

# **Global Youth Tobacco Survey (GYTS)**

Report on the Results of the Global Youth Tobacco Survey in  
Jamaica—2001

Health Promotion & Protection Division  
Ministry of Health

Authors:  
Karen Prendergast and Deanna Ashley

## **Contributors**

Mrs. Pearline Lee, former Director–Health Education Unit, Health Promotion and Protection Division, Ministry of Health was the National Coordinator of the survey. Data collection was undertaken by Mr. Jeffery Latty and other Health Educators of the Health Promotion and Protection Division, Ministry of Health. The study was designed by Dr. Charles W. Warren and other professionals at the Office on Smoking and Health, Centers for Disease Control, Atlanta and the WHO, Geneva. Training of Research Coordinators in data analysis, interpretation and report writing was conducted by Dr. Charles W. Warren, Office on Smoking and Health, Centers for Disease Control and Prevention (CDC), Mr. Curtis Blanton, CDC–Atlanta, Ms. Leanne Riley, WHO/Tobacco Free Initiative (TFI) –Geneva and other senior personnel of CDC and PAHO/WHO.

The draft of this document was prepared by Ms. Karen Prendergast, former Programme Development Officer, Mental Health and Substance Abuse Unit, Ministry of Health.

The editing of the draft document and summary of Recommendations was undertaken by Dr. Deanna Ashley, Director - Health Promotion and Protection Division, Ministry of Health.

Data entry, the initial processing of data and presentation of data in tabular form was the responsibility of Dr. Charles W. Warren, Mr. Curtis Blanton, CDC–Atlanta and other members-of-staff of OSH/Centers for Disease Control and Prevention. The review of the draft Executive Summary and Findings of the Report was done by Dr. Charles W. Warren.

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## **Executive Summary**

The GYTS is a WHO collaborative, school-based survey of 13 to 15 year olds conducted in selected countries to provide the necessary data for the documentation and ongoing surveillance of tobacco use among adolescents and to facilitate the development and implementation of measures for the prevention and control of tobacco use.

In 2000, the first of such surveys was conducted in Jamaica among 2,014 school-children in Grades 7-13 within classes consisting of 40 or more students throughout 50 schools, utilizing a two-staged cluster sample design. The first stage sampling frame was comprised of all schools within grades 7-13 containing the stipulated number of adolescents. The second sampling stage involved systematic equal probability sampling (with a random start) of classes from each school which participated in the survey. All 2nd period classes in the selected schools were incorporated into the sampling frame and all students in the selected classes were eligible to participate in the survey.

The questionnaire used in the Jamaican study was mainly comprised of the core questions. The overall response rate was 86.5% as 1,742 of the sampled students completed questionnaires which could be analyzed. It is important to note that 98.2% of the respondents in the sample were in grades 7-10. Analysis involved the application of a weighting factor to compensate for differing patterns of non-response. Prevalence Rates were derived with 95% Confidence Intervals utilizing Epi-Info.

Extensive data was obtained on Tobacco Use including the following:

- a. Prevalence
- b. Cigarette Smoking initiated prior to age ten (10)
- c. Susceptibility to initiating cigarette smoking
- d. Knowledge and Attitudes
- e. Access and Availability
- f. Environmental Tobacco Smoke
- g. Smoking Cessation
- h. Promotion of the Use of Tobacco Products via the Media and other channels
- i. The extent of Tobacco Use Prevention Education in the School Curriculum.

### **Key Findings on Tobacco Use**

Among Jamaican school-children (13 to 15 years old), the initiation of cigarette smoking prior to age 10 is high - 35.3% - while Lifetime Prevalence (ever smoked cigarettes, even one or two puffs) is also high - 33.8%. However, the Current Prevalence of Cigarette Smoking (smoked cigarettes on one or more days in the 30 days preceding the survey) is moderately high - 15.2%; Current Use of Any Tobacco Product - moderately high at 19.0% and Current Use of Other Tobacco Products - 8.3%. The Susceptibility of Never Smokers to initiate smoking is moderately high - 15%.

Almost one third of Never Smokers and a little over a third of Current Smokers However, less than 20% of Never Smokers (17.9%) and Current Smokers (16.6%) think that girls who smoke have more friends. Almost the same%age of Current Smokers (13.5 % and 13.6% respectively) and a lower%age of Never Smokers (7.8% and 6.8% respectively) think that smoking makes boys look more attractive and smoking makes girls look more attractive respectively.

Current cigarette smoking at home is very high (50.8%). A little over a third of students (34.6%) bought cigarettes in a store while a significant%age of them (73.9%) were not refused because of their age.

In general, exposure to Environmental Tobacco Smoke (ETS) is high. A larger%age of Current Smokers and Never Smokers were exposed to smoke from others in public places (77.9% and 54.2%, respectively) than their homes (56.7% and 22.9% respectively) while Current Smokers (56.7% and 77.9% respectively) are significantly more likely than Never Smokers (22.9% and 54.2% respectively) to be exposed to smoke from others in their homes and public places.

As expected, a higher proportion of Never Smokers (71.9%) than Current Smokers (63.5%) think that smoking should be banned from public places. Moreover, Never Smokers (78.4%) are significantly more likely than Current Smokers (67.3%) to think that smoke from others is harmful to them. However, this also revealed that a very high%age of both Never Smokers and Current Smokers are aware of the negative health effects of Exposure to ETS and thus feel that smoking should be banned from public places.

A very high%age of Current Smokers desired (73.3%) to stop smoking immediately and attempted (68.1%) to stop smoking that year (2000). Exposure to anti-smoking (74.4%) and pro-tobacco media messages among students is also very high. Current Smokers (71.4%) are significantly more likely than Never Smokers (58.4%) to have viewed pro-tobacco media messages. However, with respect to forms of tobacco promotion, apart from media messages, exposure is moderate to low. As is the norm, however, Current Smokers (23.1%) are significantly more likely than Never Smokers (10.6%) to have had an Object with a Cigarette Brand Logo on it. Current Smokers (14.6%) are also significantly more likely than Never Smokers (10.6%) to have been offered free cigarettes by a tobacco company.

With regard to the School Curriculum, a fairly high proportion of students (40.8%) have been taught the dangers of smoking while a much lower proportion (26.7%) have discussed reasons why people their age smoke.

These findings are concrete proof of the need to monitor tobacco use, particularly among adolescents, by instituting such an activity as an integral part of the surveillance system of the Ministry of Health; provide the appropriate legal framework for the prevention and control of tobacco use and develop relevant adolescent-specific school and community-wide interventions as well as adult-focused programmes.

## Introduction

Jamaica is the largest island in the English speaking Caribbean and the third largest territory in the Caribbean flanked by the larger islands of Cuba and Haiti. The island covers an area of 11,244 square kilometres and is strategically placed as it is located 885 kilometres to the South of Miami and 145 kilometres to the south of Cuba with an organized telecommunications system and extensive air links to other Caribbean and Latin American regional territories, North America, Europe and other continents.

There exist 2 cities - Kingston on the South-east coast and Montego Bay on the North-west coast and the island is divided into 14 parishes. The total population is approximately 2,605,787 persons (2000), of which almost one third - 31% - and 40% is comprised of children and adolescents (0-14 years old) and (10-19 years old) respectively with an equal proportion of males and females falling within these categories<sup>1</sup>.

As stipulated in the WHO International Convention, Children pertains to 0-9 year olds, Adolescents to 10 - 19 year olds and Youth to 15-24 year olds.

A significant number of Persons/Individuals of all age groups throughout Jamaica and the world are adversely affected by tobacco use. Substance Abuse experts have discovered that Nicotine, a significant component of tobacco products, is an addictive drug as potent as cocaine or heroine. Tobacco dependence has thus been classified as a mental and behavioural disorder according to the WHO International classification of diseases, ICD-10 (Classification F17.2)<sup>2</sup>.

In addition, Cigarette smoking is the single largest preventable factor contributing to premature death, the burden of disease and disability and death in the United States and the world<sup>3</sup>. In the United States, it is responsible for approximately 5 million years of potential life lost per annum<sup>3</sup>. The major disease conditions due to tobacco use which definitely culminate in death are several Cancers and Coronary Heart Disease.

The disease status of Jamaica is similar to that of the developed world. Chronic Diseases, which include Cardiovascular Diseases (CVDs) and Lung Cancer are the principal causes of Mortality and Morbidity in Jamaica, accounting for 60% of the disease burden.

Cardiovascular Diseases are the main cause of death in public hospitals (27.5% of males and 33.8% of females in 2000) followed by Malignant Neoplasm (11.8% of males and 11.6% of females in 2000) and also rank among the ten main causes of hospital discharges. Incident rates for lung cancer are approximately five times higher for men than women (21.1 VS 3.9 per 100,000) as indicated by the Jamaica Cancer Register from 1978-1997. This difference is caused by the higher prevalence of cigarette smoking among men which results in more than 90% of their lung deaths.

In the Americas, between 122,000 to 209,000 persons die from exposure to Environmental Tobacco Smoke (ETS) annually. Exposure to Environmental Tobacco Smoke (ETS) has been proven by scientific evidence as definitely causing or strongly indicated as possibly causing Cancers and eighteen other major disease groups or conditions. The prevalence of tobacco smoking in Jamaican adults has been estimated

as 36% among males and 11% among females (15-49 years) as reported in a Risk Behaviour Survey (1993), these figures pertaining to persons who had ever smoked more than 100 cigarettes<sup>4</sup>. However, 14.6% was recorded as the prevalence of tobacco use among the Jamaican population (15-50 years) in another survey with more than 50% doing so 10-20 times and more per month<sup>5</sup>. From January to December, 1998 of the 597 persons who made appointments at the Detoxification Unit, UHWI, for multiple Substance Abuse, about 33% smoked tobacco.

The additional cost of treating tobacco-related diseases worldwide is more than US \$200 billion. This accounts for 6-15% of all annual health care costs in high income countries<sup>6</sup>. In Jamaica, the cost of treating tobacco-related illnesses in public and private health facilities since 1980 has been estimated as approximately US \$4.38 Billion<sup>7</sup>.

Data also show that, in the United States and throughout the world, tobacco use is initiated by most people while they are adolescents<sup>8</sup> and this is now being undertaken at an earlier age than previous years. In Jamaica, a survey conducted by the National Council on Drug Abuse indicated that adolescents, in particular, females, were initiating cigarette smoking at an earlier age in 1997 compared with 1987.

Young people are major 'risk takers'. As a result of the constant usage of tobacco products, a significant percentage of deaths occur when smokers are in their most productive years - 35 years or older.

### **National and International Efforts to Address Tobacco Use**

Over the past 28 years, the Government of Jamaica and other member countries of CARICOM have been signatories to the many WHO and PAHO Resolutions developed to stem the use of tobacco products. The WHO and PAHO Plans of Action for the period 1988-1995 and 1996-2000 were also endorsed by the Jamaican Government.

### **Measures Implemented for the Prevention and Control of Tobacco Use**

Unfortunately, the measures executed to date have been diffuse and have not been linked to a comprehensive programme for the prevention and control tobacco use. They are as follows:

1. Ban on smoking in all health facilities which became effective on May 31, 1995 - No Tobacco Day (Award given to MOH by PAHO in 2001).
2. Voluntary imposition of the ban of Smoking on the national airline, Air Jamaica and the prohibition of Smoking in the two (2) International Airports.
3. Restriction of smoking in several private sector organizations
4. Cabinet gave approval in November 1996 for the introduction of legislation to:
  - Prohibit the advertisement of tobacco products on the Electronic Media - Radio and Television;
  - Prohibit cinema advertisement of tobacco products;

- Make it mandatory for all tobacco advertisements to carry the health warning of the Chief Medical Officer (approved under Cabinet Decision dated 25.11.96 and presently under consideration by MOH as part of the Public Health (Sale of Tobacco Products) Regulations 1999);
  - Prohibit the advertisement of tobacco products in any literature which is intended for minors. The Chief Parliamentary Counsel was requested to finalize the Regulations under the Broadcasting and Radio Re-diffusion Act as the Broadcasting Commission has signed off on the Television and Sound Broadcasting (Amendment) Regulations 1998. Similar instructions have also been given to the Chief Parliamentary Counsel regarding the Public Health Act.
5. Preferential premiums for non-smokers by some Insurance Companies.
  6. The imposition of a Special Consumption Tax on cigarettes yielding approximately \$1.28 billion (FY 1999 - 2000). GCT is also charged on this product.

### **Proposed Initiatives**

In 2001, a document specifying the Policy and Legislative measures which are critical for the full-scale establishment of a Programme for the Prevention and Control of the Smoking of Tobacco Products in Jamaica was submitted to the Council for Human and Social Development (COHSOD) for consideration and recommendation to the Cabinet of Ministers of Government.

In 2002, The Human Resources Council took the following decision, in view of the wide-ranging issues and their possible impact:

- a. The proposal should be submitted to a Joint Select committee of the Houses of Parliament for more extensive discussion;
- b. The Ministry of Health should seek the assistance of the Ministry of Finance and Planning to assess the impact that the proposed measures would have on the economy and outline measures for alternative employment and strategies to address the immediate revenue inflows;
- c. The initiatives to encourage the reduction of tobacco use would be supported and
- d. The Legislative Committee would be requested to examine and make recommendations on the appropriate levels of fines for the offences stipulated in the Submission.

The measures are outlined under Recommendations for a comprehensive Programme for the Prevention and Control of Tobacco Use.



In 2002, a paper on the economic implications of the implementation of these measures on the Jamaican economy and possible alternative employment and strategies was prepared by the Health Systems Improvement Unit of the Ministry of Health. However, this document has not been submitted to COHSOD for consideration as the decision has been taken that a Cost-Benefit Analysis of the Proposed Measures for the Prevention and Control of Tobacco use (inclusive of all health, economic and financial implications) in Jamaica will be undertaken in order that a more comprehensive analysis can be done.

### **The Global Youth Tobacco Survey**

In spite of the information available on Tobacco Use by children and adolescents (0-17 years) in Jamaica from the Adolescent Health and other Surveys, more precise and detailed data was required to provide a holistic picture of the extent of tobacco use in Jamaica. In the effort to address this problem, it was decided that Jamaica would take advantage of the opportunity to participate in the Global Youth Tobacco Survey (GYTS).

The GYTS is a global surveillance project of tobacco use among adolescents involving a school-based survey of 13 to 15 year olds conducted throughout the world to obtain country specific information regarding tobacco use in terms of Prevalence, % who started to smoke prior to age ten (10) and susceptibility to initiating cigarette smoking; Knowledge and Attitudes; Behavioural Norms and Deviation; Access and Availability; Environmental Tobacco Smoke; Smoking Cessation; Tobacco Promotion and Tobacco Use Prevention Education in relation to the School Curriculum.

### **Objectives of the GYTS**

The objectives of the GYTS are to understand the rationale regarding and more adequately assess the above-mentioned issues; document and monitor tobacco use by adolescents/youth

World wide and guide strategies, measures, programming, advocacy and other initiatives for the prevention and control of tobacco use at the national and international levels.

# Methodology

## Sample Description

Site: All Schools - Jamaica

## School Type

All schools comprising grades 7-13 with 40 or more students in each class were included in the sampling frame. A two-staged cluster sample design was used to produce a representative sample of students in grades 7-13. In the sample, 98.2% of the respondents were in grades 7-10.

**School Level** - The first stage sampling frame consisted of all schools containing any grades 7-13. Schools were selected with probability proportional to school enrollment size.

**Class Level** - The second sampling stage consisted of systematic equal probability sampling (with a random start) of classes from each school that participated in the survey. All 2nd period classes in the selected schools were included in the sampling frame. All students in the selected classes were eligible to participate in the survey.

## Overall Response Rates

**Schools:** 100% - 50 of the 50 sampled schools participated.

**Students:** 86.49% - 1,742 of the 2,014 sampled students completed usable questionnaires.

**Overall response rate:** 86.49%; n = 2,014.

## Questionnaire Development

The questionnaire used in the Jamaican study was comprised of 58 questions which were predominantly core questions.

## Data Collection

Prior to the initiation of data collection, discussions were held between officials of the Ministries of Health and Education and Culture to obtain their agreement and endorsement regarding the project. Correspondence was sent to the relevant senior personnel of the Ministry of Education and Culture and school principals pertaining to the survey and agreement was reached for it to be conducted.

Following the agreement to participate in the survey, a letter was sent to the principals of selected schools indicating the classes in which the survey would be administered to students, with a copy of a parent notification form for each proposed student participant attached.

Training workshops were held for Survey Administrators - Health Education Officers of the Health Promotion and Protection Division. Each Survey Administrator was responsible for conducting the survey by appointment in several schools located in each parish to which he/she was assigned.

After the answer sheets were filled out utilizing the special pencil provided, they were collected and checked for adequacy and accuracy of completion as well as to ensure that the number of questionnaires tallied with the number of students to whom they had been administered.

Questionnaires and answer sheets were then placed in envelopes which were sealed and delivered to the Director of the Health Education Section, Ministry of Health. Subsequently, they were couriered to the Office on Smoking and Health, Centers for Disease Control and Prevention, USA, where the data was entered.

In general, schools were very co-operative throughout this exercise.

## **Analysis**

### **Weighting**

A weight has been associated with each questionnaire to reflect the likelihood of sampling each bias by compensating for differing patterns of non-response and for the diverse probabilities of selection. The weight used for estimation is given by:

$$W = W1*W2*F1*F2*F3*F4$$

W1 = the inverse of the probability of selecting the school

W2 = the inverse of the probability of selecting the classroom within the school

F1 = a school-level non-response adjustment factor calculated by school size category (small, medium, large)

F2 = a classroom adjustment factor calculated by school

F3 = a student-level non-response adjustment factor calculated by class

F4 = A post stratification adjustment factor calculated by gender and grade

### **Use of the Weighted Results**

The weighted results can be used to make important inferences concerning tobacco use risk behaviours of all grades (7-13).

Prevalence Rates and Confidence Intervals:

Prevalence Rates were derived with 95% Confidence Intervals for the estimates utilizing Epi-Info, a series of Statistics, Database and Word processing microcomputer programmes which handle epidemiologic data in questionnaire format and arrange study designs and results into texts which comprise a component of written reports.

Only statistically significant differences between Prevalence Estimates were mentioned, that is, if the 95% Confidence Intervals did not overlap.

## Results

### Tobacco Use

**Table 1:** % of Students Who Use Tobacco, [Jamaica] GYTS, 2000

Category	Ever smoked, even one or two puffs	Current Use			Age of initiation -smoked cigarettes before age 10	Never smokers - susceptible to initiating smoking
		Any tobacco product	Cigarettes	Other tobacco products		
<b>Total</b>	33.8 (±4.8)	19.0 (±3.3)	15.2 (±3.0)	8.3 (±1.7)	35.3 (±4.7)	14.8 (±2.9)
<b>Sex</b>						
<b>Male</b>	39.3 (±6.8)	24.1 (±5.3)	19.3 (±4.8)	11.1 (±3.4)	36.5 (±7.6)	21.1 (±5.2)
<b>Female</b>	28.9 (±4.0)	14.7 (±2.3)	11.7 (±2.2)	5.9 (±1.4)	34.4 (±5.4)	10.1 (±3.1)
<b>Grade</b>						
<b>9</b>	33.3 (±8.1)	19.3 (±5.7)	15.7 (±5.7)	8.8 (±2.7)	33.5 (±10.0)	12.6 (±4.0)
<b>10</b>	45.2 (±7.1)	20.7 (±4.0)	17.5 (±4.7)	7.3 (±2.9)	**	17.4 (±6.4)
<b>11</b>	**	**	**	**	**	**

\*\* Less than 35 cases in the denominator

More than one-third of students (Grades 7-13) in Jamaican schools have ever smoked [even one or two puffs] (Table 1). They are comprised of 39.3% of the male students and 28.9% of the female students. Alternatively, Ever smokers constitute 33.3% of Grade 9 and 45.2% of Grade 10 students.

Overall 15.2% of students are Current Smokers (those who smoked on one or more days of the past 30 days - one month) with male students (19.3%) significantly more likely to smoke than female students (11.7%). Current cigarette use is also moderately high among students in Grade 9 (15.7%) and Grade 10 (17.5%).

The %age of school children currently using other tobacco products (8.3%) is markedly less than current cigarette consumption. Male students (11.1%) are significantly more likely than female students (5.9%) to use other tobacco products.

As such, the current use of any tobacco product [19%] is moderately high, with almost the same %age for Grades 9 and 10 - 19.3% and 20.7%, respectively. Moreover, this activity is significantly higher among male students (24.1%) than female students (14.7%).

Overall, 35.3% of students initiated smoking before age 10. They were comprised of 36.5% of male students and 34.4% of female students. In addition, 14.8% of Never Smokers indicated that they would initiate smoking within the following year. Male students (21.1%) were significantly more likely than female students (10.1%) to initiate smoking during this period.

In all cases of current use of cigarettes, Other Tobacco Product, Any Tobacco Product and Susceptibility to Initiating Smoking, male students showed a higher propensity to smoke than female students.

## Knowledge and Attitudes

**Table 2:** Knowledge and Attitudes, [Jamaica] GYTS, 2000

Category	Think Boys Who Smoke Have More Friends		Think Girls Who Have More		Think Smoking Makes Boys Look More Attractive		Think Smoking Makes Girls look more attractive	
	NS	CS	NS	CS	NS	CS	NS	CS
<b>Total</b>	31.7 (±3.6)	37.7 (±7.3)	17.9 (±4.1)	16.6 (±5.6)	7.8 (±2.1)	13.5 (±4.8)	6.8 (±2.3)	13.6 (±4.5)
<b>Sex</b>								
<b>Male</b>	30.2 (±5.3)	42.4 (±10.7)	20.3 (±4.7)	16.9 (±7.6)	10.9 (±2.8)	12.1 (±6.4)	10.1 (±3.8)	13.5 (±6.8)
<b>Female</b>	33.2 (±4.4)	31.5 (±7.0)	16.3 (±5.0)	16.4 (±7.1)	5.4 (±2.7)	15.7 (±5.6)	4.5 (±1.6)	13.9 (±5.6)
<b>Grade</b>								
<b>9</b>	32.1 (±6.7)	49.7 (±11.5)	14.9 (±7.0)	18.6 (±8.7)	7.0 (±3.9)	16.4 (±8.1)	6.1 (±3.7)	13.2 (±9.4)
<b>10</b>	35.9 (±6.3)	17.5 (±12.4)	16.0 (±4.3)	2.9 (±3.4)	3.8 (±2.8)	6.1 (±4.9)	5.1 (±3.0)	6.5 (±6.7)
<b>11</b>	**	**	**	**	**	**	**	**

\*\* - Less than 35 cases in the denominator

NS = Never Smokers

CS = Current Smokers

37.7% of Current Smokers and 31.7% of Never Smokers think that boys who smoke have more friends. Among male smokers, 42.4% of Current Smokers and 30.2% of Never Smokers are of this opinion. Among female smokers, a lower percentage of Current Smokers (31.5%) and almost equal percentage of Never Smokers (33.2%) think that boys who smoke have more friends. Current Smokers in Grade 9 (49.7%) are significantly more likely than those in Grade 10 (17.5%) to think that boys who smoke have more friends.

However, a much lower percentage of Current Smokers (16.6%) and Never Smokers (17.9%) think that girls who smoke have more friends. 16.9% of male and 16.4% of female Current Smokers as well as 20.3% of male and 16.3% of female Never Smokers are of this opinion. Current Smokers in Grade 9 (18.6%) are significantly more likely than those in Grade 10 (2.9%) to think that girls who smoke have more friends. However, among Never Smokers, 14.9% of Grade 9 and 16% of Grade 10 students are of this opinion.

13.5% of Current Smokers and 7.8% of Never Smokers think that smoking makes boys look more attractive. Among male students, this opinion is held by 12.1% of Current Smokers and 10.9% of Never Smokers. Among female students, Current Smokers (15.7%) are significantly more likely than Never Smokers (5.4%) to think that smoking makes boys look more attractive.

Very similar to the case for boys, 13.6% of Current Smokers and 6.8% of Never Smokers think that smoking makes girls look more attractive. Among male students, 13.5% of current

smokers and 10.1% of Never Smokers are of this opinion. However, among female students, Current Smokers (13.9%) are significantly more likely than Never Smokers (4.5%) to think that smoking makes girls look more attractive.

With respect to grades 9 and 10, 13.2% of Current Smokers and 6.1% of Never Smokers in Grade 9 as well as 6.5% of Current Smokers and 5.1% of Never Smokers in Grade 10 think that smoking makes girls look more attractive.

### Access and Availability

**Table 3:** Access and Availability, [Jamaica] GYTS,2000

Category	Percent of Current Smokers Who Usually Smoke At Home	Percent of Smokers Who Purchased Cigarettes In A Store	Percent of Current Smokers Who Bought Cigarettes In A Store Who Were Not Refused Because of Their Age
<b>Total</b>	50.8(±8.3)	34.6(±5.5)	73.9(±6.5)
<b>Sex</b>			
<b>Male</b>	54.6(±12.5)	32.3(±10.5)	70.3(±10.3)
<b>Female</b>	45.5(±7.5)	36.3(±10.1)	81.5(±9.5)
<b>Grade</b>			
<b>9</b>	51.1(±17.1)	25.8(±8.3)	71.5(±13.0)
<b>10</b>	47.4(±11.9)	36.4(±9.6)	**
<b>11</b>	**	40.4(±13.3)	**

\*\* Less than 35 cases in the denominator

50.8% of Current Smokers usually smoke at home. There was no statistical difference by gender nor grade.

54.6% of Current Smokers purchased cigarettes in a store, 36.3% were female and 32.3% - male students. As grade levels increased from Grades 9 to 11, there was an increase in Current Smokers who purchased cigarettes in a store, ranging from 25.8% of Grade 9 to 40.4% of Grade 11.

The majority of Current Smokers (73.9%) who bought cigarettes in a store were not refused because of their age. There was no statistical difference by gender in this regard.

## Environmental Tobacco Smoke

**Table 4:** Environmental Tobacco Smoke [Jamaica] GYTS, 2000

Category	Exposed to smoke from others in their home		Exposed to smoke from others in public places		Percent who think smoking should be banned from public places		Percent who Definitely think smoke from others is harmful to them	
	NS	CS	NS	CS	NS	CS	NS	CS
<b>Total</b>	2.9 (±3.2)	56.7 (±6.2)	54.2 (±4.0)	77.9 (±6.1)	71.9 (±7.4)	63.5 (±7.2)	78.4 (±6.2)	67.3 (±4.3)
<b>Sex</b>								
<b>Male</b>	21.1 (±5.2)	54.9 (±10.1)	52.2 (±7.6)	76.0 (±10.1)	66.3 (±8.3)	61.3 (±10.0)	73.9 (±8.9)	67.8 (±8.5)
<b>Female</b>	24.2 (±3.8)	58.3 (±6.5)	55.6 (±4.6)	80.1 (±6.6)	75.5 (±7.9)	65.8 (±8.5)	81.3 (±5.8)	65.6 (±8.9)
<b>Grade</b>								
<b>9</b>	21.5 (±4.9)	54.9 (±9.2)	56.1 (±7.4)	76.5 (±8.1)	80.3 (±11.6)	73.4 (±11.3)	82.0 (±9.4)	64.2 (±11.5)
<b>10</b>	21.6 (±7.0)	56.6 (±11.8)	58.5 (±7.6)	85.1 (±6.5)	85.1 (±7.2)	71.2 (±13.2)	85.9 (±6.0)	79.4 (±11.2)
<b>11</b>	**	**	**	**	**	**		

\*\* Less than 35 cases in the denominator

NS = Never Smokers

CS = Current Smokers

Current Smokers (56.7%) are significantly more likely than Never Smokers (22.9%) to be exposed to smoke from others in their home. Male (54.9%) and female (58.3%) Current Smokers are significantly more likely than Male (21.1%) and Female (24.2%) Never Smokers to have this experience. In addition, Current Smokers in Grades 9 (54.9%) and 10 (56.6%) are significantly more likely than Never Smokers [21.5% and 21.6% respectively] to be exposed to smoke from others in their home. The fathers of 28.9% of Current Smokers were the most prominent family member/other person to smoke at home. Next-in-line were the guardians of one eighth (12.5%) of Current Smokers. In addition, both parents of one tenth (10%) of Current Smokers and a sibling of 8.2% of them smoke within the home environment.

Current Smokers (77.9%) are also significantly more likely than Never Smokers (54.2%) to be exposed to smoke from others in public places. Male (76.0%) and female (52.2%) Current Smokers are significantly more likely than Male (52.2%) and Female (55.6%) Never Smokers to have this experience. In addition, Current Smokers in Grades 9 (76.5%) and 10 (85.1%) are significantly more likely than Never Smokers [56.1% and 58.5% respectively] to be exposed to smoke from others in public places.

Overall 71.9% of Never Smokers and 63.5% of Current Smokers think that smoking should be banned from public places. From a gender perspective, among male students, 66.3% of Never Smokers and 61.3% of Current Smokers and among female students, 75.5% of Never Smokers and 65.8% of Current Smokers are of this opinion. By Grade Level, 80.3% of Never Smokers in comparison to 73.4% of Current Smokers in Grade 9 and 85.1% of Never Smokers compared to 71.2% of Current Smokers in Grade 10 think that smoking should be banned from public places.

Never Smokers (78.4%) are significantly more likely than Current Smokers (67.3%) to definitely think that smoke from others is harmful to them. 73.9% of male Never Smokers and 67.8% of Current Smokers are of this opinion. Female Never Smoker (81.3%) are significantly more likely than female Current Smokers (65.6%) to definitely think that smoke from others is harmful to them.

The grade distribution was 82% of Never Smokers as against 64.2% of Current Smokers in Grade 9 and a higher percentage in Grade 10 - 79.4% of Current Smokers and 85.9% of Never Smokers - are of the opinion that smoke from others is harmful to them.

## Cessation

**Table 5:** Cessation [Jamaica] GYTS, 2000

Category	Current Smokers		
	Percent desire to stop	Percent tried to stop this year	Percent who always have or feel like having a cigarette first thing in the morning
<b>Total</b>	73.3(±9.6)	68.1(±7.3)	4.6(±3.9)
<b>Sex</b>			
<b>Male</b>	79.7(±15.4)	74.6(±8.9)	6.3(±6.6)
<b>Female</b>	63.0(±12.6)	57.9(±10.0)	2.9(±3.9)
<b>Grade</b>			
<b>9</b>	**	65.8(±14.1)	5.2(±7.5)
<b>10</b>	**	**	4.4(±5.0)
<b>11</b>	**	**	**

\*\* Less than 35 cases in the denominator

Overall, 73.3% of students who desire to stop smoking while a slightly lower percentage - 68.1% tried to quit this year. Among students who desire to stop smoking, 79.7% are male students and 63% - female students while 74.6% of male students and 57.9% of female students actually attempted to quit smoking this year.

As stated previously, Nicotine is the addictive substance in tobacco products. The need for a Cigarette first thing in the morning is therefore also a critical indicator of Nicotine Dependency. This appears to be minute as only approximately 5% of students overall expressed this desire. There was also no significant difference by gender or grade.

However, Nicotine Dependency is accurately measured by the number of cigarettes smoked daily or the application of the Fagerstrim Test for Nicotine Dependence.



## Promotion of the Use of Tobacco Products

**Table 6:** Tobacco Promotion/Advertising [Jamaica] GYTS, 2000

Category	Percent Saw Anti-Smoking Media Messages	Percent Saw Pro-Tobacco Messages in Newspapers and Magazines		Percent Who Had Object With a Cigarette Brand Logo On It		Percent Offered "Free" Cigarette by a Tobacco Company	
		NS	CS	NS	CS	NS	CS
<b>Total</b>	74.4 (±3.0)	58.4 (±3.2)	71.4 (±8.0)	10.6 (±3.4)	23.1 (±8.3)	6.1 (±1.8)	14.6 (±3.9)
<b>Sex</b>							
<b>Male</b>	72.6 (±4.5)	57.5 (±5.9)	72.2 (±9.5)	13.3 (±5.3)	19.4 (±8.4)	8.0 (±2.6)	15.3 (±6.0)
<b>Female</b>	76.0 (±3.7)	59.5 (±3.8)	72.0 (±9.9)	8.9 (±3.4)	29.1 (±11.3)	4.6 (±2.0)	14.0 (±8.1)
<b>Grade</b>							
<b>9</b>	75.5 (±5.4)	55.2 (±5.9)	78.0 (±13.6)	10.8 (±6.4)	28.8 (±16.0)	5.5 (±2.3)	15.2 (±6.6)
<b>10</b>	79.9 (±6.6)	56.7 (±9.7)	71.1 (±12.0)	9.8 (±3.6)	22.2 (±11.5)	4.8 (±3.0)	10.8 (±6.5)
<b>11</b>	**	**	**	**	**	**	**

\*\* Less than 35 cases in the denominator

NS = Never Smokers

CS = Current Smokers

The majority of students (74.4%) have seen anti-smoking media messages. They include 72.6% of the male students and 76.0% of the female students or alternatively, 75.5% of Grade 9 and 79.9% of Grade 10 students.

Current Smokers (71.4%) are significantly more likely than Never Smokers (58.4%) to have seen pro-tobacco messages in newspapers and magazines. In addition, Current Smokers (23.1%) are also significantly more likely than Never Smokers (10.6%) and female students who are Current Smokers (29.1%) are also significantly more likely than female students who are Never Smokers (8.9%) to have an object with a cigarette logo.

In addition, Current Smokers (14.6%) are significantly more likely than Never Smokers (6.1%) to have been offered free cigarettes by a tobacco company. Among students in Grade 9, Current Smokers (15.2%) are also significantly more likely than Never Smokers (5.5%) to have had this experience.

# Discussion

## Prevalence

The critical importance of Prevalence, Brand Preference and other Studies on smoking among adolescents is underlined by the fact that, for decades, major tobacco companies have commissioned these studies as vital activities<sup>9</sup>. As far back as 1958, R. J. Reynolds Tobacco Company (RJR), one of the largest tobacco companies in the world, undertook national surveys of high school students which demonstrated smoking prevalence by brands smoked, sex, age and grade level<sup>9</sup>. In 1968, similar surveys were initiated by Philip Morris, the most prominent cigarette company in the USA for the past two decades<sup>9</sup> and the world's largest multi-national cigarette company with global tobacco sales of over \$36 billion. Philip Morris manufactures Marlboro, the world's largest selling brand of cigarette<sup>10</sup>. Other large tobacco companies - the British American Tobacco Company, the other most dominant tobacco company in the world, Lorillard (L D) and Brown and Williamson (B & W) ( in the USA) as well as Japan Tobacco have also been undertaking similar studies.

The fact that 33.8 % of students have ever smoked; the increase in the percentage of Ever Smokers to 45.2% of students in grade 10 from 33.3% in Grade 9 and the identification of 15.2% of students as Current Smokers (those who smoked on one or more days of the past 30 days—one month) indicates not solely curiosity during this period of experimentation for this age range but that smoking is a regular practice among a fairly high proportion of young people in Jamaica. The strong possibility therefore exists that there will be a significant increase in the percentage of habitual smokers over time as several of these students become grounded in the habit of smoking. This substantiates the National Adolescents' Students' Drug Survey which revealed an increase in the Lifetime Use of cigarettes (Ever Used) from 25.35 in 1987 to 27.1 in 1997 for Grade 9 students and moderately high Lifetime Prevalence for Grade 11 despite the percentage decline from 32.8 to 26.8 [Grade 11] <sup>11</sup>. However, under the GYTS, none of the Grade 11 figures were reported since the cell size was less than thirty-five<sup>35</sup>. At the same time, it is interesting to note that the 1997 Adolescent Health Survey which was conducted in five Caribbean countries demonstrated that 89% of Jamaican adolescents 10-19 years ever smoked [one or two puffs]<sup>12</sup>.

As stated previously, the current prevalence of cigarette use (smoked on one or more days of the past 30 days - one month) overall among students is 15.2% with almost an equal percentage of students in Grade 9 (15.7%) and Grade 10 (17.5%).

The 'festering' of the tobacco epidemic among Jamaican adolescents (with its ensuing health problems) is also evident in the fact that:

- a. 35.3% of students (13-15 years) initiated smoking before age 10 years and
- b. 14.8% of Never Smokers indicated that they would initiate smoking within the following year.

The National Adolescents' Students' Drug Survey conducted in 1997 revealed that the percentage of students who initiated smoking either prior to and while in high school were as follows: below Grade 7 - 12.8%, Grade 7 - 4.7%, Grade 8 - 3.7%, Grade 9 - 3.7%, Grade 10- 0.9%, Grade 11 - 0.8%, Grade 12/13- 0.3%<sup>10</sup>.

Several research studies worldwide have shown that the average age of initiation of cigarette use is 13 years and that in 90% of cases this is less than 18 years. The 1993 Risk Behaviour Survey (Jamaica) showed that 29% of males and 8% of females initiated smoking before the age of 15 years<sup>4</sup>. The GYTS (Jamaica) revealed that a larger percentage of students - 36.5% of males and 34.4% of females - initiated smoking (cigarettes) before age 10.

One of the major contributory factors to smoking initiation by children has been the fact that cigarettes are still being sold to adolescents without any legislative action to prevent and control this problem. This is further compounded by the single-sale of cigarettes (at J\$5.00 - J\$7:00 [US\$0.10 - US\$0.15) making this product more accessible, compared to the cost of a pack of cigarettes (20) which is \$100.00 - \$140.00 [US\$2.08 - US\$2.92].

The earlier the initiation of the habit, the more Adolescents and other persons find smoking cessation difficult even when they are motivated to quit. Thus, whereas cigarette companies claim that they do not want underage youth to begin to smoke<sup>9</sup>, they deliberately target the young. This negative motive of tobacco companies is clearly illustrated in a 1981 Philip Morris research report in which it was stated that: 'Today's teenager is tomorrow's potential regular customer and the overwhelming majority of smokers first begin to smoke while still in their teens... The smoking patterns of teenagers are particularly important to Phillip Morris.'<sup>13</sup>.

Moreover, prevention of the initiation of cigarette smoking or a decline in adolescent smoking such as those which occur due to price increases, additional taxation and other factors are considered to be a negative trend to be addressed by the industry. As reported in a Philip Morris document, '...the 1982-83 round of price increases... prevented 600,000 teenagers from starting to smoke... We don't need that to happen again'<sup>14</sup>. The price increase of cigarettes was due to increased excise taxes.'

Tobacco companies are also aware of the susceptibility of Adolescent Never Smokers to initiate smoking and experimenters as well as habitual smokers to increase smoking. Studies have shown that Susceptible Never Smokers have approximately twice the risk of initiating smoking as Non-Susceptible Never Smokers<sup>15</sup>. The existence of approximately 15% of Susceptible Adolescent Never Smokers in Jamaica is therefore cause for great concern as it is indicative of a grave situation in the near future.

In view of the high levels of smoking, early initiation and susceptibility of students to initiating cigarette smoking, stringent efforts should therefore be made to address these problems.

In addition, Male students are significantly more likely than female students to smoke cigarettes, use other tobacco products or any other tobacco product in terms of current prevalence as well as to be susceptible to initiating smoking within the following year. This gender difference may be attributed to the stigma still upheld within society against smoking by females.

However, the existence of almost equally high percentages by each sex in terms of the initiation of cigarette smoking prior to age ten - Female students (34.4%) and Male students (36.5%)—as well as the high percentage of female Ever-smokers (28.9%), Current Smokers (11.7%) and female students susceptible to initiating smoking in the following year (10.1%) is indicative of the shift among Jamaican female children, adolescents and adults in keeping with the worldwide trend of increasing smoking rates among females<sup>16</sup>.

It is also important to note that in terms of Lifetime Prevalence, Current Prevalence, and Initiation of Cigarette Smoking before age 10 and Susceptibility of Never Smokers, the second lowest percentage of Grade 9 students was 13% [Susceptibility to initiate smoking] and there was a slight increase in the percentage of relevant students in Grade 10 when compared with Grade 9, the exception being a decline in the case of Current Use of Other Tobacco Products.

This demonstrates the urgency of the need for the establishment of education and intervention programmes from the basic school level and their strengthening, expansion and revision from Grades 7-13 (See Section entitled School Curriculum).

The 8.3% Current Use of Other Tobacco Products is a revelation which underlines the necessity to conduct research to determine the most prominent among these products to facilitate the design of interventions for the prevention and control of tobacco use.

### **Knowledge and Attitudes**

Various studies of young people's attitude and behaviour have been undertaken by tobacco companies in order to analyze the factors which stimulate adolescents to initiate and perpetuate cigarette use<sup>17</sup>.

As stated in a Phillip Morris document: 'It is important to know as much as possible about teenage smoking patterns and attitudes. Today's teenager is tomorrow's regular customer and the overwhelming majority of smokers first begin to smoke while in their teens.'<sup>18</sup>.

Popularity, 'sexual' attractiveness and athletic prowess are some of the principal positive images of smokers conveyed to, adopted and upheld by children and adolescents via advertising and other forms of promotion<sup>17</sup>. The fact that such a high and almost the same percentage of never smokers overall (31.7%), including those who are male (30.2%) and female (33.2%) students and in Grades 9 (32.1%) and 10 (35.9%), as Current Smokers (37.7%) are of the opinion that boys who smoke have more friends, must be viewed with grave concern.

These results indicate that smoking is a symbol associated with great popularity, particularly among boys. In the light of the significant percentage of Never Smokers who share the same opinion, the danger exists that a marked number of the Never Smokers, mainly boys, will also become Current Smokers in the effort to become popular.

At the same time, however, there is a significant decline in the percentage of Current Smokers in Grade 10 (17.5%) compared with Grade 9 (49.7%) students who are of the opinion that boys who smoke have more friends. Similarly, Current Smokers in Grade 9 (18.6%) are significantly more likely than those in Grade 10 (2.9%) to think that girls who smoke have more friends.

These figures show that, although the percentage of Current Smokers in Grade 10 with the attitude that boys who smoke have more friends remains high, smoking is viewed with declining popularity, the older is the current smoker. This is particularly true of girls.

Proof of the maintenance of a gender bias in the perception of smoking being more socially acceptable for boys than girls is evident in the fact that a much lower but almost equal percentage of Current and Never Smokers as well as male and female Current and Never Smokers are of the opinion that girls who smoke have more friends.

However, it is also important to note that the percentage of students overall (by grade) who are Never Smokers - 14.9% of Grade 9 and 16.0% of Grade 10 students and sex [20.3% (male) and 16.3% (female)] who think that girls who smoke have more friends is still high.

Fortunately, a lower percentage of the total number of students think that smoking makes boys or girls look more attractive than that boys or girls who smoke have more friends while 13.5% of Current Smokers and 7.8% of Never Smokers think that smoking makes boys look more attractive. Among male students, this opinion is held by an almost equal percentage of Current Smokers (12.1%) and Never Smokers (10.9%). Among female students, Current Smokers (15.7%) are significantly more likely than Never Smokers (5.4%) to think that smoking makes boys look more attractive. Very similar to the case for boys, 13.6% of Current Smokers and 6.8% of Never Smokers think that smoking makes girls look more attractive. Among male students, 13.5% of Current Smokers and 10.1% of Never Smokers are of this opinion. However, among female students, Current Smokers (13.9%) are more likely than Never Smokers (4.5%) to think that smoking makes girls look more attractive.

### **Access and Availability**

The fact that approximately 51% of Current Smokers (50.8%) usually smoke at home and that there is no statistical difference between male and female students as well as those in Grades 9 & 10 highlights the problem of a significant percentage of both male and female students smoking within the home environment.

It is strongly assumed that this is occurring without their parent's knowledge. This underlines the need for parents to be more vigilant in terms of their children's activities. However, equally possible is awareness by some parents that their children are smokers. In such a case, a major deterrent is the inability to control the child and make the effort to eliminate this dastardly habit by the appropriate management of the situation via counseling and smoking cessation programmes. Unfortunately, no such programme currently exists in Jamaica.

A fair percentage of parents may either be in denial and/or be ashamed of the fact that their child is smoking and not wish to divulge this problem. It is therefore imperative that the results of this survey be widely publicized, urging parents to be very vigilant regarding whether their child/children may have started to smoke and make the effort to address the problem. However, it is evident that a significant number of adolescents are cultivating the habit of smoking in their homes, apparently without their parents being aware of this problem.

The urgent need for the enactment of legislation to ban the sale of cigarettes to minors is clearly shown by the fact that a significant percentage of Current Smokers - a little over a third - purchased cigarettes in a store and at least a quarter of students in Grades 9 to 11 were involved in this activity while almost three-quarters of students, an exceedingly high percentage, who bought cigarettes in a store were not refused because of their age, with no statistically significant difference between males and females.

However, there exists a major problem in the enforcement of laws prohibiting the sale of tobacco products to minors in those countries such as even the United States in which such legislation has been enacted. It was discovered that, in the United States, there was no active enforcement of youth anti-access laws in twenty-six of its fifty-one states and the imposition of negative consequences such as fines, warnings, arrests, civil court or administrative actions for violations was only reported in six of the other twenty-five states<sup>19</sup>.

Further, an analysis of 15 studies in which minors were utilized to attempt illegal purchases of tobacco products confirmed that 73% of these feigned purchases via over-the-counter sales were successful<sup>19</sup>. Sales rates as high as 87% attributed to over-the-counter sales to minors in the USA was revealed in 13 studies published between 1987 and 1993<sup>19</sup>.

## **Environmental Tobacco Smoke**

Environmental Tobacco Smoke (ETS), Second-Hand Smoke or Passive Smoking may be defined as emissions from a tobacco product smoked by another individual. It is a complex mixture of over forty<sup>40</sup> substances which are human carcinogens such as Arsenic, Asbestos, Coke Oven Emissions, Radon and Mustard Gas, Benzene, 1, 3 - Butadiene, Cadmium, Vinyl Chloride, 2-naphthylamine, Chromium VI and 4-aminobiphenyl<sup>20</sup>. Environmental Tobacco Smoke (ETS) has been classified as a Group A carcinogen under the United States Environmental Protection Agency (EPA) carcinogen assessment guidelines<sup>21 22</sup>.

Cancers and eighteen other major disease groups or conditions have been shown by scientific evidence as being either definitely caused or strongly indicated as possibly being caused by Exposure to Second-Hand Smoke/ETS (See Appendix I for the Summary of the Conclusions of six major Scientific Reviews and three additional studies on the health effects of Exposure to Second-Hand Smoke/ETS)<sup>23</sup>.

The ten conditions which are caused by such exposure are, in adults, Cancers - mainly Lung and less prominent - Nasal Sinus in addition to Coronary Heart Disease and in children, Fetal Growth Impairment - Low Birth Weight and Small for Gestational Age, Sudden Infant Death Syndrome (SIDS), Respiratory Symptoms, Decreased Pulmonary Function, Lower Respiratory Tract Infections (Acute - Bronchitis and Pneumonia as well as Chronic - Asthma Exacerbations) and a major Upper Respiratory Tract Infection - Middle Ear Disease (Otitis Media) which frequently results in the hospitalization of children world-wide<sup>20</sup>.

The nine conditions which are strongly indicated to be possibly caused by Exposure to Second-Hand Smoke/ETS are, with regard to children - Developmental Defects - Spontaneous Abortion and an Adverse Impact on Cognition and Behavior; Respiratory Effects, specifically Asthma Induction and Decreased Pulmonary Function; Exacerbation of Cystic Fibrosis and in adults: Breast and Cervical Cancer and Cerebrovascular Disease (Stroke)<sup>20</sup>. There also exists the possibility that Tobacco Use may also be associated with an increased risk of Osteoporosis<sup>24</sup>.

The risk of development of new cases of Asthma (a major chronic Lower Respiratory Tract Infection) in children and infants who have not previously displayed symptoms as well as the frequency and severity of asthma exacerbations/attacks in these vulnerable youngsters are also significantly increased by Passive Smoking. It has been estimated by the EPA that the condition of 200,000 to 1,000,000 asthmatic children in the USA is aggravated due to this adverse exposure<sup>25 26</sup>.

The dominance of Asthma among chronic childhood illnesses in Jamaica is revealed by hospital morbidity patterns and primary care data. Asthma among children (0-14 years old and mainly, the 0-4 year olds in Jamaica is the major condition with which patients registered to be seen at the Casualty/Accident and Emergency Departments of hospitals from 1995-1998 was diagnosed<sup>27</sup>. In 1999-2001, this was also the situation with respect to asthmatics (all age groups) at these health facilities.

The problem of exposure to Environmental Tobacco Smoke is therefore of critical importance. The fact that almost 60% of Current Smokers as against 23% of Never Smokers

are exposed to smoke from others in their home not only indicates that many more parents or other family members of Current Smokers smoke at home but that many of these children and adolescents may have become smokers because of the negative influence of their parents, other family members and other persons in this regard. This is apparently a major contributory factor to the high%age of children and adolescents who initiate smoking at an early age.

In addition, a fairly high%age of Never Smokers (23%) are exposed to smoke from family members in their home. It is little wonder, therefore, that 15% of Never Smokers are susceptible to initiating smoking (see Table 1:% of Students who Use Tobacco). The strong possibility exists that some of these Never Smokers will succumb to the negative influence of their elders and other family members and become regular smokers. In total, however, an exceedingly high%age of students are exposed to smoke from family members/others in their home. This indicates that a high%age of family members/others in the home are either so addicted to Nicotine and consequently, the smoking habit, that they are insensitive to or in denial regarding the negative health consequences for the children and adolescents within their particular household or oblivious to the negative health effects of smoking or aware and conveniently in denial regarding these dangers.

Logically, an even higher%age - a little over three-quarters - of Current Smokers (77.9%) are significantly more likely than Never Smokers -a little over 50% - to be exposed to smoke from others in public places. The more negative situation for Current Smokers is again explained by the fact that they will more likely be in the presence of other smokers than non-smokers. However, the high%age of Never Smokers exposed to Environmental Tobacco Smoke (ETS) is indicative of the wide scale of the problem.

This underlines the critical importance of banning smoking in public places including schools (at the early childhood, primary, secondary and tertiary levels), Government and quasi-Government buildings and properties throughout Jamaica. Overall 72% of Never Smokers and 64% of Current Smokers are of this opinion.

More explicitly, emphasis on the development of smoke-free environments /prohibition of the smoking of tobacco products and any other form of substance abuse in schools at the pre-primary (basic school), primary, secondary and tertiary levels is critical as, despite the fact that students -children and adolescents (0-17 years old) and even young adult students (18+ years old)-are prohibited from smoking, teachers/lecturers are still permitted to smoke. By smoking, teachers/lecturers are thus poor role models, negatively influencing the pliable young and endangering other teachers and their students by Exposure to Second Hand Smoke.

Naturally, Never Smokers (78.4%) are significantly more likely than Current Smokers (67.3%) to think that smoke from others is harmful to them. However, it is evident that a high%age of both students who are Current Smokers and Never Smokers in secondary schools are aware that Exposure to Environmental Tobacco Smoke (ETS), that is Second-Hand Smoke or Passive Smoking yields very negative health effects and should be banned from public places. It would be interesting to see whether this opinion would be upheld if a query were to be made whether these students are of the opinion that smoking in homes should be eliminated.

## **Cessation**

In keeping with international trends among smokers, a very high proportion of students in Grades 7-11 want to stop smoking (73.3%) and attempted to quit (68.1%) in 2000, thus demonstrating a major effort and high self-efficacy to stop smoking<sup>28 29 30 31</sup>. Moreover, surveys have revealed that approximately 70% of current tobacco users in the United States and 87% of current users in the Dominican Republic reported a major interest in the cessation of tobacco use<sup>28</sup>.

It is interesting to note that the GYTS revealed that, in Jamaica, male students demonstrate a higher propensity to desire to quit and attempt to do so, although there was no statistically significant difference between males and females in this regard.

## **The Addictive Nature of Nicotine**

Despite the strong desire and major effort to quit smoking, the Current Prevalence of 15.2%, Lifetime Prevalence of 33.8% among Jamaican students and the fact that 35.3% of them initiated smoking before age 10 should be treated with major concern as these statistics are proof of the gravity of the smoking problem among Jamaican adolescents. Moreover, much empirical evidence exists to prove that the earlier the age of initiation, the greater the difficulty experienced to quit smoking due to the strong addictive nature of Nicotine evident in pharmacological and behavioural processes similar to those which determine addiction to other psycho-active drugs such as heroine and cocaine<sup>32 33 34 35</sup>.

Nicotine is delivered to the brain within seven seconds of a puff, quicker than by intravenous injection. Its peripheral effects are the increase in the blood pressure, heart rate and Serum Adrenaline. Cutaneous Vasoconstriction occurs when it is administered at rest.

## **Exposure to Risk**

Moreover, deliberate exposure to Risk is a characteristic of Adolescents and young adults which yields very negative consequences. Despite the common knowledge that tobacco smoking is a major cause of Lung/other cancers, Coronary Heart Disease and other major disease conditions, adolescents and young adults persist in smoking as they have difficulty in appreciating these health effects since tobacco-related diseases usually become evident fifteen (15) or more years after smoking has been initiated.

## **Smoking Cessation Programmes**

Unfortunately, no smoking cessation programme is being provided at any institution in Jamaica. Substance Abusers are admitted, of their own volition, into a four-week residential detoxification programme at the Detoxification and Rehabilitation Unit at the University Hospital of the West Indies and Richmond Fellowship (Patricia House) for treatment of addiction to a drugs such as Cocaine or Marijuana, not Nicotine. However, patients are not permitted to smoke any substance (including tobacco products) from the inception of their treatment programme.



It is important to note that there is an increasing demand for the establishment of a smoking cessation programme at the Detoxification and Rehabilitation Unit of the University Hospital of the West Indies indicated by requests and the significant number of Current Smokers in Jamaica. Collaboration between the various public and private entities engaged in the prevention and treatment of substance abuse for the development and implementation of appropriate Smoking Cessation programmes for adolescents is critical.

### **Tobacco Promotion/Advertising**

The far-reaching and very negative impact of tobacco advertising and promotion, in general, is evident in the fact that although the majority of students (74.4%) have seen anti-smoking media messages, a significant percentage of Never Smokers (58.4%) and Current Smokers (71.4%) have seen pro-tobacco messages in the print media (newspapers and magazines) and a fairly high percentage of Never Smokers (11% and 6.1% respectively) and naturally, an even higher percentage of Current Smokers (23% and 15% respectively) possess a promotional item and have been offered free cigarettes.

The susceptibility of 15% of Never Smokers to initiate smoking (within the following year), fact that 35.3% of students initiated smoking before age 10 and 15% of students are Current Smokers is proof of the dastardly effect of tobacco advertising and other forms of promotion in Jamaica and the rest of the world.

Several studies have shown that Advertising, Sponsorship and other forms of Promotion/diverse Marketing Strategies by the tobacco industry including pro-tobacco messages in the media, the distribution of free cigarettes and provision of free items with a cigarette logo are causally associated with the susceptibility to smoking and above all, the onset of smoking by children and adolescents [0-17 years] <sup>36 37 38 39</sup>.

In Jamaica, there was no gender difference between students in terms of the percentage of male and female students who initiated smoking before age 10. At the same time, however, it should be noted that male students demonstrated a higher propensity to smoke than female students among Ever Smokers (Lifetime prevalence), Current Smokers, current use of any and other tobacco product as well as susceptibility to initiate smoking within the following year.

However, a moderately low to moderately high proportion of female students are susceptible to initiating smoking in the following year (10.1%) and are Current Smokers (11.7%) and Ever Smokers (28.9%).

This affinity to smoke demonstrated by female students is in keeping with the worldwide trend among girls - 10 to 17 years old - of a significant increase in smoking initiation among this group due to the production and promotion of specific brands of cigarettes focusing on the image of emancipation, independence and individuality combined with glamour, slimness, sophistication and sexuality targeted at young and impressionable girls and women<sup>40</sup>. Among adolescent girls in the USA, smoking initiation rose steeply in about 1967 when tobacco advertising started to focus on specific brands of cigarettes for women, the principal ad being the 'You've come a long way, baby' campaign for Virginia Slims, the prototypical cigarette targeting women and was most prominent in 1973 when sales of these brands peaked.

Moreover, adolescence is a period in which there is a major search for identity via experimentation. Smoking among children is one of the risk behaviours stimulated by cigarette advertising to a significant degree as it has the powerful effect of associating cigarette smoking with athletic prowess, sexuality, success, sophistication, adventure and self-actualization<sup>17</sup> and is recognized as a 'rite of passage'<sup>41</sup>.

As such, despite the common argument held by tobacco companies that the objective of advertising is to stimulate adult smokers to switch brands<sup>17</sup>, advertising and other forms of promotion/diverse marketing strategies by the tobacco industry including sponsorship by Tobacco companies via the media and other means such as on billboards and a one-to-one/individual basis has resulted in an overall increase in the consumption of cigarettes by children and adolescents [0-17 years], in particular.

Evidence of this is contained in studies and reports by tobacco companies. A 1996 study showed that teenagers are three times as sensitive as adults to advertising<sup>42</sup>. A survey showed that 86% of children and adolescents who smoke prefer the three most heavily advertised brands - Marlboro, Camel and Newport. Another study showed that 91% of six (6) year old children surveyed identified Joe Camel cartoon character as being associated with cigarettes, approximately the same %age who recognized Mickey Mouse.

The tobacco company - Phillip Morris - highlighted the success of the image of the Marlboro Man cowboy among underage youth in the following manner—"Marlboro ....hit a responsive chord among post-war baby boom teenagers with the theme from the Magnificent Seven and an image uncalculatedly Marlboro thus became the most popular brand among children and adolescents and subsequently, adults<sup>44</sup>.

In this regard, it is important to note that Marlboro, the most heavily advertised brand, is consumed by 60% of Youth Smokers in comparison to 25% of adult smokers<sup>44</sup>. Empirical evidence of this direct link between advertising and increased cigarette consumption is found in at least twenty (20) other studies including eighteen (18) [seven (7) from the United States, seven (7) from the United Kingdom, two (2) from New Zealand and one (1) from the then West Germany and Australia] which were reviewed by the British Department of Health in 1992<sup>45</sup>.

The two other studies included a 1989 study by the Government of New Zealand which examined data from thirty-three (33) countries in which the conclusion was drawn that "Advertising is directly related to the number of cigarettes smoked and less advertising means fewer smoked"<sup>46</sup> and a 1996 study by the University of Cape Town's Economics of Tobacco Control Project.

Promotion by tobacco companies results in Cigarette consumption being increased in four ways:

- encouragement of experimentation with tobacco products and initiation of smoking on a regular basis by children, adolescents and young adults
- increase in the daily consumption of tobacco by current users
- reduction of the motivation to quit by Current Smokers/users and
- encouragement of the resumption of smoking/tobacco use/relapse by quitters/former regular or frequent smokers.

However, there has been a decline in tobacco promotion to mainly advertising on billboards and the sponsorship of events.

It is therefore critical that legislation be introduced in Jamaica in the very near future to prohibit all forms of advertising, sponsorship, distribution of free cigarette samples and products as well as other means of promotion by cigarette/tobacco companies and the structure established to ensure that those measures are enforced.

### **School Curriculum**

The fact that only 41% of students (Grades 7-11) were taught the dangers of smoking and even a smaller percentage (27%) were involved in discussions on the reasons why people their age smoke may be attributed to deficiencies in the current Prevention Education Programme (PEP).

The objectives of the Prevention Education Programme (PEP) are:

- a. to equip students from the pre-primary to the secondary school in Jamaica with appropriate refusal, problem-solving, coping and other Life Skills for the development and practice of positive attitude and behaviour to deter the initiation of the use of addictive substances on exposure to them;
- b. ensure that experimental use does not become habitual use and
- c. prevent psychological or physical dependence on psychoactive substances, thereby reducing the demand for such substances<sup>47</sup>.

The process involves ensuring the availability of appropriate information to school personnel, students and parents as well as utilizing modes of communication with the most modern form of information technology possible.

A limited number of students have benefited from the programme as it is taught in only 30% of schools due to financial and resource material constraint and overworked Guidance Counsellors.

The vital importance of school-based tobacco use prevention programmes in reducing the prevalence and incidence of tobacco use among adolescents has been proven in the USA by more than ninety (90) controlled trials of such interventions which have been published since the mid-1970s<sup>8</sup>. The most successful of these programmes have 2-4 year follow up periods (longer periods having not been proven to be beneficial) and focus on the teaching of life skills to withstand social pressures to use tobacco as well as the short and long-term effects of tobacco use.

## School Curriculum

**Table 7:** School Curriculum [Jamaica] GYTS, 2000

<b>Category</b>	<b>Percent taught dangers of smoking</b>	<b>Percent discussed reasons why people their age smoke</b>
<b>Total</b>	40.8(±5.9)	26.7(±4.5)
<b>Sex</b>		
<b>Male</b>	40.5(±7.1)	24.6(±4.8)
<b>Female</b>	41.7(±6.8)	28.5(±5.6)
<b>Grade</b>		
<b>9</b>	39.2(±9.5)	24.8(±8.0)
<b>10</b>	46.2(±10.0)	34.3(±8.3)
<b>11</b>	**	**

\*\* - Less than 35 cases in the denominator

Overall 40.8% of students have been taught the dangers of smoking. There was no significant difference by gender nor grade but a larger percentage of Grade 10 (46.2%) than Grade 9 students (39.2%) have been taught these dangers. However, the reasons why people their age smoke have only been discussed among 26.7% of students comprising 24.6% of male and 28.5% of female students. The difference was also not significant by gender nor grade.

## Recommendations

In view of the premature initiation and high prevalence of smoking among Jamaican adolescents demonstrated by the GYTS, it is critical that the programme for the prevention and control of Tobacco Use in Jamaica encompass all the elements of a comprehensive Plan of Action as stipulated by PAHO/WHO<sup>48</sup> while addressing the specific needs identified from the results of this study.

The proposed components of the programme are as follows:

- I. Policy and Legislative Measures
  1. Full participation by the Government of Jamaica (represented by the Ministry of Health) in the Intergovernmental Negotiating Body for the preparation and ratification of the Framework Convention on Tobacco Control (FCTC).
  2. The review of the current Anti-smuggling Legislation in conjunction with the Customs Act to deal with the smuggling of tobacco products.
  3. Review of the Taxation Policy to provide for the increased taxation of tobacco products and the channeling of revenue earned from this source into the financing of health-related programmes.
  4. Pursuit of the recovery of the cost of smoking-related illnesses from tobacco companies via litigation.
  5. The Amendment of the Chief Medical Officer's (CMO's) warning to several health warnings, each focusing on a different disease/health condition resulting from the smoking of tobacco products and exposure to Environmental Tobacco Smoke (Second-Hand Smoke/Passive Smoking). Examples of excellent mandatory health warnings developed by Health Canada and placed on cigarette packages in that country were provided in an Appendix to the document in which all these proposed measures were outlined.
  6. The approval of the label on the package of any tobacco product by the Ministry of Health and inclusion of the specific CMO's health warning as well as the content of tobacco products excluding unproven health claims such as light, mild and low tar.
  7. The registration of tobacco products under the Food and Drugs Act (List 1). Manufacturers and importers will be required to disclose the composition of tobacco products (ingredients and additives) to the Ministry of Health. Prior to the importation of raw materials or finished products, a permit must be granted by the Ministry of Health.
  8. The requirements that wholesalers obtain a license for the sale of tobacco products including a fee for its renewal and fines for violation and revocation of a license be imposed as a last resort, following a number of violations.
  9. Prohibition of the sale of tobacco products to minors (0-17 years) with request for valid proof of age by vendors or law enforcement officers when in doubt of the age of the purchaser.
  10. Prohibition of the purchase or provision of cigarettes by an adult for use by a child or adolescent (0-17 years).

11. Prohibition of the distribution of samples of cigarettes, posters, pamphlets and other material promoting tobacco products or subsidized selling.
12. Prohibition of the sponsorship of sporting and other events by tobacco companies.
13. Prohibition of the advertisement of tobacco products in any form including on billboards or public displays.
14. Ban on the advertising or promotion of tobacco brands/logos or other items including clothing such as tee shirts and other products.
15. Ban on the placement of tobacco promotional material or advertisements on Internet web sites established in Jamaica.
16. Ban on the smoking of tobacco products and any other form of substance abuse in all public and private schools at the pre-primary (basic school), primary, secondary and tertiary level.
17. Ban on the smoking of tobacco products in Government buildings and properties including those operated by statutory bodies.
18. Ban on the smoking of tobacco products at Airport and Seaport facilities and in public transportation.
19. Ban on the smoking of tobacco products in public facilities such as restaurants, recreational facilities such as cinemas (except designated areas in bars and clubs), auditoriums, conference/meeting places and other relevant locations.
20. Ban on point of sale advertising or promotion.
21. Ban on the sale and distribution of tobacco products in all health facilities including pharmacies, Government buildings, properties and those operated by statutory buildings.

Contravention of the provisions of the Regulations should attract a fine of \$100,000 and in the case of continuous offences - \$10,000 daily or such higher sum as the Minister may from time to time by order determine, subject to Affirmative Resolution of the House of Parliament.

## II. Health Promotion and Protection

1. The establishment of measures to ensure that all stakeholders including children, adolescents, young adults, parents/caregivers, vendors, Law Enforcement Officers, members of various communities, medical practitioners, other individuals and organizations - Ministries of Health, Education and Culture and other such entities, statutory bodies, Private Sector/Volunteer Organizations, Community-Based Organizations (CBOs), Non-Governmental Organizations(NGOs) and School Authorities are made aware of the Acts and Regulations pertaining to the prohibition of the sale of tobacco products to minors and the Prevention and Control of Tobacco Use as well as the legal ramifications of their violation.
2. Heightening of responsibility on the part of the community for the need to be involved in the implementation of measures for the prevention and control of the sale and use of tobacco products.

3. The promotion of advocacy by children and adolescents for the institution of measures for a smoke-free environment (avoidance of tobacco use) and the prohibition of the sale and promotion of tobacco products with the enactment of the requisite legislation.
4. The upgrading of the Life skills/Prevention/Health and Family Life Education programmes to incorporate comprehensive modules for the prevention and control of tobacco use and other forms of substance abuse.
5. Capacity Building:
  - a. The training of Health, Education, other professionals, members of various communities including Community Development Action Committees (CODACs), Parish Development Action Committees (PARDACs), Private Sector/Volunteer Organizations, NGOs and CBOs as well as students in the following:
  - b. Prevention Education - the appropriation and imparting of Life/Coping Skills resulting in the Integration and Infusion of Positive Life Skills as a vital aspect of behaviour displayed by children, adolescents and adults in schools and communities.
  - c. Advocacy and other relevant areas pertaining to the prevention and control of Tobacco Use/Substance Abuse..
  - d. Institutional Strengthening of both CODACS and PARDACS via the following:
  - e. Facilitation of the development of CODACS to become NGOs
  - f. Fortification of the resource base of CODACS and PARDACS by the procurement of significant additional financing, the expansion of the membership of these organizations and other measures.
6. The Formulation and Implementation of Strategies and Methodology for the Early Detection and Management of Tobacco Use and Behavioural and Learning Disorders among Children and Adolescents.
7. Development and implementation of appropriate public health promotion programmes for the prevention and control of tobacco use including School-based Initiatives which will incorporate the utilization of all aspects of the school curriculum, extra-curricular activities and personnel as channels in this process as well as structured programmes at the Community, institutional, national and international levels. The provision of additional support/resources to facilitate the implementation of these programmes will be vital in this process.
8. Multi-sectoral Collaboration - interaction between personnel of the Ministries of Health, Education and Culture, Representatives of other Ministries and various statutory bodies and Private Sector/Volunteer Organizations, CBOs, NGOs, School Authorities, Student Bodies and Parent Teachers Associations, public and private Health Professionals, Community Organizations and Law Enforcement Authorities in the planning, development and implementation stages of relevant programmes and projects.
9. The provision of support via Mentorship, Counselling, Care groups and other means.
10. The establishment and implementation of Smoking Cessation programmes for children, adolescents and adults involving the following:
  - a. Psychological/Behavioural Measures including the strengthening/acquisition and Life Skills, Individual Counselling and Group Therapy Support Programmes as well as the Assistance of Family and Friends;

- b. Self-Help Measures which include Gradual Reduction/Tapering off of the use of tobacco products and improved Diet and Exercise and
- c. Pharmacotherapy (mainly utilized in the case of regular adult Current Smokers).

It will be necessary to tailor the programme to meet the needs of the particular smoker.

11. Development and implementation of a simple surveillance system to monitor the effectiveness of the programme for the prevention and control of tobacco use.



## Bibliography & Notes

1. Statistical Institute of Jamaica, March 2002.
2. Beyond Prevention: Helping Teens Quit Smoking, WHO International Archives, May 1999.
3. Centers for Disease Control and Prevention. Cigarette Smoking, Attributable Mortality and years of potential life lost. United States, 1990. MMWR 1993;42:645-649 Department of Health and Human Services. Reducing the Health Consequences of Smoking: 25 Years of Progress. A Report of the Surgeon General. Rockville, MD: Department of Health and Human Services, 1989 (Publication no. DHHS (CDC) 89-8411.
4. Figueroa J.P., Fox K. and Minor K. A Behaviour Risk Factor Survey in Jamaica. WIMJ 48: 9-15. March 1999.
5. Wray S.R., Prevalence and Patterns of Substance Abusers: Neurobehavioural and Social Dimensions: a 1994 National Survey Report on Substance Abuse in Jamaica. Neuroscience, Adolescent Development and Drug Research Programme, Faculty of Medical Sciences, The University of the West Indies, Mona, Kingston, Jamaica. 1994.
6. Development in Practice. Curbing the Epidemic: Governments and the Economics of Tobacco Control. The World Bank, Washington D.C. May 1999.
7. Figueroa, J.P. Estimate of the Cost of Treating Tobacco-related Illnesses in the Public and Private Sector since 1980-1998. Ministry of Health. 1999.
8. Department of Health and Human Services. Preventing Tobacco Use among Young People: A Report of the Surgeon General. Washington, DC: Government Printing Office, 1994. (Publication No. S/N 017-001-00491-0.)
9. Perry CL. The Tobacco Industry and Underage Youth Smoking. Documents from the Minnesota litigation, Archives of Pediatric and Adolescent Medicine. 153:935-941, September 1999.
10. Gale D.A. Breaking Link with Tobacco: A Guide to Preventing and Reversing a Deadly Life Style. Barbados Cancer Society. May 1999.
11. Douglas K. G. Patterns of Substance Use and Abuse among Post-Primary Students in Jamaica: National Adolescent Students Drug Survey 1997-1998. Planning Institute of Jamaica. Working Paper No. 3. June 2000.
12. Blum, R. W., Campbell-Forrester S., Beuhring, T., Venena, A., Pate E. Caribbean Adolescent Health Survey: Antigua, Dominica, Grenada, Jamaica. The Pan-American Health Organization, Caribbean Sub-Region, Barbados, W. I. and the WHO Collaborating Centre on Adolescent Health, Division of General Pediatrics and Adolescent Health, University of Minnesota.
13. 1981 Report by Researcher Myron Johnson sent to Robert E. Seligman, Vice President of Research and Development, Philip Morris.
14. PM Bates No.2022216179. Johnston M. Handling an Excise Tax Increase, memo to J. Zoler, September 3, 1987).

15. Pierce, J. P.; Choi, W. S.; Gilpin, E. A.; Farkas, A. J.; and Berry, CC Tobacco industry promotion of cigarettes and adolescent smoking. JAMA 279(7):511-515, 1998.
16. Gajalakshmi, C. K., Jha, P., Ranson, K., Nguyen, S., Global Patterns of Smoking and Smoking Attributable Mortality in: Ernster, V., Kaufman N., Nichter, M., Samet, J., Yoon S. Women and Tobacco: Moving from Policy to Action. In Bulletin of the World Health Organization 2000, 78 (7). 891- 901).
17. Tobacco Advertising & Promotion: The Need for a Coordinated Global Response.
18. Johnston ME. Young Smokers Prevalence Trends, Implications and Related Demographic Trends, 31 March 1981 [Philip Morris (PM) Bates No.1000390803.]
19. Wolfson, M., Forster, J. L., Sidebottom, A. B., Hannan, P. J., Steart, D. J., Brodsky, L. B. Local Ordinances Regulating Youth Access to Tobacco: Results of a National Survey presented at the Annual Meeting of the American Public Health Association, Indianapolis, Indiana, November 1997.
20. Ontario Tobacco Research Unit, Excerpts from Protection from Second-hand Tobacco Smoke in Ontario - A Review of the evidence regarding best practices. A Report prepared for the Chief Medical Officer of Health of Ontario, Canada. Toronto, Ontario. March, 2001.
21. Office of Research and Development, Office of Air and Radiation, United States Environmental Protection Agency. Fact Sheet: Respiratory Health Effects of Passive Smoking. EPA-43-F-93-003. January 1993.
22. The classification of Environmental Tobacco Smoke (ETS) as a Group A carcinogen under the United States Environmental Protection Agency (EPA) carcinogen assessment guidelines is based on the following:
  - a. Conclusive evidence of the dose-related lung carcinogenicity of mainstream smoke in active smokers and the similarities of mainstream and side stream smoke emitted by the burning end of the cigarette and;
  - b. The statistically significant exposure-related increase in lung cancer in non-smoking spouses of smokers proven on analysis of more than 30 human epidemiological studies which examined the association between second-hand smoke and lung cancer, biological measurements of human uptake of tobacco smoke components, information on active smoking, animal and other data.
23. The body of evidence on the health effects of Exposure to Second-hand/Environmental Tobacco Smoke is mainly contained in six major published scientific reviews conducted independently by the following entities - the United States Environmental Protection Agency (1992), the California Environmental Protection Agency (1997), Australian National Health and Medical Research Council (1997), the United Kingdom Scientific Committee on Tobacco and Health (1998), the World Health Organization (1999) and the United States National Toxicology Program (2000). The findings of these reviews have been summarized in (2) above.
24. Hopper, J. L., Seeman, E. The Bone Density of Female Twins Discordant for Tobacco Use. N. Engl J. Med 1994; 330:387-392; Seeman, E., LJ. O'Fallon W. M, et al. Risk Factors for Spinal Osteoporosis in Men. Am J Med 1983; 75:977-983.
25. United States Environmental Protection Agency. Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders. Office of Research and Development. EPA/600/6-90/006F. Washington, USA, December 1992.

26. In the 1992 report of the United States Environmental Protection Agency, evidence of the non-cancer respiratory effects of exposure to ETS in children is mainly based on a review of more than 100 studies of its negative respiratory health effects including 50 recent epidemiological studies of children of smokers.
27. Planning and Evaluation Unit, Ministry of Health, Jamaica. The Hospital Monthly Summary Report (HMSR). January-December 1993-8 & 2000. Ministry of Health, Jamaica.
28. World Health Organization [WHO], World No Tobacco Day, Leaving the Pack Behind, 1999.
29. Sussman, S., Dent, C. W., Severson, H., Burton, D., Flay, B.R., Self-initiated Quitting among Adolescent Smokers. *Preventive Medicine* 1998; 27:19-28.
30. Hu T., Lin Z, Keeler TE. Teenage Smoking, Attempts to Quit, and School Performance. *American Journal of Public Health* 1998; 88 (6):940--943).
31. Centers for Disease Control. Selected Cigarette Smoking Initiation and Quitting Behaviors among High School Students. *Morbidity and Mortality Weekly Report* 1998; 47(19) (May 22): 386-89.
32. Department of Health and Human Services. The Health Consequences of Smoking: Nicotine Addiction. A Report of the Surgeon General, 1988. Rockville, MD: Department of Health and Human Services, 1988. (Publication No. DHHS (CDC) 88-8406).
33. Henningfield, J. E., Cohen, C., Pickworth, W. B. Psychopharmacology of Nicotine. In: Orleans CT, Slade J, eds. *Nicotine Addiction*. New York: Oxford University Press, 1994:24-45.
34. US Preventive Services Task Force Web MD Health - Counseling to Prevent Tobacco Use, 2002.
35. The Food and Drug Administration. FDA Consumer Magazine: It's Quitting Time: Smokers Need Not Rely on Willpower Alone. November - December 1997. Last revised, May 1999.
36. Evans, N., Farkas, A., Gilpin, E., Berr, C., Pierce, J. P. Influence of Tobacco Marketing and Exposure to Smokers on Adolescent Susceptibility to Smoking. *Journal of the National Cancer Institute* 1995, Vol. 87, No. 20, 1538-1545. October 1995.
37. Altman, D. G., Levine, D. W., Coeytaux, R., Slade, J., Jaffe, R. Tobacco Promotion and Susceptibility to Tobacco Use among adolescents aged 12 through 17 years in a nationally representative sample. *American Journal of Public Health*. 1996; 86:1590-1593.
38. Gilpin E., Pierce, J.P., Rosbrook, B. Are Adolescents Receptive to Current Sales Promotion Practices of the Tobacco Industry? *Preventive Medicine* 1997; 26:14-21.
39. Gilpin, E., Pierce, J. P., Trends in Adolescent Smoking Initiation in the United States: is Tobacco Marketing an influence? *Tobacco Control*. 1997:6:122-127.
40. Ernster, V., Kaufman, N., Nichter, M., Samet, J., Yoon, S. Women and Tobacco: Moving from Policy to Action; Girls Lighting Up to Calm Down.
41. Hastings, Gerard, MacFadyen. Keep Smiling. No One's Going to Die.

42. Pollay, R. W., Siddarth, S. et al., The Last Straw? Cigarette Advertising and Realized Market Shares Among Youth and Young Adults, @ Journal of Marketing, Vol. 60, No.2, April 1996.
43. Bates No. 2028817401. Ennis D. M., Tindall, J. E., Eby. Product Testing Short Course, R & D Department, Phillip Morris USA. January 23-24, 1984.
44. Centers for Disease Control and Prevention. Changes in the Cigarette Brand Preferences of Adolescent Smokers - United States, 1989-1993. MMWR Morbidity and Mortality Weekly Report. 1994; 43:577-581.
45. Department of Health, Effect of Tobacco Advertising on Tobacco Consumption: A Discussion Document Reviewing the Evidence (London: Economics and Operational Research Division, Department of Health, October 1992) quoted in Davis op. cit.
46. Toxic Substances Board, Health or Tobacco: An End to Tobacco Advertising and Promotion (Wellington, New Zealand: Department of Health, May 1989) quoted in Davis op. cit).
47. Draft Report, PEP Evaluation 2001- Drug Abuse Prevention in Schools. Yvonne McCalla Sobers. August 30, 2001; Learning for Living. Teachers Guide. Infusing Substance Abuse Prevention Education with the School Curricula. Primary Grades 1-6. Ministry of Education 1991.
48. Tobacco-free Youth. A "Life Skills" Primer. Scientific and Technical Publication. No. 579. 2000.

## Appendix

### Summary of Conclusions of Six Major Reviews/Research Findings of the Health Effects of Exposure to Second-Hand Smoke

Disease or Condition	1992: U S Environmental protection agency	1997: Australian national health and medical research council	1997: California environmental protection agency	1998: United Kingdom Scientific Committee on Tobacco and Health	1999: The World Health Organization (WHO)	2000: United States National Toxicology Program	You et. al.	Bonita et. al.	Johnson et. al.
<b>Developmental Defects</b>									
<b>Fetal Growth Impairment: Low Birth Weight or Small for Gestational Age</b>		X ?	X		X				
<b>Sudden Infant Death Syndrome (SIDS)</b>		X	X	X	*				
<b>Spontaneous Abortion</b>			*						
<b>Adverse Impact on Cognition and Behaviour</b>			*		*				
<b>Respiratory Effects</b>									
<b>Acute Lower Respiratory Tract Infections In Children (e.g., Bronchitis and Pneumonia)</b>	X	X	X	X	X				
<b>Asthma Exacerbation In children</b>	X	X	X	X	X				
x The relationship to the disease or condition is causal * The relationship to the disease or condition is possibly causal ? Inconsistency or ambiguity in the report's conclusion as to whether the relationship is causal + There exists a higher risk for contraction of this condition by persons exposed to Second-hand Smoke than those not exposed.									

Source: Ontario Tobacco Research Unit, Excerpts from Protection from Second-hand Tobacco Smoke in Ontario - A Review of the evidence regarding best practices. A Report prepared for the Chief Medical Officer of Health of Ontario, Canada. Toronto, Ontario. March, 2001.

Disease or Condition	1992: U S Environmental protection agency	1997: Australian national health and medical research council	1997: California environmental protection agency	1998: United Kingdom scientific committee on tobacco and health	1999: The World Health Organization (WHO)	2000: United States National Toxicology Program	You et. al.	Bonita et. al.	Johnson et. al.
Asthma Induction in children	*	X ?	X		* ?				
Respiratory Symptoms	X	X	X	X	X				
Middle Ear Disease in children	X	X	X	X	X				
Decreased Pulmonary Function	X	X	*		*				
Exacerbation of Cystic Fibrosis			*						
Carcinogenic Effects									
Lung Cancer	X	X	X	X		X			
Nasal Sinus Cancer		*	X			X ?			
Cervical Cancer			*						
Breast Cancer									+
Cardiovascular Effects									
Coronary Heart Disease		*	X	X					
Cerebrovascular Disease/Stroke							+	+	
x The relationship to the disease or condition is causal * The relationship to the disease or condition is possibly causal ? Inconsistency or ambiguity in the report's conclusion as to whether the relationship is causal + There exists a higher risk for contraction of this condition by persons exposed to second-hand Smoke than those not exposed									

Source: Ontario Tobacco Research Unit, Excerpts from Protection from Second-hand Tobacco Smoke in Ontario - A Review of the evidence regarding best practices. A Report prepared for the Chief Medical Officer of Health of Ontario, Canada. Toronto, Ontario. March, 2001.