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NONCOMMUNICABLE DISEASES

At its 119th Meeting (September 1996) the Executive Committee requested that the subject of noncommunicable diseases be taken up by the Governing Bodies in 1997. The Director is pleased to present to the Executive Committee an analysis of the regional situation and a review of the history and work of the PAHO Program on Noncommunicable Diseases.

The Subcommittee on Planning and Programming (SPP) reviewed this document at its 28th Meeting (April 1997) and heard a presentation by the coordinator of the Program. Members of the SPP noted that the document provided a balanced analysis of the issues, identifying priorities, discussing solutions, and listing available resources and partners. The document was subsequently modified to reflect debate in that body, and is presented herewith.

The present Noncommunicable Diseases Program of PAHO was initiated in April 1995 in the Division of Disease Prevention and Control, superseding the Health of Adults Program (Division of Health Promotion and Protection). Its mandate is to strengthen the capacity of PAHO to support specific prevention and control initiatives in Member States.

Myths surrounding noncommunicable diseases have held that they are conditions mainly of the elderly, that they are inevitable, and that nothing useful can be done about them. Biomedical science has proved that these are false perceptions. Virtually all noncommunicable diseases are preventable (at least postponable), many are reversible, and many are amenable to secondary prevention to reduce complications.

The Executive Committee is asked to take note of the increasing dominance of noncommunicable diseases in the overall burden of disease in Latin America and the Caribbean, to consider the implications for the health of populations and on health services, and the need for capacity-building in response to the trends as projected into the 21st century. The Committee is invited to comment on the performance of PAHO's Noncommunicable Diseases Program, and to formulate recommendations on how to increase the effectiveness of its response to the needs and priorities of the countries.

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EXECUTIVE SUMMARY

The present Program on Noncommunicable Diseases (HCN) of PAHO was initiated in April 1995 in the Division of Disease Prevention and Control (HCP). The review commences with an historical outline of noncommunicable disease (NCD) activities in PAHO since the mid-1960s. The situation analysis highlights the increasing dominance of NCDs and injuries in relation to overall mortality and disability in Latin America and the Caribbean and explodes the commonly-held myths that these are conditions mainly of the elderly, that they are inevitable, and that nothing useful can be done. In light of current biomedical knowledge, these are false perceptions. Virtually all NCDs are preventable (at least postponable), many are reversible, and many are amenable to secondary prevention to reduce complications which pose a heavy burden on the health care system. The situation with regard to specific NCDs of public health importance is outlined in some detail, highlighting international evidence for prevention efficacy (under ideal conditions and full implementation) and contrasting this with current levels of effectiveness. Clearly there is scope to enhance policy and program impact, conditional on priority-setting and decision-making becoming more evidence-based.

The mandate of HCN is to strengthen the capacity of the Organization to support specific chronic disease prevention and control initiatives in Member States. Its purpose is to support adoption by Member States of feasible and cost-effective policies, strategies, and programs for prevention and control of NCDs of major public health importance. Program implementation to date includes surveillance development (disease and risk factors), the CARMEN project (Conjunto de Acciones para la Reducción Multifactorial de las Enfermedades No Transmisibles) [Actions for the Multifactorial Reduction of Noncommunicable Diseases], diabetes interventions, cervical cancer program development, registry support, promotion of pain management and palliative care, reviews of national cancer programs, regional assessment of injury impact, and promotion of clinical prevention activities. Operational features, priorities, budget, and resource mobilization are presented. Within resource mobilization emphasis is on the optimal use of focal points in the PAHO/WHO Country Representations, WHO Collaborating Centers, and nongovernmental organizations relationships.

Potential program impact (short-, medium-, and long-term) is considered in relation to the natural history of chronic diseases (generally, conditions which take a long time to develop require long-range interventions in order to reduce their impact). The importance of epidemiologically and managerially sound expected results and indicators is stressed, with the major emphasis at this stage on process measures. The document concludes with an examination of future development prospects. Advocacy and action are required at all levels of the Organization. PAHO's capacity to address NCDs needs to be enhanced in order to respond adequately to its mandate.

The Executive Committee is asked to take note of the increasing dominance of noncommunicable diseases in the overall burden of disease in Latin America and the Caribbean and to consider the implications of these trends on health services and on the related need for capacity-building in anticipation of the projected continuation of these trends well into the 21st century.

The Committee is also invited to comment on the performance of the Program on Noncommunicable Diseases and to formulate recommendations on the directions its future activities should take and on how to increase the effectiveness of PAHO's response to the NCD needs and priorities of the countries.

1. Background

1.1 *Historical Development of PAHO's Noncommunicable Diseases and Injury Activities*

During 1962-1964, the Inter-American Investigation of Mortality highlighted the increasing impact of noncommunicable diseases (NCD) in the Americas.¹ This period also saw landmark international studies demonstrating modifiable risk factors. Technical cooperation at that time supported aspects of cancer epidemiology. By the mid-1970s, this expanded to include hypertension, immunological diseases, and diabetes.

The first NCD Program in PAHO was established in 1976 and was later transformed into the Health of Adults Program and integrated into the Division of Health Protection and Promotion (HPP). Since the 1970s also, some Member States have created NCD units within their health ministries. Emphasis was mostly on observation, with little attention to intervention. In 1983, the Multinational Survey of NCD Risk Factors was developed to encourage comparative studies of NCDs and their risk factors, to promote programs to reduce risk factors, and to foster cooperation among countries. The project was difficult to implement due to the economic crises of the 1980s. In 1985, the project advocated "strengthening PAHO's commitment to assist in the development of programs to reduce NCDs in the Region."

In 1985-1986, PAHO sponsored a regional study of injuries, which revealed both high impact and preventability. The portfolio of injuries was assigned 50% of a regional post (combined with health of the elderly). This post was suspended in 1995 (on retirement of the Regional Advisor) and half the injury portfolio assigned to the present Noncommunicable Disease Program (HCN). Violence as a topic was retained by HPP, partially funded by a grant from the Rockefeller Foundation. The only currently funded project within PAHO, which addresses unintentional injuries (as well as intentional), is based in the Caribbean Epidemiology Center (CAREC), supported by Canada's International Research Development Center, with regional oversight by HCN.

In 1990, a divisional advisory meeting focused on NCDs. Recognizing the need for more specific interventions, some progress was made during the subsequent period in developing data to define priority NCDs (e.g., cardiovascular diseases, diabetes, injuries) and to stimulate actions within some settings (e.g., a risk factor survey in Barbados, clinical prevention training in Uruguay, cancer registry development). In view of the need to further strengthen clinical prevention and health services responses to the expanding pandemic, HCN was organized within HCP in 1995.

1.2 *Situation Analysis*

1.2.1 Overall Burden of NCDs

Mortality: In Latin America and the Caribbean, annual all-cause mortality is approximately 3 million deaths (1990). NCDs account for 57.9% of this mortality, while injuries account for 9.8% (for a total of 67.7%). The remaining 32.3% are due to communicable, maternal, and perinatal causes. Within NCDs, cardiovascular diseases account for 45.4%; malignant neoplasms, 19.7%; and diabetes, 4.9% (for a total of 70%). The ratio of deaths from chronic to infectious and parasitic diseases was 1:5 in 1985, projected at 3:4 in 2000, and rising to 6:7 in 2015.^{2,3}

Disability: NCDs dominate years lost to disability (YLDs) from all causes, accounting for 54.2%, with injuries at 17.7% (for a total of 71.9%). These estimates are considered to be conservative; as in the case of mortality, the trend is upward.^{1,2}

1.2.2 Myths and Facts about NCDs

Myth: NCDs are a problem mainly of the elderly.

Facts: Over 65% of years lost to disability from NCDs occur in person <45 years, and approximately 30% in persons <15 years. NCDs account for 44% of years lost to disability from all causes in persons <45 years, while injuries account for 21% (for a total of 65%).

Myth: NCDs are linked to affluence.

Facts: The alleged link with "affluence" is based on emergence of NCDs coincident with trends in industrialization and demographic transitions. Uncritical observers have viewed this emergence as a (somehow positive) indicator of social development. However, just as with infectious diseases, the incidence of most NCDs of public health importance, and the prevalence of their major risk factors, are generally higher in lower socioeconomic groups.

Myth: NCDs are degenerative.

Facts: While no single term fully embraces the conditions outlined in this report, the term "chronic degenerative diseases" is outdated, implying irreversibility not consistent with biomedical knowledge. For example, most ischemic heart disease is reversible (including atherosclerosis) through risk factor management (e.g., cholesterol lowering). Cancer never was "degenerative" (it is neoplastic), and non-insulin-dependent diabetes mellitus is relatively reversible. We now know that relatively few conditions are "degenerative" (e.g., osteoarthritis), and only a few are irreversible (e.g., spinal injury).

The foregoing contrast of myths and facts is relevant in combating the socio-cultural attitude that NCDs are inevitable and immutable. A similar attitude once prevailed about measles during the pre-vaccine era ("a harmless childhood infection, part of growing up!"). Virtually all NCDs are preventable (or postponable), many are reversible, and many are amenable to secondary prevention to prevent complications.⁴

1.2.3 Specific Disease Categories

Circulatory Diseases: Unlike Canada and the United States, where proportional mortality reductions in the order of 15% have been achieved since 1980, concurrent with efforts to promote health and to emphasize disease prevention within clinical and health service activities, no such decline is seen in Latin America and the Caribbean. In North America, the declines are consistent with reductions in the prevalence of underlying major risk factors (e.g., smoking, hypertension, hyperlipidemias), while in Latin America and the Caribbean the limited available data suggests an increasing prevalence of risk factors.

Underlying risk factor determinants such as high fat diets, sedentarism, and unfavorable substance abuse attitudes are established early, and require lifestyle modification within health promotion and primary prevention strategies. Such strategies offer returns mainly in the medium to long term. In the short to medium term, as well as in the longer term, secondary prevention, emphasizing clinical prevention and quality of care for persons with a disease, is essential.

Cancer: Deaths from cancer throughout the Americas increased by 73% overall from the early 1960s to the late 1980s. Proportional mortality from cancer has increased in every country. The leading neoplastic sites in Latin America and the Caribbean are: cervix, stomach, oropharynx, esophagus, breast, lung, liver, colon-rectum, lymphoma, and leukemia. Rates for cervical cancer rival those of Africa. While stomach cancer rates are declining, cancer of the breast and lung (and other tobacco-related sites) is increasing.

Cervical cancer is the main cancer intervention priority of HCN. (Tobacco control falls within the substance-abuse mandate of the Division of Health Protection and Promotion.) Most cervical cancer cases are associated with human papilloma virus, a widely prevalent sexually transmitted agent. Although condoms offer potential for primary prevention, only secondary prevention has proven effective; this involves cytology screening to detect dysplastic or early cancer changes, followed by diagnostic investigation and therapy. Policymakers need to know that 60% of invasive cancer occurs in women 35-60 years of age; a more assertive effort is therefore justifiable.⁵

Some WHO Collaborating Centers recently surveyed cancer pain management practices, utilizing an indicator based on morphine consumption. Globally the United Kingdom has the best performance; regionally, the best is Canada; by contrast, countries in Latin America and the Caribbean (e.g., Argentina, Costa Rica, Mexico) offer virtually no pain management. Pain management has been successfully promoted by WHO in recent years in Southeast Asia.⁶

Diabetes: There are 30 million people with diabetes in the Americas, of whom 13 million are in Latin America and the Caribbean, with 20 million predicted by 2010. This trend reflects rapid cultural changes (e.g., diet, lifestyle) compounded by aging populations. Deaths attributed to diabetes in Latin America and the Caribbean in 1990 were 85,200, but the actual number is certainly much higher due to errors in diagnoses and certification. Major potential exists to lessen the impact through primary prevention to reduce incidence and through improved quality of care to reduce complications. Diabetes is also the leading cause of blindness, non-traumatic amputations, and renal failure. The impact on quality of life and on health care costs is not fully appreciated. For example, the expanding caseload of chronic renal failure due to diabetes is a major concern, as few countries can afford equitable access to dialysis and transplantation.⁷

External Causes/Injury Prevention: In Latin America and the Caribbean, injuries account for 10% of mortality and 18% of years lost to disability. In potential years of life lost, external causes account for 20.5% for males and 8.1% for females. Injury is the first-ranked cause of death among persons 5-45 years of age.

Injuries are normally considered within two categories, unintentional and intentional. At the point of surveillance (e.g., emergency departments), differentiation requires clinical assessment. Injury surveillance projects therefore collect both categories. (Some overlap, with potential for misclassification, is recognized.) Leading unintentional causes include motor vehicle accidents, falls, burns, and drowning. Unintentional deaths exceed those due to violence by a ratio of 2:1, although the proportion due to violence is increasing. Despite limited resources, many countries have reduced motor vehicle accidents through cost-effective interventions such as improved traffic engineering (one-way roads, signs, speed bumps), seat-belt legislation, and safety promotion. All countries could achieve further reductions in unintentional injuries through more proactive approaches. Injury mortality analyses conducted by HCN also reveal patterns of violence which have implications for policy and a public health approach.

Other NCDs: Neuropsychiatric conditions account for more disability than any other NCD category: 30% of years lost to disability from NCDs in Latin America and the Caribbean. The leading

condition among women is depression, while among men it is alcohol dependency. Musculoskeletal conditions, chronic respiratory disorders, and birth defects account for 9%, 7%, and 7% of years lost to disability from NCDs, respectively, but have not yet been systematically addressed.

1.2.4 What We Don't Know about NCDs in the Americas

When attempting to assess the situation of NCDs in the Americas, data deficiencies stand out. Such data are essential to improve priority setting, and to design and evaluate interventions. HCN is attempting to address the following:

- How many countries have determined their health situation with regard to NCDs, risk factors and determinants, complications, and the related economic burden?
- How many countries have developed national NCD strategies that include goals, process indicators, and outcome measures?
- How are resources allocated to the prevention and control of NCDs, and are these being applied effectively and efficiently?
- How accessible are essential NCD services, treatments, and supplies to those who need them? What are the barriers?

1.3 Prevention Efficacy and Prevention Effectiveness

All areas of disease prevention and control should be assessed regarding their efficacy and effectiveness. "Prevention efficacy" refers to performance achieved under ideal conditions and full implementation. "Prevention effectiveness" refers to performance achieved under existing implementation conditions. Examples follow below:

1.3.1 Cardiovascular Disease (CVD) Risk Factor Intervention

Prevention efficacy greater than 50% has been demonstrated in the North Karelia project in Finland, where, over 20 years (1972-1992) the incidence of heart disease declined in males by 55% and in females by 68%. Most importantly, 80% of the decline in men and 72% of the decline in women was attributable to reduced prevalence of only three risk factors: cholesterol, hypertension, and smoking.

Promising initial results have also been achieved in Canada after only five years of intervention, where the Nova Scotia Heart Health Program has achieved significant reductions in the prevalence of the same three risk factors. This in turn is likely to lead to reductions in the incidence and mortality from heart disease and related conditions.

When confronted with evidence from western Europe and North America, some people comment that what is achievable in Finland and Canada cannot be achieved in developing countries.⁹ However, this traditional view is being rejected by an increasing number of developing countries, such as Mauritius and Cuba.

In Mauritius, an integrated NCD intervention project was launched in the late 1980s; after five years, encouraging declines in the prevalence of some risk factors have been observed, although it is too early to claim success. In Cuba, the Cienfuegos project after four years has reduced the prevalence of hypertension from 43.9% to 38.5%. WHO estimates that a 2mm decline in population blood pressure

results in a 6% reduction in annual mortality from stroke, 4% from CVD, and 3% from all causes. If applied to Cienfuegos (approximately 3.5 mm mean reduction to date), declines of 9% for stroke, 6% for CVD, and 4.5% for all causes may be projected.

Current prevention effectiveness in Latin America and the Caribbean is likely to fall within the range of 0%-10% overall, due to the general lack of integrated NCD programs in most countries that combine well-focused health promotion with support for clinical prevention to achieve primary prevention goals (e.g., to reduce incidence), that reorient health services to emphasize quality of care for secondary prevention goals (e.g., to reduce complication rates), and that evaluate process, impact, and outcomes.

1.3.2 Cervical Cancer Screening and Intervention

Prevention efficacy in the range of 70%-90% over approximately 25 years has been demonstrated by well-coordinated programs in Finland (90% reduction in the incidence of invasive cancer) and in Canada (70% reduction, the best performance in this Region). Prevention effectiveness in Latin America and the Caribbean at this time is estimated to vary within the range of 0%-15% (Chile shows the best performance; its program is well-designed but not yet fully implemented).

1.3.3 Diabetes Mellitus

Prevention efficacy for diabetes has been estimated for both the incidence of the disease and rates of complications. Impressive incidence reductions (in the order of 50% over 5-6 years of follow-up among persons at risk of the disease) have been demonstrated in both developed and developing countries (Malmo, Sweden, and Da Qing, China). Potential for major reductions in complication rates, in the order of 60% over seven years, has been demonstrated in both Canada and the United States (DCCT Trial).

Attention to a range of well-focused health promotion, active clinical prevention procedures, patient education, and improved quality of care for selected prognostic factors (e.g., metabolic control, foot care) are the keys to a well-organized diabetes prevention and control strategy. Involving patients in their own care, with emphasis on patient as well as professional education, is of particular importance. A project to demonstrate the educational and related process interventions is now under way in Chile.

1.3.4 Injury Prevention

Estimates of prevention efficacy in injury prevention derive mostly from the study of transportation injuries and generally range from 40%-50%. This is relative to the injury burden (morbidity and mortality) within each country. Prevention effectiveness (i.e., injury prevention as practiced in Latin America and the Caribbean) may lie within the range of 0%-50%, with a few countries (e.g., Trinidad and Tobago) demonstrating mortality reductions in the order of 50% over a 10-year period, following the implementation of a strategic approach (eg., improved traffic engineering, seat belt legislation, safety promotion). Even after such a decline, there must still be room for improvement, such that potential efficacy may be even higher. Major opportunities also exist for secondary prevention, such as improved transportation, communications, and training for ambulance attendants. Injury prevention, guided by the epidemiological approach of first defining and measuring the problem, moving to risk factor identification, and then to intervention with evaluation, is one of the most cost-effective avenues for public health action although one that requires interministerial action to succeed. There is room for improvement throughout the Region.

2. The Noncommunicable Diseases Program

2.1 *Origins and Justification*

Historical highlights of NCD developments at PAHO were reviewed in Section 1. In addition, there is evidence that the Region is “ready” for technical cooperation:

- Several countries have moved ahead largely on their own initiative (e.g., Chile, Cuba, Barbados), reorganizing to address NCDs as a public health priority.
- PAHO Country Representatives increasingly designate full-time staff to respond to NCD technical cooperation requests (e.g., Colombia, Trinidad and Tobago).
- HCN has been able to obtain advisors and consultants from the Member States themselves (e.g., Mexico, Brazil, Chile) to address NCD issues in other countries.
- Several countries are already responding to the Declaration of the Americas by explicit actions (e.g., Bahamas National Diabetes Prevention Program organized).
- The World Bank in 1996 held its first global forum on NCDs, at which HCN addressed the regional impact. A cervical cancer briefing is scheduled for 1997.
- 1997 World Health Report will address the global burden of NCDs; PAHO input coordinated by the Office of Analysis and Strategic Planning (DAP) and HCN.

2.2 *Initial Organization*

HCN was formed with three professional and two general services (or support) posts. During 1996, a member of PAHO’s International Residency Program was attached part-time, and short-term staff were contracted.

2.3 *Mandate and Purpose*

Mandate: To strengthen the capacity of the Organization to support specific chronic disease prevention and control initiatives in Member States.

Purpose: To support adoption by Member States of feasible and cost-effective policies, strategies, and programs for prevention and control of NCDs of major public health importance (e.g., cardiovascular diseases, diabetes mellitus, selected cancers, hypertension, injuries).

2.4 *Operational Characteristics*

HCN has adopted matrix management (lead and support roles assigned to each staff member), and defined interprogrammatic relationships have been developed.

3. Planning and Budgeting

3.1 *Planning*

3.1.1 Program Priorities and Key Justifications

The following summarizes the most relevant considerations in priority setting:

Priority	Key Justification ¹⁰
Noncommunicable disease surveillance	health situation analysis, priority setting, and planning
Cardiovascular disease risk factor intervention	cardiovascular diseases account for 45% mortality, prevention efficacy 50%
Cervical cancer development	leading cancer site in women, prevention efficacy 90%
Diabetes mellitus	12.8 million cases in Latin America and the Caribbean, >60% increase by 2010, prevention efficacy 50%
Injury prevention	10% mortality, 18% years lost to disability, prevention efficacy >40%

3.1.2 The Planning, Programming, and Evaluation Process within HCN

To illustrate the logical progression of goal-setting, expected results, and indicators, the two biennial periods 1996-1997 and 1998-1999 are contrasted (Annex A).

3.2 *Budget and Resource Mobilization*

3.2.1 Summary of Financial Resources Secured from April 1995 to January 1997

The table below reviews the first three years of funding for the regional program (HCN). The amounts shown do not include funds programmed at the country level.

Year	Regular Posts	Regular Non-Posts	OTC	Other	Extra-budgetary	In-Kind	Total
1995	242,041	90,000	62,300	26,200	30,000	39,100	489,641
1996	419,652	143,900	40,000	47,000	105,000	NA	755,552
1997	419,652	143,900	50,000	Pending	108,000 to date	Pending	Pending

OTC Over-the-ceiling funds allocated by the Director in the operating budget above the allocation to the Unit under the Biennial Program and Budget

3.2.2 HCN Focal Points in the PAHO/WHO Country Representations

In 1995, HCN asked all PAHO Country Representatives to designate a focal point for communications and consultations. The resulting list is periodically updated.

3.2.3 WHO Collaborating Centers Corresponding with HCN

An effective relationship has been developed with selected WHO Collaborating Centers, in the areas of diabetes, cancer pain, screening, stroke, and policy development.

3.2.4 NGO Relationships

A major relationship has developed with the International Diabetes Federation (IDF) since mid-1995. IDF now enjoys status as an international nongovernment organization in official relationship with PAHO (1996). Similar status was accorded to the American NGO National Coalition of Hispanic and Human Services Organizations (COSSMHO) in 1996, but functionally this is not yet comparable to the PAHO-IDF model. A relationship being fostered with the International Brain Injury Association needs time to mature. At a more informal level, partnerships are evolving with several other NGOs (e.g., Inter-American Heart Foundation, World Hypertension League).

4. Program Implementation and Technical Cooperation Strategy

Since inception, HCN has been active in development and dissemination of policies, plans, and norms, adapting approaches that work well elsewhere in the world (e.g., CINDI/CARMEN project, outlined below), and formulating new approaches (e.g., Declaration of the Americas on Diabetes). Direct technical cooperation is conducted with PAHO's Country Offices, emphasizing situation analysis, priority setting, and strategy development, with support for demonstration projects. Information dissemination and training have been conducted in support of the foregoing areas. In relation to research promotion, needs assessment (including risk factor surveys) and project evaluation are emphasized. Underlying all activities has been a strong effort in resource mobilization.

4.1 NCD Surveillance

Knowledge of trends and patterns of NCD mortality and morbidity is important to plan and evaluate interventions, at both regional and national levels. To monitor trends requires improvement of existing information systems or development of new systems. While some systems are not unique to NCDs (e.g., mortality), others are (e.g., cancer registries). In addition to using mortality and disability estimates, HCN is developing potential years of life lost (PYLL) estimates for each NCD (not previously available for NCDs). Progress has also been made in addressing risk factor surveillance (see below).

NCD incidence and prevalence are shaped by the distribution of risk factors such as hypertension, hyperlipidemia, smoking, and their determinants (e.g., high fat diet, inactivity, attitudes), as well as use of effective preventive medical services. Knowledge of risk factor distributions and of preventive service utilization has been extremely limited in Latin America and the Caribbean. However, in planning prevention policies, and for intermediate outcomes to assess intervention effectiveness, risk factor surveillance is required. HCN recently drafted guidelines for standardized risk factor data collection and analysis that are now circulating for comments. Feedback from WHO/NCD suggests that the document may be adapted for global use.

4.2 CARMEN Project

The CARMEN concept (conjunto de acciones para la reducción multifactorial de las enfermedades no transmisibles) [actions for the multifactorial reduction of non-communicable diseases] combines highly focused health promotion (i.e., risk factor reduction, as distinct from broadly based health determinants) with actions that can be taken by physicians (i.e., clinical prevention) and health services (e.g., improved quality of care to address secondary risk factors).

Each CARMEN project requires commitment of resources by the country. This is usually feasible, as the projects represent a reorientation of health services, adding quality and effectiveness to health care reform efforts. CARMEN projects are viewed as national in scope, with local implementation site(s). The minimum time frame is 15 years, given the relative complexity of interventions and the slow rate with which changes in NCD risk factors and outcomes can be demonstrated. Priorities and approaches vary among sites. All CARMEN projects require a baseline assessment and periodic evaluation. An agreement between PAHO/CARMEN and WHO's Country-wide Integrated Noncommunicable Disease Intervention (CINDI) provides for mutual technical support.

Chile is already implementing a project in Valparaiso. Design work is under way in Argentina. The Cienfuegos project in Cuba and the Nova Scotia Heart Health Project in Canada are being considered for inclusion in the project network, and Puerto Rico, Mexico, Costa Rica, and Uruguay have also expressed interest.

4.3 Diabetes Interventions

In view of its serious emerging impact, diabetes was adopted as an HCN priority. Advisory support was initially obtained from WHO/NCD. Emphasis was placed on consensus development, in association with the Latin America Association for Diabetes and the Caribbean Diabetes Association. IDF and industry relationships were sought. A major event in 1996 was the Declaration of the Americas on Diabetes, emanating from the regional meeting held in August in Puerto Rico. The Declaration represents a regional strategic plan, setting the stage for operational planning and implementation. PAHO's Directing Council, in September 1996, recognized the Declaration as a guide for national

program development. Implementation planning and support for country programs is now under way, involving PAHO, IDF, and five industrial supporters.

Other important initiatives include a diabetes-based approach for integrated NCD programming (being piloted in the eastern Caribbean by PAHO's Caribbean Program Coordination); support for regional epidemiology training (Colombia 1996); support for IDF regional courses for development of diabetes associations; translation into Spanish of the IDF publication, *The Price of Ignorance - A World View on Diabetes Education*; and development of a brochure entitled *Diabetes in the Americas: Facts for Health Professionals*. HCN also attracted funds from the Eli Lilly company to demonstrate (in Chile) the clinical and economic impacts of enhanced diabetes patient education.

4.4 Cancer

HCN is supporting two regional priorities (cervical cancer and registry development), is actively formulating a third (promotion of pain management and palliative care), and, on request, reviewing national cancer programs.

4.4.1 Cervical Cancer

Although many countries already commit resources, screening for cervical cancer has been introduced almost entirely within maternal health and family planning programs. This results in resources being applied almost exclusively and at much too short intervals, (e.g., annually), to healthy women at very low risk, missing the opportunity to address middle-aged and high-risk women who contribute the overwhelming majority of cases of invasive cancer. As a consequence, screening practices in most countries are generally ineffective. HCN is therefore attempting to promote less frequent screening (e.g., five-year intervals), across an older age spectrum (e.g., 30 to 60 years), with wider coverage to include most women at risk of the disease. HCN has carried out a reconnaissance of trends and national responses, a workshop for review of national project planning, site visits to programs (ongoing) followed by development of a rapid assessment tool, the preparation of a special issue of the PAHO Bulletin devoted to cervical cancer (only the second document ever on this topic available in Spanish, and the first based on Latin America and the Caribbean experience), and selection of Ecuador and Venezuela as sites for the development of regional demonstration models. "Best practice" designations are being considered for selected sites in a few other countries.

4.4.2 Registry Development

In the development context, cancer registries are a mixed blessing: if properly developed, they can provide useful data on trends and distribution for the purpose of priority setting, and may contribute to design, management, and evaluation of cancer programs. Unfortunately, these conditions usually do not apply: many registries are not well implemented or maintained (resources and commitments are often under-estimated and insufficient), and most countries are not at a stage where a registry can be integrated within a fully functional cancer program, as they do not yet have such programs. Although registries often supply research data for academic institutions, a research agenda per se is not sufficient justification to develop a national cancer registry. HCN therefore takes the position that not all countries need to have comprehensive population-based registries, that "national" registries are often not feasible, and that more active use of alternative data (e.g., mortality, hospital utilization, risk factor surveys) can be more cost-effective in priority setting and strategic planning.^{11,12} HCN concludes at this time that, with a few exceptions, it is more important to strengthen existing registries than to develop new ones, and that new ones should focus first on support for program development (e.g., cervical cancer) rather than on research.

4.4.3 Pain Management and Palliative Care

HCN has been examining this area in consultation with WHO Geneva and WHO Collaborating Centers in this Region. A former regional focal point for WHO based in Canada (Alberta Cancer Board/ACB) and HCN are developing a new and direct relationship. A WHO monograph on pain management is now available in Spanish (1996). HCN has been in close consultation with other regional programs (e.g., Bioethics), and with other organizations (e.g., the Comisión Interamericana contra el Abuso de Drogas (CICAD)), and a contract has been issued by HCN, funded by a grant from the Alberta Cancer Board, to assist in developing a regional strategy proposal.

4.4.4 Development of National Cancer Programs

WHO Collaborating Centers have been enlisted by HCN to undertake national program reviews (e.g., Costa Rica, Cuba).

4.5 *Injury Prevention*

The major focus to date has been a descriptive analysis of regional data and a reconnaissance of previous PAHO actions and studies. The former will result in the limited release in 1997 of a source book on deaths due to injuries and violence in selected countries of the Americas. Active relationships have been developed with WHO/SPI and WHO Collaborating Centers in the Americas. Links with the Injury Prevention Research Center at the School of Public Health of the University of North Carolina (UNC) have been revitalized, acknowledging the valuable support obtained from UNC over the years by PAHO. The Rollins School of Public Health (Atlanta) is being designated as a WHO Collaborating Center. In 1996, HCN and the International Brain Injury Association (IBIA) jointly developed a poster presentation for the meeting of the Directing Council, accompanied by an interactive computer display on brain injury (developed by the Brain Injury Association (BIAInc)). BIAInc is also being proposed as a WHO Collaborating Center. Also planned for 1997 are a reconnaissance survey of national policies relating to injury prevention, a policy paper on injury prevention being jointly developed by HCN and DAP, and translation and publication of a WHO monograph on neurotrauma.

4.6 *Clinical Preventive Practice*

Guidelines for Clinical Preventive Practice (Spanish language), in technical collaboration with Health Canada, will go to press shortly. Dissemination and implementation will be integrated and evaluated within CARMEN projects. All guidelines have been graded on quality of evidence.¹³

4.7 *Publications and Reports*

Publications and reports produced by HCN are listed in Annex B.

5. SWOT Analysis

A SWOT (strengths, weaknesses, opportunities, and threats) exercise of the Program was conducted by HCN late in 1995 and updated for the purpose of this report:

5.1 Strengths

- high quality staff
- good teamwork, cohesion
- well focused priorities
- groundwork with PWRs and country projects well advanced
- focal points identified
- good performance to date (1995, 1996)
- evidence of resource mobilization ability demonstrated
- no prior commitments to impede current priorities

5.2 Weaknesses

- small unit relative to size of problem
- small budget
- PAHO's overall priorities for NCDs are in process of development
- operating program and budgets of PAHO's country offices evolving slowly in recognition of NCD impacts
- not all PWR focal points are sufficiently prepared in NCDs

5.3 Opportunities

- a new "product line"
- expanding size of problem ("market demand" increasing)
- opportunities for intervention in health sector reform
- potential for massive public recognition
- potential private sector support (already demonstrated)
- promising international and NGO linkages (already demonstrated)
- "investment potential" (e.g., extrabudgetary funding, cost recovery, postponed health costs)

5.4 Threats

- limited PAHO tradition and technical preparation in the arena of NCDs when compared with capacity in other areas of public health
- competition for declining regular budget
- relative lack of (short-term) political appeal (vs., EPI, ebola)
- relative lack of media appeal (not crisis prone; low potential for drama)
- distortion of priorities by external forces (e.g., promotion of inaccurate information, funding pressures, political agendas).

6. Impact of Program^{3/4}Real and Potential (Short-, Medium-, and Long-Term)

In all areas of disease prevention and control there are time lags from process to impact to outcome. This transition takes longer for most NCDs than for acute infections and injuries. Just as most NCDs require time to develop (in individuals and in populations), so too will the process of reducing risk factors, as these are a function of human behavior (professional, managerial, and personal), (e.g., decline of smoking prevalence in Canada since 1974: approximately 1% per annum). The same holds true for reducing disease burden (e.g., decline of cervical cancer in Chile, which has a strategically sound national screening program: 1% per annum).

NCD interventions necessarily reflect their multifactorial origins; risk factors are generally synergistic (impact tends to be multiplicative, not simply additive); full potential is realized only after sustained reduction of several factors at the population level. In addition, NCD risk factors generally affect several outcomes (e.g., hypertension contributes not only to heart disease, but is the major factor in stroke and accounts for 30% of renal failure). The natural histories of these outcomes also proceed within different time frames; the impact of multiple risk factor intervention therefore cannot be limited to only one outcome category within one time frame.

For example, after five years of population intervention, the Nova Scotia Heart Health Project is measuring initial success only at the level of risk factor reductions. At 10 years, the focus may shift to outcome measures, although this focus may be optimal only after about 20 years (e.g., North Karelia project). This is the reason the CARMEN protocol requires a country to recognize at least a 15-year horizon for the project. It would be managerially and epidemiologically unsound to focus on outcomes at the beginning. Initial emphasis must be on process and impact measures. The long-term objective to reduce morbidity and mortality must pass through these stages.¹⁴ PAHO/HCN is supporting this process in ways that are potentially effective in given settings.

An examination of HCN's expected results and indicators will reveal that all are "process" or "impact" measures and that, when viewed in the context of diseases whose natural history is measured in years (even decades), all are short (1-2 years) to medium-term (strategic and programmatic orientations, SPO). In the longer term (e.g., 5-15 years) it is expected that improved outcomes will also be achieved in response to these initiatives, but it is also recognized that outcomes will belong more correctly within the direct manageable interest of local and national programs subject to resources and levels of implementation.

In responding to the emergence of NCDs as the dominant cause of morbidity and mortality, developing countries can avoid the mistakes made by other countries with more years of experience. Time lags between program implementation and impact therefore will be less (e.g., two decades elapsed before Canada's cervical screening activities were adequately coordinated; risk factor reduction strategies are now considered "proven"; other countries can capitalize on these experiences). Countries in Latin America and the Caribbean thus have an excellent opportunity to select sound NCD priorities, to adopt cost-effective strategies, and to implement programs that have a strong chance of success.

7. General Conclusions and Future Development Prospects

Technical cooperation in response to the growing regional burden of NCDs has developed relatively slowly over the past 30 years. National and regional responses to date have been less than sufficient for effectiveness. Nonetheless, virtually all NCDs of public health importance are amenable to prevention and control. The success of health reform efforts will turn on the issue of how health systems can respond to this increasingly dominant reality.

Clearly, there is scope for enhanced impact at policy and program levels, conditional upon priority-setting and decision-making becoming more evidence-based. Many countries have only recently reached a point of recognition, while a few have moved to readiness and action. The HCN program mandate and purpose are supportive of this trend, and performance to date reveals the ability to provide strategic support, although severely limited in terms of resources.

Currently there is fragmentation at PAHO regarding the resources applied (directly and indirectly) to NCDs. This can be partially overcome through interprogrammatic efforts and greater use of external partnerships. These options have been recognized and are being acted upon by HCN. Nonetheless, the SWOT analysis reveals many issues which need to be addressed by the Organization as a whole.

Advocacy and action are required at all levels in the Organization. PAHO's capacity to address NCDs needs to be enhanced (e.g., some focal points indicate a desire to be more effective, but lack skills because they were trained in traditional areas of public health). While such areas are still vitally important, there is a pressing need now to enhance the capacity of the Organization to respond more adequately to its mandate in relation to NCDs. The health needs and priorities of countries are rapidly changing; PAHO must anticipate and lead this process as the 21st century approaches.

8. Proposals and Recommendations from the Program

In light of the increasing dominance of NCDs in the overall burden of disease in Latin America and the Caribbean, and the increasing availability of cost-effective methods for prevention and control, the Executive Committee is asked, in formulating its recommendations, to take into account the implications for the health of populations and for health services, and to address the need for capacity-building in anticipation of the continuation of these trends well into the 21st century.

The Executive Committee is invited to take note of the SWOT analysis as a basis for considering recommendations regarding the Noncommunicable Diseases Program and the directions its future activities should take, and on how to increase the effectiveness of PAHO's overall response to the needs and priorities of the countries.

The Executive Committee is asked to address the following more specific needs that are critical to the development of effective NCD prevention and control throughout the region:

- Greater practical recognition of the need for and cost-effectiveness of prevention and control of NCDs, in establishment of organizational priorities, agenda setting, and resource allocation.
- Greater emphasis on evidence-based priority-setting and decision-making, taking into account disease burden, prevention efficacy, and cost-effectiveness of interventions.

- Health service-based strategies that incorporate all relevant levels of prevention, including clinical prevention and quality of care, that will complement more effectively the existing role of health promotion in NCD prevention and control.
- Development of priorities and guiding principles for interprogrammatic cooperation in addressing NCDs so as to concentrate regional resources on a limited number of initiatives, consistent with the strategic and programmatic orientations.

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ANNEX A. EXPECTED RESULTS AND INDICATORS

1998-1999

A regional situation analysis that includes core data on key NCDs of public health importance (CVD, CaCx, DM, injuries), and status of prevention and control policies, plans, and programs by country.

Indicator: Regional situation analyses, including core data on key NCDs, status of programs, for all countries, listing sources, available by 31 Dec 1999.

1998-1999

Capacity to assess and prioritize NCDs at national level is strengthened and demonstrated for specific priority conditions: diabetes, cervical cancer, CVD and risk factors, and injuries.

Indicator: Number of countries (paired comparisons) with national NCD policies and plans for priority conditions in mid-1999, compared with mid-1997.

1998-1999

NCD demonstration projects formulated, implemented and preliminary evaluations initiated.

Indicator: The following will be achieved by end of 1999: CARMEN projects under way in at least five countries; cervical cancer projects (both demonstration and "best practices" models) under way in at least five countries; diabetes intervention projects completed or under way in at least five countries; Comprehensive NCD situation reviews and strategic analyses completed in at least three countries.

1996-1997

A limited network of specialized resource centers for information and data collection, analysis and dissemination is established.

1997 Indicator: Regional resource network expanded for noncommunicable diseases of major public health importance.

1997-1998

Capacity to assess and prioritize NCD problems at the national and local level is strengthened.

1997 Indicator: Priority setting capacity assessed, measures to enhance capacity identified, and technical cooperation to strengthen capacity (where justified) under way in three countries.

1996-1997

Policies, programs and/or demonstration projects for prevention and control of NCDs formulated and identified/initiated.

Indicator: Policies and programs formulated and demonstration projects identified/ initiated in five countries.

1998-1999

Training conducted in collaboration with other partners (e.g., WHO, NGOs) in order to strengthen capacity for planning and implementation of NCD programs, emphasizing epidemiology in decision-making, project formulation, leadership.

Indicator: Improvement in knowledge; evidence of satisfaction with relevance; post evaluation assessments.

1998-1999

Integration of NCD prevention practices promoted within population intervention projects and within clinical practice.

Indicator: Evidence that preventive clinical practice has been incorporated within CARMEN, cervical cancer and diabetes intervention projects, with progress demonstrated at year end 1998 and 1999.

1996-1997

Training activities to strengthen the capacity for formulation, implementation, and evaluation of NCD prevention and control programs designed and initiated.

1997 Indicator: Training material, needs assessment, and evaluation reports available from 1997 activities.

1996-1997

Integration of NCD prevention practices initiated in clinical practice and health systems.

1997 Indicator: Clinical prevention guidelines published and clinical prevention practices under way in at least one project site.

ANNEX B. HCN PUBLICATIONS AND REPORTS 1995-1997 (to date)

Program Publications

Educación sobre diabetes - Disminuyamos el costo de la ignorancia. Organización Panamericana de la Salud. Comunicación para la salud No.9. Washington 1996.

Oncología Clínica - Manual de la American Cancer Society. Segunda Edición. Organización Panamericana de la Salud. Publicación Científica No. 559. Washington 1996.

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Individual Publications

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