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*Regional Office of the
World Health Organization*

<http://www.paho.org>

“The Caribbean Chronic Disease Epidemic: What We Know... and what we need to know”

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PAHO/WHO, Washington, DC**



Overview

- **Public Health Surveillance framework and Data Sources**
- **Situation**
 - Mortality
 - Morbidity: obesity, hypertension, heart disease, diabetes, cancer
 - Risk factors - physical activity, diet/nutrition, tobacco, alcohol
 - Determinants
 - Costs of the epidemic
- **Response**
 - Review of Port-of-Spain Declaration
 - Policies & Programs, from 2007 National NCD capacity survey
 - Coverage and quality of care
- **Conclusions and way forward**



Complex interplay of risk factors or determinants

Poverty
Education
Agriculture
Trade
Access to health services

Diet
Physical Activity
Tobacco
Alcohol

Underlying
socioeconomic,
cultural,
political,
environmental
determinants

Common
modifiable
risk factors

Non-
modifiable
risk Factors

Intermediate
risk factors

Raised
blood
pressure

blood
glucose

Abnormal
blood lipids

Overweight
/ obesity

Main
chronic
diseases

Heart
disease

Stroke

Cancer

Chronic
respiratory
diseases

Diabetes

Private sector forces
Urbanisation
Built environment
Mass Transport

Age
Sex
Race



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It wasn't always so ...

- **'In 1952 I was appointed resident cardiologist in the new University College Hospital at Mona. I saw my first case of Coronary Artery Disease in a native Jamaican in 1956, four years after I arrived, though I had seen CAD in tourists – that was merely 50 years ago. What has happened?'**

***Sir Kenneth Stuart, Dean Emeritus, UWI School of Medicine at
Crowne Plaza, Port of Spain, Sept 15, 2007***



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Public Health surveillance

“... the systematic and ongoing compilation, analysis and interpretation of data of specific events used for planning, executing and evaluating of public health practice”.

Thacker, SB, Stroup DF. Future directions of comprehensive public health surveillance and health information systems in the United States. Am. J Epidemiology, 1994; 140:1-15.

- More than just counting cases and risk factors, public health surveillance includes monitoring policies, program performance, coverage, etc**



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SOURCES OF DATA

- Vital Statistics Mortality or death rates – Ministries, CAREC, PAHO/WHO
- Population and Demographic data – Ministries, CSOs
- Risk Factors
 - **Pan Am STEPS:** Risk factors and prevention practices surveys: Adults 20+ years – CAREC/PAHO & Ministries of Health
 - Global School Health Survey (GSHS), Children 13-15 years; PAHO/WHO
 - Global Adult & Youth Tobacco Surveys (GATS, GYTS); PAHO/WHO
 - National food consumption patterns (CFNI)
- Morbidity
 - Administrative/Hospitalisation data, Amputations, Blindness, End stage renal failure -- Ministries of Health
 - Registries
 - Cancer Trinidad & Tobago, Jamaica
 - Diabetes and/or Hypertension (Some ministries, some NGOs)
 - Stroke – Barbados CHRC/MOH
- National capacity and policy response survey; 2005, 2007 PAHO
- Costs and economic impact, special studies – UWI and ?others
- **Coverage & quality of care; few special studies, CHRC, UWI, PAHO but No System**
- **NCD Knowledge and Attitudes ?NO SYSTEM**



3

Biochemical – Glucose and Cholesterol

2

Anthropometry – Height, Weight, Waist Circumference

1

Behavioral Risks, e.g., tobacco & alcohol, diet, physical activity, and Demographics



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Mortality and Morbidity



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Leading causes of death in CAREC countries, latest 3 years available, around 2005

Males

- 1. Ischemic heart disease**
- 2. Cerebrovascular disease**
- 3. Diabetes**
- 4. HIV/AIDS**
- 5. Malignant neoplasm of Prostate**
- 6. Hypertensive disease**
- 7. Land transport accidents**
- 8. Assault (homicide)**
- 9. Certain conditions originating in perinatal period**
- 10. Influenza and pneumonia**

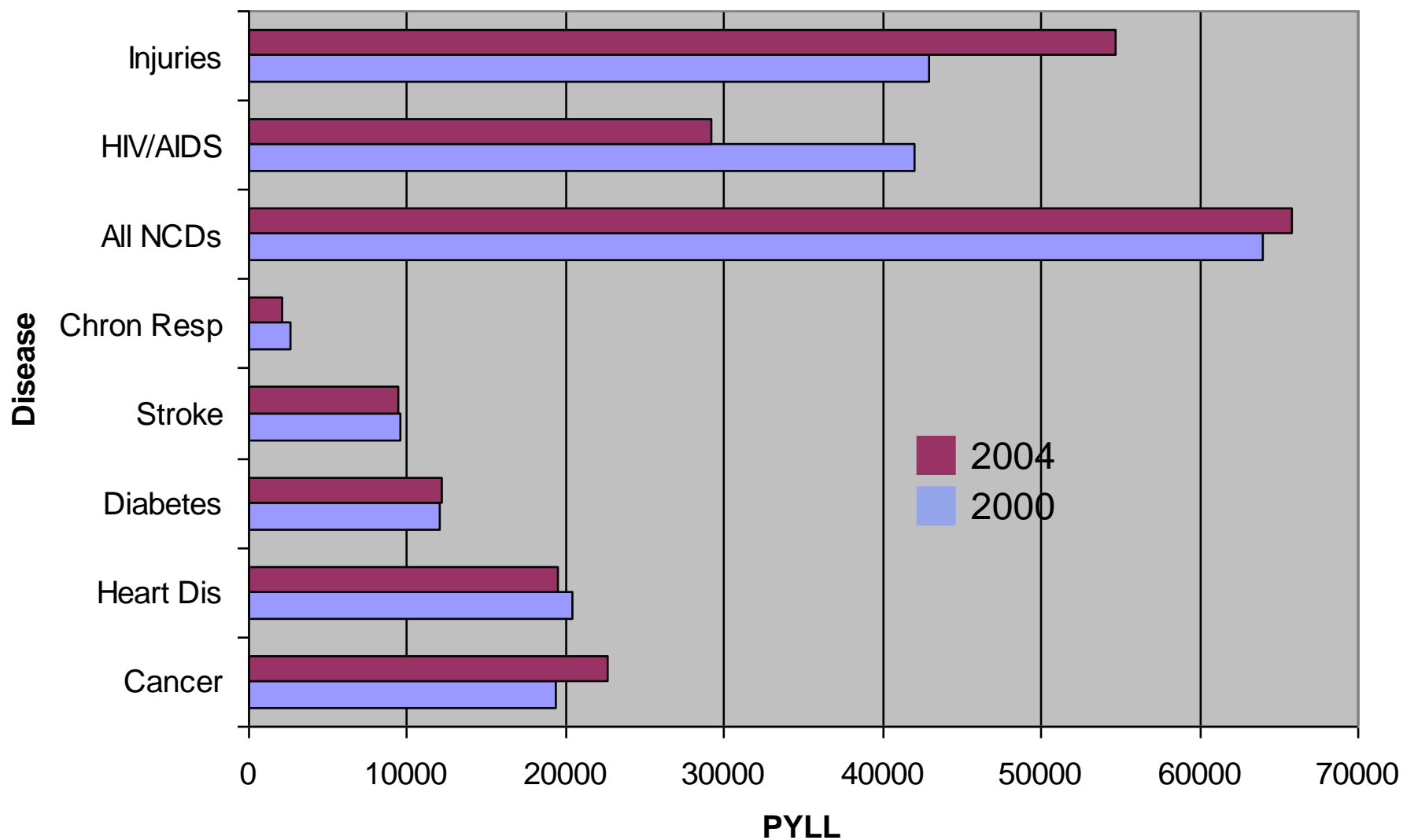
Females

- 1. Cerebrovascular disease**
- 2. Ischemic heart disease**
- 3. Diabetes**
- 4. Hypertensive disease**
- 5. HIV/AIDS**
- 6. Heart failure / complications ill-defined heart disease**
- 7. Influenza and pneumonia**
- 8. Malignant neoplasm of female breast**
- 9. Certain conditions originating in perinatal period**
- 10. Malignant neoplasm of uterus**

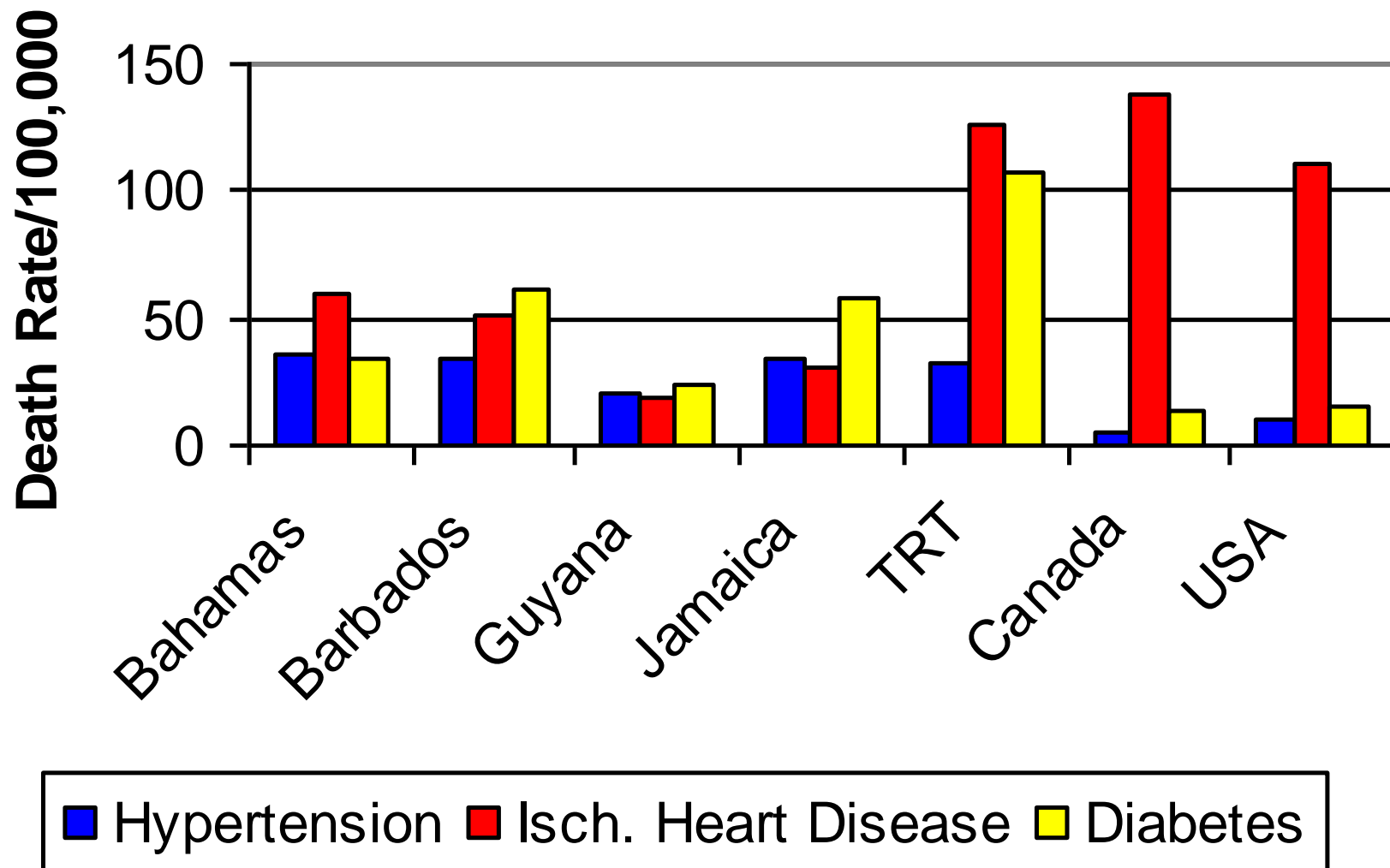


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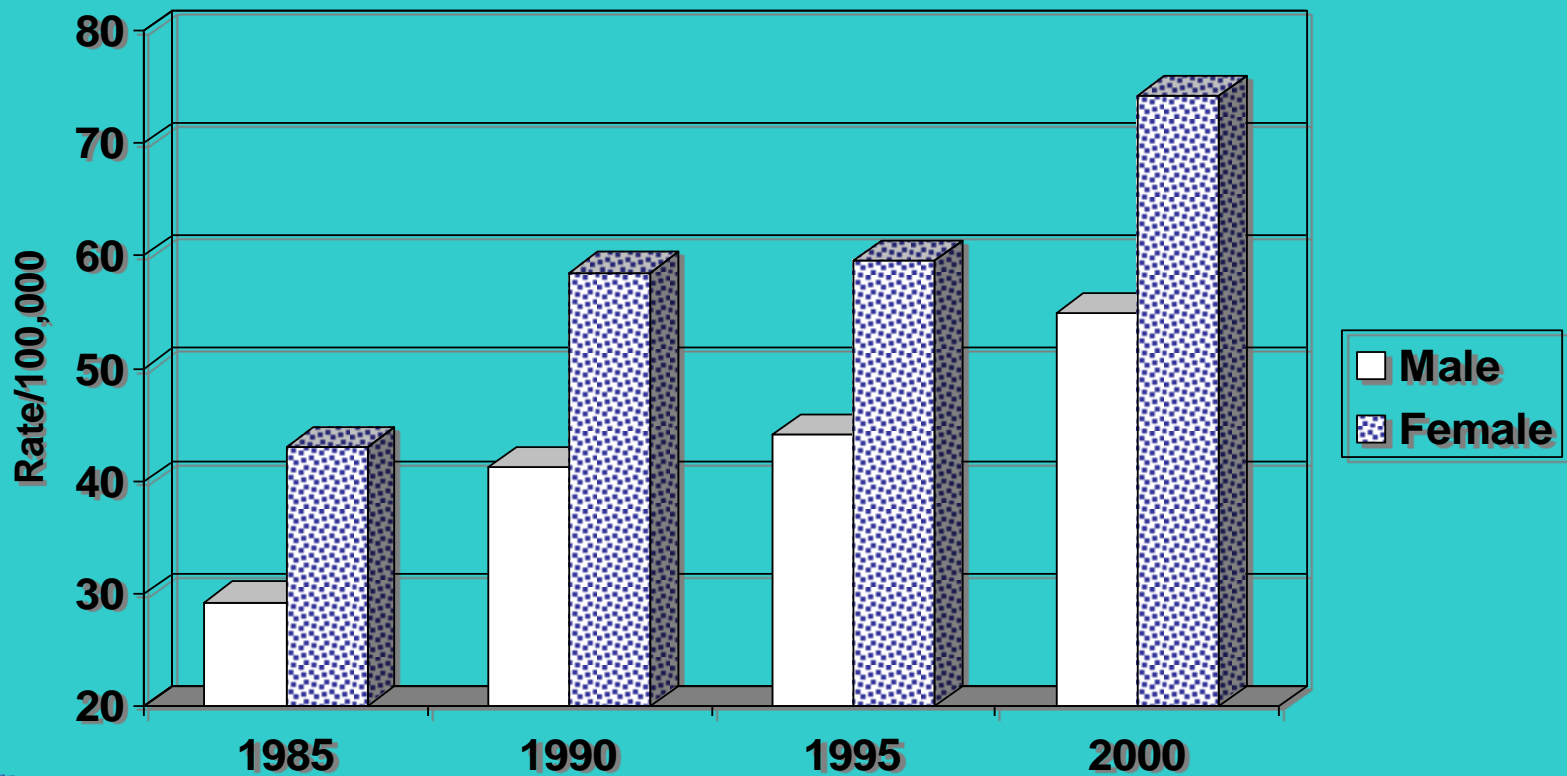
Potential Years of Life Lost <65yrs by cause, CARICOM countries, 2000 & 2004 (minus Jamaica)



Age adjusted death rates/100,000 population - 2000 (PAHO / Alleyne)



Caribbean trends in Diabetes Mortality



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Status of death registration data in the PAHO Regional Mortality System for Caribbean countries (30 August 2008)

| Country | Years | Country | Years |
|---------------------|------------------------|-------------------------------|--|
| Anguilla | 1973-2006 ^a | Haiti | 1977-2004 ^a |
| Antigua and Barbuda | 1960-2004 ^a | Jamaica | 1960-1991 ^a |
| Aruba | 1987-2006 ^a | Martinique | 1960-2005 ^a |
| Bahamas | 1964-2000 ^a | Montserrat | 1960-2003 ^a |
| Barbados | 1960-2000 ^a | St. Kitts and Nevis | 1960-1972 ^{a,b} 1973-2005 ^a |
| Belize | 1960-2004 ^a | St. Lucia | 1960-2002 ^a |
| Bermuda | 1960-2002 ^a | St. Vincent and Grenadines | 1960-2003 ^a |
| Cayman Islands | 1973-2004 ^a | Suriname | 1961-2005 ^a |
| Dominica | 1960-2004 ^a | Trinidad and Tobago | 1960-2004 |
| French Guiana | 1960-2005 ^a | Turks & Caicos | 1973-2005 ^a |
| Grenada | 1960-2002 ^a | Virgin Islands (UK) | 1960-2003 ^a |
| Guadeloupe | 1960-2005 ^a | Virgin Islands (US) | 1960-2005 ^a |
| Guyana | 1960-2005 ^a | | |



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a Incomplete series with data not available for some years
b Includes Anguilla

NCD Risk Factors in Caribbean

(based on national STEPS RF studies on adults 25-64 yrs, 2006-07)

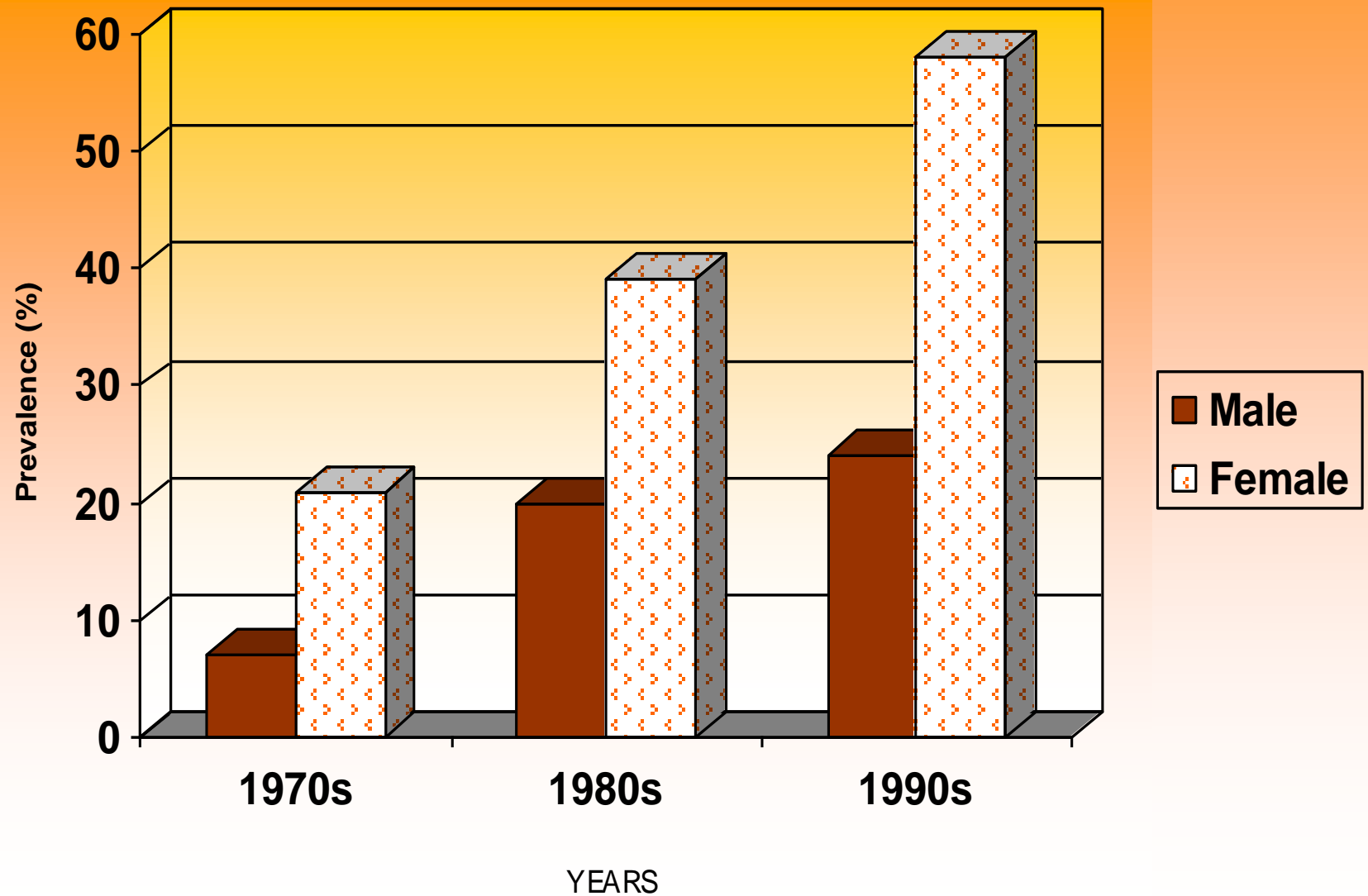
- Overweight (BMI>25) 45.1% - 80.9%
- *Obese (BMI>30)* 20.2% - 53.0%
- Alcohol consumption(daily) 28.7% - 55.7%
- *Smoking (daily)* 6.6% - 26.7%
- Low levels of Physical activity 24.0% - 52.3%
- *Raised Blood pressure (160/100)* 6.9% - 25.8%
- Raised Blood glucose 7.2% - 14.9%
- Percentage with Low risk 0.6% - 2.8%
- ***Percentage with raised risk 28.7% -67.5%***



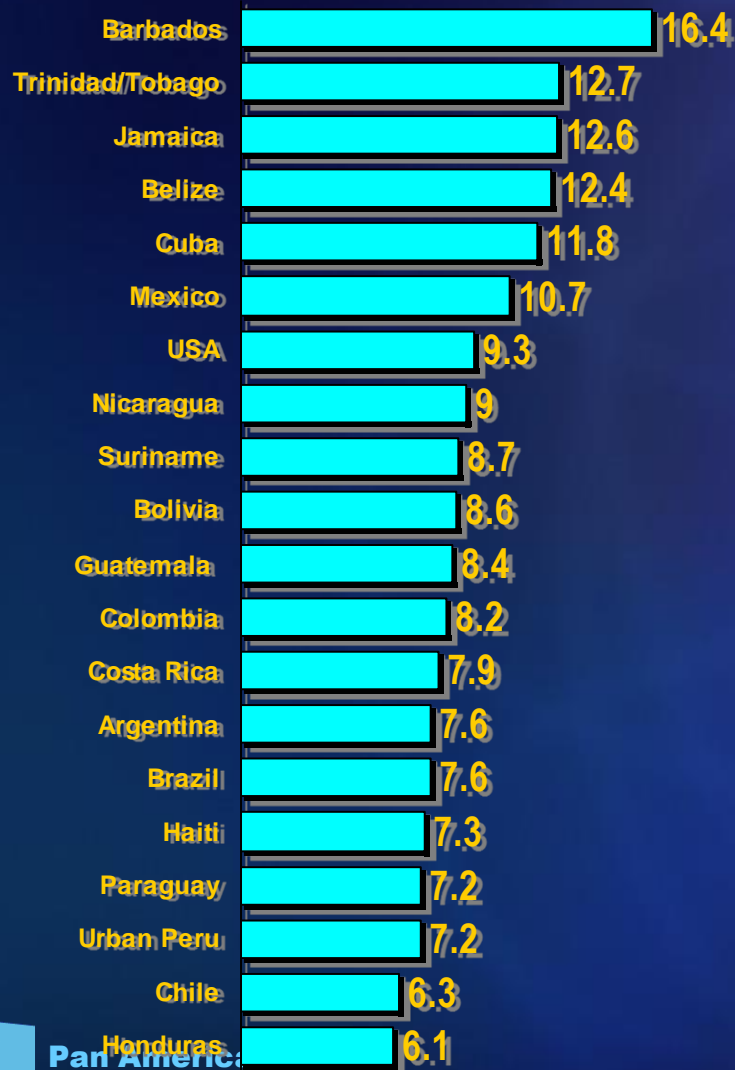
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- ***Source PAHO/CAREC/Countries STEPs surveys***

Trends in Adult Overweight/Obesity in the Caribbean



Prevalence (%) of diabetes among adults in the Americas



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Source: *Pan Am J Public Health* 10(5), 2001; unpublished (CAMDI), Haiti (Diabetic Medicine); USA (Cowie, Diabetes Care)

Prevalence of Hypertension in Adults 25 - 64 years

| | |
|-------------|--------|
| Barbados | 27.2 % |
| Jamaica | 24.0 % |
| St. Lucia | 25.9 % |
| The Bahamas | 37.5% |
| Belize | 37.3% |
| Trinidad | TBD |

Prevalence > age 40 yrs approximately doubles

**Control of blood pressure would reduce the death rates from
Cardiovascular Disease by about 15-20%.**



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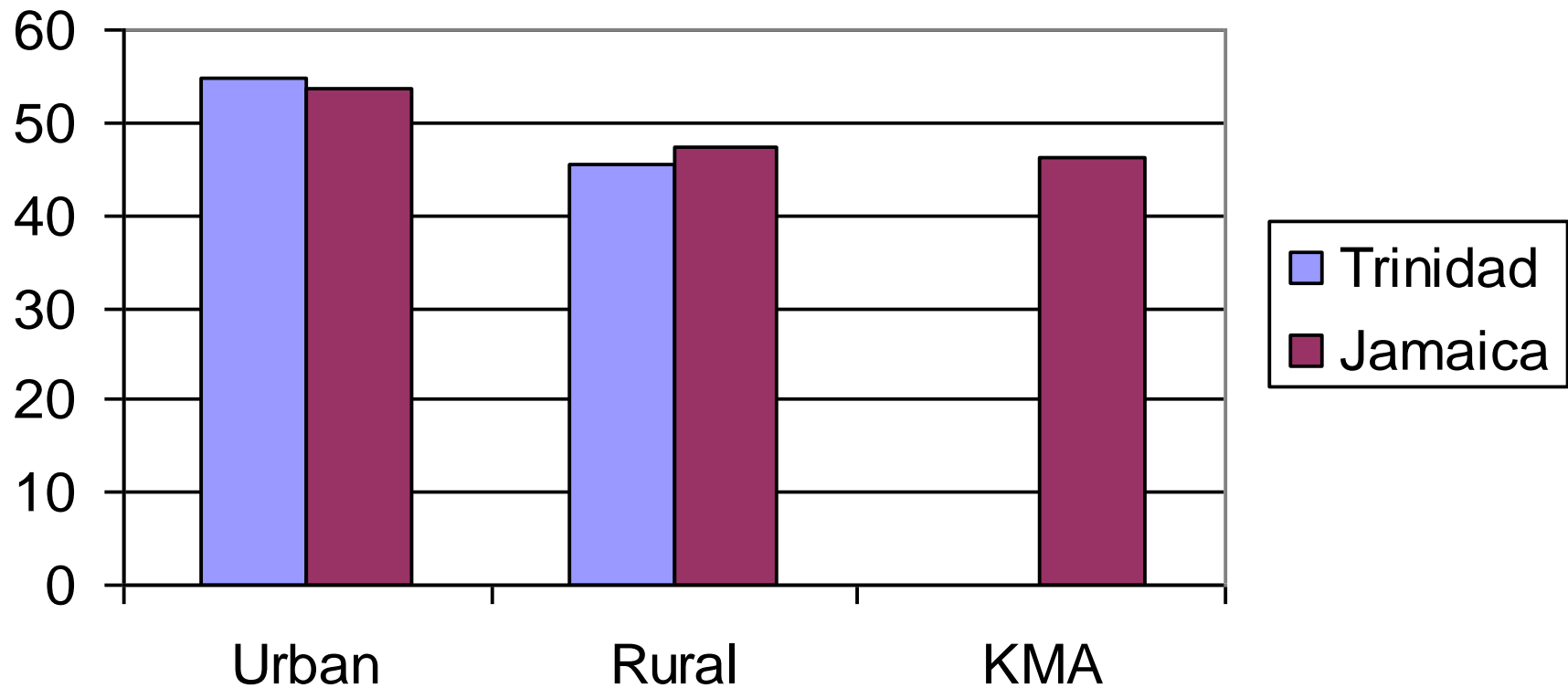
Potential Impact for BP and Cholesterol Control

- Barbados: (Hennis et al, 2002)
 - >40 yrs, HBP prevalence = 55%
 - Awareness = 63%
 - Treatment = 54%
 - Control = 19%

treatment of those with chronic disease
with aspirin and simple drugs to lower
blood pressure and cholesterol (18 million
deaths averted at a cost of \$1.10 per year)



Sedentary Activity by Area among Countries

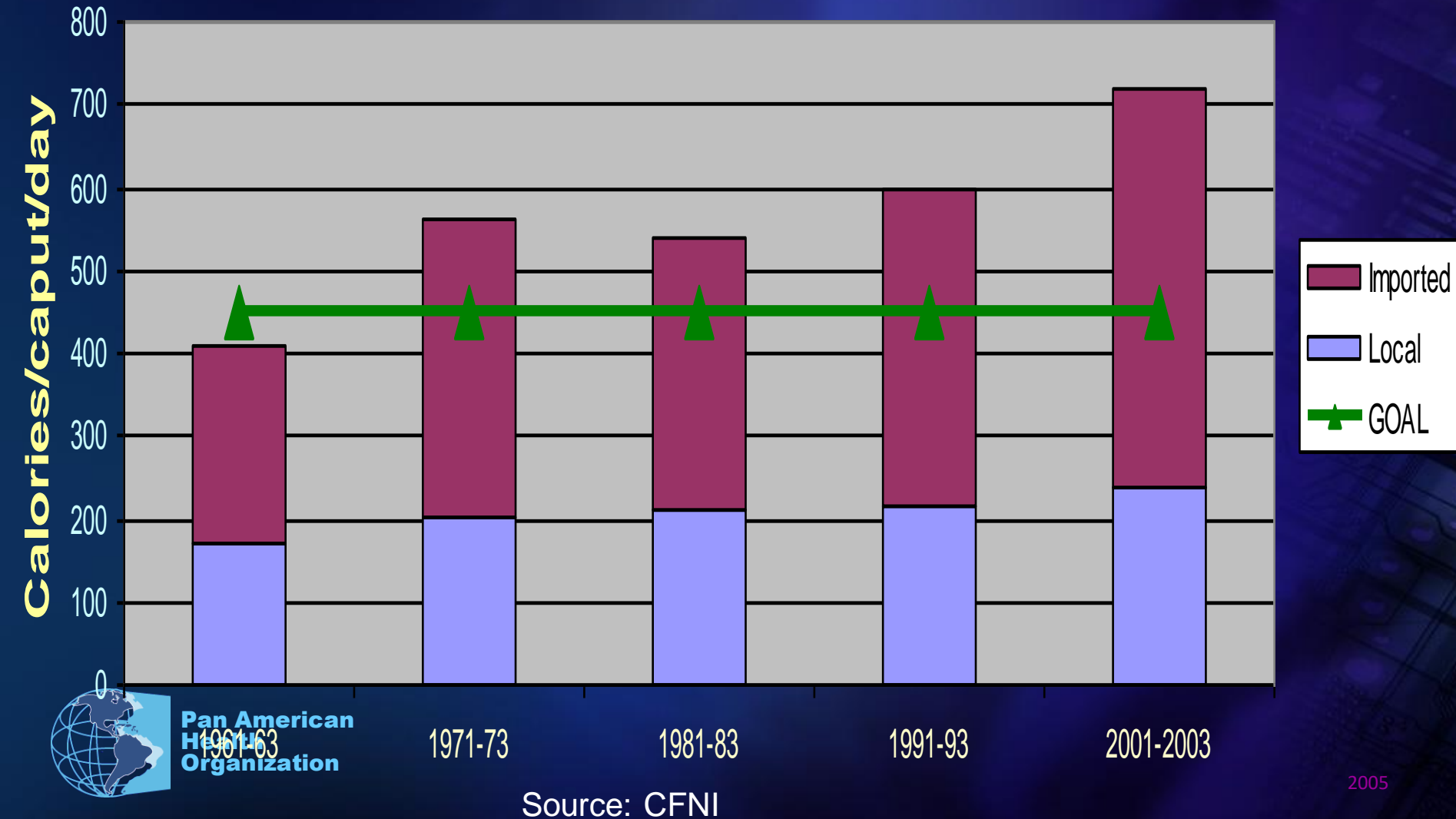


Relation of Fitness to Risk of Death, T&T, St. James Cardiovascular Study

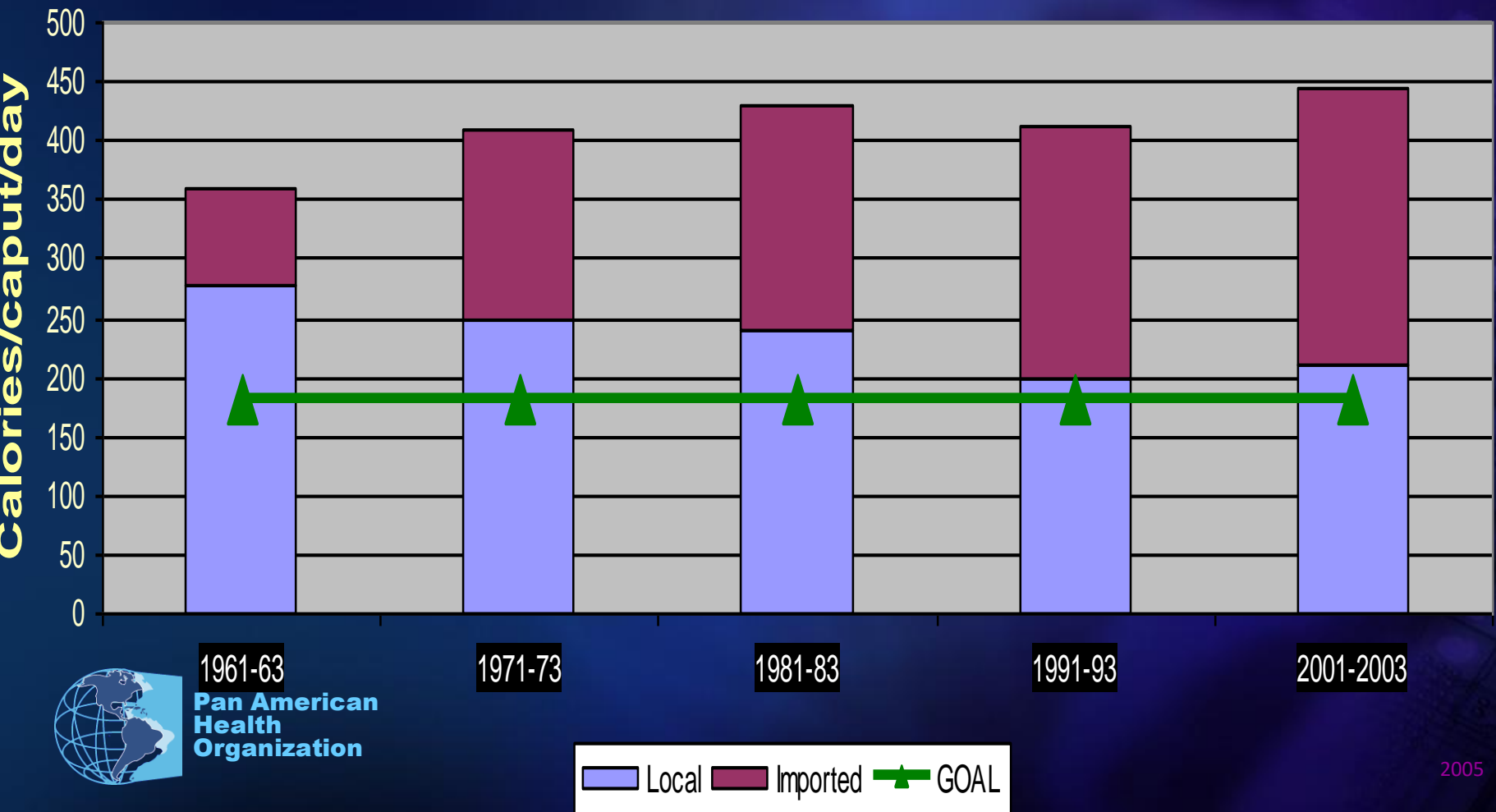
- 1,309 men had blood sugar, cholesterol, fitness measured at baseline and then followed up carefully for 7 years.
- **Unfit men compared with fit men** were:
 - 3.6 times more likely to die
 - 2.5 times more likely to have a heart attack



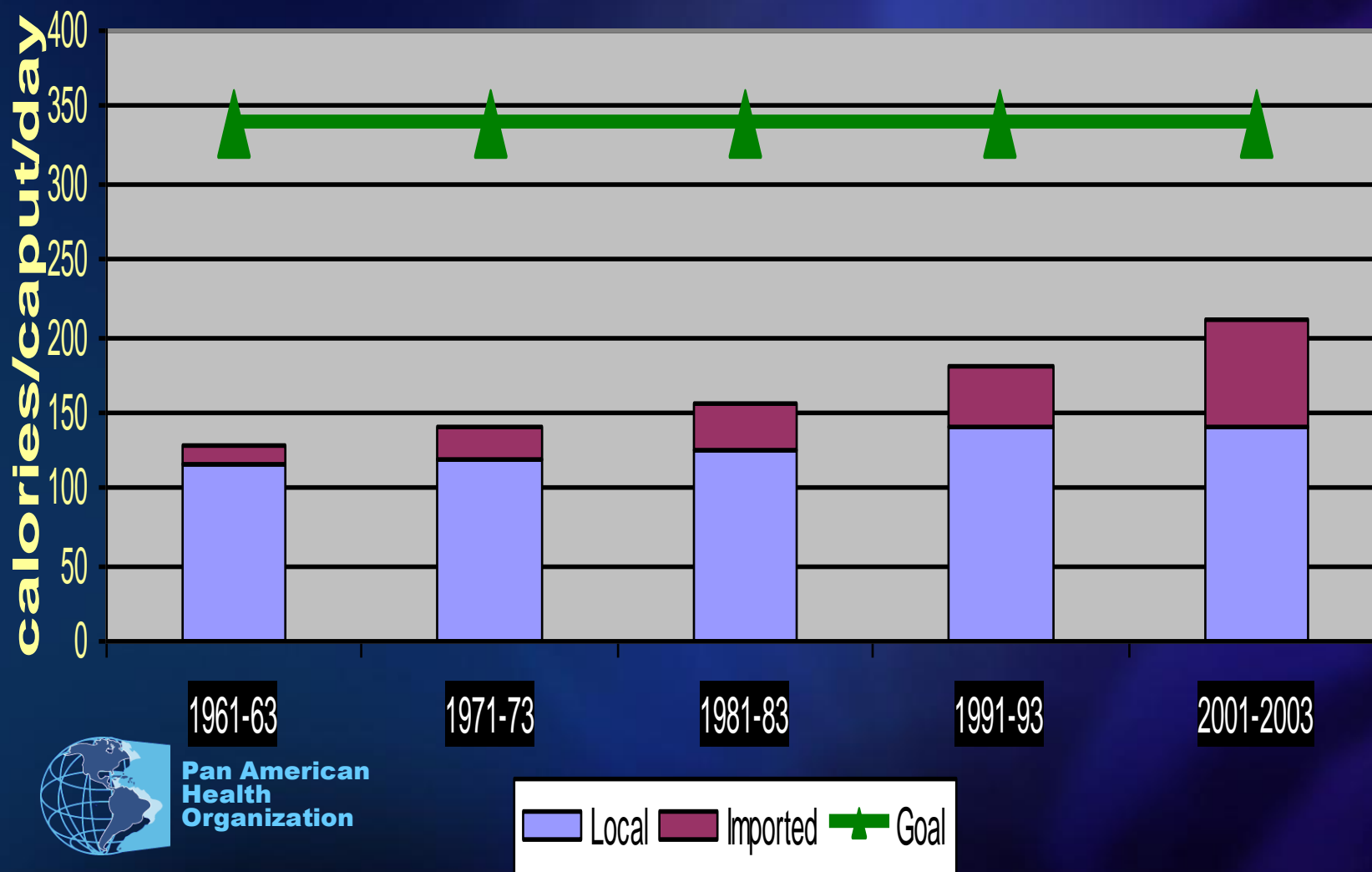
Trends in Fat Consumption in the Caribbean 1961-2003



Trends in Sugar Consumption in the Caribbean 1961-2003

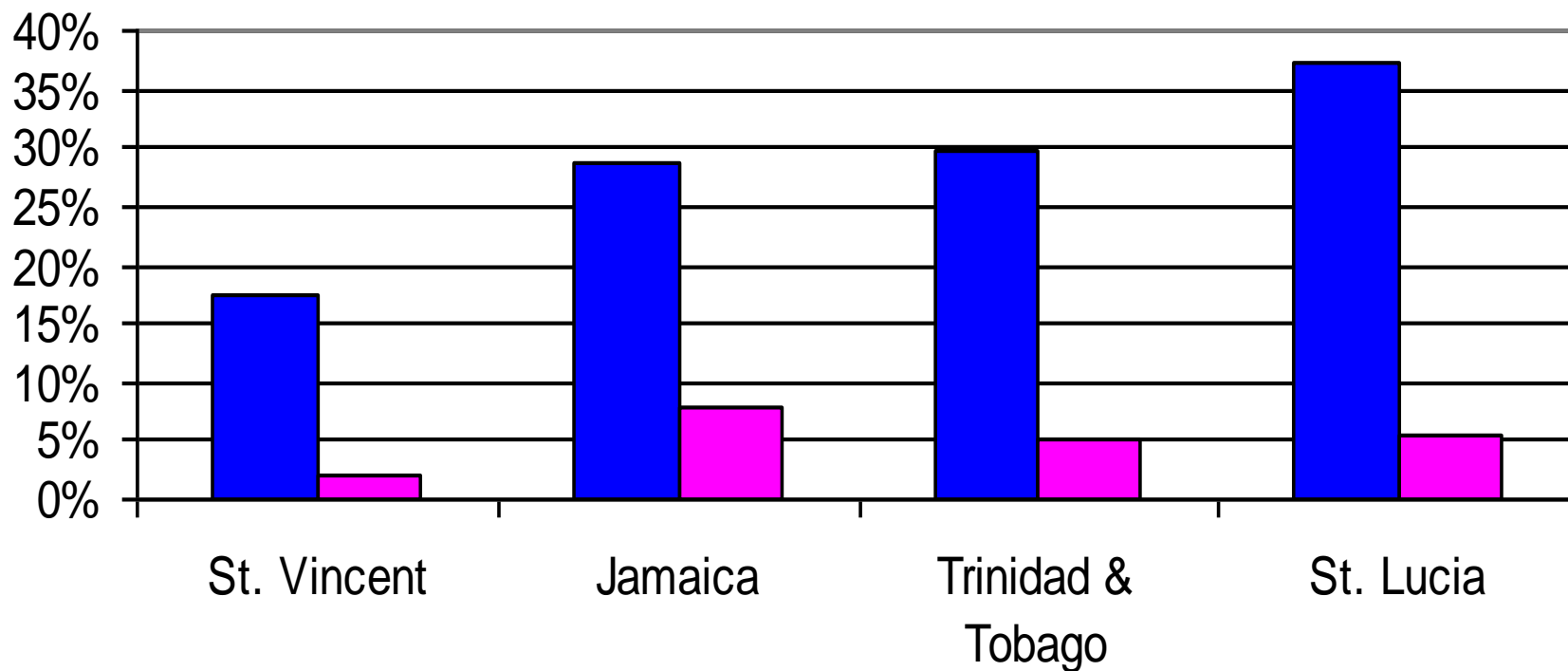


Trends in Fruit and Vegetable Consumption in the Caribbean 1961-2003



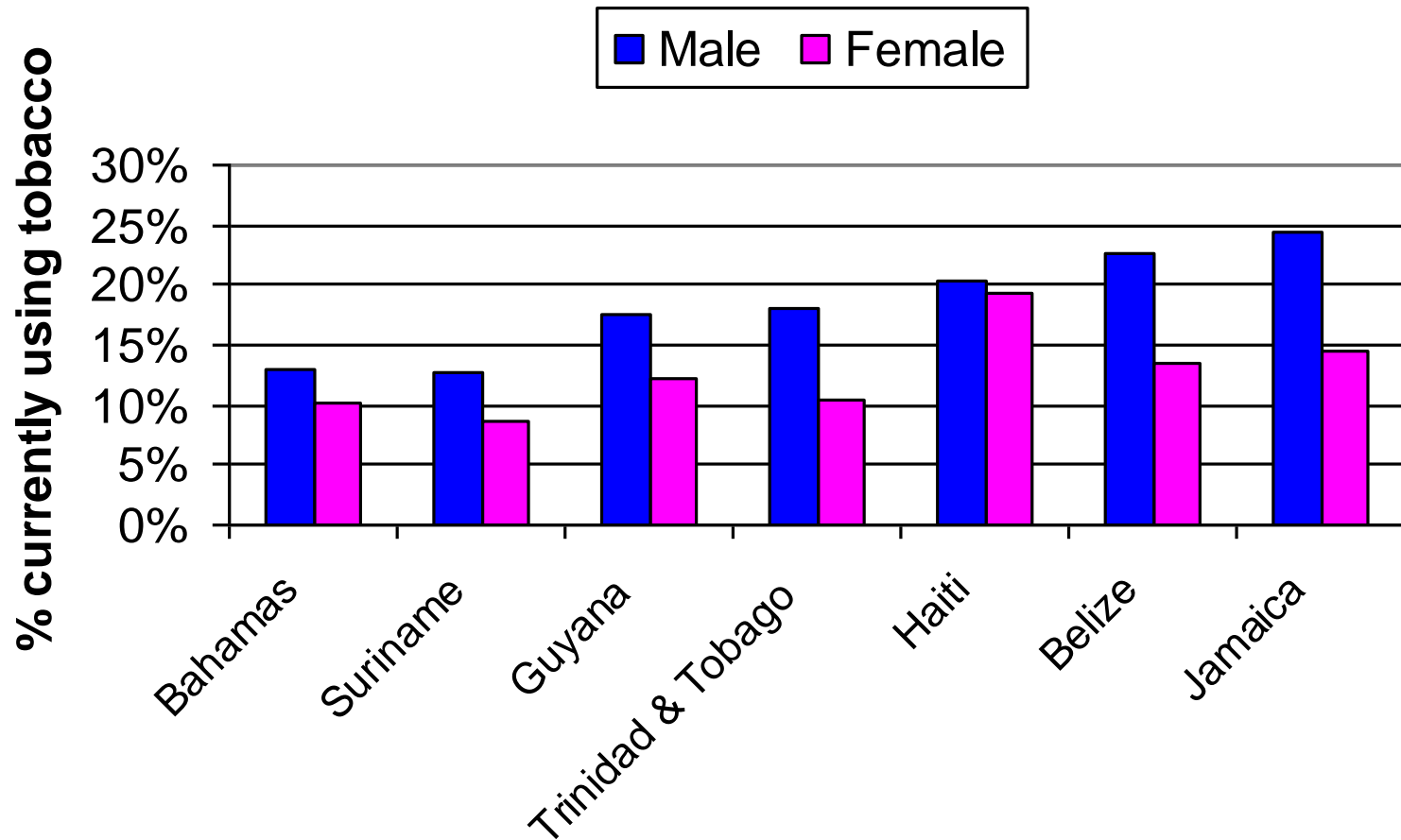
Tobacco Smoking in Adults in the Caribbean

■ Male ■ Female

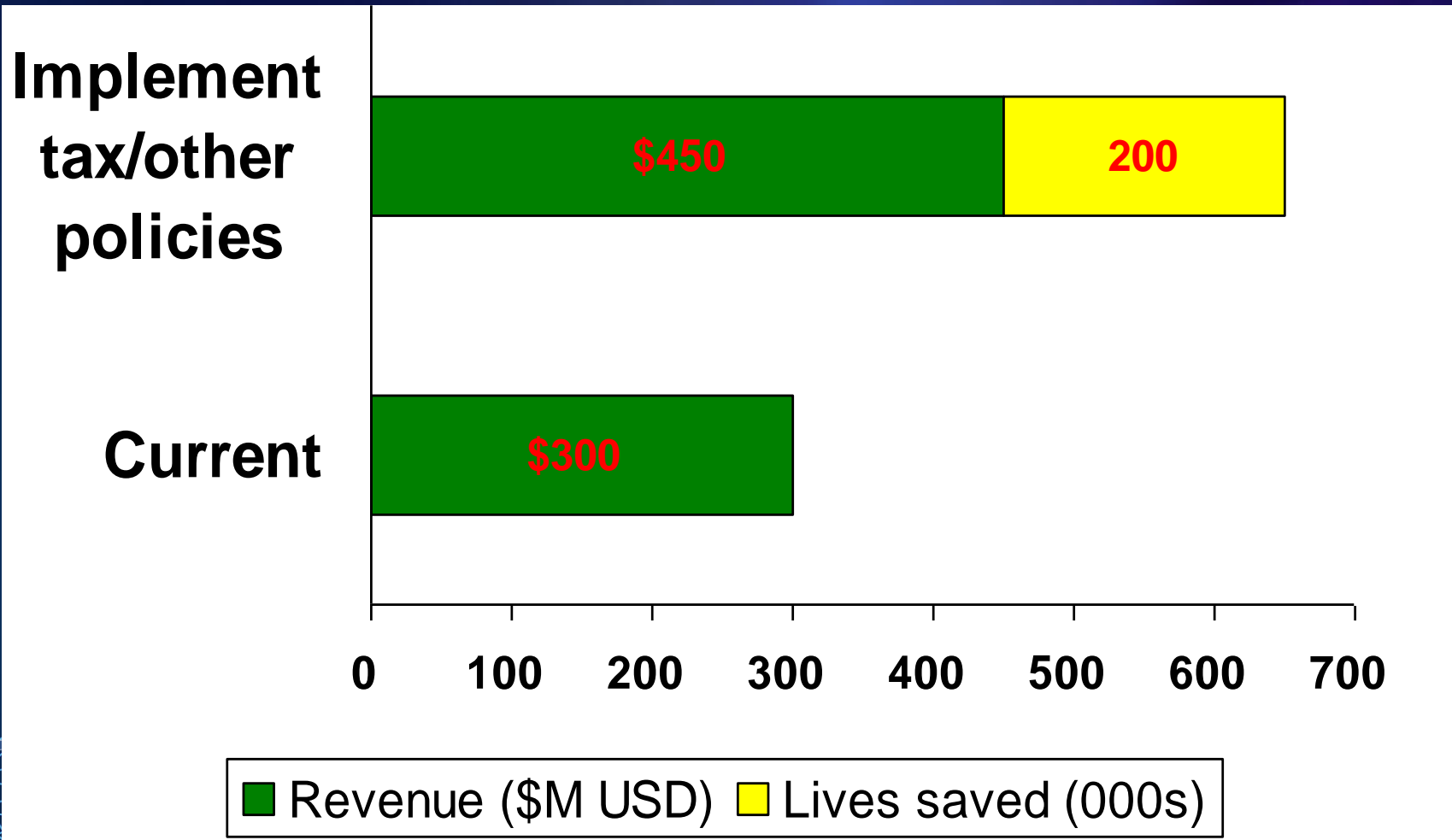


Tobacco Prevalence

Global Youth Tobacco Survey



Tobacco control could save lives and raise revenue in CARICOM



FCTC status

SIGNED, NOT YET RATIFIED

- **Bahamas**
- **Haiti**
- **St Kitts and Nevis**
- **St. Vincent & Grenadines**
- **Suriname**

• SIGNED AND RATIFIED

- **Trinidad & Tobago**
- **Suriname**
- **Guyana**
- **Belize**
- **Barbados**
- **Jamaica**
- **Antigua & Barbuda**
- **Grenada**
- **St. Lucia**



Smoking deaths in CARCIOM

(in thousands, indirect estimates)

| Causes | Men | | Women | |
|-------------------|-------------|----------------|-------------|----------------|
| | Total | Due to smoking | Total | Due to smoking |
| Cancers | 3.0 | 1.5 | 2.9 | 0.6 |
| Vascular/diabetes | 6.7 | 1.7 | 6.4 | 1.0 |
| Respiratory | 1.3 | 0.5 | 1.1 | 0.2 |
| Other NCD | 2.7 | 0.5 | 2.3 | 0.2 |
| Tuberculosis | 0.4 | 0.1 | 0.2 | 0.1 |
| TOTAL | 14.1 | 4.4 | 13.0 | 2.1 |



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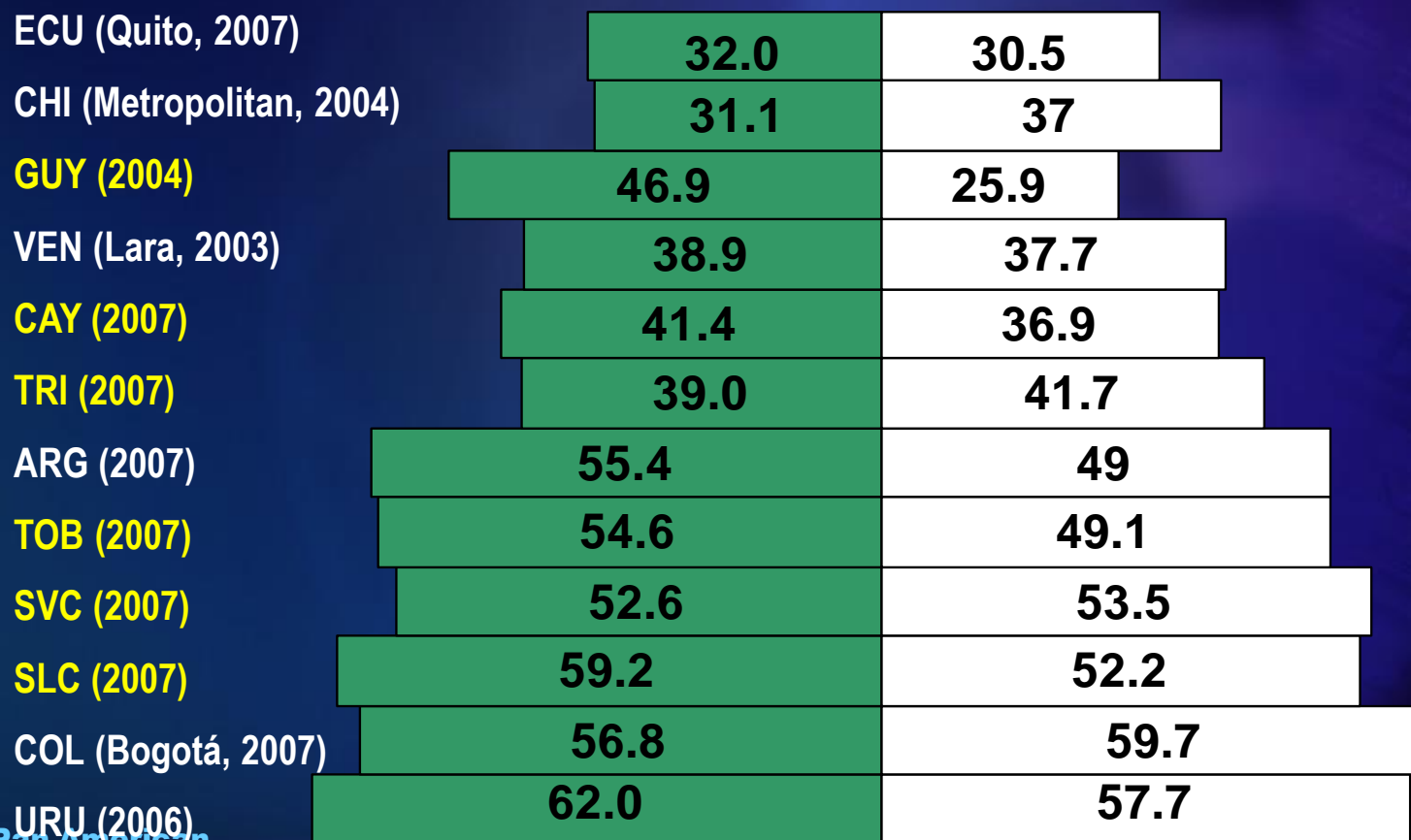
**30% of male deaths due to smoking?
and 15% of females?**

Source: Jha and Alleyne, 2007 ²⁰⁰⁵



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Percentage of Students Who Had at Least 1 Drink in the Past 30 Days



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■ Boys
□ Girls

We know ...

- **We have a very serious problem with Chronic diseases in the Caribbean, with worsening risk factors ... but we need more timely info on mortality, risk factors, social determinants, espec links to poverty**



Costs of Chronic Disease Epidemic



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Costs of NCDs

- Household: hits working-age adults
 - Direct: medical expenses, lost wages
 - Indirect: foregone time of caregivers, diminished development of human capital
- Firm: absenteeism, productivity
- Public sector
 - NCDs more complex and costly to treat
 - Drives costly technology and drugs trajectory



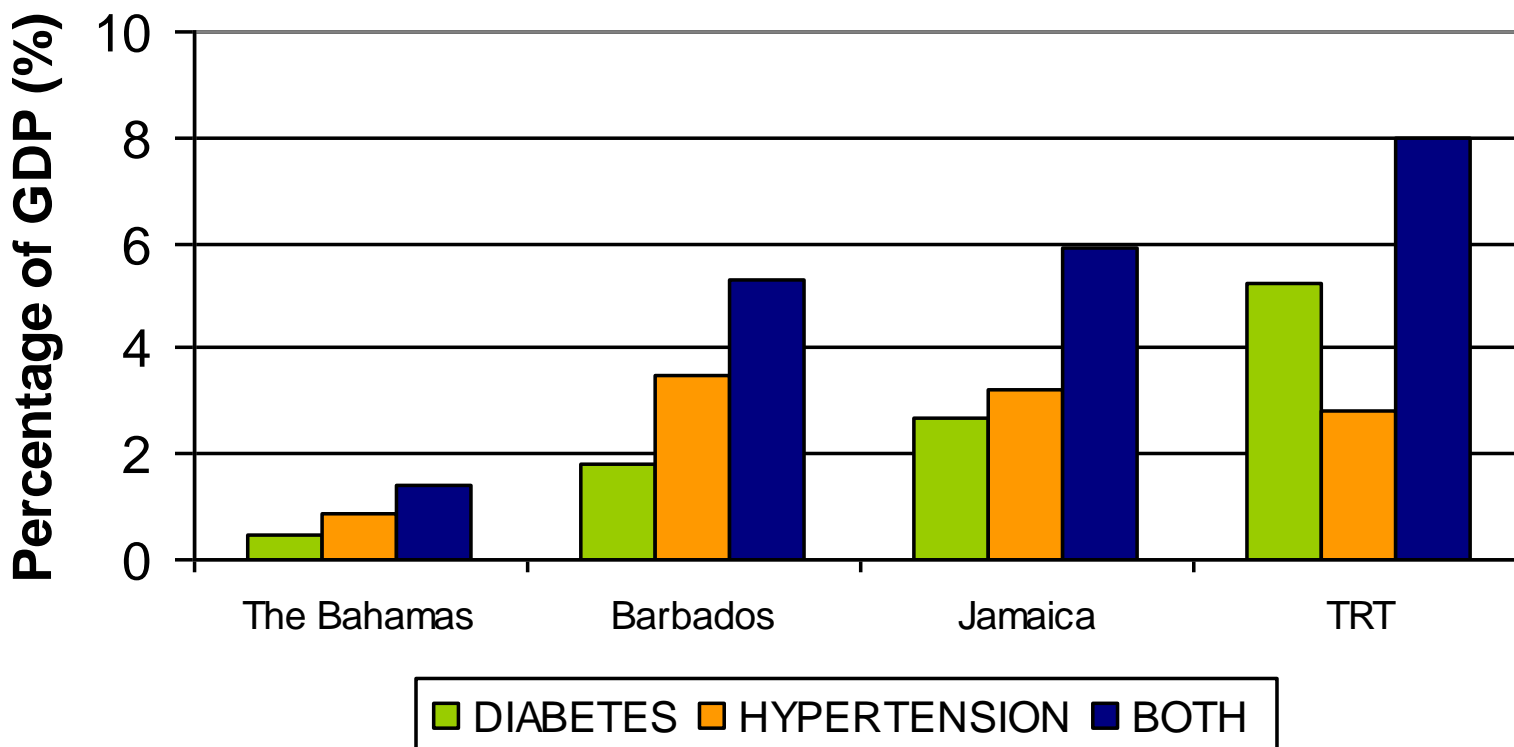
Estimated Economic Burden (\$US Million, 2001)

| | BAH | BAR | JAM | TRT |
|--------------|------|-------|-------|-------|
| Diabetes | 27.3 | 37.8 | 208.8 | 494.4 |
| Hypertension | 46.4 | 72.7 | 251.6 | 259.5 |
| Total | 76.7 | 110.5 | 460.4 | 753.9 |



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Economic Burden of Diabetes and Hypertension in Selected Caribbean Countries (2001)



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These data were provided by Dr. O. Abdullahi Abdulkadri

Complications of Diabetes and Hypertension

- **Amputations?**
- **Blindness?**
- **End Stage Renal Disease?**
- **Largely avoidable, very expensive in human and economic terms – we need to know more**



A consequence of Diabetes



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We Know ...

- **The human and economic cost burden is very high, is increasing, and not sustainable we need more/better cost data to make the case; more about relationship of NCDs as cause of poverty**



HOW IS THE REGION RESPONDING?



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**Regional Strategy
and Plan of Action on an
Integrated Approach to
Prevention and Control
of Chronic Diseases**

**Caribbean history of cooperation
in health**

**The Caribbean Cooperation in
Health Initiative (CCH) for health
development through increasing
collaboration and technical
cooperation among countries
CCH2 for 1997-2001; CCH3 for
2008-2013**



CARICOM Heads of Government Summit 15 September 2007

Declaration of Port of Spain - “Uniting to Stop the Epidemic of Chronic Non-communicable Diseases”



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DECLARATION OF PORT-OF -SPAIN: UNITING TO STOP THE EPIDEMIC OF CHRONIC NCDs:

- burdens of NCDs can be reduced by
 - comprehensive and integrated preventive and control strategies
 - at the individual, family, community, national and regional levels
 - through collaborative programmes, partnerships and policies
 - supported by governments, private sectors, NGOs and our other social, regional and international partners;



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NCD Policy Directions: Summit Declaration

- Comprehensive, Inter Sectoral approach; 14 points
- Structure and coordination, legal affairs, finance and taxes, food & agriculture, trade & consumer affairs, education & schools, public information, tobacco control, physical activity, Caribbean Wellness Day, and HEALTH – only 2 direct points
- “... Ministries of Health, in collaboration with other sectors, will establish by mid-2008 plans for the screening and management of chronic diseases and risk factors so that by 2012, 80% of people with NCDs would receive quality care and have access to preventive education based on regional guidelines;
- That we will establish, as a matter of urgency, the programmes necessary for research and surveillance of the risk factors for NCDs with the support of our Universities and the Caribbean Epidemiology Centre/Pan American Health Organisation (CAREC/PAHO)”



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We know ...

- **We have high level political commitment from the CARICOM Heads of Government; a 5-10 year agenda ... response/capacity in countries lags behind**
- **Our ability to measure coverage and quality of care urgently needs attention**
- **Good progress with finalizing regional plan, involvement of Private sector (CAIC), CWD very good, Ministers of Agriculture; some progress with National commissions, national summits**
- **Finance?**



Caribbean Responses Summarised

| | A N G | A N T | B A H | B A R | G U Y | H A I | J A M | S U R | T R T |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| National focal point, Department or Unit | | | ✓ | | | ✓ | ✓ | ✓ | ✓ |
| National law, legislation, decree | | | ✓ | | | | | ✓ | |
| National Objectives | | | | | | | | | ✓ |
| Implementation of FCTC | ✓ | | ✓ | | | | ✓ | | |
| Implementation of DPAS | | | ✓ | ✓ | | | ✓ | | ✓ |
| National system of Health reports, survey and surveillance | | | ✓ | ✓ | | | ✓ | ✓ | |
| Demonstrative community-based programs | | | ✓ | | | | | | |
| National standards and protocols for treatment | | | ✓ | | | | | | |
| Quality assurance of care | | | | | | ✓ | | | |
| Financial resources | | | ✓ | | ✓ | | ✓ | ✓ | |

Source: PAHO Survey of NCD National Response Capacity, 2005

- **The 2007 survey showed a greater number of countries reporting progress and several countries reported significant involvement of NGO and private sector organizations in many aspects of NCD prevention and control.**

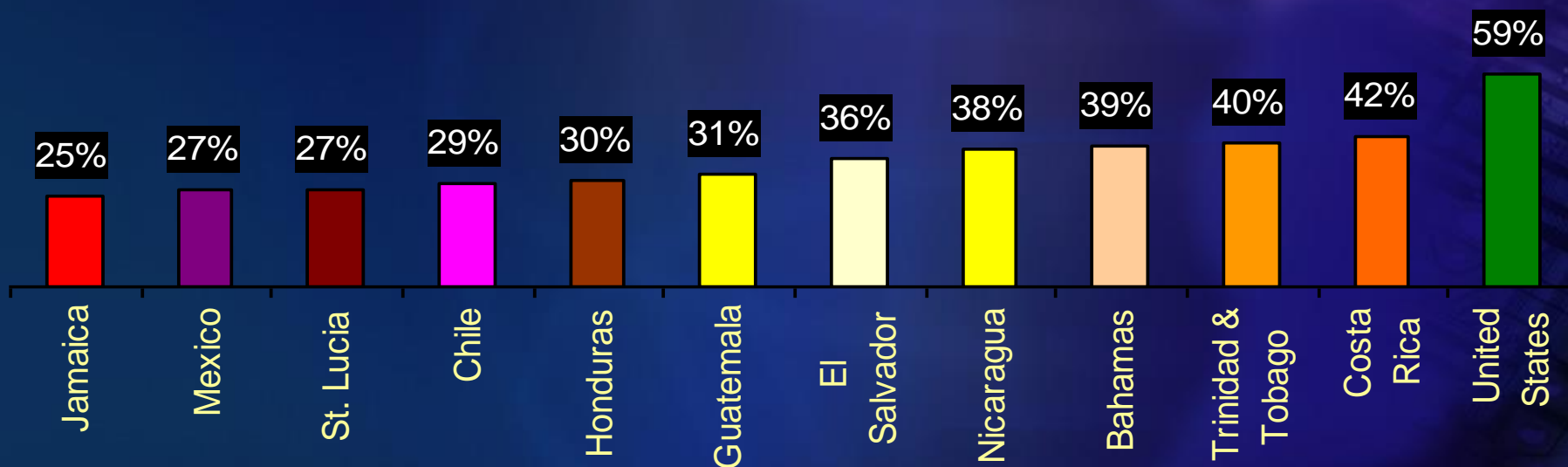


Coverage and Quality of care

- No system of measuring
- Some research studies, Mahabir & Gulliford, Andall, Barcelo



Proportion of patients with good glycemic control* in clinics by country

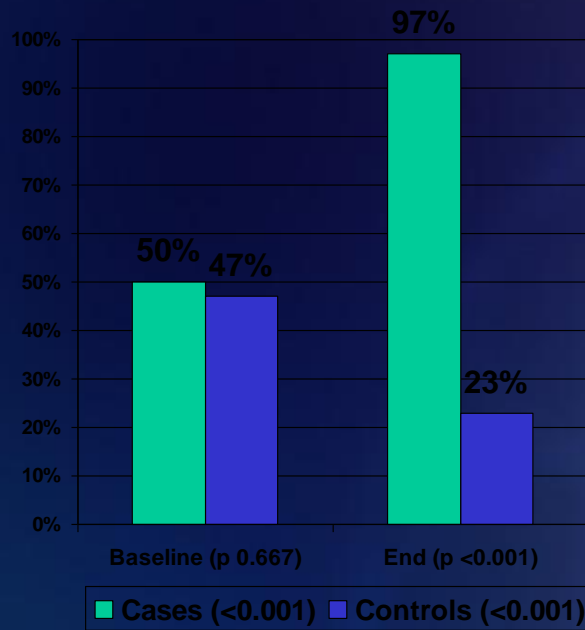


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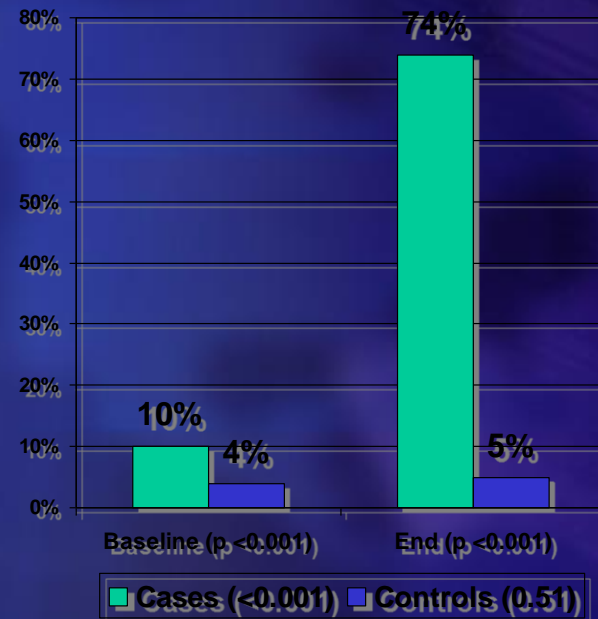
•Fasting glucose<130mg dl or A1c<7%

Source: Bahamas, Costa Rica, Guatemala, Jamaica, Mexico, Nicaragua, St. Lucia: PAHO unpublished; Chile, Ministerio de Salud; United States: CDC; T&T: Gulliford MC

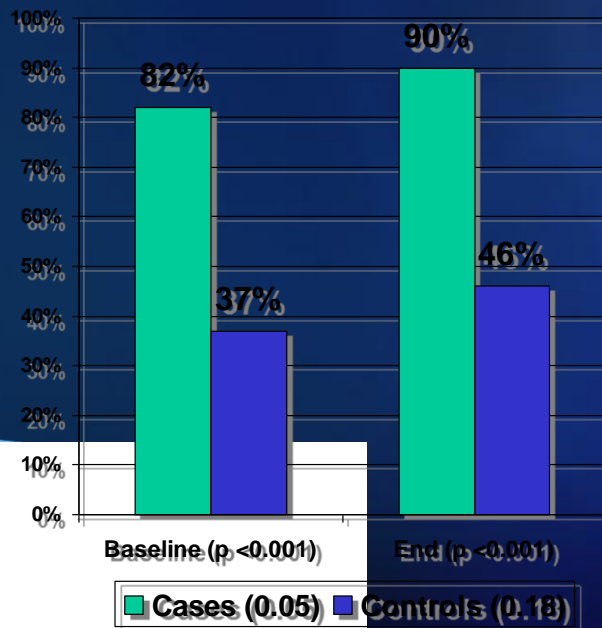
Foot Exam Reported



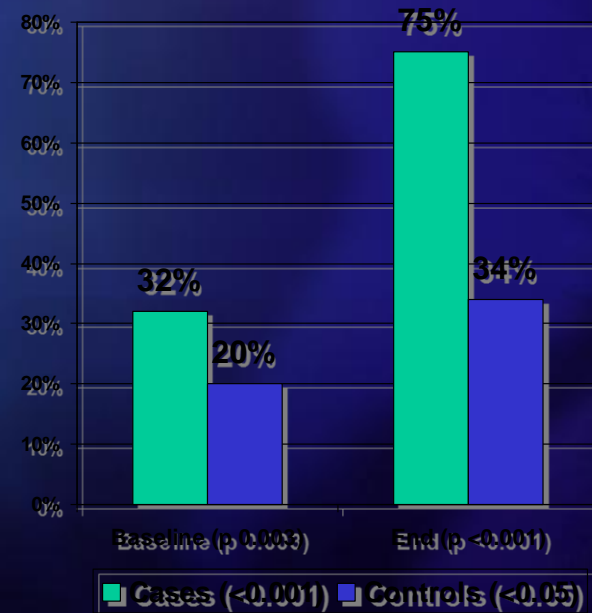
Eye Exam Reported



Nutritional Counseling



Documented Foot Care Education



Conclusions & Way Forward

- We have a very serious problem with Chronic diseases in the Caribbean, with worsening risk factors ... but we need more timely info on mortality, risk factors, social determinants, espec links to poverty
- The human and cost burden is very high, increasing, and not sustainable we need more/better cost data to make the case
- We have high level political commitment, but the response/capacity in countries lags behind ... we need to make them “walk the talk”
- We have a range of proven strategies and tools in PAHO, RHIs, countries, in other sectors and partners ... we need to know monitor better the extent to which they are being implemented... a **KEY PUBLIC HEALTH ISSUE** for health services and health NGOs is the %coverage and quality of care... we need new systems of measuring



NCD Summit Declaration # 5: Screening and integrated management: 80% by 2012

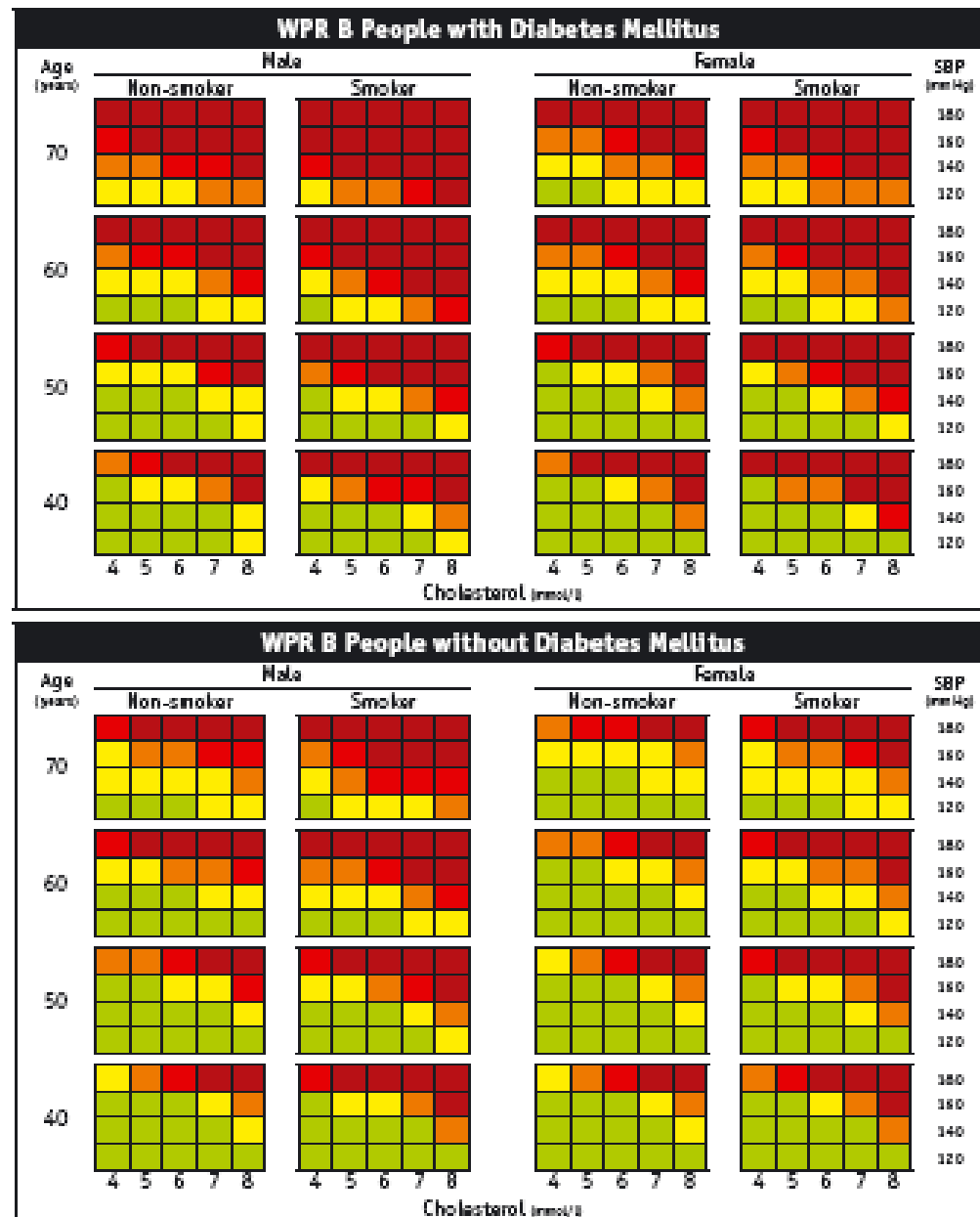
- Identification of target population to estimate undiagnosed
- Involvement of health NGOs and civil society
- Total Risk Approach recommended by CVD Experts Mtg
 - (10 year risk of a fatal or non-fatal cardiovascular event, by gender, age, smoking status, diabetes status, systolic blood pressure and total cholesterol)



AMR B CARICOM

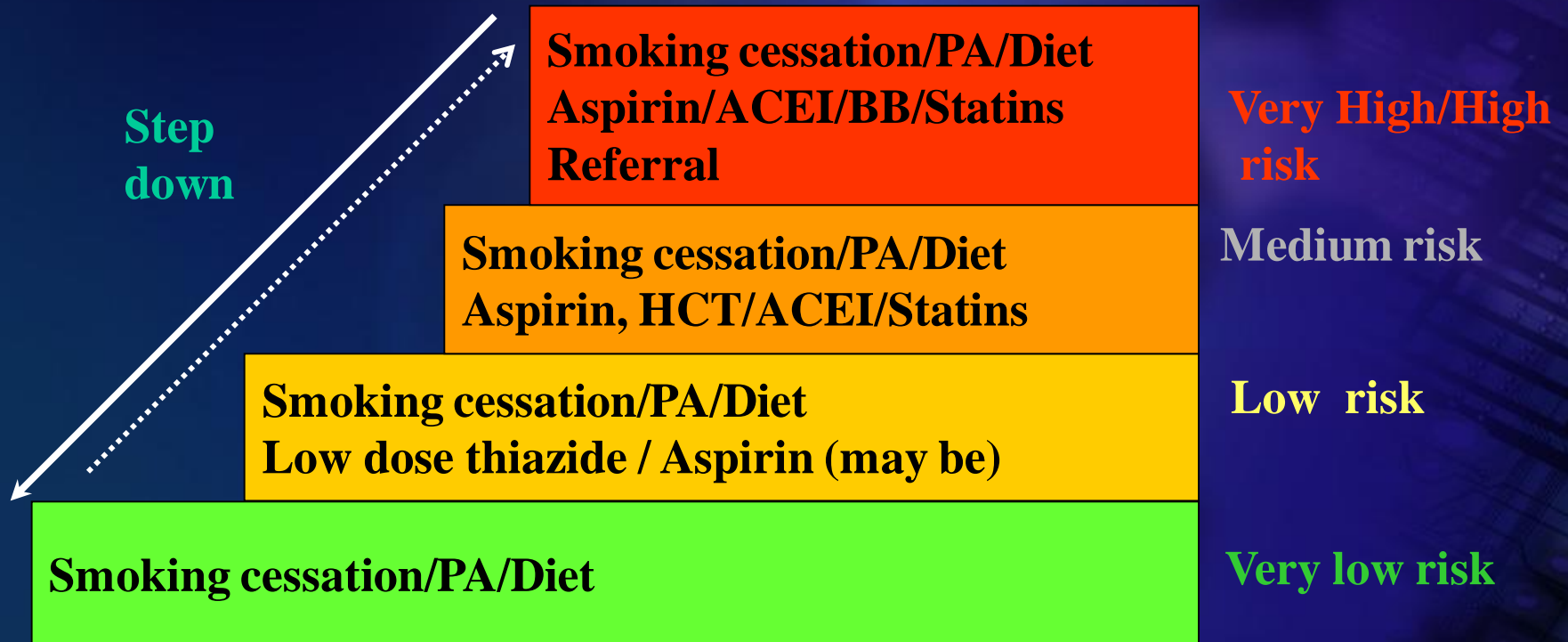
Figure 2. WHO/ISH risk prediction chart for WPR B. 10-year risk of a fatal or non-fatal cardiovascular event by gender, age, systolic blood pressure, total blood cholesterol, smoking status and presence or absence of diabetes mellitus.

Risk Level ■ <10% ■ 10% to <20% ■ 20% to <30% ■ 30% to <40% ■ ≥40%



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Simplified -Standardized care for heart attacks and strokes prevention



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GL : Diagnose/grade risk with simple indicators & Rx

Healthy Eating (POS # 6,7,8 9)

Ministers of Agriculture of CARICOM,

St. Ann Declaration, 9 October 2007

- Implementing Agriculture and Food Policies to prevent Obesity and NCDs in CARICOM
- Use Regional and WTO agreements to ensure **food security**
- Support the CRNM to pursue **fair trade policies**
- Policies that explicitly incorporate nutritional goals
- **Elimination of trans-fats** from our food supply using CFNI as a focal point
- **Labeling** of foods to indicate their nutritional content
- Public education for increased consumption of **fruits and vegetables**
- **Food Security** Plan for prevention and control of NCDs



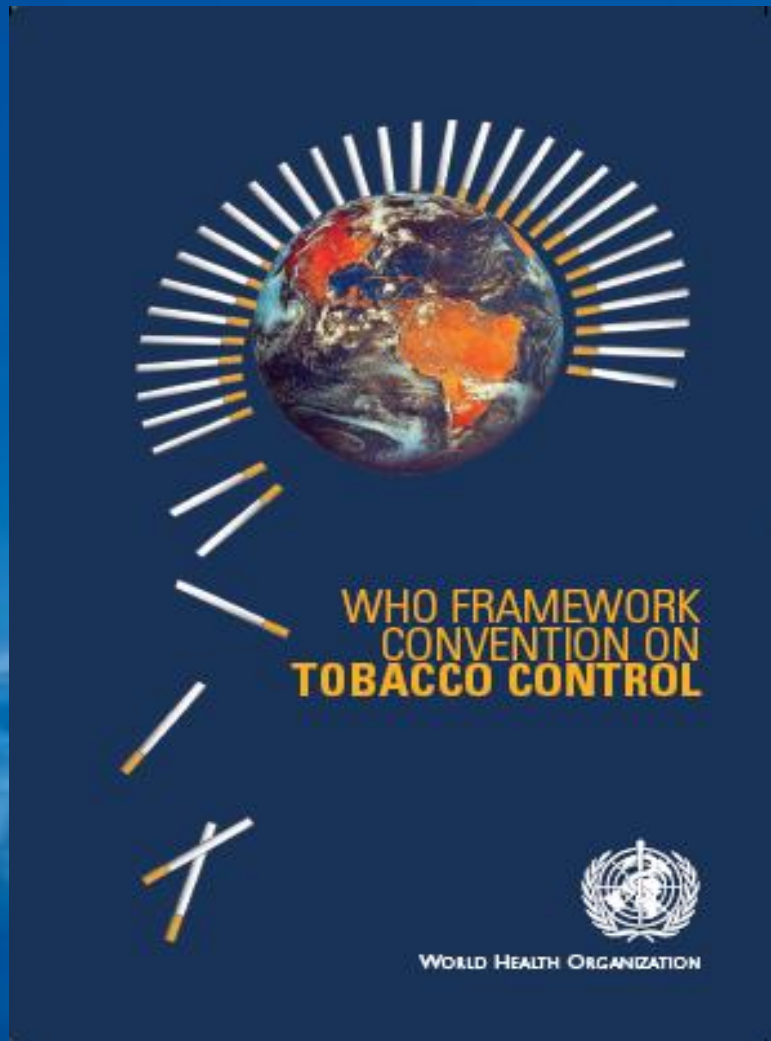
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Promoting Physical Activity

- Education, communication and Personal individual efforts
- Change the environment;
 - Mass transport policies (good for health and environ)
 - Compulsory phys ed in schools
 - Car-free streets/Sundays, Ciclovias
 - Bike and pedestrain trails/zones (good for tourism also)
 - Fiscal incentives
 - Workplace policies and programs
 - Constant communication on benefits (e.g., walk ½ hr per day; reduce risk of heart attack by half")



The WHO Framework Convention on Tobacco Control (WHO FCTC)



UN treaty to re-invigorate tobacco control efforts

- Establishes tobacco control as a priority on the public health agenda**
- Provides an evidence-based tool for adoption of sound tobacco control measures**
- Introduces a mechanism for firm country commitment and accountability**

Tobacco

Actions to save 150 – 300,000 lives in CARICOM:

- Implement the Framework Convention on Tobacco Control (FCTC)
- Focus on adults stopping as well as kids not starting
- Triple excise tax on cigarettes: double retail price, 30% drop consumption and raise US\$150M in taxes
- Other interventions:
 - o big, local packet warnings
 - o labels with tax stamp (to counter smuggling)
 - o absolute ad ban,
 - o complete ban on public smoking



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Involvement of Private Sector, Media and Labor (POS #12)

- **CAIC / PAHO meeting May 8&9 2008, POS**
 - **CAIC Statement in support of NCD prevention and control issued**
 - **Workplace Wellness program with all components - HIV, NCDs and Injuries.**
 - **Healthy Products**
 - **Support for Caribbean Wellness Day**
 - **Manufacturers want meeting with CROSQ to set healthy standards for foods**



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Involvement of the Civil Society

- **Education and information**
- **Advocacy**
- **Screening and treatment services where appropriate**
- **Palliative care**

- **Health NGOs**
- **Churches and faith based organizations**
- **Labour unions**
- **Consumer's associations**



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THANK YOU

