

Diabetes in the Americas

Introduction

In the year 2000, the number of people who suffered from diabetes in the Americas was estimated at 35 million, of which 19 million (54%) lived in Latin America and the Caribbean¹. It is projected that in 2025 this number will rise to 64 million, of which 40 million (62%) will live in Latin America and the Caribbean.

Diabetes is characterized by deficiencies in the secretion and/or action of the hormone insulin, resulting in high levels of blood glucose. Diabetes is associated with an increased risk of premature death, particularly because it is associated with a greater risk of cardiovascular diseases. In addition, diabetes patients are at greater risk of becoming blind, of suffering from renal insufficiency and losing their lower limbs by amputation. There are two major types of diabetes: type 1, which appears most frequently during infancy or adolescence, and type 2, which is related to obesity and physical inactivity. Diabetes type 2 represents around 90% of all diabetes cases and appears most frequently after the age of 40.

Epidemiological surveillance of type 2 diabetes is hampered by several factors. The existence of many subclinical cases (between 30% and 50% of the total cases in a majority of the populations) make it difficult to estimate its prevalence in the population. There are many therapeutic regimens for diabetes (insulin, oral treatment, diet, physical exercise or a combination of these). Its clinical course is often apparently benign, but can result in chronic complications, which increase the risk of dying or permanent disability.

Surveillance of type 1 diabetes is less complicated due to its acute onset, which often leads to a medical emergency. Type 1 can be treated only with insulin.

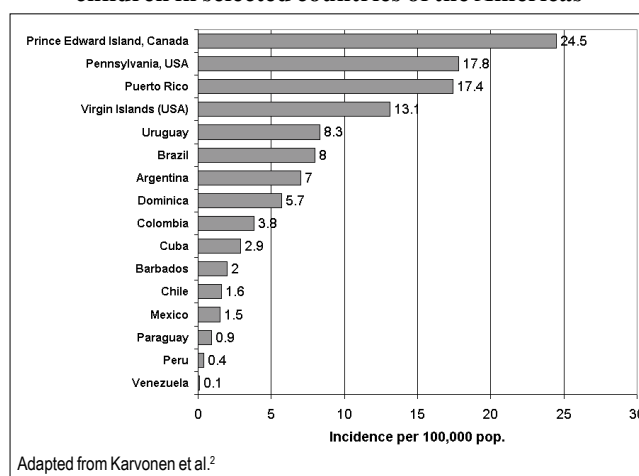
The magnitude of the burden of diabetes is not reflected in mortality statistics since the majority of the patients die of chronic complications such as cardiovascular diseases and nephropathy. In many of those cases, diabetes does not appear among the diseases listed on death certificates.

Presence of diabetes in the Americas

Since the majority of the countries of Latin America and the Caribbean do not conduct epidemiological surveillance of diabetes in adults, there is limited information on the prevalence of this disease. Diabetes surveys have been carried out in several countries, but these have not been part of a regional epidemiological surveillance policy. As a result, these surveys have been sporadic and differ in methodological aspects such as selection of the population, sampling and the diagnostic criteria used, all of which hinder the comparison between studies. Despite these limitations, surveys on diabetes (and its risk factors) are the main source of information that can be used to determine the magnitude of this problem in the population.

Many countries have registries of type 1 diabetes, especially in children who are part of the WHO project called DIAMOND. The risk of suffering diabetes type 1 during childhood varies greatly in the Americas. Karvonen et al.² showed that the incidence rate ranged between 24 per 100,000 population in the 1990-1993 period in Prince Edward Island, Canada and 0.5 per 100,000 population in 1992 in Venezuela (Figure 1).

Figure 1: Adjusted incidence rate of Type 1 Diabetes in children in selected countries of the Americas



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Figure 2 shows results of studies of prevalence of diabetes in adult populations in the Americas. The highest prevalence rate in adults (mainly type 2) has been reported among the Pima Indians of Arizona, United States³. In Latin America and the Caribbean, the highest rate was registered in Barbados (16.4%)⁴, followed by Cuba with 14.8%⁵, while the lowest rate was registered in 1998 among the Aymara indians of a rural area in Chile (1.5%)⁶. In the majority of the countries, the prevalence of diabetes is higher in women than men.

Figure 2: Adjusted¹ prevalence rate of diabetes mellitus in adults in selected countries of the Americas (%)

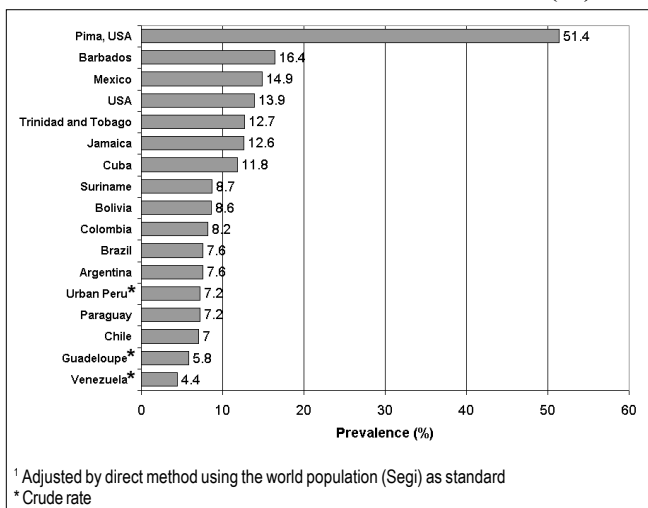
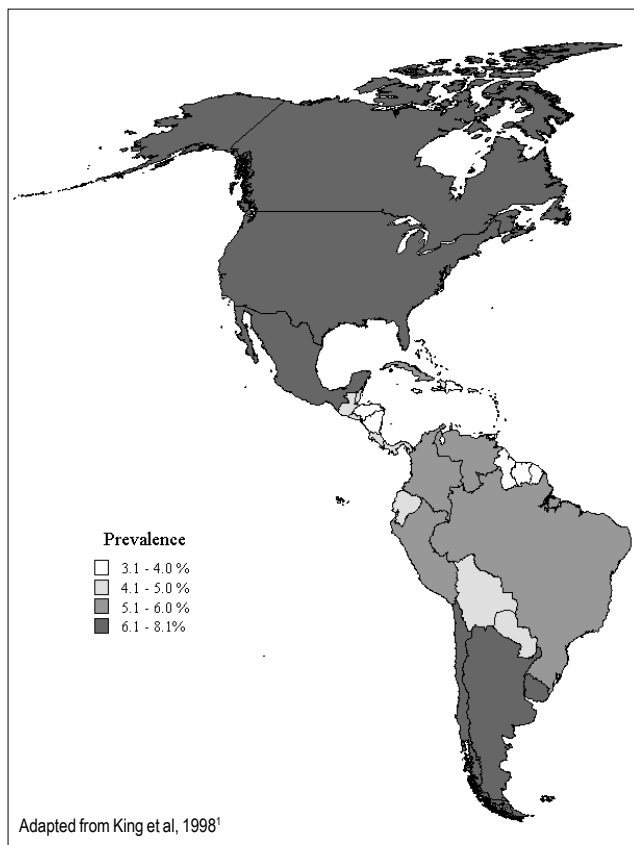


Figure 3 shows the estimated prevalence of diabetes in adult populations of the Americas in 2000 as calculated by the World Health Organization. In the United States, Canada, Argentina, Chile, and Uruguay the prevalence was estimated between 6.1% and 8.1% of the adult population. In Brazil, Peru, Venezuela, Colombia, and Cuba the prevalence of diabetes was estimated between 5.1% and 6.0% of the adults, while in Bolivia, Paraguay, Ecuador, Panama, Costa Rica and Guatemala rates varied from 4.1% to 5%. In Suriname, Guyana, Nicaragua, and Honduras from 3.1% to 4.0% of the adult population have diabetes. It was estimated that urban populations (such as those where most prevalence surveys were carried out) showed prevalence rates twice as high as in populations living in rural areas.

The increase in prevalence of diabetes is amplified by the progressive migration of rural populations to cities and by the assimilation of habits that favor the appearance of obesity. In the United States, the prevalence of diabetes increased for these reasons. Some studies showed that the same is occurring in Latin America and the Caribbean. In a population of Havana, Cuba, for example, two surveys for the detection of diabetes were conducted over a period of 27 years. The original study, carried out in 1971, included 3,268 people. In 1998 the same study was repeated in a sample of 251 people representative of the same health area. On both occasions, the diagnosis was made using a glucose tolerance test and the criterion used was a level 140 mg/dl or more two hours after the ingestion of 75gms of glucose (Impaired

Figure 3: Estimated prevalence of diabetes in the Americas, 2000



Glucose Tolerance (IGT): 140-199 mg/dl and Diabetes (DM): 200 mg/dl or more). The prevalence of IGT-DM increased from 8.4% in 1971 to 23.6% in 1998 (diabetes 14.4% and IGT 9.2%)⁵. A study involving native Mapuche Indians in Chile evaluated the 1985 prevalence of diabetes at 0.4 % in men and 1.4% in women⁷. However, a repetition of this survey in 1999 showed a prevalence of 3.2% in men and 4.5% in women⁸. This suggests that a process of acculturation is occurring in this rural community, with an increase in the prevalence of diabetes and perhaps of other chronic diseases.

In 1998, the Ministry of Health of Bolivia, with the support of PAHO/WHO, conducted a survey to detect diabetes, hypertension, and risk factors for noncommunicable diseases.⁹ The study included a sample by conglomerates of 2,948 people in La Paz, El Alto, Cochabamba, and Santa Cruz. The results showed a prevalence of diabetes of 7.2%, with similar prevalence in men and women. The prevalence of IGT was 7.8%, with a higher prevalence in women (9.1%) than in men (6.6%). The prevalence rates of the three categories of glucose intolerance (known diabetes, new cases of diabetes and IGT) were higher among those with lower levels of education (Table 1). The most disadvantaged people of Bolivia are those most affected by diabetes.⁹ These results suggest that diabetes constitutes an important health problem even in countries that are still clearly in development and where the so-called epidemiological transition is in process. Despite the fact that communicable diseases continue to be a health prob-

lem for developing countries, noncommunicable diseases such as diabetes, hypertension, and obesity are becoming an important human and social burden as well.

Table 1: Prevalence of Diabetes Mellitus (DM) by education level, Bolivia, 1998

Education level	Prevalence of DM (%)	Confidence Interval (95%)
None	13.1	6.0 - 20.8
Elementary	8.4	7.1 - 9.7
Secondary	6.8	4.8 - 8.6
Technical	4.4	2.8 - 5.9
TOTAL	7.2	6.2 - 8.3

Interventions

A public health approach of this action plan requires the involvement of those affected by diabetes, interested organized groups and health care multidisciplinary teams from both the public and private sectors. It is necessary to strengthen the contact with health care providers to assure early diagnosis and adequate management of diabetes and its complications.

The purpose of the Diabetes Initiative for the Americas (DIA) is to increase the capability of health care services and systems to organize diabetes surveillance and control in the Americas. DIA has three lines of action:

- To increase the availability and use of epidemiological information.
- To promote rational use of the available services through the implementation or evaluation of diabetes care programs and activities.
- To promote the design and implementation of culturally sensitive diabetes education and self-management programs.

The Pan American Health Organization, in partnership with the International Diabetes Federation (IDF) and the phar-

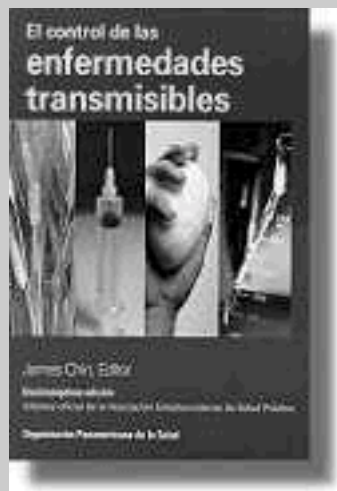
maceutical industry created in 1996 the Declaration of the Americas on Diabetes (DOTA). DOTA has successfully coordinated various activities in the region of the Americas during recent years. The role of DIA is to strengthen efforts to improve diabetes control, taking in account PAHO's experience in the collaboration with countries, with DOTA and with various other institutions.

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Source: Prepared by Dr. Alberto Barceló of PAHO's Non-Communicable Diseases Program, Division of Disease Prevention and Control (HCP/HCN).

Control of Communicable Diseases Manual, 17th Edition - Spanish Version



This manual is a widely recognized source of reference on communicable diseases. It is easy to understand and use, and it contains information on more than three hundred diseases. All the diseases previously included in the Manual have been reviewed exhaustively in this new edition and almost a third have been updated; additional material on viral diseases by Hendra and Nipah is also presented. Furthermore, a new section has been added on the response of public health workers to bioterrorism.

Each disease includes a general description, the infectious agents that cause it, their distribution, reservoir, periods of incubation and communicability, susceptibility and resistance, and control methods, including measures to prevent and control epidemics. A glossary of 51 technical terms and a detailed index of subjects complement the work.

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Inequalities in Infant Mortality in the American Region: Basic Elements for Analysis

Health and living conditions in the Region of the Americas have considerably improved in recent decades. Some infectious diseases have been eradicated or controlled, populations have increased development possibilities and various public and health services are now available. During this time, life expectancy has increased and infant mortality has continuously declined. The reduction in infant mortality can be seen from different perspectives, which include looking at different levels of aggregation of the data and studying its distribution characteristics in different geographical areas. Based on the methodology and the data used for the health situation analysis presented in PAHO's *Annual Reports of the Director* from 1996 to 2000 and the 1998 Edition of *Health in the Americas*, this article presents a broader approach of infant mortality analysis, with the purpose of detecting health inequalities.

Measurement of the infant mortality rate (IMR) includes all deaths in children under 1 year occurring in the live birth population within a period of one year. Nevertheless, errors in the estimates can appear due to underreporting of infant deaths or live births (lb). Even with these limitations, infant mortality and its desagregation by major groups of causes continues to be one of the most commonly used health indicators for health situation analysis. For strategic and political reasons, infant mortality is under close scrutiny in many countries. It is not only used as an indicator of the health status of the population but is also important due to its impact on the populations' life expectancy at birth.

Since 1995, following PAHO's Regional Initiative of Core Health Data, managed by the Special Program for Health

Analysis, about 20 countries have been publishing subnational core data and indicators in a systematic way, including infant mortality. This allows us to present the behavior of infant mortality at the subnational level. Some countries went even further and produced information on the causes of mortality, the population groups most affected and the areas where highest infant mortality occurred. Central tendency and variability indicators of infant mortality from 18 reporting countries is presented in Table 1. The means of IMR range from a minimum of 6.43 per 1000 lb to a maximum of 87.3. The medians of infant mortality in some countries tend to be different at the country level, probably due to the great dispersion (variance) of the values observed. Medians are usually better central summary measures than averages because they limit the effect of extreme values (such as those seen in table 1). Rate ratios give an idea of the existing differences between geographic units in a country. The higher this ratio, the greater the health inequalities. On the other hand, the coefficient of variation is a relative dispersion measure that takes into account both the average value of the IMR and measures of its dispersion. It is calculated by dividing the standard deviation by the mean of the IMR in each country. Although not included in this analysis, the use of weighted averages can also be useful to take into account the relative weight of each geographic unit.

The regional and subregional breakdown give a general idea of the infant mortality indicator in large areas of the hemisphere. Looking at the distribution pattern of the IMR allows one to point out the possible inequalities between different geopolitical units. A representation of the distribu-

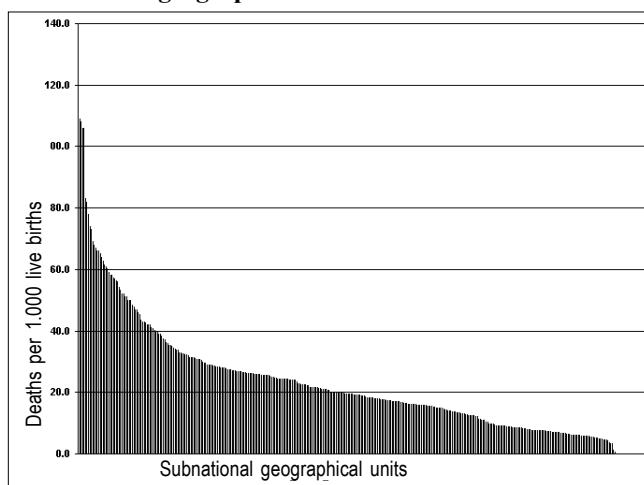
Table 1: Distribution of infant mortality rate in geographical subnational units from countries of the Americas between 1995 and 1998

Country	N	Minimum	Maximum	Ratio	Range	Mean	Median	Stand. Dev.	Var. Coef.
Argentina	24	9.7	34.4	3.55	24.7	20.8	20.05	6.2402	0.3
Belize	6	11.4	35.2	3.09	23.8	20.4	16.55	9.3164	0.46
Bolivia	9	50	133	2.66	83	87.3	83	27.171	0.31
Brazil	27	19.66	74.07	3.77	54.41	40	35.02	15.572	0.39
Canada	11	4.6	12.2	2.65	7.6	6.43	5.7	2.2136	0.34
Colombia	27	4.5	28	6.22	23.5	14.1	14.8	5.2159	0.37
Costa Rica	7	3.71	15.68	4.23	11.97	12.3	13.69	4.0678	0.33
Cuba	15	5.4	10.3	1.91	4.9	8.09	8	1.4815	0.18
Ecuador	20	10.9	32.7	3.00	21.8	19.9	18.45	6.1882	0.31
Guatemala	22	24.02	58.03	2.42	34.01	38.1	35.52	10.457	0.27
Mexico	33	14	42.8	3.06	28.8	24	22.2	7.2612	0.3
Nicaragua	17	12.63	40.12	3.18	27.49	23.8	22.4	8.3399	0.35
Panama	10	11.1	29.8	2.68	18.7	19.2	18.1	6.1744	0.32
Paraguay	18	16.45	61.54	3.74	45.09	25.3	21.26	10.818	0.43
Peru	24	26	109	4.19	83	54.9	51.5	18.761	0.34
Uruguay	18	13.3	25.7	1.93	12.4	18.4	18.35	2.7759	0.15
United States	51	4.4	14.9	3.39	10.5	7.42	7.4	1.7729	0.24
Venezuela	24	8.9	42.1	4.73	33.2	24.9	24.55	7.2736	0.29

tion of those rates is obtained by choosing an adequate subnational disaggregation (districts, departments etc.) and ordering the units in decreasing order of the IMRs. This gives a picture of the great heterogeneity of the distribution. Among the 18 countries of the Region of the Americas¹ that reported data on infant mortality at the subnational level, a total of 386 geographical units are available. Figure 1 shows the great variability of infant mortality in those countries. The amplitude of the inequalities also becomes evident when one observes that the maximum value (133 deaths by 1000 lb) represents 36 times the minimum value (3.71 deaths by 1000 lb). The distribution of the mortality at this level shows a great variation with approximately 5% of the geographical units showing values higher than 60 deaths per 1000 lb. In the other extreme, 20% have mortality lower than 10 per 1000 lb and more than half have values close to the regional average of 24 deaths by 1000 lb.

As indicated previously, infant mortality has been declining since the 1960s, when it reached a median of about 80 per 1,000 lb in Latin America. At the end of the 1990s, the median IMR for the Region dropped to 20 per 1,000 lb (an average of 24.8 per 1000 lb). Looking at subregions of the Americas (Figure 2), the greatest IMR in the 1980-1985 period is found in the Central American Isthmus with 65 per 1,000 lb. In the same period, North America had the lowest rates (less than 15 per 1,000). By 1995-2000, North America had reduced its rate to nearly 8 per 1,000 lb and Central America had lowered its IMR to nearly half (35 per 1,000 lb) of the value observed in the previous period. Though the IMR in the Latin Caribbean also declined during this period, this region was left with the highest figure (nearly 45 per 1,000). The reduction of the IMR between 1980-1985 and 1995-2000 in the An-

Figure 1: Infant mortality rate in 19 countries of the Americas, 1995-1998. Distribution pattern for 386 geographical subnational units



¹ Includes: Argentina, Belize, Bolivia, Brazil, Canada, Colombia, Costa Rica, Cuba, Ecuador, Guatemala, Mexico, Nicaragua, Panama, Paraguay, Peru, United States, Uruguay and Venezuela

dean Region, Brazil, the Central American Isthmus, and the Latin Caribbean fluctuated between 30 and 45%, while the reduction in the Non-Latin Caribbean, the Southern Cone and North America was between 20 and 25%. However, it is important to take into account that the latter three subregions started at a much lower IMR. It is easier to have an impact on higher IMRs and as a result the observed changes are difficult to compare.

The distribution of IMRs within countries can be visualized in an even more precise way using box plots. When representing several countries in a single graph, one can observe that the median of the IMR in the subnational sphere shows variations among countries. In figure 3, considerable variations are observed in the median of the IMR in the same group of countries of the Americas as mentioned previously. This median goes from a minimum of 5.7 deaths per 1000 lb in

Figure 2: Infant mortality by subregion of the Americas between 1980-1985 and 1995-2000

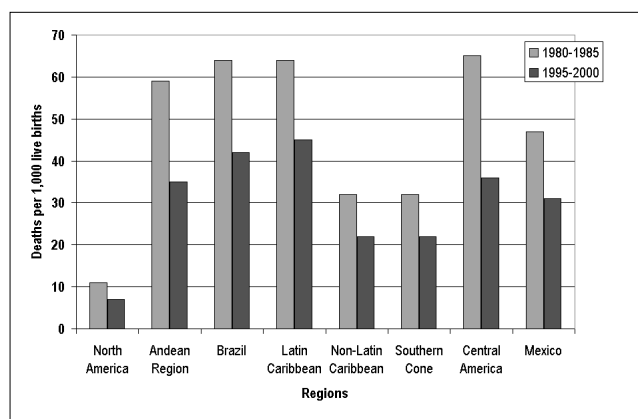
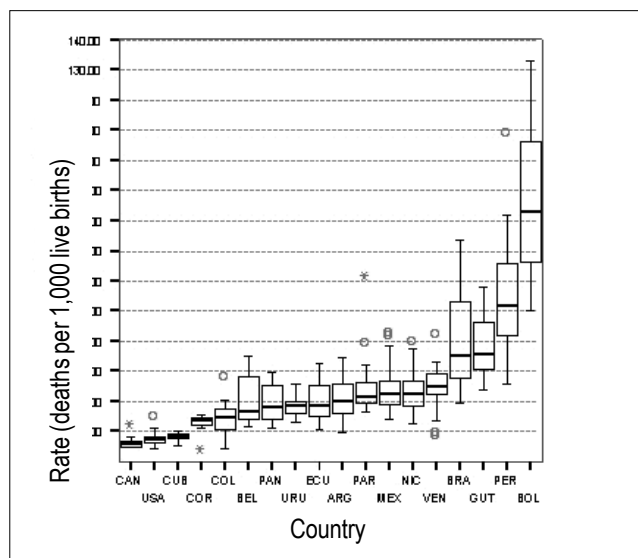


Figure 3: Infant mortality in 18 countries of the Americas, 1995-1998. Distribution within the countries according to subnational geographical units



Canada to 83 in Bolivia. This means that the probability of dying in children under 1 year in the country with the worst situation is 15 times greater than in the country with the best situation. Even so, 14 of 18 countries reached the proposed goal of Health for All in the Year 2000 to reduce the levels of infant mortality below 30 per 1000 lb. However, the averages presented here tend to give an image of the situation that does not account for the important differences that are occurring inside the countries.

Indeed, the box plots show that there exists an important variation in the IMR within the countries and that these differences vary by country. An additional means of quantifying these differences is to present Z values² of the IMR of different subnational units with respect to the national average. The greater the value of the Z score (on the positive or negative side), the further the IMR with respect to the national average. This type of analysis reflects the existing ine-

Figure 4: Infant mortality in the United States by state, 1996

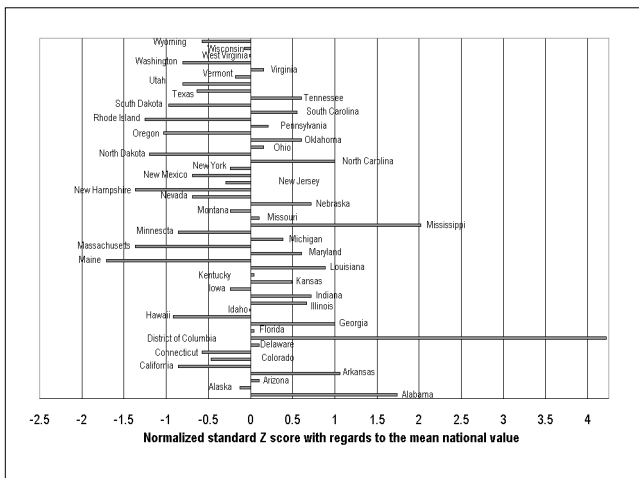
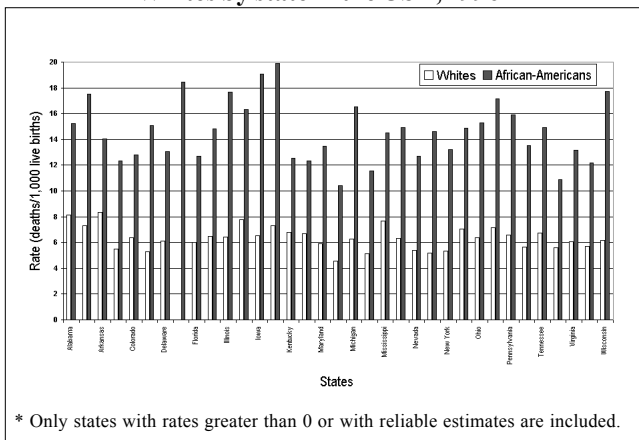


Figure 5: Infant mortality in African-Americans and Whites by state in the USA, 1996*



* Only states with rates greater than 0 or with reliable estimates are included.

² Z value: value expressed as a deviation from the average value in units of standard deviations

Figure 6: Infant mortality in Guatemala by department, 1995

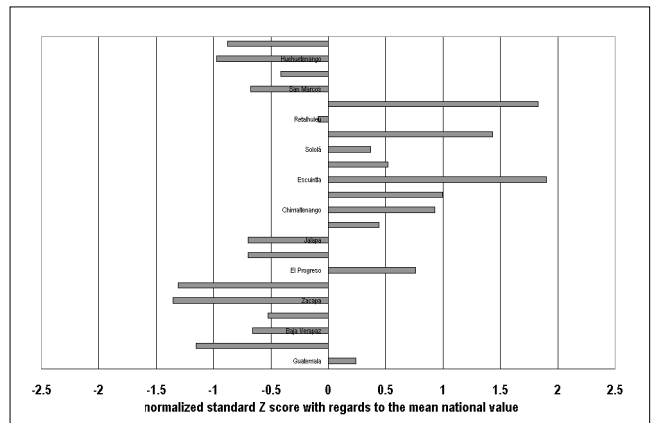
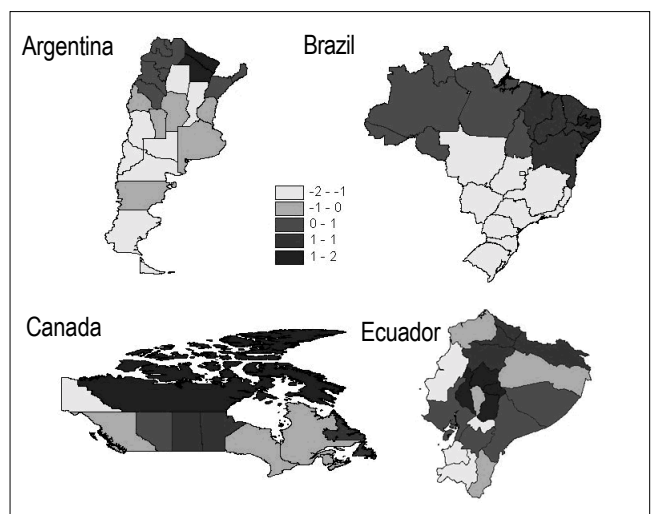


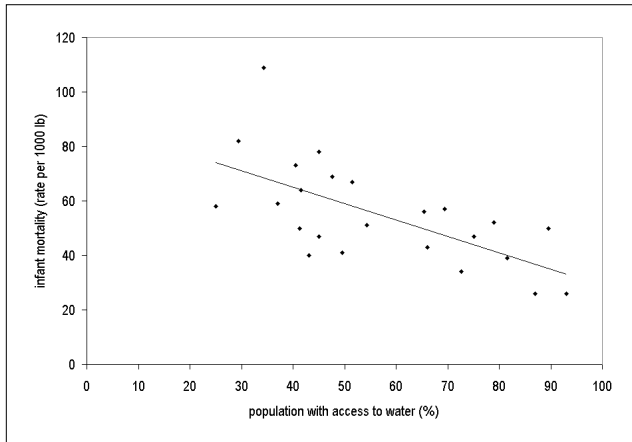
Figure 7: Normalized Z values with respect to the national average (1998): Argentina, Brazil, Canada and Ecuador



qualities assuming that the expected value is that of the national level. For example in the United States, infant mortality is greater in the District of Columbia (figure 4). A more precise analysis of the rates in different populations shows that minorities, particularly the black minority, present higher infant mortality in every state in this country (Figure 5). Similarly, the calculation and the graphic representation of Z values in departments of Guatemala (figure 6) identifies patterns with large variations in the IMR in the different geographical areas of these countries. This information can also be presented in maps (figure 7).

Finally, in the study of the inequalities that exist in the IMR, it is important to take into account their relation to the different biological, socioeconomic and cultural determinants of society. In particular, the demographic and socioeconomic features of a population are factors that determine their living conditions. In this case, it is of interest to explore regression analyses to observe the relation between the IMR and other indicators, for example the population with access to water. Thus, in subnational units of Peru (figure 8) an inverse rela-

Figure 8: Correlation between the infant mortality rate and levels of access to drinking water, Peru 1996



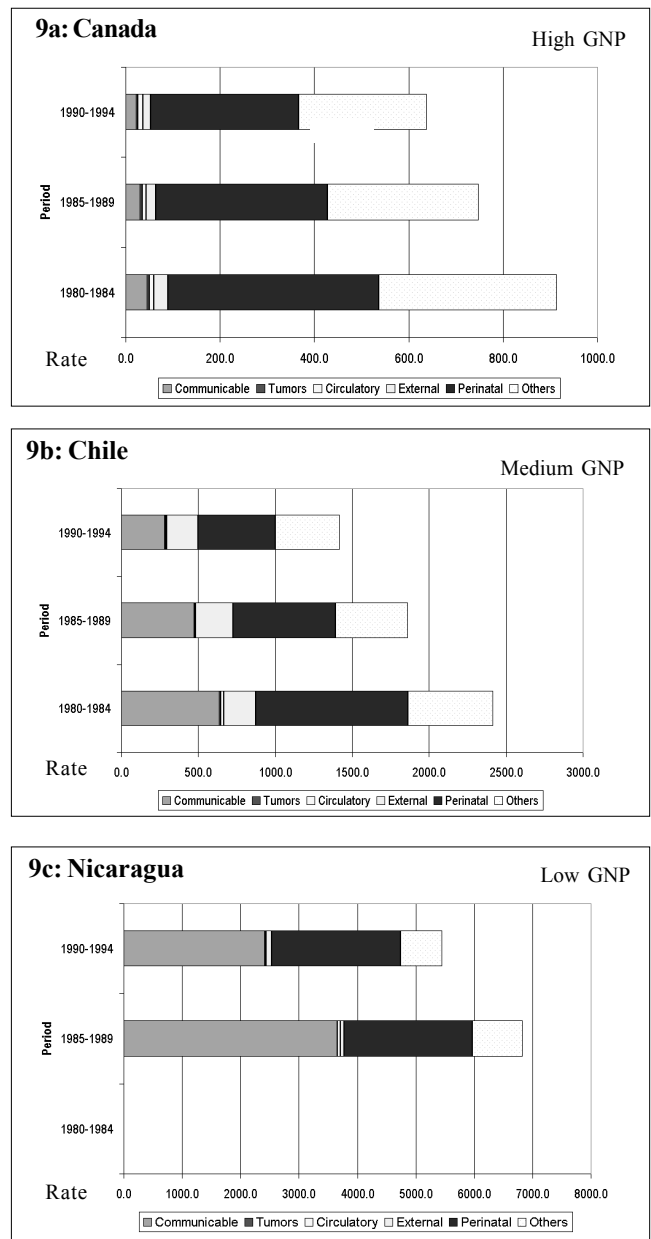
relationship between the IMR and the proportion of the population with access to drinking water is observed, with correlations of -0.65 and -0.66, respectively. The negative correlation indicates that the IMR decreases as the access to drinking water increases.

The methods presented so far give a general idea of the situation, however a deeper inquiry can include other levels of analysis. For example, the analysis of the structure by cause of infant mortality in a country and at different periods makes it possible to show occasional changes in the mortality profile. Figures 9a-c show specific mortality rates for several causes in children under one year of age in countries corresponding to different levels of Gross National Product (GNP), a measure of the wealth of a country. One can observe that mortality declined in all the presented countries. The conditions originated in the perinatal period represent a major proportion of mortality in all the countries. However in some countries such as Nicaragua, communicable diseases dominate the mortality profile. Some countries such as Canada and Chile present a substantial decrease in both groups of causes while the reduction was greater in communicable diseases in Nicaragua. External causes usually do not weigh as much in infant mortality, but in some countries such as Chile they represent a proportion that should not be disregarded.

Situation analyses makes it possible to determine priority problems, and therefore represents the first step towards the establishment of priorities in health intervention. Detailed analyses of important indicators such as the IMR allows one to define priorities in specific areas, taking into account inequalities that exist within and among countries. Such analyses also allow for consideration of special population groups and the performance and quality of the services directed to them as well as general and cause-specific mortality rates.

Note: Figure 9. The scales are different. (Estimated rates per 100,000 children under 1 year old.)

Figure 9: Mortality in children less than one year, by broad groups of causes (per 100,000 children < 1 year) 1980-1984, 1985-1989 and 1990-1994



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Source: Prepared by Dr. Carlos Castillo-Salgado, Dr. Enrique Loyola, and Ms. Anne Roca of PAHO's Special Program for Health Analysis (SHA).

Ackee (*Blighia sapida*) poisoning in the Northern Province, Haiti, 2001

Between November 2000 and March 2001, 80 cases of an acute phenomenon were registered in two communes (districts) of Haiti's Northern province. The illness was characterized by continuous vomiting, abdominal pains, loss of consciousness, convulsions, and death in the most serious cases.

The nature of the symptoms and past history of similar conditions in the same region in 1988 and 1991 suggest that this phenomenon was caused by consumption of ackee (*Blighia sapida*), a common fruit in the region that produces serious health effects when consumed unripe.

Ackee is the national fruit of Jamaica and was imported from West Africa in the 18th century. It is a tall, leafy tree (up to 12 meters) that produces clusters of fruits widely used for human consumption and for industrial purposes. The tree is found in several countries in the World and in the Region of the Americas, where it is known under various names, such as "Arbre à fricasser" in Haiti, "yeux de crabe" or "ris de veau" in Martinique, "fruto de huevo" in Panama and Guatemala, "árbol de seso" in Cuba, "mery del diablo" in Venezuela, "pan y quesito" in Colombia, or "pero roja" in Mexico. The tree produces fruit twice a year, between January and March and between June and August. The fruit is yellow in color and shaped like an oblong capsule that contains three cream-colored arils (Figure 1). The arils may be consumed safely when the fruit becomes red and opens under the sunlight. It is then commonly boiled in water or milk and can be eaten alone, in meat or fish dishes. It is also consumed raw in some African countries. When ingested unripe, ackee produces vomiting and fatal cases of poisoning.

The toxic health effects are produced by hypoglycins A and B, which have a potent hypoglycemic effect that causes the clinical symptoms and death. The most toxic is hypoglycin A, which is found in the unripe arils. Hypoglycin A is a water-soluble liver toxin that produces hypoglycemia through

the inhibition of gluconeogenesis, secondary to the limitation of cofactors (CoA and carnitine) that are essential for the oxidation of long-chain fatty acids. The concentration of Hypoglycin A in the unripe ackee is 20 times greater than in the mature fruit. However, the level of concentration of the toxin lowers rapidly after its exposure to the sun. The seeds contain hypoglycin B and are always poisonous. An important factor seems to be the nutritional status of the person consuming ackee, since diagnosed patients often present chronic malnutrition and vitamin deficiencies.

Ackee trees proliferate in Haiti, especially in the Northern province. This area has a population of approximately 824,000 people distributed in 19 communes. The cases of ackee poisoning were registered in the communes of Milot and Plaine du Nord, which were affected by intense rains for a period of 10 days in November 2000. This weather condition resulted in floods that affected more than 25,000 families and produced considerable losses in corn and sugar cane production, on which the economy of the region relies heavily. This natural phenomenon worsened the living conditions of a population already characterized by levels of extreme poverty.

It is important to point out that due to the characteristics of the epidemiological surveillance system in the country, which is neither representative, sensitive nor timely, the registration of cases was not complete, especially between November and January. The epidemiological alarm was initiated in February, when a team from the central Ministry of Public Health and Population (MSPP for its French name "Ministère de la Santé Publique et de la Population") carried out an evaluation and intervention visit.

The report indicated that in the month of February alone, 73 deaths had been registered in the two communes. The main victims were children under 15 (90%), who presented an acute clinical picture characterized by a sudden onset of abdominal pains, uncontrollable vomiting, loss of consciousness, convulsions and death within 24 hours of the first symptoms. Earlier ackee consumption was found in some of the cases that were investigated, but review of available clinical histories revealed the presence of other associated diseases, such as diabetes and tuberculosis, making it difficult to attribute with certainty the 73 deaths to ackee consumption. The report also indicated that during field visits, stomatitis and skin injuries were observed in children, a sign that the population - especially the young - showed signs of malnutrition and avitaminosis.

The team visited the affected communes and met with the local authorities as well as with the media to inform the population about the risks associated with the consumption

Figure 1: Fruit of the Ackee tree



of unripe ackee fruits and prevent more cases of poisoning. Press interviews of health authorities from the Northern Province and the central level were widely disseminated by radio, newspaper, and television.

A second research team, composed of representatives from the United States Centers for Disease Control and Prevention (CDC), epidemiologists from the MSPP, and PAHO professionals, was sent to the Northern Province during the first week of March. On this occasion, a total of 46 cases were identified retrospectively using a rather sensitive case definition, and applying a questionnaire to identify the risk factors. Blood and urine samples were collected whenever possible, and organ samples were harvested from a patient on which a necropsy was performed. Consumption of ackee was confirmed in 69% of these 46 cases. The ages of the victims ranged between 6 months and 88 years, with a median of 7 and an average of 16. Men represented 38% of the cases. The case-fatality rate was 52%.

No additional cases have been registered since 8 March, which coincides with the end of the year's first fruit season. The exact number of cases cannot be accurately specified. However, it is very probable that the deaths, especially those that occurred in less than 12 to 24 hours in children under age

10, were due to the consumption of ackee in poor and famished populations.

Recommendations included strengthening the epidemiological surveillance system, with community participation, as well as education, communication, and information activities for the population in order to avoid further consumption of the unripe fruit.

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Source: Prepared by Dr. José Moya of the PAHO/WHO Representation in Haiti.

NEW PLATFORM FOR THE REGIONAL CORE HEALTH DATA INITIATIVE - TABLE GENERATOR SYSTEM

Regional Core Health Data Initiative. Tables Generator System

The Regional Core Health Data Initiative includes a core set of 124 indicators for the 48 countries and territories of the Region of the Americas from 1990 to the date, directed to provide a quantitative characterization of the health situation on the Region. With this Tables Generator System you will be able to build data tables for these indicators, countries and years. For more information: <http://www.paho.org>

Year(s): Fixed Rows Columns Last Available

Indicator(s): Selected Indicator Group(s) Non-specific Socioeconomic

Country(ies): Fixed Rows Columns North America South America Latin America

Submit Filter

Indicator	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
6.1.0.0 - Population	248	4,112	6,398	11,687	6,656	3,213	2,898				
6.12.0.0 - Life expectancy at birth	75.4	76.6	78.1	80.3	79.2	80.9	79.0				
6.2.1.0 - Infant mortality rate, estimated (less than 1 year)	26.0	13.0	26.0	41.0	21.0	39.0	19.0				
6.3.2.0 - Internal mortality rate, reported (female)	...	15.6	120.0	100.0	198.0	139.0	60.0				
6.3.4.0 - General mortality rate, estimated	...	684.4	599.4	604.0	544.0	454.4	626.1				

Legend:
 ... magnitude zero
 0 magnitude less than half the measurement unit
 ... data not available

The *Regional Core Health Data Initiative* is one of the main technical efforts of the PAHO Secretariat and the Member States to collect and disseminate health-related data that characterize the health situation on the Region.

The *database* includes a core set of 124 indicators, that are disaggregated (by sex, age groups, etc.) for a total of 401 indicators representing information from the 48 countries and territories of the Region of the Americas from 1990 to date. Each indicator is defined and the list of definitions is accessible through the *Indicators Glossary*. This glossary also contains technical notes, indicator type (absolute magnitude, proportion, ratio, etc.), measurement units, and possible categories and subcategories.

The *Table Generator System* of the new web-based platform allows for the creation of data tables by indicators, countries and years.

The system and the glossary can be found at: <http://www.paho.org>

Tobacco Use in the English-speaking Caribbean

Introduction

Consumption of tobacco is a risk factor for multiple diseases. Tobacco use causes disability and mortality that generates a burden of disease so great that control of the substance is a public health priority for most of the countries of the world. Timely action to control smoking can only be possible if up-to-date health information systems are capable of providing accurate, effective information for decision-making.

Although the English-speaking Caribbean countries show lower rates of tobacco use than those found in Latin or North American countries, evidence exists that smoking is responsible for at least 10% of all the deaths that occur in these countries. In addition, it is foreseen that mortality will increase as a consequence of the progressive increase in the demand for tobacco in the Caribbean market.

This document presents a first review of the epidemiological information on tobacco use that has been produced to date in the English-speaking Caribbean. It was prepared based on information from studies conducted during the last decade (Table 1).

Table 1: Studies on tobacco use in the English-speaking Caribbean in the 1990s

Country	Year of the study	Age range	Type of sample	Sample size
Antigua and Barbuda ¹	1996	10-19	Schoolchildren	3,134
Barbados ²	1992	15-59	Household	2,035
Barbados ³	1999	11-17	Schoolchildren	1,712
Dominica ⁴	n.p.	11-18	Schoolchildren	2,809
Grenada ⁵	1996	15-24	Household	409
Guyana ⁶	n.p.	n.p.	Household	n.p.
Jamaica ⁷	n.p.	11-19	Schoolchildren	2,999
Jamaica ⁸	n.p.	n.p.	Household	n.p.
St. Kitts and Nevis ⁹	n.p.	12-17	Schoolchildren	341
Saint Vincent and the Grenadines ¹⁰	1997	19-70	Household	557

n.p.: Not published

Prevalence of tobacco use

General Population

Five countries of the English-speaking Caribbean have information available on use of tobacco from household surveys (Table 2). Barbados (1992) and Saint Vincent and the Grenadines (1997) reported on lifetime prevalence and prevalence of current use of tobacco in both sexes. Due to the different age ranges used in the samples of both studies and the different time periods in which the studies were done, these data are not comparable. Three more countries, Dominica, Guyana, and Jamaica present the prevalence of tobacco use in the last year. However, though it is known that these studies were conducted in the end of the 1990s, they do not report the date of implementation, the age range of the sample, nor results presented by sex.

Adolescents and Young Adults

Data on tobacco use in the adolescents and young adults population comes mainly from school samples. These samples tend to exclude certain groups of youth at risk for tobacco

Table 2: Tobacco use in the general population of the English-speaking Caribbean according to sex

Country	Year of the study	Age range	Sex	Prevalence		
				Lifetime (%)	Last year (%)	Current use (%)
Barbados	1992	15-59	M	34.6	---	18.0
			F	6.9	---	2.6
			T	18.0	---	8.8
Dominica	n.p.	n.p.	M	---	---	---
			F	---	---	---
			T	---	17.0	---
Guyana	n.p.	n.p.	M	---	---	---
			F	---	---	---
			T	---	15.0	---
Jamaica	n.p.	n.p.	M	---	---	---
			F	---	---	---
			T	---	14.0	---
Saint Vincent and the Grenadines	1997	19-70	M	52.9	---	26.4
			F	14.3	---	3.5
			T	31.1	---	13.5

n.p.: Not published, M: males, F: females, T: total of both sexes

use. Therefore, the data should be regarded as under-estimations of the real prevalence. Of the five studies available, two were carried out in several countries and the data from those studies are presented together and not for each country individually.

It is difficult to compare the reported data because two of the studies present data of lifetime prevalence (Table 3) while two others report prevalence of use in the last year and another the prevalence of current use (Table 4). In addition, the age range of the samples varies from one country to the next.

The study conducted in 2000¹¹ in nine countries reports the lifetime prevalence. Results show that 14.6% of boys and 8.7% of girls had used tobacco at some point in their lives. Data on consumption of chewed tobacco revealed that 2.2% of the population in Antigua and Barbuda in 1996 and 8% in

Table 3: Lifetime prevalence of tobacco use in young people according to age

Country	Year of the study	Age			
		10-12	13-15	16-18	Total
Barbados	1999	---	34.7	---	---
Various ^a	2000	5.9	12.6	16.4	11.1

^aIncludes: Antigua, Bahamas, Barbados, British Virgin Islands, Dominica, Grenada, Guyana, Jamaica and St. Lucia

Table 4: Prevalence of tobacco use in the last year in young people according to age

Country	Year of the study	Age			
		10-12	13-15	16-18	Total
British Virgin Islands	1999	---	---	---	16.0 ^b
St. Kitts & Nevis	n.p.	---	---	---	17.0
Various ^{a(12)}	1998	0.5	1.0	2.0	1.5 ^c

^aIncludes: Antigua, Dominica, Grenada and Jamaica

^bThe sample includes young people from 11 to 20 years of age

^cPrevalence of consumption in the last month

the British Virgin Islands in 1999 chewed tobacco over the last month.

In Barbados more than one third of the young people sampled between the ages of 13 and 15 years of age declare to have used tobacco some time in their lives, but only 1% declares daily consumption. This suggests that the majority of young smokers have a pattern of use that can be considered experimental. Practically the entire population of students interviewed in Barbados perceives that tobacco use is harmful to health and they cite this as the main reason why 60% of smokers want to stop smoking. A smaller proportion knows that exposure to tobacco smoke in the environment generates additional health risks.

Age of initiation of tobacco use

The available information is not adequate to specify a pattern regarding the age of initiation of tobacco use that is applicable to all the Caribbean countries (Table 5). In Saint Vincent and the Grenadines most of the population has consumed tobacco at least a few times before 11 years of age. In Barbados, youngsters initiate tobacco use at an earlier age. In this country, nearly three fourths of the young people between 13 and 15 years surveyed in 2000 recount that close friends encouraged their initiation. Analyzing differences by sex, in both countries males initiate use of tobacco earlier than females, although this trend is not very pronounced.

Table 5: Proportion of smokers according to age of initiation

Country	Year of the study	Age range	Sex	% in each age group			
				<11	11-15	16-20	>20
Barbados	1992	25-44	M	4.4	26.4	49.1	20.1
			F	2.7	24.0	48.0	25.3
			T	4.0	25.9	48.9	21.3
Barbados	1999	13-15	M	---	---	---	---
			F	---	---	---	---
			T	---	25.0	---	---
Saint Vincent and the Grenadines	1997	n.p.	M	98.4	---	---	---
			F	81.8	---	---	---
			T	96.0	---	---	---

n.p.: not published, M: males, F: females, T: total for both sexes

Conclusions

The methodological differences of these studies can only lead to approximate conclusions. In summary, differences include different sampling coverage (i.e. age ranges), different instruments utilized and, consequently, differences in the indicators produced, as well as a diversity of years in which the studies were implemented. Despite these limitations, it is noteworthy that, although the prevalence of tobacco use is comparatively lower in the Caribbean than it is in countries of Latin America, at least one-fifth of the general population of the Caribbean has consumed tobacco at some point during their lifetime. Moreover, more than a tenth of the population of the English-speaking Caribbean are current consumers, meaning they have consumed tobacco during the last month.

Similar to what is observed in other countries of the Region of the Americas, it has been shown that tobacco use in males is substantially greater than in females. In Barbados, tobacco use is more than five times more prevalent in males

than in females; in Saint Vincent and the Grenadines it is approximately four times greater in males than females.

With respect to the adolescent school-age population between 12 and 18 years, the data indicate that around 2% habitually smoke tobacco, while little more than 10% have smoked at some point in their lives. The proportion of tobacco consumption of males is almost twice as great as that of females.

If a firm conclusion can be drawn from this review of the studies in the English-speaking Caribbean, it is that there is a lack of adequate information on tobacco consumption for decision-making on policies for the prevention and control of smoking. In light of this situation, thirteen countries of the Caribbean are conducting a common survey as part of the Global Youth Tobacco Survey (GYTS). The purpose of this survey is to measure tobacco use among youth and to learn about their attitudes about tobacco and exposure to preventive programs. A companion article in this issue of the Bulletin presents the status of the GYTS implementation in the Americas. Although the implementation of the GYTS represents one response to this lack of available information, greater effort is required to gather epidemiological knowledge of the problem in samples of the general population as well as specific populations such as health workers. Another priority activity is strengthening the Surveillance Systems of Smoking to facilitate this task.

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Source: Prepared by Dr. Maritza Rojas from PAHO's Mental Health Program, Division of Health Promotion and Protection (HPP/HPM), Dr. Beverley Barnett from PAHO's Caribbean Program Coordination (CPC), Heather Selin and Dr. Armando Peruga from HPP/HPM.

The Global Youth Tobacco Survey: Status of its Implementation in Latin America and the Caribbean

Introduction

The Global Youth Tobacco Survey (GYTS) is aimed at assessing tobacco use, self-reported exposure to environmental tobacco smoke, knowledge and attitudes, and the factors that make youth susceptible to tobacco use. Its results will enhance the capacity of countries to design, implement and evaluate comprehensive tobacco control programs. The GYTS was developed by the World Health Organization (WHO) through its Tobacco Free Initiative (TFI) in collaboration with the Office on Smoking and Health in the US Centers for Disease Control and Prevention (OSH/CDC) and in consultation with countries in the six WHO regions. It has been implemented in Latin American and English-speaking Caribbean countries with the assistance of PAHO.

Methodological Aspects

Survey Design

The GYTS is a school-based survey of children in grades corresponding to ages 13 through 15 years. It uses a two-stage cluster sampling design within the participating geographical area in each country. Depending on the size of the country and the financial resources available for the survey, the sample is selected from either the country, a state or a city. The first stage requires the sampling of schools with the probability of selection proportional to their size. The second stage consists of randomly selecting classes within the eligible grades/years of study, from every selected school.

Sample Selection

All countries follow the same procedures. Within each school, entire classes of students are selected rather than selecting students randomly throughout the school because it is easier, saves time, and is less disruptive to the school. The classes are randomly selected from a sequentially numbered list of all the classes. The classes must be sections in which eligible students in the school are enrolled once and only once to avoid selecting the same student repeatedly.

All students in the selected classes are eligible for participation in the survey regardless of their age. If a student is under or above the expected age range for their grade (13-15 years old), he or she is also eligible.

Sample size

The number of schools and classes selected in each country is based on expected school and student response rates of at least 80% each. Therefore, the sample size was inflated by 20% to take into account the potential non-responses. The number of classes to be surveyed may vary from school to school, therefore some schools will have more classes selected than other schools. The sample size calculation for each country takes into account potential design effects. Its size is estimated on a country per country basis.

Data collection

Data are collected by means of a questionnaire, self-administered during the mid-morning classes to avoid eliminating students arriving late. Collection of data during lunchtime is always avoided. The collection of data is conducted under the supervision of a Research Coordinator whose responsibilities are to:

- a) Obtain permission from the selected school to participate in the survey, identifying a person to serve as the school contact for the logistics,
- b) Provide the materials (For each student: a GYTS questionnaire, answer sheet, and pencil. For each class: an envelope, a header sheet, and a GYTS classroom - level form. For each school: a GYTS school - level form),
- c) Administer the survey,
- d) Complete the header sheets and GYTS classroom-level form for each class and the GYTS school level form for the school,
- e) Collect all the materials and send them to CDC.

Table 1 lists the names and institutions of research coordinators in each country and territory.

Data analysis

Data will be entered into EPI Info. Analysis will be performed by the principal investigator in each country and will be checked against an independent analysis done by the Centers for Disease Control and Prevention in Atlanta, USA. For each country, indicators will be estimated, weighted for non-responses and the varying selection probabilities, and presented with their 95% confidence intervals. The main indicators used are presented in box 1.

Box 1: Main indicators used in the GYTS

- % of lifetime tobacco users
- % of current users of cigarettes and other tobacco products
- % of never smokers likely to initiate smoking next year
- % of respondents with correct knowledge about the harmful effects of tobacco
- % of respondents with attitudes toward specific issues
- % of consumption at home
- % of respondents buying cigarettes in a store
- % of respondents buying cigarettes in a store that were not refused purchase because of their age
- % of respondents exposed to environmental smoking at home and public places
- % of current smokers that wish to quit
- % of respondents exposed to pro and anti-smoking media
- % of respondents exposed to anti-smoking education at school

Status of implementation of the GYTS in the Americas

A total of 111 countries and territories of the world have conducted the survey, are doing so, or are committed to doing so shortly. Among these are 13 Latin American and 18 English-speaking Caribbean countries. Since 1998, PAHO has facilitated implementation of the GYTS by identifying research coordinators and organizing their training and by providing technical and financial assistance to countries.

Training

In December 1998, experts from Venezuela and five other countries of the world as well as staff of TFI and CDC met to develop the GYTS core questionnaire and methodology. Since March 1999, nine GYTS workshops have been carried out worldwide by TFI/WHO and OSH/CDC to train country research coordinators in design, methodology, field work logistics and data analysis. Barbados, Costa Rica and Venezuela attended workshops conducted in Thailand, Geneva and Singapore and were the first countries in the region to conduct the survey, in 1999. In November 1999 a GYTS workshop was held on Margarita Island, Venezuela, to train research coordinators from Brazil, Chile, Colombia, Dominican Republic and Mexico. Two training workshops were held in Barbados in 2000 (April and September) for research coordinators from Latin America and the Caribbean. The participating countries and territories were Antigua & Barbuda, Argentina, Bahamas, Bolivia, British Virgin Islands, Dominica, Ecuador, Grenada, Guyana, Jamaica, Montserrat, Panama, Peru, Saint Lucia, Saint Vincent & the Grenadines, Suriname and Trinidad & Tobago.

Completion of the field work and data analysis

Eight Latin American and 12 Caribbean countries and territories have completed the data collection. In addition, six Latin American and three Caribbean countries are currently conducting their fieldwork and one additional country in each

of these two regions is preparing to conduct the survey. Table 2 indicates the status of implementation of the GYTS in each country.

Reporting of results

The first three countries to conduct the GYTS — Barbados, Costa Rica and Venezuela — have reported and published their results.¹ However, a summary of results from Buenos Aires (Argentina), Cochabamba, La Paz, Santa Cruz (Bolivia), Coquimbo, Santiago, Valparaíso-Viña del Mar (Chile), Costa Rica, Monterrey (Mexico), Huancayo, Lima, Tarapoto, Trujillo (Peru), Venezuela, Antigua & Barbuda, Bahamas, Dominica, Grenada, Montserrat, Guyana, Suriname, and Trinidad & Tobago are in final stage of the revision process and will soon be published.

Conclusions

The GYTS is an excellent model of collaborative effort that pulls together many institutions and countries, utilizing the various strengths of each to reduce cost and increase efficiency. For the first time it will produce in Latin America and the Caribbean comparable data on youth attitudes, knowledge and behavior regarding tobacco use. It is also the first time that globally comparable data relevant to policy decisions will be available for the tobacco industry's key market: new consumers, almost exclusively young, who are necessary to replace the smokers that die or quit in order to maintain or even increase tobacco company profits. The effort realized thus far has produced extremely valuable information for a single point in time. The challenge now is to ensure the evolution of the survey into a sustainable surveillance system by repeating it at regular intervals in as many countries as possible.

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Table 1: Countries and institutions participating in the GYTS in Latin America and the Caribbean

Country	Research coordinator	Country	Research coordinator
Antigua & Barbuda	Ministry of Health (<i>Colin O'Keiffe</i>)	Argentina	CONICET (<i>Dr. Hugo A. Miguez</i>)
Bahamas	Ministry of Health (<i>Larrie Williams</i>)	Bolivia	Centro Latinoamericano de Investigación Científica- CELIN (<i>Dr. Franklin Alcaraz del Castillo</i>)
Barbados	National Council on Substance Abuse (<i>Dr. Peter Wickham</i>)	Brazil	Instituto Nacional del Cáncer (<i>Dr. Lusa Goldfarb</i>)
British Virgin Islands	Ministry of Health (<i>Ms. Sheila L. Samiel</i>)	Chile	Ministry of Health (<i>Dr. Luis Caris</i>)
Cuba	Ministry of Health (<i>Dr. Lucia Lances</i>)	Colombia	Instituto Nacional de Cancerología (<i>Dr. Carolina Wiesner</i>)
Dominica	Ministry of Health (<i>Ms. Joan M. Henry</i>)	Costa Rica	Instituto sobre Alcoholismo y Farmacodependencia - IAFA (<i>Dr. Julio Bejarano</i>)
Dominican Republic	Ministry of Health (<i>Ms. Raquel Pimentel</i>)	Ecuador	Consejo Nacional de Control de Sustancias Psicotrópicas - CONSEP (<i>Dr. Silvia R. Corella</i>)
Grenada	Ministry of Health (<i>Dr. A. Alister Antoine</i>)	Guatemala	Ministry of Health (<i>Dr. Irma Pérez</i>)
Guyana	Ministry of Health (<i>Ms. Shradhanand Haviprashad</i>)	Mexico	Ministry of Health (<i>Dr. Jesús Felipe González</i>)
Haiti	Ministry of Health (<i>Mr. Gilbert Jean Charles</i>)	Panama	Ministry of Health (<i>Dr. Reina G. Roa</i>)
Jamaica	Ministry of Health (<i>Ms. Pearlene D. Lee</i>)	Peru	Centro de Información y Educación para la Prevención de Abuso de Drogas - CEDRO (<i>Dr. Alfonso Zavaleta</i>)
Montserrat	Ministry of Health (<i>Ms. Almae V. O'Garro</i>)	Uruguay	Secretaría General para la Junta Presidencial contra drogas (<i>Dr. Raquel Magri</i>)
Saint Lucia	Ministry of Health (<i>Ms. Elvina Lawrence</i>)	Venezuela	NGO-ASCARDIO (<i>Dr. Ricardo Granero</i>)
Saint Vincent and the Grenadines	Ministry of Health (<i>Ms. Patsy V. Wyllie</i>)		
Suriname	Ministry of Health (<i>Mr. Gerold Vliet</i>)		
Trinidad & Tobago	Ministry of Health (<i>Dr. Diane B. Renaud</i>)		
Puerto Rico	Ministry of Health (<i>Mrs. Milagros Sanchez</i>)		
Virgin Islands (USA)	Ministry of Health (<i>Ms. Julia Sheen-Aaron</i>)		

Table 2: Status of implementation of the GYTS in each country

	Country committed	Enrollment data and questionnaire prepared	Data collected	Data analyzed	Report written	Results published
Andean Area						
	Bolivia					
	Colombia					
	Ecuador					
	Peru					
	Venezuela					
Southern Cone						
	Argentina					
	Chile					
	Paraguay					
	Uruguay					
Brazil						
Central America						
	Costa Rica					
	Guatemala					
	Panama					
Mexico						
Latin Caribbean						
	Cuba					
	Haiti					
	Puerto Rico					
	Dominican Republic					
Caribbean						
	Antigua and Barbuda					
	Bahamas					
	Barbados					
	Dominica					
	Granada					
	Guyana					
	British Virgin Islands					
	Jamaica					
	Montserrat					
	Saint Vincent and the Grenadines					
	Saint Lucia					
	Suriname					
	Trinidad and Tobago					

Legend: Activity completed 
Activity on-going 

Source: Prepared by Dr. Maritza Rojas of PAHO's Mental Health Program, Division of Health Promotion and Protection (HPP/HPM), Dr. Beverley Barnett from PAHO's Caribbean Program Coordination (CPC), Dr. Armando Peruga y Heather Selin from HPP/HPM.

Case Definition

Acquired Immunodeficiency Syndrome (AIDS)

Rationale for surveillance

AIDS is a disease targeted for reduced incidence, prevalence and transmission (9GPW, target 6.3). Control measures are based on prevention and care strategies. Surveillance is necessary to assess national needs in education, supplies, and health care and to anticipate spread in the community. Surveillance will provide epidemiological data used for national prevention and care plan and will be essential to evaluate the impact of control activities.

Recommended case definitions

Different case definitions are used in different countries, depending on population factors (children, adults, relative occurrence of opportunistic infections) and on the laboratory infrastructure and training available. Current case definitions include:

Sophisticated laboratory facilities:

- * CDC 1987¹
- * CDC/CD4²
- * European³

Limited laboratory facilities:

- WHO for surveillance (formerly Bangui/WHO/clinical)⁴
- Expanded WHO for surveillance (formerly Abidjan)⁵
- Caracas/PAHO⁶ & revised Caracas/PAHO⁷

1. 1987 CDC Surveillance definition for AIDS¹

1A Without laboratory evidence of HIV infection (no other causes of immune suppression)

Indicator disease diagnosed definitively

- Candidiasis of the oesophagus, trachea, bronchi, or lungs
- Cryptococcosis, extrapulmonary
- Cryptosporidiosis with diarrhoea persisting more than one month

- Cytomegalovirus diseases of an organ other than liver, spleen, or lymph nodes in patient more than one month of age
- Herpes simplex virus infection causing a mucocutaneous ulcer persisting more than one month; or bronchitis, pneumonitis, or oesophagitis for any duration in a patient more than one month of age
- Kaposi sarcoma in a patient less than 60 years of age
- Lymphoma of the brain (primary) affecting a patient less than 60 years of age
- *Mycobacterium avium* complex or *M. kansasii* disease, disseminated (site other than/in addition to lungs, skin, cervical or hilar lymph nodes)
- *Pneumocystis carinii* pneumonia
- Progressive multifocal leukoencephalopathy
- Toxoplasmosis of the brain in a patient >1 month of age
- In children less than 13: two or more bacterial infections within a two-year period (septicaemia, pneumonia, meningitis, bone or joint infections...) or abscess of an internal organ or body cavity – excluding otitis media or superficial abscesses.

1B. With laboratory evidence of HIV infection

Indicator disease diagnosed definitively

- Coccidioidomycosis, disseminated (at a site other than or in addition to lungs or cervical or hilar lymph nodes)
- HIV encephalopathy
- Histoplasmosis, disseminated (other than or in addition to lungs or cervical or hilar lymph nodes)
- Isosporiasis with diarrhoea persisting >1 month
- Kaposi sarcoma at any age
- Lymphoma of the brain (primary) at any age
- Non-Hodgkin's lymphoma
- Any mycobacterial disease caused by other than *M. tuberculosis*, disseminated
- Disease caused by *M. tuberculosis*, extrapulmonary
- Salmonella (non-typhoid) septicaemia, recurrent
- HIV wasting syndrome
- Indicator disease diagnosed presumptively
- Candidiasis of the oesophagus
- Cytomegalovirus retinitis with loss of vision
- Kaposi sarcoma
- Mycobacterial disease, disseminated
- *Pneumocystis carinii* pneumonia
- Toxoplasmosis of the brain in patient >1 month of age
- In children <13: lymphoid interstitial pneumonia and/or pulmonary lymphoid hyperplasia

2. Conditions added to CDC surveillance definition for AIDS with laboratory evidence of HIV infection (1B above)²

In addition to those in the surveillance definition:

- CD4+ T-lymphocyte count <200 x 10⁶/litre (or a CD4 percentage <14%)
- Pulmonary tuberculosis
- Cervical cancer, invasive
- Recurrent pneumonia (more than one episode within a 12-month period).

3. European AIDS case definition³

Same as revised CDC definition (2 above) without CD4+ T-lymphocyte count.

4. WHO Case definition for AIDS surveillance (formerly Bangui/WHO/Clinical)⁵

WHO clinical case definition for AIDS in an adult or adolescents (more than 12 years of age) when diagnostic resources are limited. For the purposes of AIDS surveillance an adult or adolescent (more than 12 years of age) is considered to have AIDS if at least two of the following major signs are present in combination with at least one of the minor signs listed below, and if these signs are not known to be related to a condition unrelated to HIV infection.

Major signs (two signs or more):

- Weight loss of at least 10% of body weight
- Chronic diarrhoea for more than one month
- Prolonged fever for more than one month (intermittent or constant)

Minor signs (one or more):

- Persistent cough for more than one month
- Generalized pruritic dermatitis
- History of herpes zoster
- Oropharyngeal candidiasis
- Chronic progressive or disseminated herpes virus infection
- Generalized lymphadenopathy.

The presence of either generalized Kaposi sarcoma or cryptococcal meningitis is sufficient for the diagnosis of AIDS for surveillance purposes.

5. Expanded WHO case definition for AIDS surveillance (formerly Abidjan)⁴

For the purpose of epidemiological surveillance, an adult (more than 12 years of age) is considered to have AIDS if a test for HIV antibody shows positive results, and one or more of the following are present:

- 10% body weight loss or cachexia, with diarrhoea or fever, or both, intermittent or constant, for at least 1 month, not known to be due to a condition unrelated to HIV infection
- Cryptococcal meningitis
- Pulmonary or extra-pulmonary tuberculosis
- Kaposi sarcoma
- Neurological impairment sufficient to prevent independent daily activities not known to be due to a condition unrelated to HIV infection (for example, trauma or cerebrovascular accident)
- Candidiasis of the oesophagus (which may presumptively be diagnosed based on the presence of oral candidiasis accompanied by dysphagia)
- Clinically diagnosed life-threatening or recurrent episodes of pneumonia, with or without etiological confirmation
- Invasive cervical cancer

6. Revised Caracas/PAHO AIDS Definition^{6,7}

A patient is defined as having AIDS when:

- cumulative points assigned for conditions listed hereafter equal or exceed 10, and
- HIV serology is positive.

Cases in which the total point score equals or exceeds the

required score of 10, but HIV serology is pending are considered “provisional cases”. Persons with cancer, or with immunosuppressive therapies, or where the sign / symptoms are attributed to conditions other than HIV infection are excluded.

Symptoms/signs/diagnostic	Assigned points
- Kaposi sarcoma	10
- Disseminated / extrapulmonary / non-cavitary pulmonary tuberculosis	10
- Oral candidiasis / hairy leukoplakia	5
- Pulmonary tuberculosis with cavitation, or unspecified	5
- Herpes zoster in a person of 60 years or less	5
- Central nervous system dysfunction	5
- Diarrhea one month or more	5
- Fever of at least 38°C for at least a month	2
- Cachexia or weight loss of more than 10%	2
- Asthenia of at least a month	2
- Persistent dermatitis	2
- Anaemia, lymphopenia, and/or thrombocytopenia	2
- Persistent cough or any pneumonia, and/or thrombocytopenia	2
- Lymphadenopathy of at least 1cm at at least two non-inguinal sites	2

Required point score **10 or more**

Case classification

Depends on the case definition. Please check with National AIDS programmes.

Recommended types of surveillance

Routine monthly reporting of aggregated data from periphery to intermediate level.

Routine quarterly reporting of aggregated data from intermediate level to central level.

International: report updates every 12 months in the *Weekly Epidemiological Record*

Other sources of data:

- Hospitals
- Practitioners
- Consultations for sexually transmitted diseases (STD)

- Tuberculosis wards
- Mortality reports and statistics
- Active case finding.

Recommended minimum data elements

Case-based data for reporting

Unique identifier, age, sex, geographical area, mode of transmission (e.g., blood transfusion, drug use, other).

Aggregated data for reporting

Number of cases by age and sex, number of cases, mode of transmission (e.g., blood transfusion, drug use, other).

Recommended data analyses, presentation, reports

Graphs: Number of cases by age, sex, geographical area, risk factors.

Tables: Number of cases by age, sex, geographical area, risk factors.

Maps: Number of cases by geographical area.

Principal uses of data for decision-making

- Assess the magnitude of the problem
- Identify high risk areas for further intervention
- Plan public health measurements
- Assess impact on clinical services
- Plan health care services and supplies
- Validate HIV surveillance data

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