



New Strategies Needed to Fight Obesity in the Caribbean

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The rapidity of obesity increase in the Caribbean is alarming. In two decades obesity has grown by almost 400%. It is now the most important underlying cause of death in the region and the range of consequent illnesses is wide among those who survive. This places enormous pressure on our meager health budgets and left unchecked obesity can render our public health systems unsustainable. What can be done?

The medical management of obesity is difficult and complex because:

- Obesity has multiple causes.
- Obesity develops over time and once it has done so, is difficult to treat.
- There are few successful treatment options.
- Drug treatments are hazardous.
- Treatment guidelines are complex.

We believe greater emphasis should be placed on prevention because:

- Obesity persists from childhood to adulthood.
- The health consequences may not be fully reversible by weight loss.
- With almost half of the Caribbean adult population overweight, the health care resources are insufficient to effectively treat all.

Understanding the genesis of this obesity problem will aid our prevention efforts. We live in an environment where the forces behind poor dietary habits and sedentary behavior are growing, not declining.

- We build communities without recreational facilities that are safe and attractive and this discourages physical activity.
- Our local and cable networks heavily advertise fast food, especially on children's programmes.
- Many school canteens and the vendors outside promote high energy dense foods with little nutrient value.

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The Obesity Epidemic – A Major Threat To Caribbean Development: The Case For Public Policies^a

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BACKGROUND

The silent escalating epidemic of obesity is the underlying cause of most deaths in the English-Speaking Caribbean today. If action is not taken to curb our increasingly overweight populations, the resultant burden of chronic diseases will overwhelm our health systems and ultimately retard our overall health and development. Much attention is rightly focused on the increasing prevalence of obesity across the region, however, to effectively combat obesity, the driving forces as well as the obstacles need to be clearly identified and acted upon.

This paper has two parts. Part 1 makes the case for a public policy approach to combat obesity. Part 2 presents policy options that could

substantially reduce obesity in Caribbean countries individually, or collectively.

Why a Public Policy Approach?

Public policy, in this paper, is defined simply as a guide to governmental action to avert adverse outcomes. It is therefore a means to achieve an acceptable future. But this policy is not static as it is shaped by the diverse influences in the very environment within which it is formed. Part 1 presents five dimensions which have powerful influences that can shape public policy on obesity.

This paper will argue that substantial reductions in the prevalence of obesity are more likely to

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come from structural and policy related changes to the environment, than from medical interventions targeted to the individual. The complexity of the obesity problem in the English-Speaking Caribbean is elaborated in the five dimensions and for each one the case is made for strong public policy measures which can create the conducive environment necessary for individual behaviour change regarding healthy eating and increased physical activity.

PART I: DIMENSIONS OF THE OBESITY PROBLEM

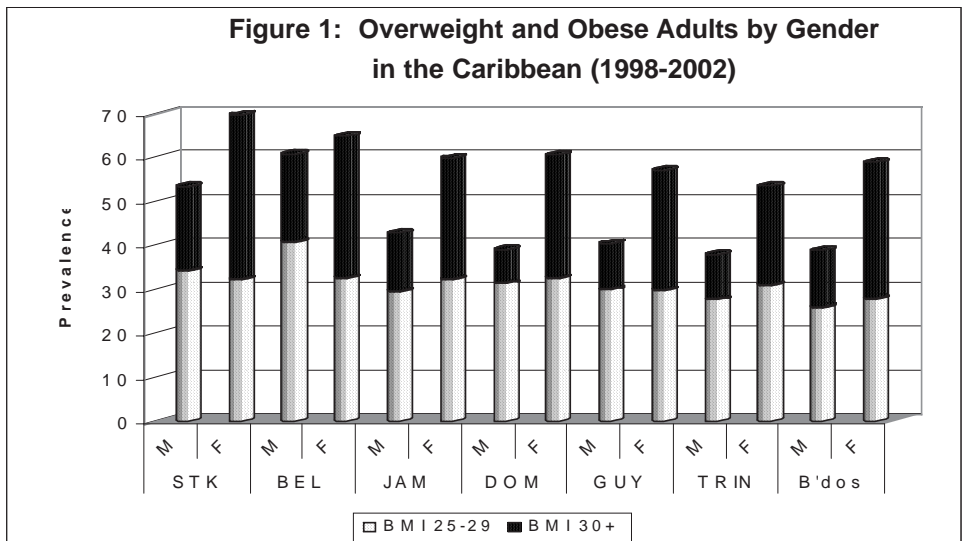
In the Caribbean context the challenge to combat obesity has five major dimensions:

1. Obesity epidemiology: prevalence, age and gender relationships.

2. Obesity trends and co-morbid consequences.
3. Poverty, obesity and food economics.
4. Genetics and Caribbean culture.
5. The cost of obesity to development.

Dimensions 1– Obesity Epidemiology: Prevalence, Age and Gender Relationships

The most striking features of Figure 1 are (a) the high prevalence of overweight (BMI >25) and obesity (BMI >30) and (b) the consistent gender difference showing that about 25% of adult Caribbean women are seriously overweight, i.e. obese, and this is almost twice as many as their male counterparts. (CFNI, 2001)



Source: Compiled from data and references in CFNI, 2001.

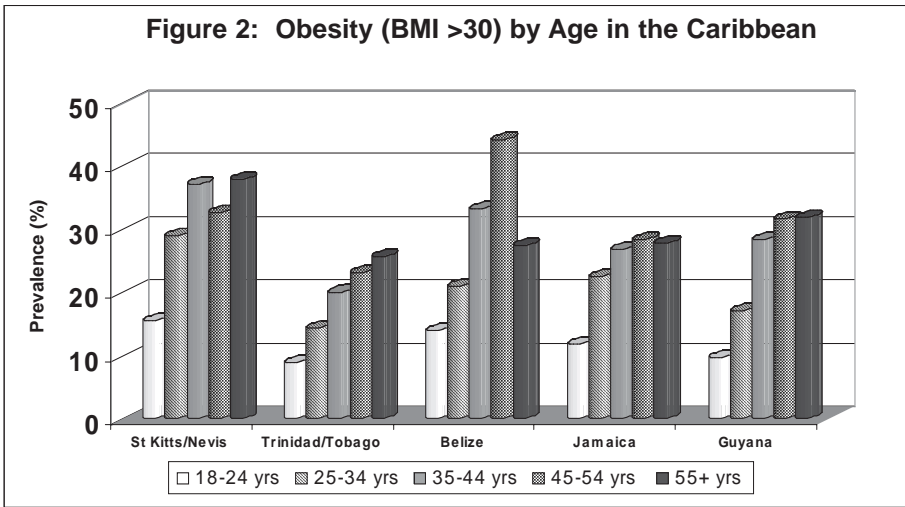
When the figures for obesity in young children and adolescents are reviewed the future nutritional state of the Caribbean looks bleak. Although the global prevalence of overweight amongst preschool children is estimated at 3.3%, data collected from the region show higher rates such as 3.9% for Barbados and 6.0% for Jamaica (de Onis, 2000). The relationship is inter-generational. Adult obesity is associated with child obesity (defined as >85 percentile) and this risk increases when the mother or father of the obese child was also obese. The risk of adult obesity is 2.0-2.6 times greater in obese pre-school children than in non-obese pre-school children (Serdula, 1993). For adolescents, the gap between males and females is wide and in Guyana this is as high as 76% (CFNI, 2001) whilst in St. Vincent it is 47% (Ministry of Education, St. Vincent, 1995), where the prevalence in females is higher.

CFNI has compiled surveillance data on children and adolescents which show that children overweight and obese account for up to 15% of this group in various countries (CFNI, 2001). After adolescence there is a clear and consistent increase in obesity through to older adults and Figure 2 shows this remarkable and consistent increase in obesity with age in many Caribbean countries. The gender difference is also maintained throughout the age range.

Why then are Caribbean Women Fatter than Men?

The dimension on culture, described later in this paper, provides some insights from qualitative studies, however, quantitative and metabolic studies indicate that females exhibit a stronger preference for carbohydrate before puberty while males prefer protein. After puberty, both males and females display a marked increase in appetite for fat in response to changes in the gonadal steroid levels. This rise in fat appetite occurs much earlier and to a greater extent in females. Further, females have a tendency to channel extra energy into fat storage while males use more of this energy for protein synthesis. This pattern of energy usage in females contributes to further positive energy balance and fat deposition for two reasons. First, the storage of fat is far more energy-efficient than that of protein, and second, it will lead to a lowering of the lean-to-fat tissue ratio with the result that resting metabolic rate does not increase at the same rate as body mass (Lovejoy 1998; Roemmich 1998, Logfren, 2002).

This dimension shows that the age and gender divide has clear implications for intervention strategies, however, it is the high prevalence of obesity in both males and females that is of major concern. The gravity of the obesity problem has implications beyond the clinical impact at the



Source: Compiled from data and references in CFNI, 2001.

individual level and more towards a population and public-health approach to prevention. The observation that almost half of the adult Caribbean population is overweight and many children are at increased risk of obesity, strengthens the case for a population approach for obesity control rather than a strategy merely targeting at-risk individuals and groups.

Dimensions 2 – Obesity Trends and Co-Morbid Consequences

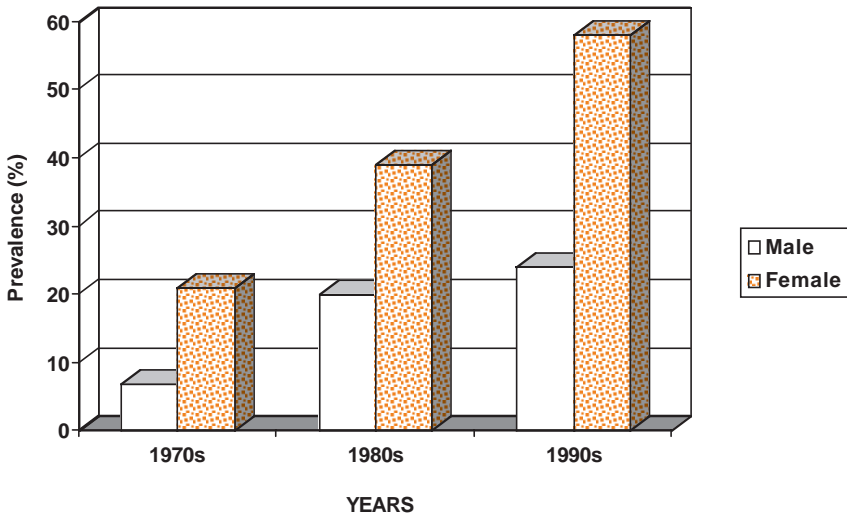
Figure 3 shows that during the last few decades obesity has risen to epidemic proportions in the Caribbean. Figure 4 shows that this trend is also observed in young children (CFNI, 2001). Although there has been a global increase in obesity, the Caribbean trend is most worrisome because of its incidence and rapidity.

A review of studies shows that within a 10-year period (1989-1998) in industrialized countries, there was more than 5% increase in obesity in Canada, Finland, New Zealand, the UK and the USA. Smaller increases have been observed in Australia, Brazil, China, Germany, Israel and Mauritius (Flegal, 1998). As the Caribbean trend is so alarming, it should be instructive to examine the patterns of the two major causes of obesity – food intake and physical activity.

Trends in Food Availability/Intake

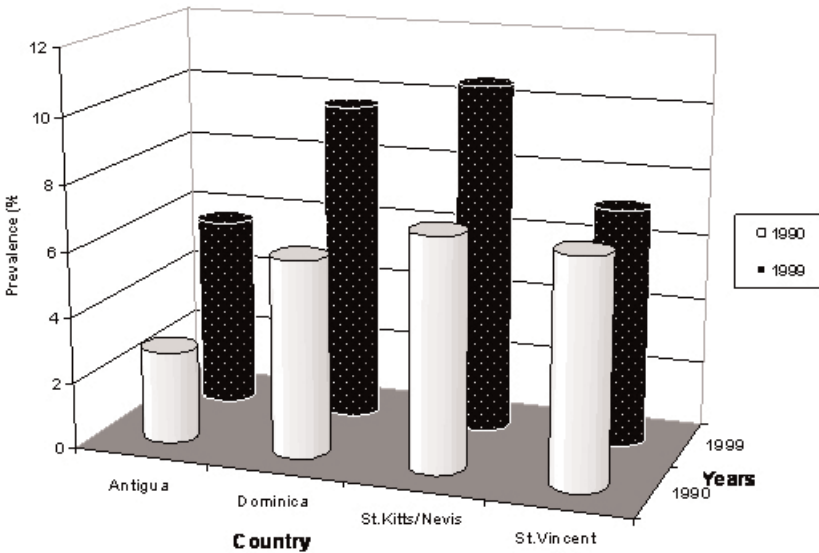
Empirical food consumption data over many time periods are not available for Caribbean countries, but crude estimates of energy intake can be gleaned from ecological analysis of

Figure 3: Trends in Adult Overweight/Obesity in the Caribbean



Source: Compiled from data and references in CFNI, 2001.

Figure 4: Trends in Childhood (0-5 yrs) Obesity in the Caribbean



Source: Compiled from data and references in CFNI, 2001.

FAO's food disappearance data (FAO 2002). Figure 5 shows the increasing availability of calories per person in the Caribbean and this represents an over-supply of energy to meet nutritional needs. Using a recommended daily allowance of 2250 kcals in 12 countries, we note that during the decade of 1960 there was an overall insufficiency of calories and this was reflected in the high rates of under-nutrition that existed at that time. From the 1970s onwards the average availability of calories per person increased rapidly.

The excess availability of calories which was critical for the rapid decline in under-nutrition, also contributed to the indiscriminate consumption of high-energy foods in large sections of the Caribbean population. This consumption pattern is a major contributing factor to the increasing rates of obesity in the region. Two major contributors to this over supply of calories are fats and sugars. Figures 6 and 7 show the excess availability of fats and sugars, respectively, over recommended levels. For fats the region now has available more than 160% of average requirement (population goal), for sugars the excess is 250%. Both global and local forces drive these excesses in fat and sugar consumption. This is not just a public health issue, the economic and political ramifications are profound. (Drewnowski, 2003; Sims 1998). We note that although WHO's global

strategy on diet, physical activity and health was recently adopted, compromises on the limits of sugar, salt and fats had to be made (Zarocostas, 2004). In view of the huge excess of fats and sugars available and consumed in the Caribbean, this paper must point policy makers to the strong, scientifically sound evidence, based on longitudinal data, that excess calories from soft drinks, for example, are directly contributing to the epidemics of obesity (Schulze, 2004). This study supports several other cross-sectional studies showing the same relationship. Although some controversy surrounds the role of fat (Willet, 1998; 2002; Bray 1998), much research has linked growing obesity rates with a growing consumption of snacks, fat foods and soft drinks and with the consumption of high energy diets (Zizza 2001; Harnack 1999; Ludwig 2001).

What Can Be Done?

The difficulties of changing food policies cannot be underestimated but the opportunities to alter dietary intake are great (Sims 1998; Ralston 2000). The data in Figures 6 and 7 can be differentiated for individual countries to show the contribution from local production and imports to the fat and sugar totals. That disaggregated analysis will give each country clear options to introduce food policies that can reduce obesity and improve public health.

Figure 5: Trends in Energy Availability by Decade in the Caribbean

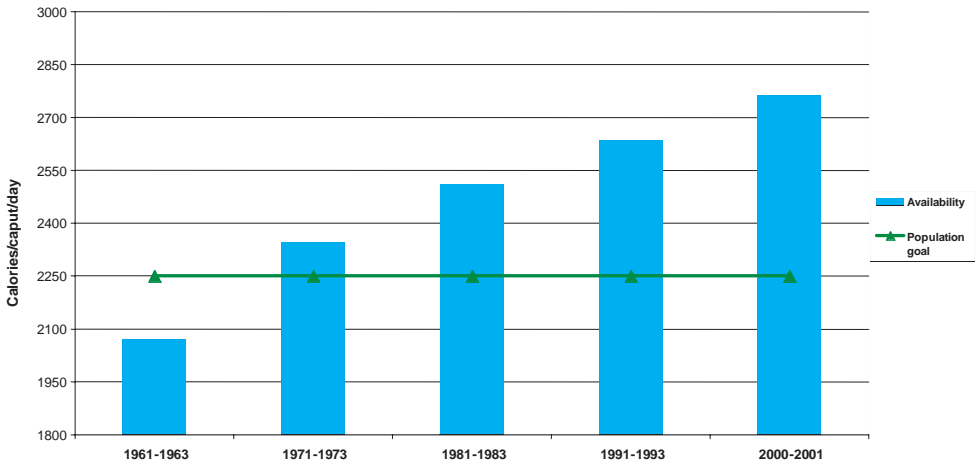
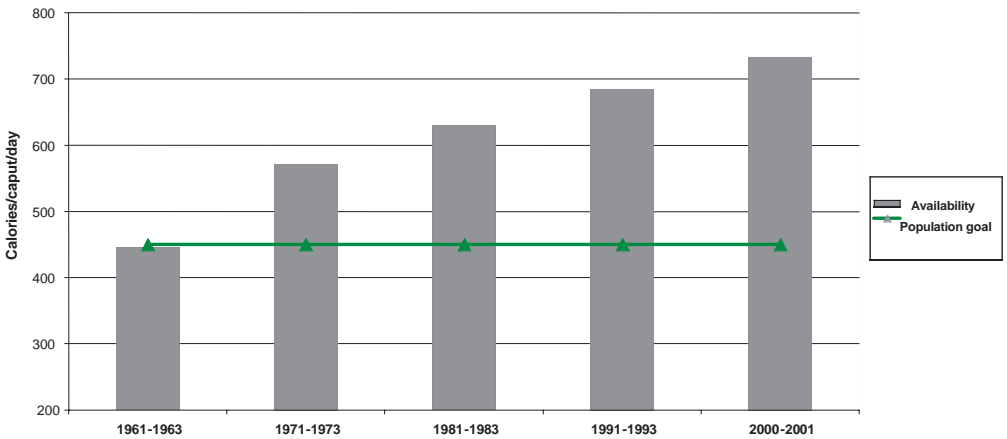
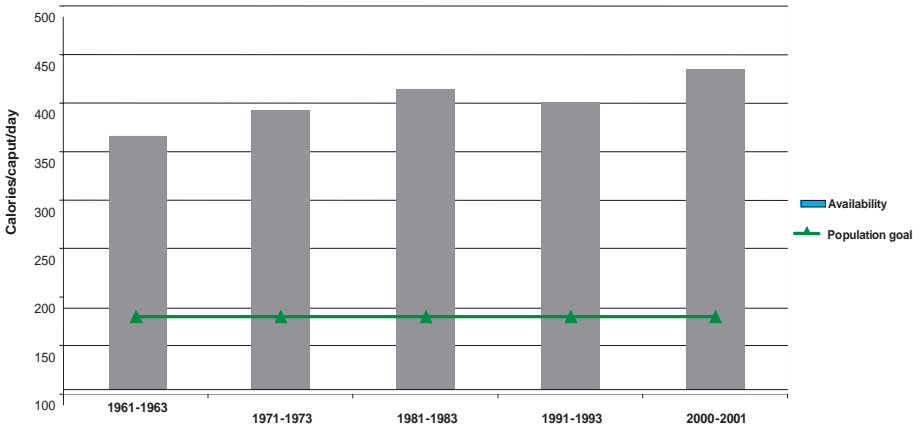


Figure 6: Trends in Fat Availability by Decade in the Caribbean



Source: FAO, 2002.

Figure 7: Trends in Sugar Availability by decade in the Caribbean



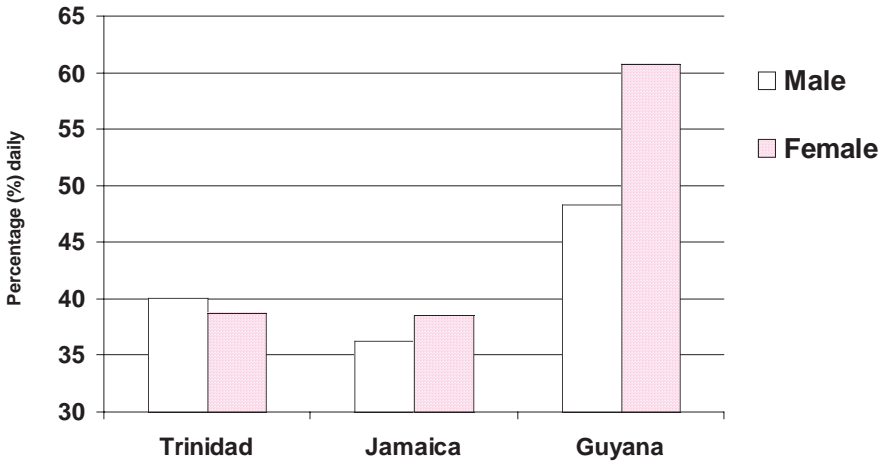
Source: *FAO, 2002.*

Physical Activity

The protective effect of physical activity against obesity is substantial and well known (Hill, 2000, DHSS, 1996). We do not have trend analyses of physical activity in the Caribbean, however, CFNI initiated a programme to establish baseline data from which comparisons and intervention targets can be set. Household surveys of adults were conducted in three countries and each physical activity within a 24 hour period was categorized as light, moderate or strenuous based on the estimated amount of energy expended during the various activities. Time spent in sleep and light activity was categorized as sedentary and these are reported in Figure 8. We note that 39% of the adults in Trinidad,

38% in Jamaica and 56% in Guyana participated in sedentary activities only. A small percentage of the population in the three countries participated in strenuous activities. In Guyana, a significant proportion of females were sedentary, while this extent of gender difference was not seen in Jamaica or Trinidad. The surveys also found that sedentary activity was higher among respondents in the urban areas and among professionals and clerical staff in all countries. Leisure time physical activity was low: only in Trinidad did more than 22% of persons participate in planned exercise activities. CFNI plans to conduct more qualitative and quantitative assessments of physical activity in other Caribbean countries.

Figure 8: Adults doing only Sedentary Activity by Gender in the Caribbean



Source: CFNI, 2002 a, b, c.

These results show a large proportion of the Caribbean population perform only sedentary activities and suggest the need for urgent plans to encourage more people in the region to participate in planned exercise activities. Physical and social environments should therefore be made conducive for exercise programmes where the majority of persons can participate.

This section shows an increase in energy consumption has been associated with increases in the availability of foods rich in fats and sugar. In the last decade there has also been a proliferation of fast food restaurants, where the major offering being fatty foods and refined carbohydrates.

Additionally, there is increased mechanization and decreased manual labour, improvement in transportation and low levels of physical exercise (Sinha, 1995; Henry, 2001). Caribbean people are clearly eating too much for their level of activity. This suggests that behaviours that can increase the consumption of healthy foods and increase physical activity will reverse this trend in obesity.

Two crucial questions arise:

1. Are the recommended healthy foods available and affordable?
2. Are there sufficient recreation sites that are safe and attractive?

The answer to both of these questions appears to be – no. But these

questions are just as important as those that focus on the motivation and willingness of the individual to change behaviour. The reality is that major physical and economic obstacles lie in the way to the desired practices we seek. The need for policy measures to create the environment to encourage healthy behaviours is real and urgent.

The Co-Morbidities

The rapid increase in obesity in the Caribbean (Figure 3) has been accompanied by increasing mortality in diabetes (Figure 9) and hypertension (Figure 10). Strikingly also, the gender difference is maintained in all the trends. This link between obesity, diabetes and hypertension is a global phenomenon (Kumanyika, 2002). For the Caribbean, our higher prevalence rates make the problem more urgent. There is little doubt that the increase in diabetes and hypertension deaths are related to the increases in obesity (Foster 1993). The effect of obesity on risk of developing Type 2 diabetes is probably mediated by its effect of worsening insulin resistance. Component factors of insulin resistance such as increased blood pressure, raised triglyceride and low high-density lipoprotein concentrations also predict the development of Type 2 diabetes (Saad, 1989; Must 1999).

Although we use cut-off points such as BMI=25 and BMI=30 to assess and compare overweight and obesity, Figure 11 shows no threshold effect of these cut-off points in relation to

diabetes. Clearly, the risk of developing diabetes increases dramatically as BMI rises, even from low levels as BMI = 22 without regard to cutoff points. For disease control purposes, it is therefore not appropriate to consider the increased risk in the population within these distinct BMI categories, but rather as a continuum. This argues for a population, rather than risk approach to control obesity because all will benefit from a lower BMI. Public policies should therefore be the approach of choice to control obesity, and consequently diabetes.

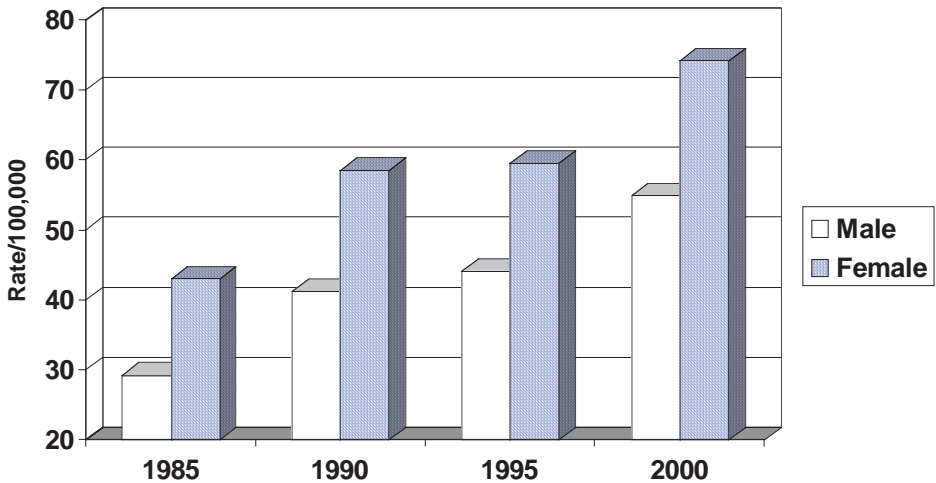
But this burgeoning prevalence of Caribbean obesity has devastating effects beyond diabetes and hypertension as obesity plays an important etiologic role in several major chronic diseases such as coronary heart disease, gall bladder disease, colon cancer, breast cancer and stroke. Disease burden increases with increasing obesity (Must, 1999; Paeratakul, 2002). Despite these grim consequences, the most positive aspect of the obesity epidemic is that these debilitating effects are largely reversible. It was estimated (Jung, 1997) that a 10kg weight loss in obese persons can have a significant impact on health status, thus:

Mortality:

20-25% fall in total mortality

40-50% fall in obesity related cancer deaths.

Figure 9: Trends in Diabetes Mortality by Gender in the Caribbean



Source: CAREC, 2004.

Blood Pressure:

- Fall of 10 mmHg systolic pressure
- Fall of 20 mmHg diastolic pressure

Lipids:

- Fall by 10% in total cholesterol
- Fall by 15% LDL cholesterol
- Fall by 30% triglycerides
- Increase by 8% in HDL cholesterol

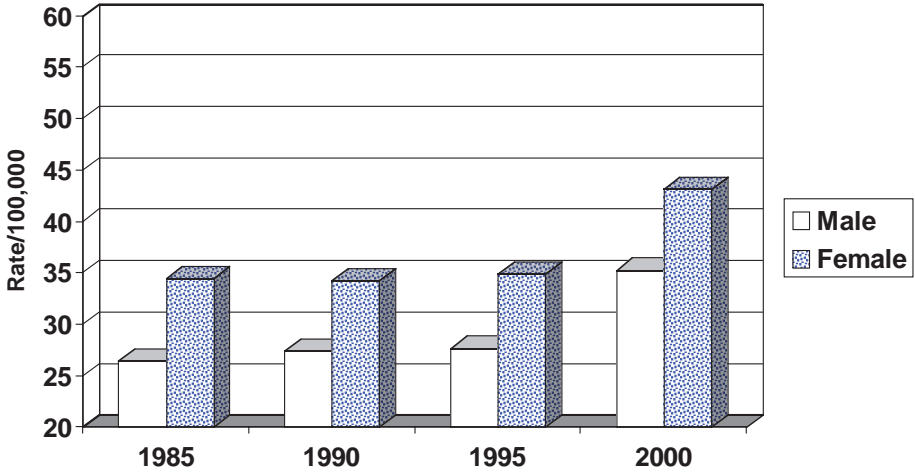
Diabetes:

- Fall of 30 – 50% in fasting blood glucose
- Fall of 15% in HbA1c

Further, studies have shown that using a dynamic model of the relationship between BMI and the risks and

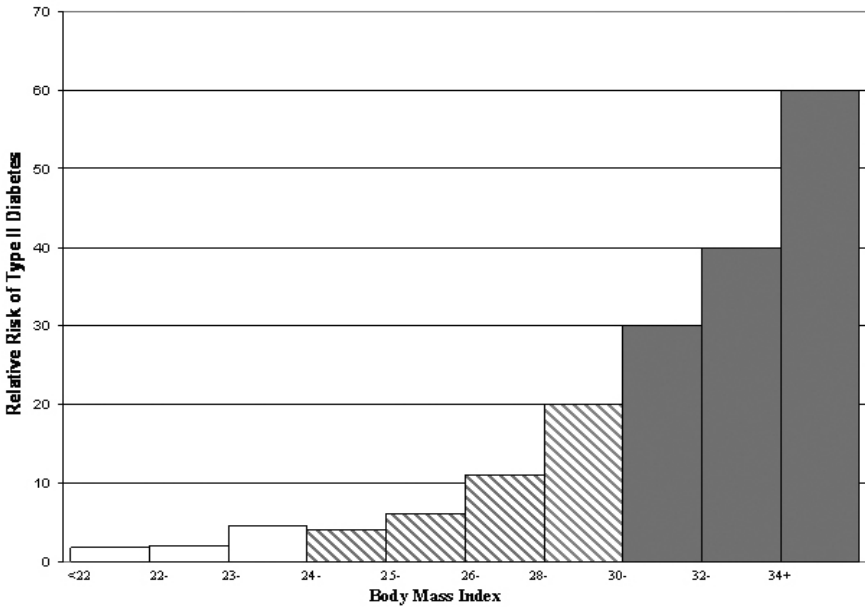
costs of diseases, a 10% reduction in body weight can result in a reduction of 1.2 – 2.9 years of life with hypertension, 0.3 – 0.8 years with hypercholesterolaemia and 0.5 – 1.7 years with Type 2 diabetes (Oster,1999). While these potential gains exist, in practice, we note that weight loss programmes have not been very successful. Surprisingly, there is relatively little attention given to developing strategies aimed at preventing obesity. This dimension showing trends in obesity, food intake, physical activity and co-morbidities, individually and collectively suggests that investing in obesity prevention, using a population approach, is the most sustainable option to control obesity.

Figure 10: Trends in Hypertensive Disease Mortality by Gender in the Caribbean



Source: CAREC, 2004.

Figure 11: Relationship Between Obesity and Diabetes



Source: (Colditz 1995; Astrup 2001)

Dimension 3 – Poverty, Obesity and Food Economics

The relationship between poverty and obesity is complex and varies according to context. (Peña and Bacallao, 2000). The obesity-related chronic diseases are not only the biggest killers, they also reflect socioeconomic inequalities. These chronic diseases tend to cluster heavily among the poorest communities in all countries (Monteiro, 2004; Caballero, 2001). A review of the literature reveals that the prevalence of obesity increases as SES decreases among women in industrialized countries, while the relationships for men and children are inconsistent. In less developed countries, however, obesity prevalence increases as SES increases among all age-sex groups (Sobal & Stunkard, 1989). In the Caribbean, high obesity prevalence is not confined to the upper social classes (CFNI, 2003). Further, obesity-related deaths cut across socio-economic classes and age groups (Sinha, 1995; CFNI, 1995). Caribbean populations which exhibit an inverse relationship between SES and obesity should be studied more because this can emerge through different pathways:

- Low SES may promote the development of obesity.
- Obesity may result in a lower SES.
- Obesity and low SES may share common causes.

These observations on SES are critical and imply that the costs of food

and services in these populations play a crucial part in the genesis or consequence of obesity. Further, the increasing rates of obesity in the lower social and educational groups also suggest that behavioural patterns of people living in poverty are more likely to promote obesity than those of their higher-income counterparts. These behaviours are embedded within environmental and social contexts that may be well beyond individual control. This dimension of the obesity problem is not well recognized, however, there are two inter-related but compelling issues with regard to obesity, low SES and food economics which will challenge the traditional recommended strategies to combat obesity.

There is an inverse relation between energy density and energy cost

Studies show that energy dense diets usually represent the lowest-cost option to the consumer. (Drewnowski, 2004). What is not often pointed out is that this cost factor plays a critical role in food consumption patterns. Food prices, manipulated by multinational companies have a major effect on purchasing habits with fats and sugars being heavily subsidized. These calorie-laden foods become the cheapest and most appealing to the poor and prudent consumer. For children, the promotion and marketing of these energy dense foods lead to

adverse health consequences. (Schulze, 2004). Poverty and food insecurity are associated with lower food expenditures, low fruit and vegetable consumption and lower quality diets. In practical terms therefore, diets composed of refined grains, added sugars and added fats are more affordable than the diets based on lean meats, fish, fresh vegetables and fruit. This observation that healthier diets may indeed cost more has one glaring policy implication – our standard advice to consume "healthier" diets may be hollow to the poor if these diets are unaffordable. Efforts to change dietary practices with an educational focus on nutrient content are unlikely to succeed if the cost of the recommended foods is not considered, particularly for the poor.

Paradoxically, it is possible to spend less and eat more.

This is so when the extra energy comes from added sugar and added fat. What energy dense foods have in common is low energy cost due in part to the presence of added sugars and fat, which are all highly palatable. The association between poverty and obesity may be mediated, in part, by the low cost and high palatability of energy dense foods. It has been shown that consumer food choices are driven by taste, cost and convenience, and to a lesser extent by health and variety (Glanz, 1998). The high energy density and palatability of sweets and fats are associated with higher energy

intakes. The lower cost diets tend to be higher in refined grains, added sugars and fats. Energy dense foods are not only palatable, but satisfy hunger at the lowest cost. This simply means that diets consumed by poorer sections of populations have concentrated energy from fat, sugar, cereals, potatoes and meat products but very little intake of vegetables, fruit and whole grain (Quan, 2000; Reicks, 1994).

These two issues emphasize that for long-term compliance with recommended diets, particularly for persons with a limited food budget, we need to ensure that the healthy foods we recommend are not only affordable, but also palatable and acceptable.

Further, these two issues imply that obesity is the consequence of economic decisions that have much to do with social and economic resources, food prices and diet costs. One can argue that consumers are deceived or enticed by the food industry into overeating, even made addicted to fast foods. Others will counter that the consumers have a choice and are capable of saying no. The fact is that not all diets cost the same, and because of that consumer choices are limited by the economic realities of life. Whereas "unhealthy" diets cost less, the recommended "healthful" diets are likely to cost more. As examples, in the Caribbean the unit nutrient cost of lettuce is much more than the cost of lard; broccoli

many times more than butter; and mangoes much more than margarine!

How then is this Economic Phenomenon Situated Within our Traditional Medical Constructs of Obesity?

Clearly, these economic arguments are as strong as or even stronger than the others put forward to explain the food choices that lead to obesity. (Drewnowski, 2004; Caballero, 2001) For example:

- Biologically, obesity is explained through cravings for fat and sweets which are driven by central metabolic events.
- Physiologically, obesity is explained through insulin resistance and the glycemic index of foods.
- Psychosocially, obesity is explained through an addictive personality, stress or seeking comfort in high-fat foods.
- Environmentally, obesity is explained through the wide availability of fast foods, soft drinks and "supersized" portions.

While these might all play roles in this complex causation, it must be stressed that obesity has a critical socio-economic dimension that cannot be ignored in control strategies. This food economics dimension is profound because it means that the relevant features of obesity promoting diets

may not be the percentage of energy from sugar or fat (Willett 2002; French 1997) but rather high palatability and low energy cost. These issues are inextricably linked to agricultural commodity prices, imports, tariffs and trade. No longer a purely medical issue, obesity has become a public health and societal problem requiring public policy actions.

Dimension 4 – Genetics and Caribbean Culture

Genetics

Obesity would not be possible if the human genome did not have genes for it. But humans are not biologically destined to become obese (Astrup, 2001). Genes make obesity possible, but positive energy balance over time is necessary to realize that potential (Lev-Ran, 2001). The contribution of genetics to body weight and composition varies widely within a population and across populations. (Bouchard, 1996; Hill, 2000). The major causes of Caribbean obesity and the high rates of chronic diseases can sometimes be confused by individual research studies which do not consider attributable risk in their conclusions. Studies have shown that persons of African descent are more predisposed to obesity when compared to white Americans and British who have similar socio-economic status and lifestyle behaviours. This is especially so in females who also tend to have higher waist to hip ratios (Chin, 1998).

Similar studies on diabetes within the communities of Indian descent in the UK have also shown a higher predisposition to Type 2 Diabetes and mortality from coronary heart disease than white counterparts (Riste, 2001; Chaturvedi 1996) .

The Caribbean peoples are mainly of African and Indian origin and genetic predisposition may well be a factor contributing to obesity. However, the recent dramatic rises in the rates of obesity (Figure 3) have occurred in a short time frame and within the same genetic pool. This suggests that biological factors are not the basis for the escalating problem of obesity in the Caribbean, because our biology has just not changed sufficiently to explain this rapid weight gain over a relatively short time. Our population weight gain is more likely due to factors within the environment that have influenced our behaviours in such a way as to "overwhelm" our physiological regulation of body weight. (Booth, 2001; CFNI, 1995; Sinha, 1995). The World Health Organization emphasizes that the obesity epidemic stems from an environment that promotes sedentary lifestyles and the consumption of high fat, energy dense diets (WHO, 2000). This paper subscribes to that view and argues that obesity in the Caribbean is an environmental problem that requires environmental and policy solutions.

Culture

The role of culture must always be considered in designing interventions aimed at addressing body image and size. The major behaviour change indicators – eating and physical activity patterns – are firmly rooted in culture. Further, perceptions and beliefs in a society can profoundly influence behaviour change and resistance to it. In examining the social determinants of obesity, the cultural aspects are therefore clearly important. In recognition of the importance of this cultural dimension, the Caribbean Food and Nutrition Institute studied the beliefs and perception of people in four Caribbean countries – Belize, Jamaica, St. Kitts and Nevis and Trinidad and Tobago. The study also assessed the readiness of males and females to change behaviour with respect to diet and physical activity (CFNI, 2003).

Selected relevant results are presented here:

- On obesity – size was found to be a very important determinant of perceived beauty, social adequacy, functioning and responsiveness. Body size was used for cultural typecasting, but there was no clearly identified cultural 'norms' or 'ideals'.
- In no country was slimness or thin bodies described as 'ideal' or culturally normative even though there were individuals who aspired to attain or maintain slimness for

themselves. It seems that when individuals had become satisfied with their lives and size, and comfortable with who they were, there was little that suggested any need for change. Such individuals openly and even aggressively defended their positions.

- The genesis of the overweight condition is perceived by women to be related to factors such as: childbearing, late-night eating, water consumption, contraceptive usage, among others. Men were far less concerned about their personal size than women, and regardless of size they seemed to care very little.
- The “triggers” which seemed to result in immediate action with respect to diet and exercise were: doctor's verdict on own health and need for change, likely loss of love from important-other, vanity and/or extreme interest in personal image and development, diagnosis of extreme ill-health of important-other, among others.
- For women “having size” and “being solid” were preferred states in all countries. Males' perceptions were very important in determining ideal weight and shape, and many women indicated that they strived to achieve this, however it was defined. Yet, the men seemed rarely concerned themselves about

such, including their own size, build, exercise regime or dietary intake. They seemed almost infallible.

- Fruit and vegetable intake was restricted in most meals and by most persons, for many and varied reasons. Concerns of costs and value-for-money together restricted purchase and consumption. The adoption of any regular physical activity was a decidedly difficult task, often referred to as “work”, even though they required very little if any, external reiteration or justification of the benefits that could be so ascribed.
- Caribbean peoples seem to be in the process of adopting both the good and bad from North American cultures. The media, and especially cable television, has had much impact on perceptions, attitudes, values, and lifestyles of the region's consumers, with special reference to females, youth, the unemployed, nursing mothers, housewives, and the overweight.

These selected findings point not only to the resistance factors but importantly, to several opportunities which exist to develop appropriate and effective public health strategies for obesity control.

Unfortunately, obesity remains a socially acceptable form of prejudice. (Stunkard, 1995). More fundamentally there is a need to alter our thinking and attitude towards the overweight person and overcome the negative stereotypes of the obese. Body weight should be de-linked from moral and psychological status, and persons should be regarded for who they are and not for what they weigh. The growing size acceptance movement certainly provides valuable insights into non-stigmatization counseling strategies for the obese (Neumark-Sztainer, 1999). However, this paper contends that the "health at every size" paradigm (Robison, 2004) also needs to embrace the fact that weight loss can significantly reduce co-morbidities for obese persons (Jung, 1997). Rather than targeting the severely obese only, we advocate here a public policy approach aimed at the population control of obesity.

Dimension 5 – The Cost of Obesity to Development

When the cost of obesity is added to the other dimensions, it presents a more complete picture of the burden to health and development. Obesity incurs costs at the individual and societal levels. Direct costs arise as a result of treatment interventions. Indirect costs are the opportunity costs of work not being done due to illness and results in lost production to the individual and society. Most studies on the economic cost of obesity are

conservative estimates because only the direct costs are included (WHO, 2000). Using a cost-of-illness approach, direct costs have been estimated in 1997 in Canada to exceed \$1.8 billion i.e. 2.4% of the total health care expenditures. Comparable health costs are 2.5% for New Zealand; 2.0% for Australia 2.0% for France. (Birmingham, 1999; WHO, 2000). The true impact of obesity in terms of personal costs and quality of life (Gorstein, 1994; Kumanyika, 2002) are not known from these studies. For the USA in 1995 the comparable direct cost was 5.7% (Wolf, 1999). The USA study also analyzed costs independently from comorbidities and showed that the cost of obesity was similar to the cost of Type 2 diabetes and 1.25 times greater than the cost of heart disease (Colditz, 1999). These studies show that obesity and its co-morbidities incur significant economic costs to the individual, the health system and the overall society (Oster, 1999).

Unfortunately no comprehensive study on the cost of obesity has been done in the Caribbean. But obesity-related diabetes is a major co-morbid condition and recently some estimates were done on five Caribbean countries – Bahamas, Barbados, Guyana, Jamaica and Trinidad and Tobago (Barcelo, 2003). The report shows that for direct costs: Medication i.e. insulin and drugs – the cost is US\$153 million; Hospitalization – \$8.5 million; Consultations – \$11million,

and complications – \$46 million totaling over \$200 million. For indirect costs, there are over 320,000 persons with diabetes in these countries which translates to some 17,000 years of productive life lost at a cost of about US\$50 million. For the permanently disabled there are over 15,000 of them which accumulate to 263,000 years of productive life lost costing over \$750 million. So for the Caribbean countries studied, the direct cost is over US\$200 million and the indirect cost is over US\$800 million totaling over US\$1 billion. Phenomenal indeed, for one disease! The economists will debate what should be included and excluded from these costs but the central point is that either way it is exorbitant and our meager health and national budgets cannot withstand these costs which are increasing annually. Because these estimates are for obesity-related diabetes only, it can be concluded that the total cost of obesity and its comorbidities must be enormous in a Caribbean context. Further, given the increasing prevalence of obesity in the Caribbean and the negative impact that

this condition has on the health of the population, the total cumulated cost of obesity presents a formidable obstacle to the financial and economic viability of the region.

In addition to its impact on public health, the total cost of obesity to the Caribbean makes a compelling case for prevention – prevention of new obese cases and prevention of the destructive co-morbid conditions resulting from obesity. The costs arise from both the mild and severe states of obesity – which now encompasses most of the population. These rising costs of health care underscore the need for policies that support healthful lifestyles. A population approach which comprises clear public policy measures therefore seems to be the most effective long-term strategy to control obesity in the Caribbean.

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CAJANAQUOTE

.....“Overweight people desperate for quick and easy solutions to their problem have often followed fad diets to the detriment of their health. Most of the fad diets are scientifically questionable and potentially harmful. In addition, none of them has been shown to be a lasting answer to the tenacious and complex problem of obesity.”

*Quoted in “The Beverly Hills Diet”
By G.B. Mirkin and Ronald Shore. 1981.*

The Public Policy Approach to Combat Obesity^a

Fitzroy J. Henry^b

The five dimensions above highlight the powerful influences that can shape public policy on obesity. These dimensions point to obesity as a serious condition which is associated with several debilitating diseases with high medical, psychological and social costs (Rippe, 1998; Allison, 1999). Obesity in the Caribbean therefore needs to be controlled now, lest it further erode the spectacular health and social gains achieved in recent decades. These dimensions of obesity collectively make a strong case for urgently developing public policy options to enhance prevention strategies in the region.

The Treatment vs Prevention Strategies

Treatment and prevention are the major strategies to effectively control obesity. Both are necessary and both are expensive to implement. With the limited resources available in the Caribbean, an approach must be formulated where key strategies can reflect the most effective returns on investment.

The management of obesity is difficult and complex because:

1. Obesity develops over time and once it has done so, is difficult to treat (Expert Panel, 1998).
2. There are few successful treatment options (Wadden, 1993; NIH 1992).
3. Drug treatments are hazardous. (Williamson, 1999)
4. Treatment guidelines are complex (Expert panel, 1998; NIH, 1998).
5. Obesity has multiple causes (Grundy, 1998).

An editorial in a respected medical journal openly questioned the usefulness of obesity treatments and flatly stated that in the US up to \$50 billion is wasted on such programmes every year (Kassirer, 1998) – strong language indeed! A review of the epidemic in Europe concludes that prevention of weight gain offers the only truly effective and sustainable means of controlling obesity (Astrup, 2001).

In the Caribbean there are good reasons to place greater emphasis on the prevention option:

1. It persists from childhood to adulthood (Whitaker, 1997).

^aAdapted from Paper prepared for The Caribbean Commission on Health and Development.

^bDr. Henry is Director, CFNI.

2. The health consequences may not be fully reversible by weight loss (Pi-Sunyer, 1993).
3. With almost half of the Caribbean adult population overweight, the health care resources are insufficient to effectively treat all.

The major treatment problems cited above, stress the need for aggressive preventive approaches to control obesity. Sadly, obesity prevention strategies which have been developed in the past, do not seem to have been effective (Kramer, 1989). These strategies have tended to be non-holistic in their approach.

The Policy Challenge

If prevention is to be the major strategy for the long-term control of obesity, we must find a new approach. This new approach must be cognizant not only of the individual and family perspectives but also of the national and global trends and influences. The worldwide epidemic of obesity is more than a set of independent national occurrences. It has been shown that these global increases in obesity are grounded in the globalization of food systems and consumer culture and have increasingly penetrated all societies of the world (Sobal, 1999). Global corporations are establishing systems to ensure relatively inexpensive calorie-dense foods to all people in all places at all times (French, 2001). Other global processes such as increasingly inexpensive

transportation and activity-sparing systems are the underlying causes of increase in global obesity.

Unlike communicable diseases, it is not feasible to remove totally the cause of obesity. Unlike some non-communicable diseases, it is not easy to isolate and manage exposure to a single major obesity – promoting factor. Obesity is complex. The biological, social and economic determinants of obesity are all embedded within a global environment. Any attempt to link obesity to a single cause or a particular food is inherently simplistic and contributes to a reductionist approach and will not lead to sustained obesity control. To effectively combat obesity we need to move beyond biology and beyond behaviours to understand collective social, economic and political structures and cultural changes rather than focusing only on individual physiology and personal characteristics. Prevention programmes, which need to have a multi-sectoral approach, are essential to help stem the obesity epidemic. These have been found to be more efficient than individual weight-loss programmes, but surprisingly only a few prevention programmes have been developed and implemented. These programmes should be high on the scientific and political agenda of the region. Globally the approaches taken have not been very successful. Among those launched, very few have actually fulfilled all their targets (Garner, 1991).

In the Caribbean, for almost 10 years, CFNI has been advocating a multi-sectoral approach with strategies and actions aimed at creating an environment conducive to healthy diet and exercise behaviour. (CFNI, 1995). The objective is to implement systematic, comprehensive and coordinated actions to inform, encourage and enable the entire population to eat healthily and exercise regularly. The approach is holistic and includes a range of actions for key sectors and settings.

Prevention through Public Policy

This paper is advocating for a public health approach to obesity where the focus is shifted away from the factors influencing body fatness of individuals towards strategies dealing with the weight status of the population as a whole. The focus of outcome is on more healthy eating, increasing physical activity and decreased sedentary living. Implementation of such environment-based strategies will require a range of integrated public policies encompassing environmental, educational, economic, technical and legislative measures together with a health care system geared to the prevention of obesity.

This position is different from those who believe that the problem of obesity is simply a consequence of poor personal behaviours – the product of gluttony and laziness. This bias

against obese people and an over-emphasis of personal responsibility has resulted in the key role of the environment in the development of obesity being largely ignored. Exalting people to change their behaviours to improve the quality of their diet and their physical activity level is unlikely to succeed in an environment in which there are many inducements to engage in opposing behaviours that lead to a chronic positive energy imbalance.

How can an individual change behaviour when powerful forces in the Caribbean environment are obesogenic?

- We build communities without recreational facilities that are safe and attractive and this discourages physical activity.
- We establish housing schemes without sidewalks and parks, further discouraging walking.
- Our local and cable networks heavily advertise fast food, especially on children's programmes.
- Many school canteens and vendors outside promote high energy dense foods with little nutrient value.
- Our food import policy encourages the consumption of high energy dense, manufactured foods.
- Our domestic agriculture policy lacks incentives for the production of fruits and vegetable which are affordable.

- Our school policies have allowed for the drastic reduction of physical education.
- Our transportation policies have favoured the use of personal automobiles which discourages physical activity.

These examples imply that efforts at individual behaviour change will achieve little in the absence of more supportive policy approaches which will create the environment that can enhance individual behaviour change.

The Caribbean today is experiencing massive changes ranging from the proliferation of fast-food outlets to the almost total reliance on cars. This

over long periods of time. Reversing the current obesity trends will require a new multifaceted public policy approach to support healthy lifestyle behaviours. If the Caribbean environment continues to present barriers to healthy lifestyles behaviours, we will fast lose the opportunity to prevent obesity as figure 3 projects.

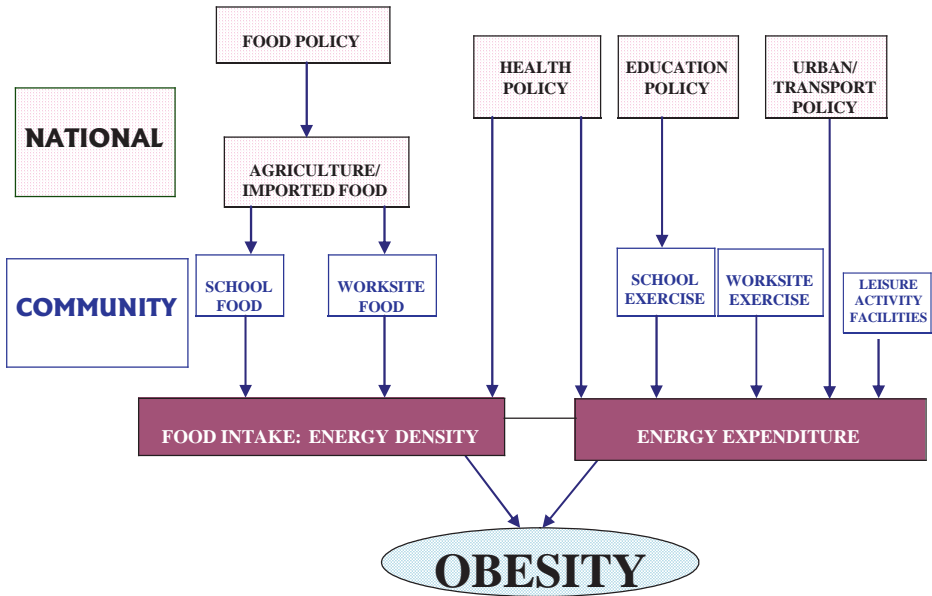
In the past we have employed largely educational approaches to combat obesity in the Caribbean. A more effective strategy for dealing with this public health problem would appear to be one that goes beyond the educational dimension and deals with those environmental and societal factors that induce the obesity promoting

...The Caribbean today is experiencing massive changes ranging from the proliferation of fast-food outlets to the almost total reliance on cars. This parallels the global trend which promotes excessive food intake and discourages physical activity.

parallels the global trend which promotes excessive food intake and discourages physical activity (French, 2001; Hill, 2000). As the environment in which we live facilitates weight gain and obesity, it is imperative that we focus on the environment to develop strategies to curb it. The contention here is that given a suitable environment many people will be able to control their weight successfully

behaviour. In this way we may reduce the exposure of the whole population to obesity – promoting forces. If Caribbean people are serious about obesity control, and believe that obesity retards our development, then we need to be bold enough to introduce the public policies that can influence environmental factors such as our food, health, education and other policies as illustrated in Figure 12.

Figure 12: Public Policy and Obesity



Public Policy in the Caribbean Context

Public policy recommendations need to give special attention to our Caribbean reality – small economies with related high transaction costs in an environment of rapidly expanding liberalization of trade in food and services. The establishment of public policies therefore needs to target the driving forces of obesity in both the physical, psychosocial and economic environment. These include food security and safety; access to healthy food; access to information; recreation and physical activity spaces and facilities. Further, public policies on obesity will need to be translated into

legislation that safeguards the necessary conditions to develop healthy lifestyles. Policies should be implemented so that at the local level, regulations provide the instruments for putting into practice concrete aspects of the major national policies.

The public policy approach advocated here is consistent with the Caribbean Charter on Health Promotion and the Caribbean Cooperation in Health in that it can help to organize strategies that work both to support healthy lifestyles among individuals and influence policy that will create opportunities for social and cultural change (CARICOM, 1993, 1998). Here the emphasis will be on

environmental and population strategies, not in opposition to individual strategies, but in support of them.

In keeping with the principles of the Caribbean Charter for Health Promotion the policy options for obesity control are presented below.

The Policy Options

Obesity and its consequences pose a formidable threat to Caribbean development. The extent to which this threat can be averted is directly related to how bold and how urgent the response/actions by national governments can be mounted. The policy options are in fact investments in public health and human capital with enormous- short and long-term gains. Some require little direct funding. All require political commitment.

Policies For Immediate Action

1. Establish regulations which require the food service establishments (hotels, restaurants, fast food outlets and vendors) to provide information about calorie and fat content on menus or menu boards, place mats and food wrappers. Further, print advertisements must disclose the caloric content of the foods being marketed.
2. Within the framework of WTO provide incentives (subsidies) for low-calorie nutritious foods (e.g.

grains and other cereals) and disincentives (taxes) on high-calorie and fatty foods (e.g. milk, meat, soft drinks) whether produced locally or imported.

3. Provide direct funding and/or create tax deductible incentives for private companies to establish or develop safe and attractive recreation centers, swimming pools, parks and other facilities to promote physical activity in urban and rural areas.
4. Extend the school day if necessary to make compulsory daily physical education and sports programmes in primary and secondary schools. Introduce competitions as incentives for all categories of students, not only the athletically gifted.
5. Provide tax incentives to encourage employers to introduce weight management and other wellness programmes.

Policies For Medium-Long-Term Action

1. Create a national fund with contributions for donor and development agencies and government funds to support obesity prevention initiatives.
2. Make compulsory nutrition and weight management modules as part of health education for teachers.

3. Require all health related curricula to include the principles and counselling techniques on healthful diets and physical activity.
4. Discontinue the excessive use of sugar- and fat-containing foods offered at school cafeterias, lunch programmes or school vendors and encourage students to make healthy diet and lifestyle choices.
5. Forge private and public initiatives to fund outreach programmes that will facilitate increased availability and affordability of fruits, vegetables, legumes and ground provisions and foster development of healthy lifestyle programmes.
6. Provide incentives and introduce competitions which challenge the public to obtain skills in food preparation and healthy eating and to seek and obtain information on healthy lifestyle behaviours.

END NOTES

Ranking

These policy options above are presented separately for clarity but far from being mutually exclusive, these five domains for action are complementary. A case could certainly be made to rank the individual options or give an estimate of potential impact for each one. In this way policy makers in a particular country could select a package of options which is affordable, feasible and politically acceptable. Ranking was not

attempted here because (1) impact depends on individual country context, and (2) the potential impact of various activities, although compelling, has not yet been quantified. However, efforts are currently being made to measure them so that priorities could be established according to context (Swinburn,1999). Moreover, there is a general lack of Caribbean data on environmental determinants of food consumption and physical activity patterns. This will obviously limit the development of precise evidence-based recommendations for practice and policy.

Research

There is need for the support of a research component which will not only inform the proposed actions above but will also serve to evaluate this public policy approach. In several areas research is needed to assess competing risks and to help decide on policy options. In obesity control much is at stake – market share, profit, health expenditure and life itself. We must strive to accumulate the evidence on which policy decisions are based.

Time for Action

The dimensions of the obesity challenge point to several policy measures that can intuitively and immediately follow. For example, one can reasonably expect that physical activity would be hampered by lack of access to inexpensive exercise

facilities and inability to afford sports and exercise equipment. Also, a neighbourhood with a high crime rate creates a barrier to safe and affordable activities such as walking and playing (Molnar, 2004). Such communities therefore encourage indoor pursuits associated with inactivity. But beyond physical activity, the proliferation of ghettos in many inner cities in the Caribbean may intensify income inequality and decrease social cohesion – factors which impact on poor health and increased obesity. Many of the policy options presented above can redress these scenarios. Unlike others who despair (Downey, 2002), this paper posits that the sheer magnitude and cost of the obesity challenge to development will compel Caribbean policy makers to act.

Conclusions

1. Unchecked, obesity in the Caribbean will soon reach proportions which are uncontrollable. The result will be social devastation to the individual and the cost of treating its co-morbidities will be unsustainable for our national budgets.
2. Rolling back this rapid increase in obesity in the Caribbean requires much more than the traditional passive approach that relied almost entirely on education for individual behavioural change.
3. The traditional models of obesity control have generally failed globally and a new public policy approach needs to be instituted to attack this epidemic in a multi-sectoral way.
4. Effective control obesity will require a shift away from the traditional focus on clinical management and individual behaviour change towards strategies which deal with the environment in which such behaviours occur. The successful challenge to obesity therefore lies not in medical interventions at the individual level but in the public policy domain which can create the environment for individual behaviour change.
5. The obesity challenge is formidable but the success with other health challenges e.g. tobacco, seatbelts and breastfeeding (Economos, 2001) gives confidence that similar strategies using models which target environment and population policies can generate social change.
6. The global food market is controlled by a small number of companies who operate a system that delivers cheap food to countries. This cheap food comes with a hidden price in terms of the health consequences. Food policy must be applied upstream and cannot ignore issues about food supply because this influences the food chain and the food choices of the individual and communities.

7. Vital to the success of this approach will be the participation of health officials, educators, legislators, businesses and planners in various health promoting actions. The prevention of obesity will need a concerted effort on the part of policy makers, the private sector, health care workers and the public themselves.
8. Good nutrition is a powerful public health tool and it is also good politics. If we fail to invest in good nutrition we will fail large portions of Caribbean people today and well into the future.
9. Deep vein thrombosis
10. End stage renal disease
11. Endometrial Cancer
12. Gallbladder disease
13. Gout
14. Heart disorders
15. Hypertension
16. Impaired Immune Response
17. Impaired respiratory function
18. Infections following wounds
19. Infertility
20. Liver disease
21. Low back pain

APPENDIX 1*

Medical Conditions Associated with Obesity

Obesity is an independent risk factor or an aggravating agent for more than 30 medical conditions including:

1. Birth Defects
2. Breast cancer in women and men
3. Cancers of the oesophagus and gastric cardia
4. Cardiovascular Disease
5. Carpal Tunnel Syndrome
6. Chronic venous insufficiency
7. Colorectal Cancer
8. Daytime sleepiness
22. Obstetric and gynecological complications
23. Osteoarthritis of knee and hip
24. Pain
25. Renal cell cancer
26. Rheumatoid arthritis
27. Severe acute biliary and alcoholic pancreatitis
28. Sleep apnea
29. Stroke
30. Surgical complications
31. Traumatic injuries
32. Type 2 Diabetes (NIDDM).

*Reproduced from the American Obesity Association website: www.obesity.org

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Where in the world are you?

To find out which quarter of world society you fall into answer A, B or C to the following seven questions. Then check your score at the bottom of the page:-

1 Is your child likely to be at school for:

- A. More than 4 years?
- B. Between 1 and 4 years?
- C. Not at all?

2 To raise \$250 in an emergency, would your family:-

- A. Already have or be able to borrow the money?
- B. Have to sell home and/or possessions?
- C. Be unable to raise the money?

3 What kind of water supply does your family have?

- A. Running water inside the house
- B. Stand-pipe or pump within reasonable distance
- C. Open wells, streams, rivers

4 If your child is ill or injured how far away is trained help?

- A. Less than 1 hour
- B. 1 to 4 hours
- C. Half a days journey or more

5 If a new baby is born in your family, what are its chances of surviving to its first birthday?

- A. Better than 1 in 20
- B. Better than 1 in 10
- C. Worse than 1 in 10.

6 For sanitation, does your family have:-

- A. An inside lavatory
- B. Communal latrines
- C. No safe provision at all

7 What proportion of your family's income is spent on food?

- A. Less than 40%
- B. 40% to 80%
- C. 80% or more

SCORE

Count 3 points for each 'A', two for each 'B', and one for each 'C'

19-21 You are part of the most affluent ¼ of the human family.

16-19 Second richest ¼ - comfortable

11-15 Third ¼ - seeing some improvement - though progress could slow down

7-10 You are part of the poorest ¼ of the human family - and times may yet get worse.

Clive Offley

Source: *Cajanus* Vol. 16, No. 2, 1983.

Public Policy Options to Prevent Obesity in the Caribbean^a

Fitzroy J. Henry and Godfrey Xuereb^b

The main mandate of The Caribbean Food and Nutrition Institute (CFNI) is to improve the health and nutritional status of the people of the Caribbean and obesity has become a major focus of CFNI's work in the past decade.

CFNI has identified policy options, strategies and actions which member

countries can consider in combating the epidemic of obesity in the region. These options are holistic and are meant to produce a comprehensive prevention strategy.

The main approaches usually taken to combat obesity follow.

Although many such strategies have been launched globally very few

<i>APPROACH</i>	<i>GOAL</i>
Treatment	Increased access to treatments for obesity management
Behavioural	Increased exercise/physical activity Improved dietary practices
Socio-Environmental	Increased numbers and access to facilities for leisure and physical activity Increased opportunities to choose healthy diets
Research	Increase the information available to key stakeholders to enable them to take informed decisions

^aAdapted from a 1995 CFNI publication "Food, Nutrition and Health in the Caribbean: A Time for Re-examination"

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have been effective. These strategies have tended to be non-holistic in their approach. If prevention is to be the major strategy for the long-term control of obesity and its co-morbidities we must find a new approach. The aim here is to initiate and implement systematic, comprehensive and coordinated actions to inform, encourage and enable the entire population to eat healthily and exercise regularly. The approach to obesity prevention must be holistic and includes a range of actions for key sectors and settings. These strategies are aimed at the primary prevention of obesity. Although some of these strategies will also be effective in the management of existing conditions as well as the secondary prevention of obesity, more finite strategies may need to be developed to tackle this aspect of the problem. Health promotion is a process, not a quick fix. It is directed at achieving an outcome, sometimes over a long term, with specific results in the medium- and short-term. With this hindsight the current policy options aim at a multisectoral approach which identifies target strategies and actions which could enable behavioural changes within the Caribbean Society.

The policy options presented here take into consideration several regional and global realities and imperatives such as:

- The scientific world has been very active in both the causal research and in developing treatment. However, few institutions have been looking at behavioural modification and at the multi-factorial approach to prevention.
- The medical profession has also recognised the problem. However they may be ill-equipped to tackle this epidemic. Medical and paramedical training does not give enough resources to these health care professionals to tackle the problems they will be facing in everyday life.
- The general retail market has recognised that there is a great consumer thirst to try and do something simple and easy to lose weight. Within this scenario various gadgets and potions have been launched in the market. All of these products are aimed at the consumer who does want to lose weight but does not really want to change lifestyle behaviour.
- Patient Support Groups have also become involved. Those who see obesity as having a direct link with their medical condition such as Diabetes Associations and Heart Foundations have become especially involved. These NGOs have all been working to try and reduce the impact of obesity on society.
- Schools and other educational institutions have also identified the need to give a direct input into the

prevention and care of obesity. Various educational institutions have set up projects on behavioural modification both with respect to nutrition and to physical activity.

- Some employers have also seen the harsh reality of obesity and have set up programmes for their employees to help modify behaviour. These programmes range from providing healthy eating options in the staff canteens to on-site facilities for physical activity.

Individual behaviour change will be an important part of these strategies. Critical attention will be placed on eliminating environmental barriers to healthy food choices and active lifestyles. Settings for Health emphasizes practical networks and projects to create healthy environments such as:

- healthy cities
- healthy islands
- health-promoting schools
- health-promoting hospitals
- health promoting workplaces and healthy communities.

It is widely recognized that promoting health in certain settings such as schools, workplaces, cities, and communities improves the health status of populations and the quality of life in those spaces. This approach

should be taken in the implementation of the strategies.

It is therefore important to continue establishing a supportive framework. Appropriate policies ranging from the availability of affordable foods to the design of our urban centers are necessary to form a supportive environment for implementation of these actions. Much of the leadership should come from the health sector but a multisectoral approach is essential.

Vital to the success of this approach will be the participation of health officials, educators, legislators, businesses and planners in various health promoting actions. Academic institutions with programmes for training and development of human resources are also crucial in the development and implementation of this plan of action. Intersectoral collaboration, emphasizing links between health, agriculture, education, transportation, sport, industry, commerce and civil society, will be essential for the success of this approach. The prevention of obesity will therefore need a concerted effort on the part of policy makers, academia, the private sector, health care workers and the public themselves. The media will play an important role, not only in the creation of a greater awareness of the problem but also in the actions being taken to tackle it. The role of the media will

also be essential in getting collaboration and compliance by the public for the actions being adopted.

These policy options aim to provide support to the Caribbean people in their struggle to combat obesity and its co-morbidities.

The policy goals are:

- Increased awareness of the causes and consequences associated with obesity.
- Risk reduction leading to obesity prevention.
- Increased clinical knowledge on the management of obesity.
- Delayed onset and prevention of NCDs and their secondary complications.

The public policy approach advocated here is consistent with the Caribbean Charter on Health Promotion and the Caribbean Cooperation in Health in that it can help to organize strategies that work both to support healthy lifestyles among individuals and influence policy that will create opportunities for social and cultural change (CARICOM 1993,1998). Here the emphasis will be on environmental and population strategies, not in opposition to individual strategies, but in support of them.

In keeping with the principles of the Caribbean Charter for Health

Promotion the policy options for obesity control are presented in the following 6 domains:

1. Multi-sector strategies and regulations.
2. Creating Supportive Environments
 - Private Sector
 - Schools
 - Workplaces
3. Reorientation of Health Services
4. Strengthening of Community Action
5. Enhancement of Public Education
6. Research.

THE POLICY OPTIONS

Obesity and its consequences pose a formidable threat to Caribbean development. The extent to which this threat can be averted is directly related to how bold and how urgent the response/actions by national governments can be mounted. Below are policy options and corresponding activities for individual countries to consider. Most require little or no additional funding. All require political commitment.

Policies to Institute Multisector Strategies and Regulations

Rolling back the rapid increase in obesity in the Caribbean requires much more than the traditional passive approach that relied almost entirely on education for individual behavioural

change. Both individual and societal actions are needed, through national leadership, for a better chance of success. Further, given the health and financial burden that obesity and nutrition-related chronic diseases place on the health sector and its consequent negative effects on the economy, policy makers should have a vested interest in the prevention and control of obesity. The establishment of healthy public policies involves identifying protective factors in the physical and psychosocial environment that will contribute to improving the determinants of health. These include food security and safety; access to healthy food; access to information; recreation and physical activity areas.

Healthy public policy is often translated into legislation that safeguards the necessary conditions to develop healthy lifestyles. Policies are drawn up at various levels. At the local level, regulations provide instruments for putting into practice concrete aspects of the major national policies. At the national level, legislative issues with a bearing on health are clearly not the sole responsibility of Ministries of Health. The guidelines adopted will need to adopt the right approach in order to identify the instrumental measures to be carried out at a local level and those concerning the macro-economic and social policies that determine health.

Expected Outcome

Food, nutrition and lifestyle issues incorporated in national development plans.

Activities:

- Create awareness at the highest levels of government about recent scientific advances on obesity prevention, and the role of diet and exercise in the reduction of chronic diseases.
- Assist governments to develop and implement multi-sectoral food and nutrition policies in relation to the changing nutritional disease patterns and the current dietary recommendations.
- Support policies that promote physical activity e.g. incentives for bicycle paths, swimming pools and recreation centers.
- Promote the designation of secure areas earmarked for promotion of physical activity e.g. parks, community centers, recreation grounds.

Expected Outcome

Food imports and local production policies aligned, in the context of global trade, to the recommended population food goals.

Activities:

- The review of national food policies from a nutritional needs

perspective is established and governments are supported in the production/implementation of affordable complex carbohydrate foods.

- Food importation is examined and governments are assisted in the development and implementation of ways and means to balance the importation of fatty foods (e.g. milk and meat) and the low fat foods (grains and other cereals).
- The production, supply and consumption of legumes, ground provisions, fruits and vegetables and low fat foods is promoted, to meet the recommended national dietary goals.

Expected Outcome

Laws, regulations and regulatory practices instituted that will:

- enable people to make healthy dietary choices;
- make more food available to support nutritionally desirable diets;
- promote physical activity in all population groups.

Activities:

- Regulatory guidelines for people in the food service sector developed taking into account nutritional considerations, e.g. legislation on nutritional labelling, code of advertising, healthy choices for fast food franchises.

- Assist governments to strengthen regulatory bodies, through training and monitor the use of dietary guidelines in the food industry and trade.
- Promote the reduction or removal of import duty/sales taxes on bicycles and exercise equipment.
- Support and promote the creation of a National/Regional fund with contributions for Donor Agencies, International Organisations and Government Funds, to support obesity prevention initiatives.
- Promote the concept of small increases in consumer taxes on selected high calorie, non-nutritious foods.

Policies to Create Supportive Environments

Poverty and inequalities contribute to difficult psychosocial environments where violence is a priority issue. Healthy and safe environments are created by the investment of many sectors in health. The close link between psychological and social environments must also be considered. In this context there should be initiatives to empower communities and create partnerships to establish plans of action and create healthy and supportive settings.

In this context this public policy approach will focus on three settings namely:

- The Private Sector
- Schools
- Workplaces.

The Private Sector

The private sector, which largely controls food production, manufacture, import and sale, also informs consumers through advertising and promoting its various food products. Private sector advertising reaches much larger audiences than those reached by professional educators and there is an unequal contest between the non-profit professional educators and profit-oriented private sector. Ways must be found to launch coordinated action with the private sector to improve the healthy eating and exercise habits of the public.

Expected Outcome

The private sector is fully aware of food, nutrition and health relationships, and participates in the implementation of the dietary recommendations for the improvement of public health.

Activities:

- Create awareness among the private sector food trade groups (producers, importers, manufacturers, retailers and vendors) about the relationship between diet and nutrition-related chronic diseases; in order to enlist their support.
- Promote the concept of incentives for the increased production of a wide variety of appealing low fat, high complex carbohydrate and high fibre foods.
- Encourage the private sector to give due consideration to nutritional aspects in the manufacturing, processing and packaging of foods, including the conservation of nutrients and nutrition labelling.
- Create awareness among food-service establishments (hotels, restaurants, fast food outlets, vendors) of their social responsibility to make a choice of health-promoting foods easily available.
- Encourage food service establishments (hotels, restaurants, fast food outlets and vendors) to display information about caloric and fat content of meals e.g. on menus, place mats and food wrappers.
- Be the key player in forging private and public sector support for education programmes and the promotion of dietary guidelines for healthy living.
- Enlist the support of the private sector groups or individuals engaged in regular physical exercise programmes to expand their scope to include the wider community.
- Promote "Traditional Caribbean Foods", that are based on complex carbohydrates, in an attractive, appealing manner.

Schools

It has been established that many of the chronic nutrition-related diseases (hypertension, heart disease, diabetes etc.) which manifest in adult years have their roots in childhood. Obesity, a major risk factor for these diseases, is increasing among school children. Instilling positive habits of good nutrition, health and lifestyle can reverse this trend.

Expected Outcome

Principles, concepts and skills training about healthy eating and regular physical exercise incorporated into all levels of school, from pre-school to tertiary institutions.

Activities:

- Create awareness among policy makers and curriculum planners about recent scientific knowledge concerning diet, physical activities and disease relationships, particularly how these relate to health risks in children.
- Design a model curriculum for teaching about food, nutrition, health and healthy eating skills as well as regular physical exercise gradually and sequentially to all students.
- Assist in incorporating in the curriculum of colleges and universities a well designed course on diet, nutrition, health and physical

education, and also ways to promote behaviour change.

Expected Outcome

Nutrition education and physical activity incorporated into a healthy lifestyle programme in schools.

Activities:

- Conduct nutritional assessment of schoolchildren to (1) determine the trends in nutritional status and (2) provide information for counselling.
- Based on scientific data, plan and implement healthy lifestyle programmes incorporating nutrition education, exercise and healthy school meal choices.

Expected Outcome

Policies to support healthy diet and lifestyle choices developed by school management teams.

Activities:

- Evaluate current foods offered at the school cafeteria or in lunch programmes and make suggested modifications in keeping with dietary recommendations, whilst also discouraging the excessive use of sugar- and fat-containing foods.
- Develop incentives for students who make healthy diet and lifestyle choices.

- Introduce competitions as incentives to promote physical activity for all categories of students, not only the athletically gifted.

Workplaces

The majority of persons who are affected by the chronic nutritional diseases are adults, many of whom are employed in a formal setting. The worksite presents an excellent opportunity for health promotion since persons spend a significant number of hours in this environment. Numerous studies have attributed positive changes in lifestyle practices to worksite interventions.

Expected Outcome

Healthy lifestyle programmes launched at the worksite for employees and their families, both in government and private sectors.

Activities:

- Increase the awareness among private sector leaders regarding chronic nutritional diseases and their likely impact on increased productivity, reduced absenteeism and health care costs.
- Promote programmes that introduce healthy eating and physical activity patterns in government offices and private sector companies.
- Assist worksite management to organize various programmes to promote healthy lifestyles including

health, dietary practices and physical exercise through awareness, skills development and motivation.

- Evaluate the dietary quality of foods served in worksite cafeterias or other such establishments and recommend modifications in line with healthy food policies.
- Provide incentives to work sites that promote and implement dietary guidelines and exercise habits, e.g. list firms on the honour roll of CFNI.

Policies to Reorient Health Services

The reorientation of health services is a process of adapting structures and functions to address the determinants of health. To successfully combat obesity, health services must work in an alliance with other sectors and this demands experience and technical skills. Further, health care personnel remain one of the major resources to which people turn for information and guidance on diet and disease relationships. But the system must be reoriented to go beyond merely providing knowledge and provide the skills and leadership needed to achieve and sustain enduring, healthful, dietary practices and regular physical activities.

Expected Outcome

Health care personnel, at the basic and post-basic training levels, prepared in the field of food and nutrition and its relationship to health.

Activities:

- Assist tertiary institutions to fully incorporate scientific knowledge in the medical schools' curricula about the importance of food, nutrition and regular physical exercise to health.
- Target basic and post-basic nursing and public health training with emphasis on risk factors for obesity and how to counsel patients about behaviour change to achieve and sustain healthful dietary and exercise practices.
- Provide in-service training to health-care persons – professionals and para-professionals – about the relationship between diet, exercise and health, and the role of dietary and exercise guidelines in the prevention of nutrition-related diseases.

Expected Outcome

The orientation of health care professionals and services directed towards health promotion particularly with regard to diet and other lifestyle factors in the prevention of chronic diseases.

Activities:

- Assist tertiary institutions to incorporate fully in the training of all health and allied health care personnel the knowledge, skills and ways to motivate people to

achieve healthy dietary and regular exercise habits.

- Increase outreach programmes that will facilitate interaction with the community and foster development of healthy lifestyle programmes.

Policies to Strengthen Community Action

Community action is critical to obesity control. The community has formal institutions such as church; town hall and school, where families live and whose values are rooted in shared history. This setting is the bedrock from which individual initiatives can be spawned to improve dietary and other lifestyle habits. For example, through organized individual and group action the community can provide an excellent reinforcing environment to support the activities in schools and worksites detailed above.

Expected Outcome

Community-oriented nutrition and lifestyle programmes developed.

Activities:

- Assist community development workers in health, sports and other sectors to promote healthy eating habits.
- Assist the community in designing and implementing programmes for

the prevention of obesity particularly in high-risk low-income groups.

- Identify and train resource persons in the community to obtain skills in food preparation and healthy eating.
- Identify or provide safe and inexpensive exercise facilities in communities.
- Promote daily physical exercise for healthy living through community organizations (e.g. youth clubs, service clubs) and to avoid weight gain, for persons who are not physically active.
- Encourage the initiation of community projects that will increase availability and affordability of fruits, vegetables, legumes and ground provisions for the community.

Policies to Enhance Public Education

Many people in the Caribbean are not convinced or even aware of the lifestyle behaviours that can increase the risk of such devastating diseases as diabetes, high blood pressure, heart attack, stroke and cancer. The challenge is to inform and encourage the entire population to eat healthily and regularly engage in physical activities to improve their chances of a healthier life.

Expected Outcome

The public is aware of, and convinced of, the need to develop and maintain healthy lifestyle habits.

Activities:

- Based on research findings, launch and maintain massive public education campaigns to inform the public of the recent advances in knowledge about healthy eating and physical activity using the mass media – radio, television, newspaper, posters and leaflets. This should be done on the basis of audience segmentation.
- Provide support, incentives, and introduce competitions, which challenge the public to seek and obtain information on healthy eating and physical activity.

Expected Outcome

The public is provided with consistent educational messages and dietary recommendations.

Activities:

- Prepare and utilise a resource list of local organizations both public and private that can provide the public with information on food, nutrition, exercise regimes and health.
- Develop and disseminate scientific-based nutrition and lifestyle education materials to all audiences.
- Review and monitor educational messages that reach the public to ensure accuracy of information.

Policies on Relevant Research

Successful public health interventions must be based on research findings pertinent to the Caribbean population. Research should be carried out to determine the extent of the problem in all countries. The efficacy of existing control measures, the effectiveness of applying interventions to the general population, should be research concerns. Population groups at high risk merit specific research.

Expected Outcome

Studies conducted to determine the causes and consequences of obesity.

Activities:

- Conduct surveys of the magnitude, trends and distribution of obesity and its risk factors.
- Carry out assessments of the health and economic costs associated with obesity and its co-morbidities.
- Disseminate results to policy makers, technical officers, and other health care workers through various mechanisms.

Expected Outcome

Studies conducted on food consumption and lifestyle habits to inform intervention programmes.

Activities:

- Assess diet and lifestyle habits of different segments of population (upper and lower socio-economic classes, urban and rural, male and female, old and young).
- Conduct applied research into factors that motivate people to modify their eating and exercise habits.
- Initiate pilot projects to fully understand ways and means to improve people's lifestyles through multiple risk intervention, including changing dietary habits and engaging in regular physical activities to prevent chronic diseases.
- Assess effectiveness of current intervention programmes and control measures with timely feedback, review and dissemination of findings.
- Conduct research to determine the most cost-effective methods for promoting healthful diet and physical activity.



"I can change a pumpkin into a carriage, but if you want to turn fat into muscle, you'll have to exercise two hours a day."

Summary of Policy Options, Programmes and Actions

POLICY OPTIONS	PROGRAMME AREAS AND ACTIONS
<p>1 Multi-sectoral Strategies and Regulations</p> <ul style="list-style-type: none"> • National • Local • Institutional • Municipalities/Communities 	<p>National development plans include nutrition and lifestyle issues</p> <p>National Nutrition Policies</p> <p>Food and Nutrition Security Plans</p> <p>Safe streets, parks and other recreational areas</p> <p>Sports, exercise and physical activity</p>
<p>2 Creating Supportive Environments</p> <ul style="list-style-type: none"> • Private Sector • Schools • Workplace 	<p>Conditions to support healthy lifestyles and change risk practices and behaviours towards nutrition and physical activity in various settings</p>
<p>3 Reorienting Health Services</p> <ul style="list-style-type: none"> • Management Styles • Intersectoral cooperation • Community involvement 	<p>Training in food and nutrition for all health related professions</p> <p>Health promotion oriented services – focusing on primary prevention rather than secondary treatment</p>
<p>4 Strengthening Community Action</p> <ul style="list-style-type: none"> • Community & social participation • Empowerment • Capacity-building 	<p>Partnerships at local and regional level to enhance food and nutrition security and safety</p>
<p>5 Public Education</p> <ul style="list-style-type: none"> • Health literacy^a • Health education • Social communication 	<p>Public aware and convinced of healthy lifestyle habits</p> <p>Consistent education messages and dietary recommendations</p>
<p>6 Research</p>	<p>Investigate causes and consequences of obesity</p> <p>Study food consumption and lifestyle habits</p>

^aHealth literacy is a set of context specific capabilities to access, understand, and use information and other resources for personal and collective health development.

CONCLUSION

Non-Communicable diseases are one of the main killers in the Caribbean region. All recent evidence indicates that obesity is one of the main contributors to the mortality and morbidity for NCDs. If the situation is not addressed then projections show that obesity will soon reach proportions which will be uncontrollable and have a devastating effect on the social fabric of the region. Not only will there be social devastation with respect to the individual but the financial cost of treating obesity and its co-morbidities will soon reach an unsustainable percentage of the national budgets.

It is well documented that a reduction in obesity rates will see a dramatic reduction in the incidence and complications of NCDs. Because the traditional models seem to have failed globally, a new approach has to be established with the epidemic being tackled in a multisectoral way.

These policy actions aim to promote this approach and establish

strategies and systems which strengthen the concept of lifestyle modification. These strategies cannot be fulfilled without the commitments of Governments, International Institutions, NGOs and others. Together an effective alliance can be built for the common good of the peoples of the Caribbean.

The expected results and activities mapped out in this paper will help focus technical cooperation within the region and develop new approaches and initiatives. These will set the scene for a conducive environment that lends itself to behavioural modifications.

With the collaboration of sectors such as Health, Agriculture, Trade and Education, and the input from NGOs, the tertiary educational institutions and society at large, this approach can be a model which will not only work in the Caribbean Region but can be an example to other states, small and large, that are also facing the ever growing epidemic of obesity.

BLONDIE ® BY SEAN YOUNG AND STAN DRAKE



NewsBriefs

Dash Diet Helps Lower Blood Pressure

A new report provides more evidence that a low-fat diet full of fruits and vegetables, but little salt, can lead to a significant drop in blood pressure.

The findings underscore the role that diet, specifically a low-fat diet called DASH (Dietary Approaches to Stop Hypertension), can play in lowering blood pressure. The report re-emphasized the benefits of the DASH diet and a lower sodium intake for reducing blood pressure.

In the study, 412 people were randomly assigned to a typical American diet or the DASH diet. The DASH diet focuses on fruit, vegetables, low-fat dairy foods, whole grains, poultry, fish, beans and nuts.

Researchers varied participants' salt intake, with each group consuming high, medium, and low levels of salt per day (50, 100, and 150 mmol/8820 kJ) for a month at a time during the 3-month study. At the start of the study, the subjects' systolic blood pressure ranged from 120 to 159 mm Hg and diastolic pressure ranged from 80 to 95 mmHg. Blood pressures of 140/90 mmHg or higher are

considered high – even if only 1 number is elevated. A reading between 130/85 and 139/89 mmHg is considered high normal.

When it comes to reducing blood pressure by cutting back on salt, lower may be better, the findings suggest.

Although blood pressure dropped when people switched from high-sodium intake to medium intake (150 mmol/2 to 100 mmol/2), the drop was roughly twice as large when they switched from the medium intake to the low intake.

The blood-pressure-lowering benefits of cutting back on salt were consistent regardless of race, ethnicity, gender, age, or previous blood pressure level, the study found.

This suggests that it may be worthwhile to have even lower sodium intakes than most Americans do today. Currently, recommendations for sodium are 2300 mg per day, about the same as the medium level in this study. The team also found that age was strongly related to the effect of sodium reduction and the DASH diet on blood pressure. Specifically, after middle age, the benefits of cutting back on sodium and following the low-fat diet increased.

[Source: *Nutrition Today*, Vol. 39, No. 6, November/December.]

Exercise as a Treatment for Obesity

Almost all health professionals will tell you that the two most important interventions for overweight are diet and exercise, and of the two, exercise is the least palatable. Most people engaged in diet and exercise for weight control will hang on to their restrictive diet longer than their exercise regimen.

They are equally likely to volunteer that they do not enjoy exercising or do not have time for it. So why is exercise inevitably prescribed as part of any obesity intervention? In this article, I discuss the scientific evidence surrounding exercise as a means of promoting health. I do this from the standpoint of traditional scientist's paradigm for obesity intervention. In this traditional paradigm, the terms "obese" and "overweight" are always used to describe or identify those individuals whose body mass index (BMI) places them in the upper range of the bell-shaped curve. Those of us who work in the Health At Every Size (HAES) paradigm dislike the use of these terms, but for the purpose of understanding the scientific data presented in this article, these terms are used as by the original scientific authors.

[Source: *Health At Every Size, July/ August 2004.*]

Breastfeeding: Does it Help Protect Against Childhood Obesity?

Using a cross-sectional survey design, researchers collected data on 33,768 school children aged 6 to 14 years in the Czech Republic who were formerly breastfed. They had a 9.3% prevalence of obesity, compared with 12.4% in never breastfed peers.

Increasing age of the children did not reduce the association. The study controlled for parental education, parental obesity, maternal smoking, high birth weight, watching television, number of siblings, and physical activity.

[Source: *The Journal of Pediatrics 2002;141:6*].

Beware of Being Fat at 40

Researchers using data from the Framingham Heart Study concluded that obesity by itself was responsible for reducing approximately 6 years from a person's lifespan if he or she were obese at age 40. The study analyzed the life expectancy and probability of death before age 70 of the 3,457 participants, after controlling for gender and smoking status. The greater the percentage of overweight, the shorter the life expectancy. Persons who smoked and were obese had the highest risk of earlier death.

[Source: *Nutrition Today, No. 38, No. 2, March/ April, 2003.*]

No More Antibiotics Says WHO

The World Health Organization (WHO) has joined other groups in calling for the end of antibiotics as animal growth promoters. Approximately half of all antibiotics used by livestock producers worldwide are low-dose growth promoters. These drugs encourage drug resistant bacteria. WHO made its recommendation after reviewing the results of a voluntary ban on antibiotic growth promoters in Denmark in 1998.

When these antibiotics were omitted, the amount of resistant bacteria in pork and chicken declined from 60% to 80% to 5% to 35%. The cost of producing pigs without the antibiotics increased 1%, and the use of antibiotics to treat ill animals also increased; however, it remained well below what was used as growth promoters. Drug-resistant bacteria are making antibiotics less effective for human patients. Although many of the same farming techniques that are used in Denmark are used in the United States, the FDA's approach is different. It is examining each drug individually. Currently, the Animal Health Institute says that between 13% and 17% of antibiotics used in the United States are growth promoters.

[Source: *Washington Post*, August 12, 2003].

Hydrogenated Vegetable Oils: How Healthy?

Vegetable oils (including soybean, corn, and sunflower) that are common in commercially fried snack foods are relatively high in the polyunsaturated fatty acid, linoleic acid. However, at high frying temperatures the unsaturated bonds in linoleic acid are easily oxidized, generating an unpleasant taste.

Food producers prevent this oxidation by adding molecular hydrogen to these unsaturated bonds. However, this "hydrogenation" process increases trans isomers in the refined oil, and these trans fats increase the risk of elevated serum cholesterol and coronary heart disease. Companies are responding to these health concerns by seeking alternative ingredients to lower trans fatty acids. This is no idle concern: in 2001 Americans consumed an average of 57 lbs of vegetable cooking oils per capita (USDA Agricultural Research Service).

[Source: *Nutrition Today*, Volume 38, Number 1, January/February 2003.]

*Good Nutrition
Your Partner for Life.*

PHYSICAL EXERCISE FOR ADULTS

Simple and Easy to Do

WARMING UP

Walk on the spot keeping knees high toward the chest or move if there is sufficient space while swinging your arms freely.



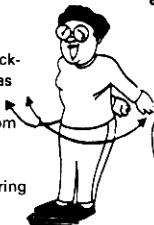
Roll or bounce forward on the balls of your feet then backwards on your heels. Squat and straighten your knees, repeating continuously.



Lift your knees in turn as high as possible towards your chest while keeping your back and stomach muscles tight. Afterwards, swing your legs in turn backward and forward to relax.

ARM EXERCISE

Swing your arms backward, then forward as high as possible. Swing your arms from side to side across your body. (Do not rotate your body during this exercise.)



Raise your left arm over your shoulder and flex the right arm behind your back. Stretch both arms so the fingers touch each other and keep stretching for 5-10 seconds. Change arms and repeat the stretches.

ARMS

Rotate arms from the shoulders, inward slowly 8-10 times; then outward for the number of times. Afterwards, relax both arms and shake them.



SHOULDERS

Bend your back all the way down while allowing your arms to stretch downwards. Raise your back slowly, bracing shoulders backwards and lifting arms behind the back.



ROTATION OF THE BODY

Stand astride. Keep your back straight and rotate slowly to the left with both arms stretched out to the sides, then to the right. Keep rotating your body 8-15 times. Afterwards, stand straight, raise your arms above your head and then allow your arms to fall; swing them freely.

LEG HOPPING

Hop on the spot by lifting your left knee high. Change to the right and repeat 8-15 times.



Kick your left leg upward to the left and hop on your right foot, then change; that is kick leg to the right and hop on left foot. Let your leg sweep to the side and down.



Rotate left leg slowly inward and outward as far as possible. Repeat with right leg.

COOLING DOWN/WALK ON THE SPOT - INHALING & EXHALING

TRY TO REPEAT EACH EXERCISE 8, 10 OR 15 TIMES REGULARLY.

**Always check your doctor to ensure that you are able to undertake this and any exercise programme.*

Produced by the Caribbean Food and Nutrition Institute.