Colombia |
| 09:30 - 10:00 | José Emilio Fernández Britto Rodríguez - Cuba |
| 10:00 - 10:30 | Joaquin Barnoya - Guatemala |
| 10:30 - 11:00 | Juan Verdejo - Mexico |
| 11:00 - 11:20 | Coffee Break |
| **Session 3**<br>Prevention and Control of Cardiovascular Diseases<br>*Chair: Jan Lindsten*<br>*Rapporteur: Milton Ary Meier* | |
| 11:20 - 11:50 | Juan Ricardo Granero Delgado - Venezuela |
| 11:50 - 12:20 | Valentin Fuster - USA |
| 12:20 - 14:00 | Lunch |

## MAY 4, 2012

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|---|---|
| **Session 4**<br>Prevention and Control of Cancer<br>*Chair: Mario Stefanini*<br>*Rapporteur: Raul Cutait* | |
| 14:00 - 14:30 | Manuel L. Martí - Argentina |
| 14:30 - 15:00 | Eduardo Aranda Torrelio - Bolivia |
| 15:00 - 15:30 | Marcos Moraes - Brazil |
| 15:30 - 16:00 | Yuri N. Clement - Caribbean |
| 16:00 - 16:20 | Coffee Break |
| **Session 5**<br>Prevention and Control of Cancer<br>*Chair: Sevket Ruacan*<br>*Rapporteur: Gilberto Schwartsmann* | |
| 16:20 - 16:50 | Ricardo Uauy Dagach - Chile |
| 16:50 - 17:20 | Alvaro Moncayo - Colombia |
| 17:20 - 17:50 | Maria del Carmen Barroso Alvarez - Cuba |

## MAY 5, 2012

| | |
|---|---|
| **Session 6**<br>Prevention and Control of Cancer<br>*Chair: Dominique Richard-Lenoble*<br>*Rapporteur: Daniel Goldberg Tabak* | |
| 09:00 - 09:30 | Erick Jacobo Alvarez Rodas - Guatemala |
| 09:30 - 10:00 | Lizbeth Lopez Carrillo - Mexico |
| 10:00 - 10:30 | Luis Guillermo Capote Negrin - Venezuela |
| 10:30 - 11:00 | Jo Ivey Boufford - USA |
| 11:00 - 11:20 | Coffee Break |
| **Session 7**<br>Strengthening Regional Collaboration<br>*Chair: Eduardo Krieger*<br>*Rapporteur: Lucilla Spini* | |
| 11:20 - 12:30 | Jo Ivey Boufford - IAMP |
| | Alvaro Moncayo - ALANAM |
| | Juan Pedro Laclette - IANAS |
| | Marcos Moraes - ANM |

# LIST OF ACRONYMS

ABC - Brazilian Academy of Sciences
ACA - Affordable Care Act
ACE - Angiotensin Converting Enzyme
ACS - Acute Coronary Syndrome
AIDS - Acquired Immunodeficiency Syndrome
ALANAM - Latin American Association of Academies of Medicine
AMI - Acute Myocardial Infarction
ANM - National Academy of Medicine (Brazil)
ANVISA - Brazilian Health Surveillance Agency
ARB - Angiotensin II Receptor Blocker
AUGE - Universal Access of Essential Services (Chile)
ASA - Acetyl Salicylic Acid
BMI - Body Mass Index
BP - Blood Pressure
CAD - Coronary Artery Disease
CD - Cardiovascular Disease
CHD - Coronary Heart Diseases
CHF - Congestive Heart Failure
CPOD - Chronic Pulmonary Obstructive Disease
CV - Cardiovascular
CVD - Cardiovascular Disease
CVPD - Cardiovascular and Pulmonary Diseases
DASH - Dietary Approach to Stop Hypertension
DHA - Docosahexaenoic Acid
DMSO - Dimethylsulfoxide
DNA - Deoxyribonucleic Acid
DPT + HB –Tetravalent Vaccine
DTP + HB + Hib – Pentavalent Vaccine
EGF - Epidermal Growth Factor
EIDM - Evidence-Based Informed Decision Making
ENSAP - National School of Public Health
EPA - Eicosapentaenoic Acid
ERs - Emergency Rooms

FCTC - Framework Convention on Tobacco Control

GDP - Gross Domestic Product

GES - Garantías Explícitas en Salud

GESIT - Knowledge Management and Advanced Technology

GET - Groups of Work

GLOBOCAN - Project to provide contemporary estimates of the incidence of mortality and prevalence from major types of cancer

HCl - HydroChloric Acid

HDL – High-density Lipoprotein

HIV - Human Immunodeficiency Virus

HPV - Human Papillomavirus

IAC - InterAcademy Council

IACR - International Association of Cancer Registries

IAP - The Global Network of Science Academies

IAMP - InterAcademy Medical Panel

IANAS - InterAmerican Network of Academies of Sciences

INCA - National Institute of Cancer

INFOMED - Cuban health portal and the network of people and institutions

IPCC - Comprehensive Cancer Control Program

IVAA - Visual Inspection with Acetic Acid

LDL - Low-density Lipoprotein

LNA - Locked Nucleic Acid

MeOH - Methanol

MINSAP - Ministry of Public Health

NCDs - Non-Communicable Diseases

NCR - National Cancer Registry

NGOs - Non-Governmental Organizations

NIOR - National Institute of Oncology and Radiobiology

NOG - National Group of Oncology

NSRF - National Surveys on Risk Factors

PAHO - Pan American Health Organization

PAS – Physical Activity Score

PNA - Peptide Nucleic Acid

RFs - Risk Factors

RITA - Tumors Institutional Database of Argentina

ROHA - Argentinian Hospitals Oncopediatric Database

TIA - Transient Ischemic Attack

UNCC - National Unit for Cancer Control

UNICAR -Cardiovascular Surgery Unit of Guatemala

UNICEF - United Nations Children's Fund

VIA – Visual Inspection Acid

WHO - World Health Organization

# Regional Workshop on Non-Communicable Diseases

Rio de Janeiro, 3-5 May, 2012

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## IAMP Executive Committee Meeting

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