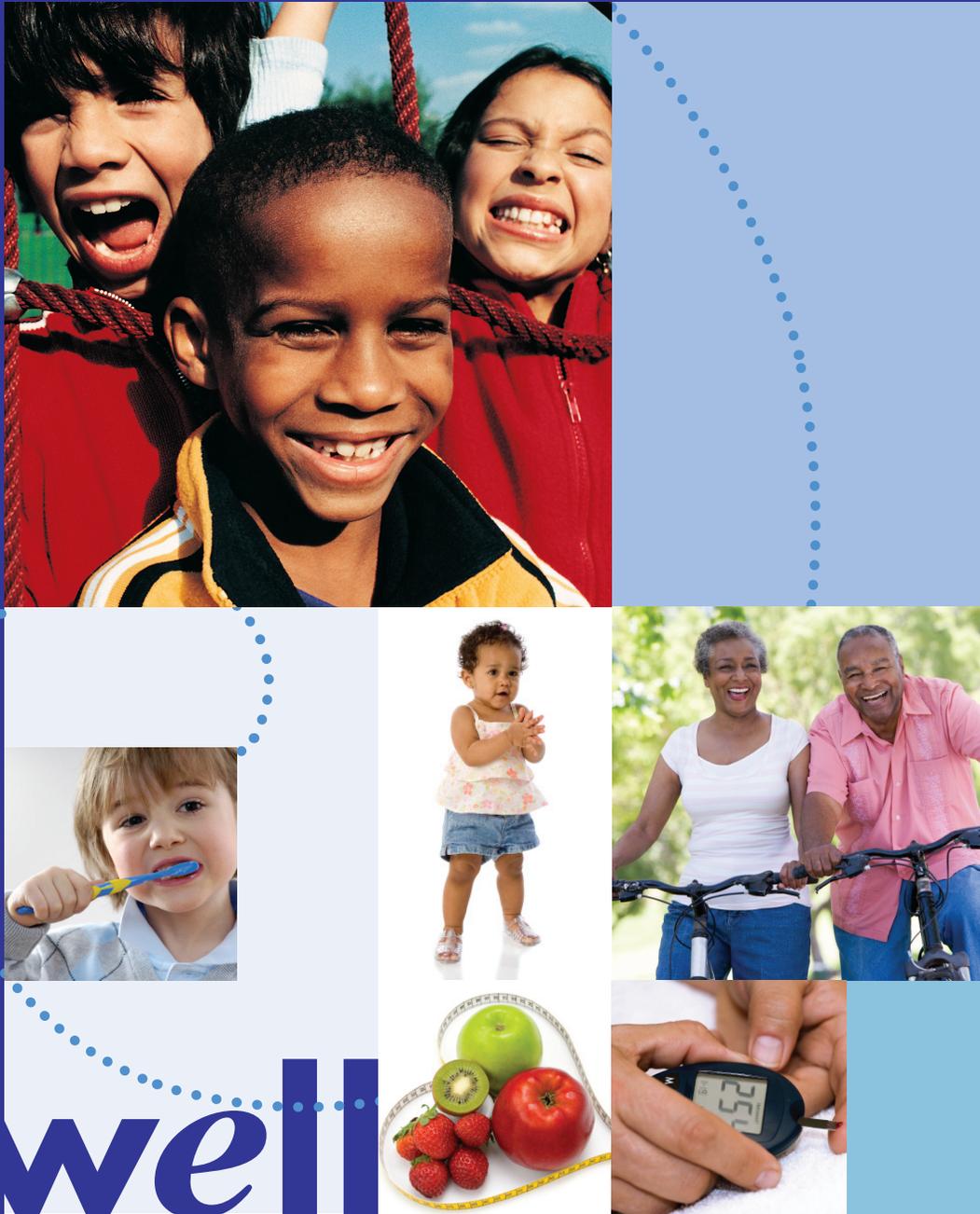


GOVERNMENT OF BERMUDA  
Ministry of Health  
Department of Health

# Well Bermuda

## A National Health Promotion Strategy 2008



# **Well Bermuda: A National Health Promotion Strategy**

## **Published by:**

The Government of Bermuda, Ministry of Health, Department of Health, Health Promotion Office  
P.O. Box HM 1195, Hamilton HM EX, Bermuda  
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Revised November 2008  
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## **Reference as:**

Attride-Stirling, J. (2008) Well Bermuda: A National Health Promotion Strategy (2nd Ed.). Government of Bermuda: Department of Health.

## **Design and Pre-press:**

Department of communication and Information  
Printed in Bermuda by ...

## Foreword to the Second Edition

Well Bermuda: A National Health Promotion Strategy represents Bermuda's first concerted effort to create a joined-up approach to the promotion of health on our island, and to create a shared vision for health promoters across all sectors. Since its launch in November 2006 great strides have been made, action plans have been created, community interventions have been delivered and, among public health practitioners and partners, Well Bermuda became a household name. But we are only just beginning.

At the time of its launch it was already evident that updates were needed. However, rather than delaying publication the Department of Health decided to proceed with the Strategy so that implementation on other areas could begin, with updates to be made periodically, as required. This edition, therefore, includes new data on objectives for which there had previously been no data available. More importantly, this edition includes two new goals: on mental health and asthma; and the previous goal on injuries and violence has been split into two new goals: on road safety and violent injuries.

It is hoped that these additions will enhance the comprehensiveness and value of Well Bermuda. However, it is crucial to note that although these goals are new to the Strategy, there has been a great deal health promotion activity undertaken on these issues for many years. Their inclusion in the Strategy is to overtly highlight their importance as health promotion priorities for the country, and bring them aboard the Well Bermuda family.

**Jennifer Attride-Stirling, Ph.D.**  
**Health Promotion Coordinator**



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## Introduction

Health promotion has become essential in health care systems globally. Over the last forty years chronic non-communicable diseases have replaced infectious diseases as the major causes of mortality in Bermuda, as in most high-income countries. These new public health problems threaten the well being of Bermuda's community and economy. Health has a value in itself as it is essential to ensure quality of life for children, adults and seniors but, additionally, a healthy population is fundamental to ensure a capable workforce and future capacity. Indeed, health is an essential precursor to sustainable development for a country<sup>1,2</sup> and the most vital indicator of social development and equity for a society<sup>3</sup>. The promotion of health, therefore, is fundamental to Bermuda's prosperity.

Bermuda currently enjoys a relatively good health status; however, this cannot be taken for granted and recent trends indicate a worsening of the population's health. This must be halted. While many sectors and organisations in Bermuda are already working to improve the population's health through preventive measures, our efforts would yield greater results with more coordination.



*The promotion of health is fundamental to Bermuda's prosperity*

A shared agenda and a common set of goals are needed to capitalise fully on our existing resources. The purpose of this document, therefore, is to provide a unifying vision for a healthy Bermuda – a “Well Bermuda”. The motto of the Department of Health is “healthy people in healthy communities” and this document provides the broad strategic vision for continuing to live up to this goal.

### Bermuda's Health Status

The basic epidemiological characteristics of Bermuda are well documented: the island has a population of 62,059, of which 52% is female and 48% male; and it has a growth rate 0.7%, with 6% of the population aged less than 5 years and 11% aged 65 years or older<sup>4</sup>.

Bermuda has a high standard of health in many respects. It ranks 25th in the world on life expectancy, has a stable birth rate, infant mortality has declined steadily since the 1950's, and life expectancy at birth has increased from 64.85 years in 1950 to 77.67 years in 2000. Bermuda's population exhibits some health disparities but these are limited to small pockets in the population<sup>5</sup>.

In 2006, circulatory diseases accounted for 41% of all deaths in Bermuda, and neoplasms (cancers) accounted for 24% (see Table 1). The third leading cause of death were external causes (accidents), representing 6% of all deaths in 2006. However, external causes were a more common cause of death for men than women, accounting for 9% of all male deaths and 3% of all female deaths in 2006. Further, among 15-64 year olds, all deaths due to external causes were men.<sup>6</sup>

**Table 1: Leading causes of death in Bermuda in 2006**

Underlying Cause	Number of deaths			% of total deaths			Death rates (per 1,000 population)		
	M	F	All	M	F	All	M	F	All
Circulatory	100	86	186	22.1%	19.0%	41.2%	3.28	2.58	2.92
Neoplasms (Cancers)	62	44	106	13.7%	9.7%	23.5%	2.03	1.32	1.66
External causes (Accidents)	22	6	28	4.9%	1.3%	6.2%	0.72	0.18	0.44
Digestive	12	9	21	2.7%	2.0%	4.6%	0.39	0.27	0.33
Respiratory system	11	9	20	2.4%	2.0%	4.4%	0.36	0.27	0.31
Diabetes	9	11	20	2.0%	2.4%	4.4%	0.30	0.33	0.31
Nervous system	5	11	16	1.1%	2.4%	3.5%	0.16	0.33	0.25
Genitourinary system (Renal)	7	3	10	1.5%	0.7%	2.2%	0.23	0.09	0.16
All other causes	19	26	45	4.2%	5.8%	10.0%	0.62	0.78	0.71
All causes	247	205	452	54.6%	45.4%	100.0%	8.10	6.16	7.08

Source: Epidemiology & Surveillance Unit

*Well Bermuda aims to provide a unifying vision so we can achieve better results in our efforts to improve the health of all residents.*

In 2004 the Department of Health conducted a process to ascertain Health Priorities for Bermuda. Twenty community and government organisations came together to review Bermuda's leading causes of death, the 2000 Census information on self-reported health conditions, the 1999 Adult Wellness Survey<sup>7</sup> and the 2001 Teen Wellness Survey<sup>8</sup>. They were asked to consider these in the context of Bermuda's social fabric and agree on a prioritisation of our most important health concerns. Through a process of discussion and ranking it was established that our most pressing health issues are (in this order): overweight and obesity, heart disease and stroke, respiratory diseases, diabetes, accidents and violence, sexually transmitted infections,

HIV/AIDS, mental illness, back/spine problems, cancer, substance abuse, smoking, chronic renal disease, and arthritis<sup>9</sup>. This process of prioritisation was intended as a first step towards creating a common agenda for health across all sectors.

The next stage towards developing a health promotion agenda shared by all public health stakeholders is to develop a strategic direction to address these priorities. That is what this document aims to achieve: to provide a unifying vision, a shared agenda with common goals and objectives so we can achieve better results in our efforts to improve the health of Bermuda.

## Why a Health Promotion Strategy?

The shift in the burden of disease from infectious to chronic brings new challenges to the way we confront the health problems of the country. The new health concerns, chronic non-communicable diseases, are strongly related to lifestyle factors such as poor diet, physical inactivity and smoking. Tackling these problems and preventing the further deterioration of our community's health requires new ways of thinking and working, and health promotion is an essential ingredient.

Health promotion is the process of enabling people to increase control over, and to improve their health<sup>10</sup>. The 1986 Ottawa Charter for Health Promotion<sup>11</sup> and the 1993 Caribbean Charter for Health Promotion<sup>12</sup> propose that health promotion is not limited to individual behaviours, but includes social and political processes. While strengthening the knowledge and skills of individuals is essential, substantive changes require that action also be directed towards changing social, environmental and economic conditions to alleviate their impact on health.

*Health promotion is the process of enabling people to increase control over, and to improve their health.*

In this vein, Bermuda has signed up to the Caribbean Cooperation in Health Initiative which, in 1997, recommended strategies to bring about improvements in the population's health in eight priority areas identified: human resource development, family health, food and nutrition, chronic non-communicable diseases, communicable diseases, mental health and environmental health<sup>13</sup>. Priorities, objectives and health promotion strategies were identified for each. Health promotion was given a central role as an implementation strategy precisely because "it treats health as a primary tool in human and economic development, focusing on public policies conducive

to prevention of disease and on promotion of well being and productivity."<sup>14</sup> Health promotion, therefore, has been established and accepted as essential to the functioning of health systems and the assurance of good population health, and Bermuda must continue to expand its efforts in this venture and achieve greater coordination through a unifying strategy.

There are many organisations that are already actively engaged in redressing Bermuda's health problems: from private health care practitioners who provide preventive measures to ensure their patient's health; to the appreciable contribution from charities, non-governmental organisations and businesses who work to educate patients and the public; to Government agencies whose work is led by an explicit public health remit and health promotion agenda. The summed effect is that a tremendous amount takes place in Bermuda to control and contain preventable health threats, and to attempt to halt rising health problems. All of these efforts must be fully acknowledged and, ideally, coordinated.

*A tremendous amount takes place in Bermuda to control and contain preventable health threats*

In 2005 the Department of Health, in collaboration with the Pan-American Health Organisation, conducted a process to assess the performance of Bermuda's essential public health functions<sup>15,16</sup>. This assessment was conducted with assistance from 23 public health partners and stakeholders from the community and other government departments. While the overall assessment was a positive one, areas for improvement were identified, and health promotion was among these. Bermuda's strength with respect to health promotion was in achieving substantial reorientation of health services towards health promotion, but the most notable weakness was the relative paucity of cross-sectoral planning and coordination of strategies.

This health promotion strategy is intended as a step towards greater coordination. The aim is to provide a unifying vision and set of goals for a healthy Bermuda. For this reason, the National Health Promotion Strategy does not focus only on health issues that are currently problematic. It purposely includes areas where public health measures are already producing positive results. The aim, therefore, is to highlight all of the areas where good population health must be ensured; this includes some areas where we already do

*Health is a state of complete physical, social and mental well being, and not merely the absence of disease or infirmity*

well, and some areas where more work is needed. The ultimate goal is a healthy Bermuda and, based on our analysis and starting from the World Health Organisation's definition of health as "a state of complete physical, social and mental wellbeing and not merely the absence of disease or infirmity", this document outlines where we want to be.

The strategy is organised around three themes, each of which has identified goals, objectives and benchmarks. The intention is that with agreement on priority areas and objectives, detailed action plans may be developed to address each goal in due course. This strategy, therefore, does not contain recommendations for action, but focuses on providing the direction in which we want our health promotion actions to head, in order to achieve what we can all agree will be a better, healthier Bermuda for everyone.

### Three Themes for Health Promotion

The National Health Promotion Strategy has been organised around three themes: healthy people, healthy families and healthy communities. They were developed on the basis of the health priorities identified in 2004 and the public health objectives of the Department of Health. While the themes are not listed in order of priority, the first theme does include the country's health problems that require most urgent attention due to their current severity.



*The Strategy has been organised around three themes: healthy people, healthy families and healthy communities*

The Department of Health works towards the following broad objectives: (1) to increase public awareness of the factors influencing health and to foster the adoption of lifestyles which promote optimum well-being; (2) to prevent, reduce or modify the course of various communicable and non-communicable diseases; (3) to identify individuals who are at risk for developing specific health or developmental problems in order to initiate early intervention and care; and (4) to maintain a healthy environment by identifying actual or potential environmental health hazards and applying effective control methods.

*This is our shared vision for a healthier future.*

By combining the Department's objectives with the health priorities listed above, eighteen health goals were identified as central to the country's health promotion activities, and these were grouped into the three health promotion themes. On the basis of research evidence, a number of objectives were identified to give direction to each goal. Benchmarks were established for each objective on the basis of existing data to measure our progress.

These health promotion themes, goals and objectives constitute our National Health Promotion Strategy. They are intended to provide direction, coordination and a way of assessing our progress towards a healthier Bermuda. This is our shared vision for a healthier future.

### **The importance of Public Health partners**

Crucially, public health works best with collaboration from all relevant stakeholders. While the State has the primary institutional responsibility for public health, this role should not inhibit or replace the actions of other agencies<sup>17</sup>. Indeed, a community will gain most if the public health remit is met through the active participation of a wide range of public health partners. This is especially true with respect to health promotion, and the Pan American Health Organisation's Essential Public Health Functions includes in its definition of health promotion, "the strengthening of inter-sectoral partnerships for more effective health promotion activities"<sup>18</sup>.

The Department of Health, therefore, aims to strengthen ties with and between all public health partners: i.e. all the agencies whose activities have an impact on the health of the population. This goes well beyond the medical profession and even health care practitioners; but includes organisations whose relationship to health may seem distant but who, in fact, do make a significant contribution to the social, physical and mental well being of Bermuda's residents.

Indeed, the Ottawa Charter for Health Promotion states that "the fundamental conditions and resources for health

are peace, shelter, education, food, income, a stable eco-system, sustainable resources, social justice and equity"<sup>19</sup>. Achieving this ambitious standard requires community-wide involvement, and only through partnership can this be achieved in a sustainable manner.

The key point is that the Department of Health cannot and should not do it alone. Good public health requires partnership, collaboration and participation. The aim of the National Health Promotion Strategy is precisely to engender greater partnership and working together, beginning with a unifying vision and a unifying voice. All of the agencies that contribute to Bermuda's health need to row together to achieve that healthier Bermuda.

### **Next Steps: Action Plans and a blueprint for successful implementation**

The National Health Promotion Strategy, however, is only one step towards this future. And while it is imperative that the vision be shared by all stakeholders and partners who can affect change, the next step has to be action. This strategy is also, therefore, a call to action. Relevant partners are encouraged to develop action plans and implement programmes to address these shared goals and objectives.

*Public health works best with collaboration from all relevant stakeholders.*

*While it is imperative that the vision be shared by all stakeholders and partners who can affect change, the next step has to be action.*

Action plans should be goal-specific and include the objectives set out in the National Health Promotion Strategy, and they may be uncomplicated, concise documents. An action plan should include a brief introduction, background information, the strategy that will be taken to address the goal, the actual activities that will be conducted to address each objective, and indication of how these will be monitored and evaluated.

Importantly, action plans should be developed and implemented collaboratively, but it is recommended that a 'lead agency' be identified for each goal, as this will ensure that action takes place and is continually monitored. Committees and task forces are not recommended as suitable owners of action plans, as their longevity is tenuous and their accountability minimal. However, committees or working groups are an ideal setting to bring together partners to develop action plans and follow-up implementation.



*Action plans will yield greatest effectiveness if they are developed on sound foundations, based on the best available evidence, and are continually evaluated and assessed.*

However, action plans and programmes will yield greatest effectiveness if, in addition to being developed and implemented in partnership with relevant stakeholders, they are developed on sound foundations, based on the best available evidence, and are continually evaluated and assessed. Without these requisites, we will run the risk of doing more of the same rather than more of what works.

### **a) The foundation**

Activities or programmes must be developed and/or strengthened on sound foundations, which should include consideration of the action areas established by the Ottawa Charter for Health Promotion, and endorsed by the Caribbean Charter for Health Promotion, to which Bermuda has signed up. The Ottawa Charter for Health Promotion defines its action areas as follows:

#### ■ **Build healthy public policy**

"Health needs to be on the agenda of policy makers in all sectors and at all levels, directing them to be aware of the health consequences of their decision and to accept their responsibilities for health".

#### ■ **Create supportive environments**

"Changing patterns of life in work and leisure have a significant impact on health. Work and leisure should be a source of health for people. The way society organises work should help create a healthy society".

#### ■ **Strengthen community actions**

"Community development draws on existing human and material resources in the community to enhance self-help and social support and to develop flexible systems for strengthening public participation in and direction of health matters".

■ **Develop personal skills**

“Enabling people to learn, throughout life, to prepare themselves for all its stages and to cope with chronic illness and injuries is essential. This has to be facilitated in school, home, work and community settings”.

■ **Re-orient health services**

“The role of the health sector must move increasingly in a health promotion direction, beyond its responsibility for providing clinical and curative services”.

■ **Build alliances**

“Communities have diverse resources that will be brought together in the joint and shared efforts to promote health. Alliances will be formed and coordination sought among all those traditional and non-traditional sectors that impact on health”<sup>20</sup>.

*We must implement initiatives that have demonstrated effectiveness, or develop new cutting-edge initiatives that are based on sound conceptual and methodological principles.*

**b) Evidence-based practice**

Activities and programmes included in the action plans need to be based on the best available evidence, and interventions implemented must have proven effectiveness. Evidence that health promotion initiatives work is difficult to obtain because the outcomes are often expected in the long-term and it is almost impossible to isolate the effects of one intervention in real-life social settings. Nevertheless, there is sufficient published evidence on successful international pilots, trials and programmes, as well as on

failed ones, to have a reasonable starting point and implement initiatives that have demonstrated effectiveness, or develop new cutting-edge initiatives that are based on sound conceptual and methodological principles.

For example, while evidence base practice in health promotion and health education is difficult to obtain, there is indication that initiatives that include social marketing (public education and information), community action (through charities and funding), policy and programme development and knowledge/information gathering have good opportunities for success<sup>21</sup>.

**c) Evaluation**

Lastly, programmes must be evaluated. If we are to hold true to our intention to better the health of Bermuda, we must ensure that all resources are appropriately channelled into interventions that work, and those that do not work must not be continued.

While evaluation of health promotion programmes can be difficult for the reasons detailed above, it is both doable and desirable to monitor and assess five core dimensions of health promotion programmes: reach, efficacy, adoption, implementation and maintenance<sup>22</sup>. Minimally, it is essential to know whether a programme is reaching its target group, achieving observable results and generating good value for the community.

There is only one way to know whether an intervention is effective, and that is through structured, systematic evaluation of processes and outcomes. Only with this element will we know whether we have achieved our goals.

Action plans must be the next step, and this section has provided a basic blueprint to develop and implement them. With agreement on a shared vision the focus can move to all public health partners contributing tangible action to achieve a healthier future. The Health Promotion Office of the Department of Health will retain principal responsibility for monitoring and reporting on progress on the National Health Promotion Strategy objectives. Nevertheless, collaboration and partnership with and between all stakeholders are the backbone of the strategy, and the guiding principle for development and implementation of action plans. The National Health Promotion Strategy provides the shared vision; now we must work together to achieve shared results and a healthier Bermuda for all.



*The National Health  
Promotion Strategy  
provides the shared vision;  
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## THEME I: *Healthy People*

This theme groups five of Bermuda's top ten causes of death and our number one health problem. It is comprised of six specific goals related to obesity, cardiovascular disease, diabetes, cancer, chronic renal disease and sexually transmitted infections. This theme highlights health issues that affect the overall population, rather than specific groups such as children or seniors. The theme focuses on the prevention or early detection of specific diseases, and the emphasis is on the health of individuals and the behavioural and environmental factors that contribute to their well being.



*The Healthy People theme focuses on the prevention or early detection of specific diseases, and the emphasis is on the health of individuals and the behavioural and environmental factors that contribute to their well being.*

The Health Priorities Report<sup>23</sup> identified overweight and obesity as Bermuda's number one health problem. While rarely an immediate cause of mortality, overweight and obesity were ranked as the first priority because of their impact on some of our most important causes of death: heart disease, cancer and diabetes.

The past century has seen a global worsening in dietary habits and clear trends towards less physical activity. The combined effect has been a global obesity epidemic that is intensely felt locally, and a steep rise in the death rates for associated health problems, which is reflected in Bermuda's mortality statistics. This theme has grouped together these health problems to highlight their inter-related nature.

While other factors such as smoking also have an impact on heart health and cancer, these are dealt with under other goals and themes. Here the emphasis is on the benefits of regular physical activity and healthy eating, which are essential to maintaining a healthy lifestyle overall, and on the importance of regular screening and health checks to ensure early identification of problems.

This theme also highlights chronic renal disease and sexually transmitted infections. Chronic renal disease is a significant cause of mortality locally and has been included in this theme to highlight the importance of early detection and treatment which can prevent or delay some adverse outcomes for patients. While sexually transmitted infections are not a major cause of death, AIDS does remain a principal cause of mortality in Bermuda. However, this theme focuses on sexual health overall as a means of combating all sexually transmitted infections, including HIV.

Overall, however, the themes aim to focus on health and health promotion, rather than diseases or problems. Therefore, grouping obesity, heart disease, stroke, diabetes, cancer, chronic renal disease and sexually transmitted infections, under the single theme 'healthy people' offers the opportunity for a positive reframe of these problems and encourages us to focus on solutions.

# 1 *Encourage maintenance of a healthy body weight for height*

Overweight and obesity present major risks to health. The associated consequences range from increased risk of premature death, to serious chronic conditions such as type 2 diabetes, cardiovascular disease, hypertension and stroke, certain forms of cancer (e.g. hormonally related and large-bowel cancers), and other serious chronic diseases. Respiratory difficulties, chronic musculoskeletal problems, skin problems and infertility are among the non-fatal but debilitating conditions associated with obesity.



*64% of adults in Bermuda are above a normal body weight for height and 36% of 5-10 year olds are over-weight or obese*

The 2006 Health Survey found that 64% of adults in Bermuda were above a normal body weight for height, with 40% overweight (BMI 25.0 – 29.9) and 24% obese (BMI >30)<sup>24</sup>. The situation for children and adolescents is equally alarming and the global increase in childhood obesity can be felt locally. The 2006 Health Survey found that 36% of 5-10 year olds were overweight or obese, and in 2001 25% of adolescents aged 11 – 17 were found to be overweight<sup>25</sup>. It has been estimated that if the rate of increase in childhood obesity is not

halted soon, this generation of children could be the first to have a life expectancy shorter than their parents. Overweight and obesity and their associated problems also impact significantly healthcare expenditure. In the U.S. 9.4% of the national healthcare budget is spent on overweight patients<sup>26</sup>; and in England 4% of the National Health Service expenditure was spent on obesity in 1998, when only 19% of their population was obese<sup>27</sup>. A similar figure is not available in Bermuda, but given that a larger proportion of our population is obese, the impact on healthcare expenditure is likely to be substantial.

It is paramount that the increase in overweight and obesity be halted as a matter of urgency, and eventually reversed. The benefits of consuming a healthy diet and engaging in moderate levels of physical activity on a regular basis include substantial reduction in the risk of developing heart disease, diabetes and some cancers. Bermuda, like many other countries, has experienced in the past century a change in dietary habits, which now include more energy-dense, nutrient-poor foods with high levels of sugar and saturated fats. Substantial shifts have also occurred globally towards less physically demanding work and increasingly sedentary lifestyles, due to automated transport, technology in the home and more passive leisure activities. This goal, therefore, focuses on reversing these trends locally.

Healthy weight objectives	Baseline measure	Data source
Decrease the proportion of overweight or obese adults	64%	2006 Health Survey
Decrease the proportion of overweight or obese children and adolescents	36% (aged 5-10)	2006 Health Survey
Increase the proportion of adults doing vigorous physical activity 3 times per week	29%	2006 Health Survey
Increase the proportion of adolescents doing vigorous physical activity 5 times per week	29%	2001 Teen Survey
Decrease the proportion of adults who eat fast food meals once per week or more	71%	2006 Health Survey
Decrease the proportion of adolescents who skip breakfast regularly	31%	2001 Teen Survey
Increase the proportion of schools implementing the Nutrition Policy	71%	2006 Budget Book <sup>28</sup>

## 2 *Improve heart health*

Cardiovascular disease refers to the class of diseases that involve the heart and/or blood vessels (arteries and veins). The term is used to refer to all diseases of the circulatory system including acute myocardial infarction, ischemic heart disease, valvular heart disease, peripheral vascular disease, arrhythmias, high blood pressure and stroke. There are a number of factors that influence susceptibility to these conditions, and although an individual's likelihood of developing problems is influenced by hereditary factors such as age and ethnicity, environmental factors such as social class and lifestyle also affect risk. The principle modifiable risk factors include raised blood cholesterol, raised blood pressure (hypertension), physical inactivity, smoking, poor nutrition, overweight and obesity, and type 2 diabetes.

Diseases of the circulatory system are the leading cause of death in Bermuda. In 2006 41% of all deaths were due to circulatory problems. In the 1999 Adult Survey 5% of respondents reported having high blood pressure and 2% reported having high blood cholesterol; however, by the 2006 Health Survey 25% reported high blood pressure and 34% reported high cholesterol. Most high income countries face similarly high and increasing rates of cardiovascular disease. It is the number one cause of death and disability in Bermuda, the U.S. and most European countries. By the time that heart problems are detected,



*25% of adults in Bermuda have high blood pressure and 34% have high cholesterol.*

the underlying cause is usually quite advanced, having progressed for decades. Therefore, there is increased emphasis on prevention by modifying risk factors.

This goal focuses on improving heart health by focusing on the primary modifiable risk factors. Healthy eating, exercise and avoidance of smoking are dealt with in goals 1 and 11, so the objectives to work towards this goal are focused on blood cholesterol and blood pressure.

Heart health objectives	Baseline measure	Data source
Reduce the proportion of adults with high blood pressure	25%	2006 Health Survey
Reduce the proportion of adults with high total blood cholesterol levels	34%	2006 Health Survey
Increase the proportion of adults with high blood pressure whose blood pressure is under control	76%	2006 Health Survey
Increase the proportion of adults who have had their blood pressure measured within the preceding year	88%	2006 Health Survey
Increase the proportion of adults who are aware of the early warning symptoms and signs of a stroke	22%	2007 Well Bermuda Survey

### 3 *Reduce prevalence of diabetes and associated complications*

Diabetes is a chronic disease in which the amount of glucose (sugar) in the blood is too high because the body cannot use it properly due to an insulin deficiency. It is a disabling condition that can have fatal consequences. Associated problems include blindness, kidney failure, damage to circulation and nerves in the legs that can cause gangrene and lead to amputation, circulatory problems, heart disease and stroke.

There are two main types of diabetes. Type 1 diabetes develops if the body is unable to produce any insulin. Type 2 diabetes develops when the body becomes resistant to insulin; it is usually caused by overweight and obesity. Some women can develop gestational diabetes during pregnancy; this is caused by increased levels of glucose in their blood and it usually disappears after the baby is born. However, women who develop gestational diabetes are more likely to develop type II diabetes later in life.

Although diabetes tends to appear in people over 40, more children are now being diagnosed with Type 2 diabetes, due to increased levels of childhood obesity. A healthy diet and regular physical activity are recommended as part of its treatment.



*13% of Bermuda's adults have diabetes.*

In 1996 11% of Bermuda's adults had diabetes<sup>29</sup>. Of these, 75% had high blood pressure, 45% had high blood cholesterol, and 77% were obese. Furthermore, the Bermuda Diabetes Epidemiology Project estimated that for every two known cases of diagnosed diabetes, there is one undiagnosed case<sup>30</sup>. In 2006 13% of adults reported having diabetes, and in 2001 1% of adolescents reported having diabetes themselves<sup>31</sup>.

This goal focuses on reducing the prevalence of diabetes and improving the health of persons with and at risk for diabetes.

Diabetes objectives	Baseline measure	Data source
Increase the proportion of adults who have had a blood sugar screening in the previous 2 years	64%	1999 Adult Survey
Reduce the overall rate of development of diabetes that is clinically diagnosed	13%	2006 Health Survey
Increase number of adults with diabetes whose condition has been diagnosed	66%	1996 BDAE Project
Increase the number of diabetics referred for diabetes education	300	2005 Diabetes Education Centre
Increase the number of women with gestational diabetes referred for diabetes education	108	2005 Diabetes Education Centre
Establish a register of persons with diabetes	Not applicable	Not applicable

## 4 *Improve cancer prevention awareness*

Cancer is a word applied to a number of different illnesses characterised by abnormal cell growth. Cancer can be fatal and it is a leading cause of death worldwide. There are a range of factors that increase the risk of developing different forms of cancer. The modifiable risk factors include tobacco use, sunlight, radiation, chemicals such as asbestos and benzene, air and water pollution, poor diet with excess fat and little fibre, fruit and vegetables, physical inactivity, overweight and obesity, and excessive alcohol intake. Although there is no known cure for cancer, it can be partly treated using radiotherapy, chemotherapy, or immunotherapy. Therefore, prevention and early detection are the most effective interventions.

Cancer is the second leading cause of death in Bermuda, accounting for 24% of all deaths in 2006. At the 2000 Census, 4% of adults reported having had cancer. While the cancer incidence rate is similar in Bermuda to the US, overall cancer mortality is higher in Bermuda, in particular for prostate, ovary, pancreas and breast cancers<sup>32</sup>.

Contrary to the U.S. where between 1991 and 2003 cancer rates decreased for men and remained stable for women, in Bermuda the incidence of cancer increased by 2.6% - 2.7% per year in the same period. The most common types of cancer in Bermuda include (in descending order): prostate, breast, colon and rectum, lung and bronchus, and skin (non-melanoma) cancers<sup>33</sup>.

*Cancer is the second leading cause of death in Bermuda, accounting for 24% of all deaths in 2006.*



Bermuda's women reported good screening practices in 2006: 92% of women over 40 reported having had a mammogram, and 86% had had it in the previous year. Similarly, 96% of women reported having had a Pap test, with 75% in the previous year<sup>34</sup>. Men, as is the trend globally, are slightly less proactive but the 2006 self-reports are positive, with 77% of men over 40 saying they'd had a PSA test (60% in the previous year); and 79% of men over 40 said they'd had a digital rectal exam (DRE), with 69% in the previous year<sup>35</sup>.

The benefits of early detection are evident, and it is clear that more education would improve the local picture in this area. The modifiable risk factors for cancer such as diet, exercise, smoking and alcohol, are dealt with under other goals, therefore the objectives for this goal focus on improving early detection of cancer through screening.

Cancer objectives	Baseline measure	Data source
Increase the proportion of women who have had a pap test in the previous year	75%	2006 Health Survey
Increase the proportion of women over 40 who have had a mammogram in the previous year	86%	2006 Health Survey
Increase the proportion of men over 40 who have had a PSA test in the previous year	60%	2006 Health Survey
Increase the proportion of men over 40 who have had a DRE in the previous year	69%	2006 Health Survey

## 5 *Improve chronic kidney disease awareness*

Chronic kidney disease is a slow, progressive loss of kidney function that can result in permanent kidney failure. The condition is common and is often not diagnosed until the problem is severe and kidney failure is imminent. People with persistently high blood pressure or diabetes are at greater risk of developing chronic kidney disease. Permanent kidney failure is not curable; it is treated with dialysis or a kidney transplant, therefore it is essential to diagnose and treat the condition as early as possible, as there is strong evidence that this can prevent or delay some adverse outcomes.

Chronic renal disease is a major public health problem globally and in Bermuda. It accounted for 2% of all deaths in Bermuda in 2006, and is associated with high medical expenditures. Because it cannot be cured, it is crucially important to identify the condition early, slow down its progress and minimise its impact on people's lives. Early diagnosis and treatment of cardiovascular disease, one of the main conditions that can kill kidney disease patients if untreated, is also imperative.

From a health promotion perspective, the aims of this goal are to encourage early identification of chronic kidney disease and educate patients on lifestyle changes that may prevent or delay adverse outcomes.



*It is crucially important to identify the condition early, slow down its progress and minimise its impact on people's lives.*

Chronic kidney disease objectives	Baseline measure	Data source
Establish a monitoring system to identify people diagnosed with chronic kidney disease	No data available	Not applicable
Ensure that people with chronic kidney disease are enabled to manage their condition	No data available	Not applicable

## 6 *Improve safe sex practices*

Sexually transmitted infections (STIs) are infections that can be passed on through sexual contact. Although most STIs have existed through the centuries, HIV has only been recognized since 1984. STIs can be passed on during any intimate physical contact and not only during sexual intercourse. Many STIs can be treated and cured, but for some such as herpes, HIV and genital warts which are caused by viruses, there is no cure. Diseases such as syphilis, HIV and hepatitis can cause death. However, STIs are largely preventable, and high-risk behaviours contribute to the major burden of these diseases.

The incidence of STIs in Bermuda has increased since 1999<sup>36</sup>. While in that year there were a total of 461 STI notifications, in 2005 there were 642 notifications overall<sup>37</sup>. Cases of gonorrhoea, herpes, syphilis and NGU/NSU either remained constant or decreased in this period. The increase observed has been exclusively in cases of chlamydia (223 cases in 1999 to 512 in 2005), which may be due to the introduction of more sensitive testing. HIV and AIDS cases have decreased in this period, from 20 cases of HIV in 1999 to 11 in 2005; and from 19 confirmed cases of AIDS in 1999 to just 6 in 2005<sup>38</sup>. Thanks to progressive treatment interventions, AIDS is no longer a major cause of mortality in Bermuda, but it was responsible for 0.7% of deaths in 2005.



*In 2006, 6% of adults reported having more than one sexual partner; of these, only 65% reported using a condom*

The behaviours causing the transmission of these diseases are the focus of attention for health promotion. In 2006, 6% of adults reported having more than one sexual partner; of these, only 65% reported using a condom in their last sexual encounter. Overall, 49% of adults said they had been tested for HIV<sup>39</sup>. The 2001 Teen Wellness Survey found that only 74% of boys and 83% of girls knew that “they could contract a sexually transmitted disease like AIDS or gonorrhoea from one sexual encounter without a condom”. This goal, therefore, focuses on reducing high risk behaviours in order to reduce the transmission of STIs.

Safe sex objectives	Baseline measure	Data source
Decrease the proportion of adults with multiple sexual partners	6%	2006 Health Survey
Increase condom use among sexually active adults with multiple partners	65%	2006 Health Survey
Increase the proportion of adults who have been tested for HIV	49%	2006 Health Survey
Increase the proportion of adolescents who know that STIs can be contracted from a single sexual encounter	79%	2001 Teen Survey

## 7 Promote asthma prevention and control

Asthma is a chronic condition which affects the airways of the lungs. It is a common condition that can be disruptive, disabling and potentially life-threatening. An asthma sufferer will occasionally experience a swelling or inflammation of the airways, making him or her feel a tight chest, coughing, wheezing and short of breath. These symptoms will vary in severity, can affect school or work performance, quality of life and, if severe, require medical treatment. However, the symptoms can usually be controlled with a combination of measures.

There is no single known cause of asthma, but there are several factors that contribute to the condition, including a genetic predisposition, diet and the environment. Asthma symptoms can be triggered by a range of different factors, many of which can be prevented. Triggers include chest infections, allergens such as animal fur, pollen, dust mites, mould, weather, emotional stress, hormonal changes, and irritants such as household chemicals, cigarette smoke and vehicle emissions.

The global prevalence of asthma ranges from 1% to 18%, and there is good evidence that it has been increasing in some countries.<sup>40</sup> In Bermuda the 2006 Health Survey found that 9% of adults stated that they currently had asthma. More women (12%) reported having asthma than men (6%), and young adults aged 18 – 34 years were more likely to report currently having asthma (14%) than any other age group. No differences were found by race, education or income.<sup>41</sup> In children asthma prevalence is higher. According to parental reports in the 2006 Health Survey,



9% of adults and 19% of 0-10 year olds have asthma in Bermuda

19% of all 0-10 year olds currently have asthma, 11.5% reported having had an asthma attack in the previous year, and 6.5% said they had had to visit the emergency room for asthma at least once in the previous year. Asthma was similarly common in boys and girls, but prevalence seemed to increase with age and was greater in children from socio-economically deprived households. Asthma was considerably more common among black (23%) than white & other race (14%) children aged 0-10 years. Further, in the 2001 Teen Survey, 17% of adolescents aged 11-18 years reported having asthma.<sup>42</sup>

Control and prevention are central in the treatment of asthma. Asthma can be controlled effectively with appropriate medications and environmental changes. Reliever or rescue medications are recommended only to relieve symptoms. Effective control of asthma means unrestricted activity, no night waking, no days missed from school or work due to asthma, no emergency room visits or hospital admissions and not needing rescue medication more than twice per week. Due to the nature of the condition and the importance of lifestyle changes in its control, health promotion has a crucial role to play.

Asthma Objectives	Baseline measure	Data source
Reduce hospital emergency department visits for asthma	720 adults 702 children	2007-08 BHB Emergency Department
Reduce hospital admissions for asthma	53 adults 34 children	2007-08 BHB Inpatient Admissions
Reduce the mean number of school days missed by children with asthma	4.47 days	2006 Health Survey
Increase the proportion of children with asthma who receive asthma education and a personal action plan	39%	DOH Asthma nurse records 2008

## 8 *Promote emotional and mental well being*

Mental wellness or mental health is about the ability to enjoy life, engage in day to day functioning and have the skills and flexibility to deal with the challenges that life inevitably brings. There are many different cultural, professional and personal factors that influence how mental health is defined and handled<sup>43</sup>. However, for the purposes of this document, mental health will be understood as being about the way people feel, think and behave.

Mental health problems can affect anyone at any age. Without care and treatment they can have serious and negative effects on the sufferer and the people around them. Mental health problems can be caused by a wide range of factors that are as varied and complex as the individuals themselves. They can also arise from difficult life events such as bereavement, job loss or moving house.

Mental health problems can take many different forms depending on an individual's life stage and circumstances. For example, children can exhibit emotional or behavioural problems as trouble with attention, speech, temper or socialising; and young people may exhibit problems as eating disorders, self-harm or anxiety; whereas diseases like Alzheimer's and dementia generally develop in old age. Particular mental health problems can be more common in certain groups. For example, women are more likely than men to have anxiety disorders and depression, while drug and alcohol addictions are more common in men, who are also more likely to commit suicide.



*Mental health problems can affect anyone at any age. They can arise from difficult life events such as bereavement, job loss or moving house.*

In Bermuda, there have not been any in depth epidemiological studies to explore the incidence of mental health problems in children, adults or seniors. But some data is available from general health surveys. In the 2006 Health Survey, the most common psychosocial problems reported for children were uncooperative behaviour and tantrums for 2-3 year olds (14%), and social difficulties for 4-10 year olds (10%). For adolescents, the 2001 Teen Survey found that 17% reported feeling worthless and unimportant most of the time, and 11% said that they did not have a social support network. The 2006 Health Survey found that 8% of adults reported having 10 or more days of poor mental health in the previous month. Women reported this level twice as often as men (10% versus 6%); and younger adults (11%) and single parents (15%) were also more likely to report this difficulty. Nevertheless, 96% of adults reported being satisfied or completely satisfied with their life in general.

Help and support is needed by people when they experience mental health difficulties to help them to cope, and to prevent escalation or impact on those around them. It is important that appropriate treatment options be available and accessible. However, it is also important for people to be able and willing to recognise when help is needed. For this reason, the health promotion priorities for this goal need to focus on assessment and public education.

Mental Health Objectives	Baseline measure	Data source
Establish research to investigate the prevalence of mental health problems in the population	No data available	Not Applicable
Increase the proportion of children with mental health problems who receive assessment and intervention	No data available	Not Applicable
Increase the proportion of adults with mental disorders who receive assessment and intervention	No data available	Not Applicable

## THEME II: *Healthy Families*

This theme focuses on the family – the primary unit in any society. Healthy families make for healthy people and for healthy communities. While traditionally public health has focused on the health of mothers and children, there has been a shift towards a life cycle approach that considers broader population groups. This theme's focus on family health aims to highlight health issues relevant to parenthood, childhood, seniors, and people with disabilities.

The family unit is central to individuals and society because it is the primary source of nurturing and support through the life cycle. Families come in a variety of forms and all have the potential to provide caring environments where children, adults and seniors may thrive. Often the ability of a family unit to realise this potential is determined by socio-economic circumstances, and poverty in families is a major factor contributing to negative health outcomes. Health promotion cannot eradicate socio-economic disadvantage, but it can aim to redress health disparities by promoting support services for families and individuals in need.

In Bermuda 66% of all households can be said to be family households (25% two-parent, 20% adult couple, 11% one parent, and 10% extended family), while 28% are one person households, and 6% are households of unrelated persons<sup>44</sup>. In 2004 the average weekly household income for Bermuda was \$2,043; however



*The majority of Bermuda residents live in family units; even people who live independently have family ties that play a part in their ordinary lives*

in two parent households it was \$2,930, for adult couples \$2,307, and for extended family \$2,145; however, one parent households' weekly income was \$1,596<sup>45</sup>. Poverty is the most significant contributor to poor health and negative health outcomes<sup>46</sup>, and in Bermuda children in one-parent families, and adults and children in the poorest households tend to have inferior health than those in other household types<sup>47</sup>.

The total dependency ratio estimates a country's capacity to maintain the quality of life of children (aged 0-14) and seniors (aged over 65) per 100 persons aged 15-64. It is estimated that there will be a rise from 43 to 62 children and seniors for every 100 people of working age by 2030. Further, it is projected that the number of seniors per 100 persons of working age will rise from 16 in 2000 to 36 in 2030; while the number of children per 100 persons of working age will remain almost unchanged<sup>48</sup>. These projections indicate there will be an increased number of dependent individuals, and that society's burden of care will continue to shift from children to seniors.

These changes are expected to have an impact on the health and wellbeing of the population overall, but in particular seniors'. Already Bermuda's population aged over 65 have among the poorest health status<sup>49</sup>, have the lowest household incomes<sup>50</sup> and spend the highest proportion of their income on healthcare<sup>51</sup>. Fittingly, the wellbeing of seniors is an important focus for the Government.

The majority of Bermuda residents live in family units; even people who live independently in one person households tend to have family ties that play a part in their ordinary lives. Therefore, it is important to consider the family as an important field for the promotion of health, as families provide the foundations for health through nurturing and caring.

## 9 *Promote positive parenting*



*Conflict and instability are the most significant causes of adverse outcomes for children*

This goal focuses on positive parenthood in order to emphasise that quality parenting is the foundation for healthier children and adults. Bringing up children is a rewarding but sometimes difficult experience. Most parents and carers want to do the best they can for their children, but sometimes support is needed to help them understand their children’s needs, improve their parenting skills, and cope with the pressures of parenting that can sometimes become overwhelming. Early identification of potential problems is key to setting a good foundation for parenting, and appropriate intervention is essential to prevent an escalation of difficulties.

Family disruption is known to undermine the home environment and interfere with children’s physical and emotional development. While traditionally divorce and single parenthood were believed to be the most important sources of disruption for children, the research evidence is now conclusive in demonstrating that this is not the case<sup>52,53</sup>. Rather, it is conflict and instability between parents or carers before, during and after separation that is the more significant

cause of adverse outcomes for children<sup>54,55,56</sup>. It is conflict and instability in any family setting that is disruptive, so we must address conflict and instability to promote positive parenting.

Parenthood is made more difficult if it comes prematurely or unexpectedly. In Bermuda the proportion of births to adolescent mothers aged 13-19 has decreased in recent years, from 9% in 1999 to 5.5% in 2005<sup>57</sup>. This is a positive, but not irreversible trend. Indeed, in 2001 only 43% of adolescent boys and 60% of adolescent girls knew that one sexual encounter without contraception could lead to pregnancy<sup>58</sup>. More education is clearly needed to prevent teen pregnancies, but also unintended pregnancies in older age groups, as unprepared parenthood can be the precursor to stressors that inhibit positive parenting at any age. The incidence of violence in the home is of concern also, with 8% of men and women reporting that at some time they were physically hurt by an intimate partner<sup>59</sup>. Further, there are approximately 400 cases of child abuse and neglect reported to the Department of Child and Family Services every year<sup>60</sup>. Given that at the 2000 census there were 14,097 children and young people aged 0-17 years, we can estimate that up to 3% of children in Bermuda will be referred for abuse or neglect in any year. This figure should be 0%, and we must direct all necessary resources to preventing any ill treatment of children.

Parenting objectives	Baseline measure	Data source
Reduce the incidence of child abuse and neglect	3%	Inferred from 2006 Budget Book
Reduce the incidence of adult domestic violence	8%	2006 Health Survey
Increase the number of parent enrichment opportunities that are available to the public annually	13	Parent Education Network, 2006
Increase the proportion of adolescents who know that one unprotected sexual encounter can lead to pregnancy	52%	2001 Teen Survey
Decrease the proportion of unintended pregnancies in DoH Maternal Health Clinic attendees	88%	2000 MH Survey Report
Increase the proportion of new mothers visited by a Health Visitor within 14 days of delivery	85%	2005 SMO Report

## 10 *Maintain healthy childhood development*

The old adage, “give me a child when he is seven and I will show you the man” is more than folk theory. Research conclusively demonstrates that the early years of a child’s life are crucial for healthy physical and psychosocial development. Healthy childhood development lays the foundation for good health into adolescence and adulthood, so it is imperative that we ensure children’s needs are met so they may thrive physically, emotionally, cognitively and socially.

Children in Bermuda enjoy generally good health. Child and infant deaths in the past decade have been negligible, as is the incidence of vaccine preventable diseases in children. The 2006 health survey<sup>61</sup> found generally low levels of parent-reported health and developmental problems for children aged 0-10 years, with 93% reporting that their immunisations were up to date, 94% had had one or no visits to the emergency room in the previous year, and 82% had had a well-child check-up in the previous year. The most prevalent health problems reported were asthma (19%), eczema (17%), ear infections (three or more, 16%), respiratory allergies (9%). Overweight/obesity was also very high for 5-10 year olds (36%).

From a prevention perspective, developmental screening and breastfeeding are key to promoting healthy childhood. Developmental screening is an effective way to identify children who should receive more intensive assessment, diagnosis or treatment before difficulties become severe or entrenched. And breastfeeding decreases the incidence and/or severity of a wide range of childhood diseases<sup>62, 63</sup>, including some of Bermuda’s most prevalent child health problems, and is therefore an essential factor in promoting healthy childhood.



*Give me a child when he is seven  
and I will show you the man*

Healthy childhood objectives	Baseline measure	Data source
Increase the proportion of infants and children aged 0-24 months appropriately immunized for age	85%	2006 Budget Book
Increase the number of 2 to 2½ year olds who receive a developmental screening	453 (56%)	2006 CDP Annual Report
Increase the proportion of school children screened for dental health indices and sealant needs	42%	2006 Budget Book
Increase the proportion of Primary 1 gov. school children who have had a speech and language screening test	93%	2006 SLP P1 Screening Report
Increase the proportion of 2 – 4 year olds with identified need who receive a speech language assessment	78%	2006 CDP Annual Report
Reduce the proportion of school age children in need of rehabilitation treatment	53	2005 Comm. Rehab. Stats. (Govt. schools)
Increase the proportion of babies who are exclusively breastfed for the first six months of life	No data available	To be confirmed

## 11 *Promote better quality of life for seniors*

Everyone deserves to enjoy good health and remain independent for as long as possible. As people get older, however, they become more vulnerable to health problems. Quality of life refers to a person’s ability to enjoy normal day to day life activities. It is a key factor for health promotion for seniors, who can benefit tremendously from support to manage existing health problems, and education to avert the onset of new difficulties.

At the 2000 census 11% of the population was aged over 65, and over a third of persons with disabling conditions were seniors<sup>64</sup>. Nearly half of all seniors reported having long-term health conditions irrespective of whether the condition affected their daily life, and 15% of all seniors reported having a disabling condition. Of those who reported having long term health problems, the leading ones were high blood pressure (37%), arthritis (27%), diabetes (23%) and heart condition (21%); however, the leading disabling health condition was arthritis<sup>65</sup>. Nevertheless, 44% of seniors rate their health as very good or excellent, in relation to others their age<sup>66</sup>. In 2006, seniors aged 65 years and over were more than twice as likely to report having had ten or more days of poor physical health as adults aged 18 to 64<sup>67</sup>.

Seniors can benefit tremendously from health promotion interventions. Therefore, this goal focuses on promoting health and improved quality of life through screenings, activity and support



*At the 2000 census 11% of the population was aged over 65, and over a third of persons with disabling conditions were seniors*

Seniors objectives	Baseline measure	Data source
Determine and improve access of oral health services for seniors	No data available	Not applicable
Increase the proportion of seniors who have had a general physical examination in the previous 12 months	89%	2006 Health Survey
Increase the proportion of seniors who report participating in at least one recreational activity on a regular basis	51%	2004 Aging in Bermuda Report
Increase the number of senior care facilities who monitor and report accidents (falls & injuries)	2/15	2003 Community Rehabilitation Survey

## 12 *Promote better quality of life for persons with disabilities*

Independent living and good health are essential to enjoy quality of life. However, the challenges in achieving these goals can be greater for persons who live with a disability, as there can often be secondary health problems in addition to the primary disability. Disability is defined as “any restriction of ability to perform an activity in the manner or within the range considered normal for a human being”<sup>68</sup>. Quality of life, therefore, is an especially important consideration for persons who suffer limitations to their daily functioning due to a long-term health problem or disabling condition. It is a key factor for health promotion for persons with disabilities.

In the 2006 Health Survey, 11% of adults reported that they were limited in day to day activities because of physical, mental or emotional problems. Most persons with self-reported limitations or disabilities were aged over 55 years, and a large proportion lived in households with an income under \$50,000 per year<sup>69</sup>. It is important to bear in mind that these were self-reported disabilities in a telephone survey, so a high proportion of persons with more severe disabilities were excluded; for example, individuals with severe learning disabilities or those who are institutionalised. Nevertheless, at the 2000 census adults identified as disabled were more likely to be unemployed than the general population. For children, the 2006 Health Survey found that up



*11% of adults in Bermuda are limited in day to day activities because of physical, mental or emotional problems.*

to 3% of 0-10 year olds had been diagnosed with a disability such as developmental delay, and/or impairment that required the use of special equipment or limited mobility. Unfortunately, there is a relative paucity of systematic information available about persons with disabilities, and the Committee for a National Policy on Disabilities includes a statement on the need for systematic investigation of the needs of this population in its core recommendations<sup>70</sup>.

Persons with disabilities can benefit tremendously from primary and secondary preventive interventions to avert the onset of health problems or manage existing difficulties. Therefore, this goal focuses on investigating the needs of this population, and working more closely with the known disabled population to improve access to services and activity.

Disability objectives	Baseline measure	Data source
Establish research to investigate the needs of persons with disabilities and their families	No data available	Not applicable
Increase the proportion of people with disabilities who are employed	33%	Dept. of Statistics, 2000 Census
Maintain the number of clients with disabilities served annually by the NOSPC	206	NOSPC Annual Statistics 2005
Increase the proportion of Opportunity Workshop trainees in volunteer or job placements	74%	2005 SMO Report
Increase the proportion of MWI learning disabled clients in volunteer or job placements	10% (8 of 81)	2006 LDP Programme, MWI
To increase the number of learning disabled clients residing in community group homes	65% (51 of 79)	2006 LDP Programme, MWI

## THEME III: *Healthy Communities*



*This theme focuses on the creation of healthy surroundings for all*

Theme one focused on the prevention of specific diseases or conditions. Theme two focused on population groups. This theme focuses on the creation of healthy surroundings for all, by maintaining good environmental health, reducing accidents and violence, advocating for smoke and drug free lifestyles, and promoting emergency preparedness.

Bermuda currently enjoys a low incidence of food and vector borne diseases. This has been achieved through extensive public health measures, and the issue has been included in the strategy to emphasise the need to continue and extend this work. Communicable diseases can spread rapidly if uncontrolled, and can be reintroduced even after eradication. For example, there is the potential for re-introduction of dengue fever in Bermuda with the reappearance of the mosquito species that can spread the disease.

Motor vehicle accidents and violence are a topical issue in our community and frequent headline-grabbers. While we must be measured in our reaction and mindful of the media's propensity to exaggerate the threats these pose, it remains the case that they are important contributors to health problems and must, therefore, be addressed by the whole community to prevent further escalation.

Misuse of legal and illegal drugs is, likewise, a problem that we must approach in a dispassionate manner to adequately assess the threat and invest resources. In terms of negative health

outcomes, for instance, smoking is by far the most serious drug threat faced locally and around the globe. Measures to tackle this are in place and growing. Similarly, the health and social problems caused by excessive alcohol consumption and dependency are greater than those caused by the use of illicit drugs. Nevertheless, all drug misuse invariably comes with health and social repercussions and must, therefore, be addressed in the promotion of healthy lifestyles.

Our use of and interaction with the natural environment and open spaces also have an important link to health. Many of our principal health problems, overweight, heart disease, cancer and diabetes, are directly linked to the increase in sedentary lifestyles, and the contribution of parks, open spaces and diverse forms of transport can contribute positively to the health of the country. In addition, promoting respect for the environment is essential to ensure healthy communities.

Lastly, emergency preparedness is a topic on which there is global interest. It is relevant to Bermuda given recent natural disasters around the world, and international concern over the still small but growing possibility of an influenza pandemic. However, emergency preparedness is not just for large scale disasters, but has an important role to play in the day to day lives of individuals, in ensuring their ability to cope in the case of unexpected personal emergencies.

These factors have been identified as key in the promotion of healthy communities for all of Bermuda. Although some are not traditionally from the realm of health promotion, all public health partners and the public have a role to play in addressing them to work towards a healthier Bermuda.

## 13 *Maintain low incidence of food and vector borne diseases*

This goal focuses on activities to prevent the spread of food and vector borne communicable diseases. Communicable diseases are caused by micro-organisms that are transmitted from an infected person or animal to another. Diseases can be passed on through direct contact with an infected host or their excretions, or through indirect contact or close proximity when the causative bacteria or viruses are airborne. This goal is concerned with communicable diseases that are spread through contaminated food or water (e.g. salmonella), or via animal or insect carriers (e.g. dengue fever).

A century ago, communicable diseases were responsible for the majority of deaths in Bermuda and around the world. Extensive public health measures have brought many such diseases under control in Bermuda and eradicated some altogether, to the point that communicable diseases are no longer significant causes of death. However, there is no room for complacency with diseases of this nature, as they can be rapidly spread if uncontrolled, or they can be re-introduced to the Island even after eradication. Although the incidence of food borne illnesses in Bermuda is relatively low, this is a consequence of extensive efforts to promote and ensure appropriate food handling and treatment of drinking water; efforts that must be acknowl-



*Communicable diseases can be rapidly spread if uncontrolled, or they can be reintroduced to the Island even after eradication*

edged and maintained. Likewise, Bermuda does not have a current problem with vector borne diseases, but the community's efforts to control the rodent and mosquito populations are essential to maintain the status quo, and more is needed to eradicate these threats locally.

Health promotion in this respect is of primary importance because of its role in educating the public about personal and community responsibility in preventing the spread of diseases and creating healthy environments.

Food and Vector objectives	Baseline measure	Data source
Establish the proportion of food handlers who receive annual food safety training	No data available	Not applicable
Increase number of households where drinking tank water is appropriately disinfected	10%	2004 HP Radio Spots Evaluation1a
Increase the number of households that do not breed mosquitoes	96%	2005 Vector Control Report
Decrease the number of call backs for rodent control services	53%	2005 Vector Control Report

## 14 *Encourage smoke and drug free lifestyles*

Smoking is known to be among the principal avoidable causes of premature death. It can cause chronic lung disease, coronary heart disease, and stroke, as well as cancer of the lungs, larynx, oesophagus, mouth, bladder, cervix, pancreas, and kidneys. Exposure to second-hand smoke puts people at risk of the same diseases. In Bermuda 13% of adults smoke<sup>71</sup>, which is down from 22% in 1999, when 82% of residents reported that they were exposed to second-hand smoke at least once per week. In addition, 6.5% of adolescents report having smoked in the previous 30 days<sup>72</sup>. Tobacco control programmes have been proven to reduce deaths from heart disease, and lung cancer rates<sup>73</sup>. It is expected that the new tobacco legislation which bans smoking in all enclosed public spaces, restricts advertising and bans vending machines will help to reduce exposure to second-hand smoke and possibly tobacco use in the long term.

Excessive alcohol consumption is known to be associated with many health complications, including high blood pressure, heart disease, stroke and liver disease. In addition, excessive drinking can affect a person's mental health, work and their social and personal relationships. In Bermuda 12% of adults report binge drinking, or having five or more drinks on a single occasion, at least once in the previous month<sup>74</sup>. Teenage drinking is a concern with 27% of adolescents reporting that they consumed alcohol in the previous 30 days<sup>75</sup>.



Addiction to illegal or prescribed drugs presents a number of physical, psychological and social problems. Misuse of drugs carries many health risks either because illicit substances are not controlled or because legal drugs are taken in manner associated with adverse effects. Misuse of drugs can, in the long term, cause high blood pressure, depression and infertility, among other health problems, in addition to having negative effects on a person's work, social and personal relationships. In 2001, 7% of adults reported having used cannabis in the previous 30 days, while self-reported recent use of cocaine, crack and heroine was low, ranging from 0.2% to 0.6%<sup>76</sup>. In 2003, 10% of adolescents reported using cannabis and 3% inhalants in the previous 30 days, and 20% reported having used cannabis and 8% inhalants at some point in their life. Further, 7% reported that they have been drunk or high at school, and 6% said that they had been involved in selling drugs<sup>77</sup>.

Smoke and Drugs Objectives	Baseline measure	Data source
Reduce the proportion of non-smokers exposed to second-hand smoke weekly or more often	47%	2006 Q3 Omnibus Survey, TM (for DoH)
Reduce proportion of adults who are current smokers	13%	2006 Health Survey
Reduce proportion of adolescents who smoke	6.5%	2003 NDC Survey
Reduce the proportion of adults who engage in binge drinking	12%	2006 Health Survey
Reduce the proportion of adolescents who drink alcohol	27%	2003 NDC Survey
Reduce the proportion of adults and adolescents who use illicit drugs	7% adults 0% teens	2001 NDC Survey 2003 NDC Survey

# 15 *Promote increased road safety*

This goal focuses on the prevention of road traffic accidents, an issue of high importance to the community. The injuries caused by road traffic accidents can have a severe impact on a person's life, and their consequences can range from temporary pain and inconvenience, to disability and chronic pain, or even death. Road traffic accidents have been estimated to cost Bermuda \$40 million a year, or 1.5 per cent of our Gross National Product, on costs including insurance premiums, loss of production to the economy, health care, police and emergency services, days off work and overtime, among other factors.<sup>78</sup>

Motor vehicle accidents are a leading cause of death in Bermuda. In recent years we have seen an increase in road traffic fatalities with an average of 8.8 deaths per year recorded in the 1990s, to an average of 11.2 deaths per year recorded in this decade so far<sup>79</sup>. In 2006 transport accidents caused 3% of all deaths, with men being disproportionately affected. All 14 deaths due to transport accidents were men, which accounted for 6% of all male deaths<sup>80</sup>. Further, research in the 1990s confirmed that two thirds of all road injuries are sustained by young men<sup>81</sup>.

A more recent study by Froncioni et al. (2008) examined emergency room admissions at King Edward Memorial Hospital between 2003 and 2004, and found that 83% of all road injuries occurred on motorbikes; for residents this represented a 67% increase in motorcycle injuries since 1993. Some key findings of this study were that an average of 5 people present in



*In 2005 40% of all accidental and violent deaths occurred in road traffic crashes*

hospital every day with road injuries, the greatest risk of road injury occurs at age 16, the majority of injured residents are male, and nearly three quarters of fatalities sustained major head injuries. The study also examined motorcycle accidents for residents and tourists and found that tourists are 3.2 times more likely to sustain injuries on our roads than residents.<sup>82</sup>

Nevertheless, the majority of these accidents are preventable and health promotion can play a significant role in educating the public. Research has recommended that interventions to reduce motor vehicle-related injuries should focus on decreasing alcohol-impaired driving, increase the use of child safety seats, and increase the use of safety belts. In addition, there are key actions that have been identified as priorities to increase safety on Bermuda's roads, including: introduction of graduated licensing for young riders, well publicised sobriety checks to prevent drunk-driving, enforcement of helmet fastening and demerit point system laws, and introduction of mandatory helmets for cyclists. In addition measures to increase Police presence and identify alternative transport modes for tourists have also been identified as important.

Road Safety Objectives	Baseline measure	Data source
Reduce road traffic collisions	2,839	Bda Police Road Traffic Collisions Stats for 2006
Increase use of car safety belts among 18-34 year olds	80%	2006 Health Survey
Increase use of child car safety seats	81% Children <10 83% Teens >11	2006 Health Survey 2001 Teen Survey
Reduce the proportion of adolescents who report riding in a vehicle driven by people affected by alcohol	16%	2001 Teen Survey

# 16 *Stopping the violence before it begins*

Violence can be defined as acts of aggression or hostility intended to cause harm or demean; it is an increasing concern in our community. In addition to the personal misery it brings, violence can place a significant burden on the economy and research shows that, as a general rule, victims of domestic or sexual violence have more health problems, significantly higher health care costs and more frequent visits to hospital emergency departments throughout their lives than those without a history of abuse. The same is also true for victims of child abuse and neglect.<sup>83</sup> Street violence tends to provoke media and public outcries, but violence within families is as significant a problem:

*“Less visible, but even more widespread, is the legacy of day-to-day, individual suffering. It is the pain of children who are abused by people who should protect them, women injured or humiliated by violent partners, elderly persons maltreated by their caregivers, youths who are bullied by other youths, and people of all ages who inflict violence on themselves. This suffering... is a legacy that reproduces itself, as new generations learn from the violence of generations past, as victims learn from victimizers, and as the social conditions that nurture violence are allowed to continue.”*  
(Nelson Mandela, quoted in WHO, 2002)

While street violence is clearly an important problem that we must work to eradicate, it’s important to keep it in context, and Bermuda is fortunate not to have a higher incidence. In 2005 violence caused less than 1% of all deaths in Bermuda (2 assaults and 2 suicides)<sup>84</sup>.



*The legacy of violence reproduces itself, as the social conditions that nurture violence are allowed to continue*

However, recorded violent crime has been increasing over the past five years, from 273 violent crimes recorded in 2003 to 305 in 2007;<sup>85</sup> there is evidence that the majority of crime is committed by a relatively small group of persistent offenders<sup>86</sup>, and 17% of adolescents report that they have been involved in an attack on someone with intent to harm.<sup>87</sup> Therefore, the impact violence has on our community is an important consideration.

Health promotion and a public health approach can contribute to violence prevention. In particular, international bodies advocate the importance of primary prevention: stopping the violence before it begins. Some of the same tools and knowledge that have been used successfully to tackle other public health problems can be applied to violence. We know that, like other health problems, violence is often predictable and preventable; it is not distributed evenly across population groups or settings; and many of the factors that increase the risk of violence are shared across the different types of violence and are modifiable. This knowledge must be translated into action by a range of stakeholders from all sectors of the community, not just the Police. We must focus on stopping the cycle of violence if we are to make a difference.

Violence Prevention Objectives	Baseline measure	Data source
Decrease the incidence of violent crimes	305	2007 Bda. Police Crime Statistics
Reduce the proportion of adolescents involved in an attack on someone with intent to harm	17%	2003 NDC Survey
Reduce the number of incidents involving bladed and sharply pointed articles	17	Q2 '06 Bda. Police Crime Statistics

## 17 *Encourage public enjoyment of and respect for the environment*

The link between the environment and health is not always readily apparent. While we often associate environmental health with sanitation, vector control and other such issues, this goal seeks to actively move away from this traditional connotation. Here the strategy aims to bring to the forefront the importance for health of open spaces, the natural environment and people's relationship and interaction with these.

Urban populations are vulnerable to loss in environmental quality when development occurs rapidly in unplanned and unsustainable ways<sup>88</sup>. Health promotion has a responsibility to contribute to the maintenance of good public health with respect to issues ranging from solid waste disposal, to availability and quality of open areas, transport and more.

In particular, unsustainable patterns of transport are related to a number of significant health hazards for urban populations. Globally, it has been observed that current patterns of motorization are associated to the perilous increase in sedentary lifestyles and diminished space and opportunities for physical activity; both of which are strongly related to the increase in obesity and associated non-communicable diseases<sup>89,90</sup>. Indeed, it has been estimated that physical inac-



*Current patterns of motorization are associated to the perilous increase in sedentary lifestyles and diminished space and opportunities for physical activity*

tivity is a key contributor to 1.9 million deaths globally every year, due to heart disease, cancer and diabetes<sup>91</sup>.

The links between health and the environment cut across a range of policy sectors and, consequently, are vulnerable to being overlooked. However, health promotion has a wealth to contribute in bringing the sectors with responsibility for these areas together with the health sector partners who have a vested interest in advancing these causes. This goal, therefore, focuses on the public's interaction with the environment in terms of its impact on health.

Environment objectives	Baselin measure	Data source
Increase the proportion of people who use public parks at least once per month	60%	2007 Well Bermuda Survey
Increase the amount of trash removed from public parks	52 tonnes	Q3 2006, Dept. of Parks
Maintain the high level of public involvement with BZS	4,150	BZS Memberships, Oct. 2006
Decrease the proportion of people who travel to work alone by car	23%	2007 Well Bermuda Survey

## 18 *Promote emergency preparedness in every household*

This goal highlights the importance of being prepared for any emergency – from a large scale event such as natural disaster, an influenza pandemic, or man-made land, sea or air disasters, to a smaller scale personal emergency that can nonetheless wreck havoc in many people’s lives, such as a household fire or becoming ill unexpectedly causing one’s dependents to be left without proper care. The principles of emergency preparedness always apply and health promoters are keen to reinforce these messages.

Over the last few years we have seen some of the worst hurricanes and storms this century wreak havoc and destruction and caused loss of life in the Caribbean Islands and the U.S. southern-most and Gulf area states. Most Bermuda residents have experienced the destructiveness of storms and hurricanes personally, and there is broad agreement with the recommendation that preparedness is the best measure for coping with and recovering from such events. However, while hurricanes and storms can appear as the most likely potential disaster to the average island resident, it is important to remember that being prepared for any emergency in any day of ordinary life is more likely to have an impact on ourselves and others.



The first step in being prepared is the creation of a family or household emergency plan, which includes learning what the hazards are and how to prepare for them, planning ahead together, creating an emergency supply kit and practicing, if applicable. This goal aims to promote greater awareness of these issues in the community.

Emergency preparedness objectives	Baseline measure	Data source
Increase proportion of households with a family/household emergency plan	40%	2007 Well Bermuda Survey
Increase proportion of households with functioning fire alarms	50%	2007 Well Bermuda Survey
Increase proportion of households with at least one adult trained in first aid	67%	2007 Well Bermuda Survey
Increase the number of persons trained annually as instructors in First Aid, CPR & AED use	5	Bermuda Red Cross Annual Report 2006

## CONCLUSION: *IT'S ABOUT ALL OF US*

Bermuda is healthy and we all wish it to stay that way. But wishing is not enough and recent trends give indication that a shift has started to take place. If not halted, we could see deterioration in the public's health and a rapid spread of already emerging inequalities in health. It is evident and widely accepted globally that health promotion is the most significant vehicle to rein in growing health problems, and the National Health Promotion Strategy is intended to contribute a significant step towards this goal.

The Strategy aims to provide a unifying vision for a healthier Bermuda, and an agreed set of health promotion priorities for the country. But it is vital to remember that the National Health Promotion Strategy is part of a larger process. Action plans, implementation, monitoring and evaluation will bring about the tangible results in the population and it is that which will make a real difference to people's lives. For this reason, it is imperative to move swiftly to the next stage and develop goal-specific action plans to address what we have agreed to be the health promotion priorities for Bermuda. While the Department of Health is taking the lead in proposing the strategy, we are seeking for it to be endorsed by a wide range of partners who will share the vision and sign up to the joint responsibility for delivering action.

This National Health Promotion Strategy provides a unifying vision for all partners in public health. Its purpose is to establish and outline an agreed set of priorities, goals and objectives, so that the multitude of agencies who contribute to the well being of Bermuda's population can have a point of convergence from which to act. This will enable parallel agencies to 'be on the same page' and all public health partners to 'sing from the same hymn sheet'. These are not simplistic platitudes, but the frankest lay description of the genuine aim of the strategy: to bring us together. Because health promotion is about all of us.

*The Well Bermuda Strategy provides a unifying vision for all partners in public health to be on the same page*



*Health promotion is the most significant vehicle to rein in growing health problems*

## REFERENCES

- 1 WHO (2001) Health and Sustainable Development: Report of the Secretary General. Commission on Sustainable Development acting as the preparatory committee for the World Summit on Sustainable Development. WHO: Geneva.
- 2 UN (2002) Plan of Implementation of the World Summit on Sustainable Development. UN: New York.
- 3 Weisbrot, M., Baker, D., & Rosnik, D. (2005) The Scorecard on Development: 25 Years of Diminished Progress. Centre for Economic and Policy Research: Washington.
- 4 Census Office (2001) Report on the 2000 Census on Population and Housing. Bermuda: Government of Bermuda.
- 5 Ramella, M. (2005) Bermuda Health Systems and Services Profile. Report for the Ministry of Health and Family Services. Government of Bermuda.
- 6 Source: Epidemiology & Surveillance Unit, 2006 Causes of Death.
- 7 Department of Health (1999) The Adult Wellness Report. Government of Bermuda.
- 8 Department of Health (2001) Personal Wellness Report: Teen Edition. Group Reports and Executive Summaries. Government of Bermuda.
- 9 Department of Health (2005a) Health Priorities Report. Government of Bermuda.
- 10 Nutbean, D. (1998) Health Promotion Glossary. Health Promotion International. 13(4): 349-364.
- 11 Ottawa Charter for Health Promotion (1986) WHO. Geneva.
- 12 Caribbean Charter for Health Promotion (1993) PAHO.
- 13 Caribbean Cooperation in Health II (1998) A New Vision for Caribbean Health. PAHO.
- 14 Caribbean Cooperation in Health Secretariat (1999) Caribbean Cooperation in Health II: A New Vision for Caribbean Health. PAHO: Barbados.
- 15 PAHO (2000) Public Health in the Americas: Conceptual Renewal, Performance Assessment and Bases for Action. Washington, D.C.: OPS.
- 16 Department of Health (2005b) Report on the Performance Measurement of Bermuda's Essential Public Health Functions. Government of Bermuda.
- 17 PAHO (2000) Op. Cit.
- 18 PAHO (2000) Op. Cit.
- 19 Ottawa Charter for Health Promotion (1986) Op. Cit.
- 20 Caribbean Charter for Health Promotion (1993) Op. Cit.
- 21 Health Canada (1998) Health Promotion in Canada: A Case study. Health Promotion International. 13(1): 7-26.
- 22 Glasgow, R.E., Vogt, T.M and Boles, S.M. (1999) Evaluating the public health impact of health promotion interventions: the RE-AIM framework. American Journal of Public Health, 89, 1322-1327.
- 23 Department of Health (2005a) Op. Cit.
- 24 Department of Health (2006) Health Survey of Adults and Children in Bermuda. Government of Bermuda.
- 25 Department of Health (2001) Op. Cit.
- 26 Visscher, T. and Seidell, J. (2001) The Public Health Impact of Obesity. Annual Review of Public Health, 22: 355-375.
- 27 NICE (2001) Nice issues guidance on orlistat for obesity. Press Release by UK National Institute for Clinical Excellence - NICE 2001/ 010 Issued: 09 March 2001.
- 28 2006 Budget Book is used as abbreviation for: Ministry of Finance (2006) Approved Estimates of Revenue and Expenditure for the Year 2006-07. Government of Bermuda.
- 29 Tan, M.H., Jones, D., Andrew-Koolkin, L., Smith, G., and Willis, B. (1997) Prevalence of Glucose Intolerance in Bermuda. Diabetologia. 40(1): A191.

- 30 Tan, M.H. and Jones, D. (2000) *Diabetes Care in Bermuda: Strategies Towards 2000 and Beyond*. Bermuda Hospitals Board: Bermuda.
- 31 Department of Health (2001) Op. Cit.
- 32 Dallaire, F., Dewailly, E. and Rouja, P. (2004) *Cancer in Bermuda: Incidence Rates and Comparison with the United States*. Report by the Public Health Research Unit of CHUQ-Laval University Medical Centre, Quebec, Canada.
- 33 Dallaire, F., Dewailly, E. and Rouja, P. (2004) Op. Cit.
- 34 Department of Health (2006) Op. Cit.
- 35 Department of Health (2006) Op. Cit.
- 36 Department of Health (2005c) *Senior Medical Officer's Report on Programme Statistics (1998 – 2005)*. Government of Bermuda.
- 37 Department of Health (2005c) Op. Cit.
- 38 Department of health (2005c) Op. Cit.
- 39 Department of Health (2006) Op. Cit.
- 40 Global Initiative for Asthma (GINA) (2007) *Global Strategy for Asthma Management and Prevention*. Available at [www.ginasthma.org](http://www.ginasthma.org).
- 41 Department of Health (2007) *Health Survey of Adults and Children in Bermuda 2006*. Government of Bermuda.
- 42 Department of Health (2001) *Personal Wellness Report: Teen Edition. Group Reports and Executive Summaries*. Government of Bermuda.
- 43 WHO (2001) *The World Health Report 2001: Mental Health – New Understanding, New Hope*. World Health Organisation: Geneva.
- 44 Census Office (2001) Op. Cit.
- 45 Department of Statistics (2004) *Household Expenditure Survey*. Government of Bermuda.
- 46 Weisbrot, M., Baker, D., & Rosnik, D. (2005) Op. cit.
- 47 Department of Health (2006) Op. Cit.
- 48 Department of Statistics (2006) *Mid-Year Population Projections: July 1, 2001 to July 1, 2030*. Government of Bermuda.
- 49 Department of Health (2006) Op. Cit.
- 50 Gutheil, I.A. and Chernesky, R.H. (2004) *Ageing in Bermuda: Meeting the Needs of Seniors*. Fordham University: New York.
- 51 Ramella, M. (2005) Op. Cit.
- 52 Franklin, K. M., Janoff-Bulman, R. & Roberts, J. E. (1990) 'Long-term impact of parental divorce on optimism and trust: Changes in general assumptions or narrow beliefs?'. *Journal of Personality and Social Psychology*. 59(4): 743-755.
- 53 Utting, D., Bright, J. and Henricson, C. (1993) *Crime and the Family: Improving Child-rearing and Preventing Delinquency*. Family Policy Studies Centre; Occasional Paper 16.
- 54 Cherlin, A. J.; Furstenberg, F. F.; Chase-Lansdale, P. L.; Kiernan, K. E.; Robins, P. K.; Morrison, D. R. & Teitler, J. O. (1991) 'Longitudinal studies of effects of divorce on children in Great Britain and the United States'. In *Science*, 252.
- 55 Elliott, B. J. and Richards, M. P. M. (1991) 'Children and Divorce: Educational performance and behaviour before and after separation'. In *International Journal of Law and Family*. 5 (2).
- 56 Kiernan, K. and Chase-Lansdale, P. L. (1992) 'Children and Marital Breakdown: Short and long term consequences'. In *European Population Vol. 2. Proceedings of the European Population Conference, Paris, 1991*. Paris: John Libbey.
- 57 Department of Health (2005c) Op. Cit.
- 58 Department of Health (2001) Op. Cit.
- 59 Department of Health (2006) Op. Cit.
- 60 Ministry of Finance (2006) *Approved Estimates of Revenue and Expenditure for the Year 2006-07*. Government of Bermuda.
- 61 Department of Health (2006) Op. Cit.

- 62 Kramer, M., Chalmers, B., Hodnett, E.D. et al (2001) Promotion of Breastfeeding Intervention Trial (PROBIT): A randomized trial in the Republic of Belarus. *Journal of the American Medical Association*. 285(4): 413-420.
- 63 American Academy of Paediatrics (2005) Policy Statement: Breastfeeding and the use of human milk. *Pediatrics*. 115(2): 496-506.
- 64 Census Office (2001) Op. Cit.
- 65 Department of Statistics (2005) The Changing Face of Bermuda's Seniors. Government of Bermuda.
- 66 Gutheil, I.A. and Chernesky, R.H. (2004) Op. Cit.
- 67 Department of Health (2006) Op. Cit.
- 68 WHO (1980) International Classification of Impairments, Disabilities and Handicaps. WHO: Geneva.
- 69 Department of Health (2006) Op. Cit.
- 70 Committee for a National Policy on Disabilities (2006) Recommendations for a National Policy on Disabilities. Government of Bermuda.
- 71 Department of Health (2006) Op. Cit.
- 72 National Drug Commission (2003) Op. Cit.
- 73 Fichtenburg CM, Glantz SA. (2000) Association of the California Tobacco Control Program with declines in cigarette consumption and mortality from heart disease. *New England Journal of Medicine*. 343(24):1772-1777.
- 74 Department of Health (2006) Op. Cit.
- 75 National Drug Commission (2003) Op. Cit.
- 76 National Drug Commission (2004) Changing Lives: A Strategic Framework for Drug Demand Reduction 2005 - 2009. Government of Bermuda.
- 77 National Drug Commission (2003) Op. Cit.
- 78 Source: Mid-Ocean News (2007) Bermuda Counts the Cost of Road Traffic Accidents. Published 4th May 2007.
- 79 Source: Bermuda Police Service Traffic Records Office, Record of annual road traffic fatalities 1990 - 2008 (up to 30th September 2008).
- 80 Source: Epidemiology & Surveillance Unit, 2006 Causes of Death.
- 81 Carey, M. and Aitken, M. (1996) Motorbike injuries in Bermuda: A risk for tourists. *Annals of Emergency Medicine*. 28: 424-429.
- 82 Froncioni, J., Ramella, M. & Attride-Stirling, J. (2008) Road Traffic Injuries in Bermuda 2003 - 2004. Media Information Pack released 29 May 2008.
- 83 WHO (2002) World Report on Violence and Health - Summary. World Health Organisation: Geneva.
- 84 Source: Epidemiology & Surveillance Unit, 2005 Causes of Death.
- 85 Bermuda Police Service (2008) Bermuda Police Selected Crime Report 2003-2007. Published on official web site [www.bermudapolice.bm](http://www.bermudapolice.bm) (posting reviewed 13th August 2008)
- 86 Bermuda Police Service (2006) Press Release on Crime Trends - 2nd Quarter 2006-07. Government of Bermuda.
- 87 National Drug Commission (2003) Bermuda Student Youth Survey Report: Risk and Protective Factors. Government of Bermuda.
- 88 WHO (2002) The world health report 2002 - reducing risks, promoting healthy life. World Health Organization: Geneva.
- 89 WHO (2004) Physical activity, environmental issues. World Health Organization: Geneva (accessed 4 October, 2004). <http://www.who.int/hpr/physicalactiv/environment.shtml>
- 90 Dora C., Phillips M. (Eds.) (2000) Transport, environment and health. Copenhagen, World Health Organization Regional Office for Europe. WHO Regional Publications, European Series, No. 89.
- 91 WHO (2002) Op. Cit.

## ALPHABETICAL BIBLIOGRAPHY

- American Academy of Pediatrics (2005) Policy Statement: Breastfeeding and the use of human milk. *Pediatrics*. 115(2): 496-506.
- Bermuda Police Service (2006) Press Release on Crime Trends – 2nd Quarter 2006-07. Government of Bermuda.
- Caribbean Charter for Health Promotion (1993) PAHO.
- Caribbean Cooperation in Health II (1998) A New Vision for Caribbean Health. PAHO.
- Caribbean Cooperation in Health Secretariat (1999) Caribbean Cooperation in Health II: A New Vision for Caribbean Health. PAHO: Barbados
- Carey, M. and Aitken, M. (1996) Motorbike injuries in Bermuda: A risk for tourists. *Annals of Emergency Medicine*. 28: 424-429.
- Census Office (2001) Report on the 2000 Census on Population and Housing. Bermuda: Government of Bermuda.
- Cherlin, A. J.; Furstenberg, F. F.; Chase-Lansdale, P. L.; Kiernan, K. E.; Robins, P. K.; Morrison, D. R. & Teitler, J. O. (1991) 'Longitudinal studies of effects of divorce on children in Great Britain and the United States'. In *Science*, 252.
- Committee for a National Policy on Disabilities (2006) Draft Recommendations for a National Policy on Disabilities. Government of Bermuda.
- Dallaire, F., Dewailly, E. and Rouja, P. (2004) Cancer in Bermuda: Incidence Rates and Comparison with the United States. Report by the Public Health Research Unit of CHUQ-Laval University Medical Centre, Quebec, Canada.
- Department of Health (1999) The Adult Wellness Report. Government of Bermuda.
- Department of Health (2001) Personal Wellness Report: Teen Edition. Group Reports and Executive Summaries. Government of Bermuda.
- Department of Health (2005a) Health Priorities Report. Government of Bermuda.
- Department of Health (2005b) Report on the Performance Measurement of Bermuda's Essential Public Health Functions. Government of Bermuda.
- Department of Health (2005c) Senior Medical Officer's Report on Programme Statistics (1998 – 2005). Government of Bermuda.
- Department of Health (2006) Health Survey of Adults and Children in Bermuda. Government of Bermuda.
- Department of Statistics (2004) Household Expenditure Survey. Government of Bermuda.
- Department of Statistics (2005) The Changing Face of Bermuda's Seniors. Government of Bermuda.
- Department of Statistics (2006) Mid-Year Population Projections: July 1, 2001 to July 1, 2030. Government of Bermuda.
- Dora C., Phillips M. (Eds.) (2000) Transport, environment and health. Copenhagen, World Health Organization Regional Office for Europe. WHO Regional Publications, European Series, No. 89.
- Elliott, B. J. and Richards, M. P. M. (1991) 'Children and Divorce: Educational performance and behaviour before and after separation'. In *International Journal of Law and Family*. 5 (2).
- Fichtenburg CM, Glantz SA. (2000) Association of the California Tobacco Control Program with declines in cigarette consumption and mortality from heart disease. *New England Journal of Medicine*. 343(24):1772–1777.
- Franklin, K. M., Janoff-Bulman, R. & Roberts, J. E. (1990) 'Long-term impact of parental divorce on optimism and trust: Changes in general assumptions or narrow beliefs?'. *Journal of Personality and Social Psychology*. 59(4): 743-755.
- Glasgow, R.E., Vogt, T.M and Boles, S.M. (1999) Evaluating the public health impact of health promotion interventions: the RE-AIM framework. *American Journal of Public Health*, 89, 1322-1327.
- Gutheil, I.A. and Chernesky, R.H. (2004) Ageing in Bermuda: Meeting the Needs of Seniors. Fordham University: New York.
- Health Canada (1998) Health Promotion in Canada: A Case study. *Health Promotion International*. 13(1): 7-26.
- Kiernan, K. and Chase-Lansdale, P.L. (1992) 'Children and Marital Breakdown: Short and long term consequences'. In *European Population Vol. 2. Proceedings of the European Population Conference, Paris, 1991*. Paris: John Libbey.
- Kramer, M., Chalmers, B., Hodnett, E.D. et al (2001) Promotion of Breastfeeding Intervention Trial (PROBIT): A randomized trial in the Republic of Belarus. *Journal of the American Medical Association*. 285(4): 413-420.

- Ministry of Finance (2006) Approved Estimates of Revenue and Expenditure for the Year 2006-07. Government of Bermuda.
- National Drug Commission (2003) Bermuda Student Youth Survey Report: Risk and Protective Factors. Government of Bermuda.
- National Drug Commission (2004) Changing Lives: A Strategic Framework for Drug Demand Reduction 2005 – 2009. Government of Bermuda.
- NICE (2001) Nice issues guidance on orlistat for obesity. Press Release by UK National Institute for Clinical Excellence - NICE 2001/ 010 Issued: 09 March 2001.
- Nutbean, D. (1998) Health Promotion Glossary. *Health Promotion International*. 13(4): 349-364.
- Ottawa Charter for Health Promotion (1986) WHO. Geneva.
- PAHO (2000) Public Health in the Americas: Conceptual Renewal, Performance Assessment and Bases for Action. Washington, D.C.: OPS.
- Ramella, M. (2005) Bermuda Health Systems and Services Profile. Report for the Ministry of Health and Family Services. Government of Bermuda.
- Tan, M.H. and Jones, D. (2000) Diabetes Care in Bermuda: Strategies Towards 2000 and Beyond. Bermuda Hospitals Board: Bermuda.
- Tan, M.H., Jones, D., Andrew-Koolkin, L., Smith, G., and Willis, B. (1997) Prevalence of Glucose Intolerance in Bermuda. *Diabetologia*. 40(1): A191.
- UN (2002) Plan of Implementation of the World Summit on Sustainable Development. UN: New York.
- Utting, D., Bright, J. and Henricson, C. (1993) Crime and the Family: Improving Child-rearing and Preventing Delinquency. Family Policy Studies Centre; Occasional Paper 16.
- Visscher, T. and Seidell, J. (2001) The Public Health Impact of Obesity. *Annual Review of Public Health*, 22: 355-375.
- Weisbrot, M., Baker, D., & Rosnik, D. (2005) The Scorecard on Development: 25 Years of Diminished Progress. Centre for Economic and Policy Research: Washington.
- WHO (2001) Health and Sustainable Development: Report of the Secretary General. Commission on Sustainable Development acting as the preparatory committee for the World Summit on Sustainable Development. WHO: Geneva.
- WHO (2002) The world health report 2002 – reducing risks, promoting healthy life. World Health Organization: Geneva.
- WHO (2004) Physical activity, environmental issues. World Health Organization: Geneva (accessed 4 October, 2004). <http://www.who.int/hpr/physicalactiv/environment.shtml>



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