



# **Pan American Health Organization**



*Regional Office of the*  
**World Health Organization**

# **Regional Workshop The Economic, Fiscal and Welfare Implications of Chronic Diseases in the Americas**

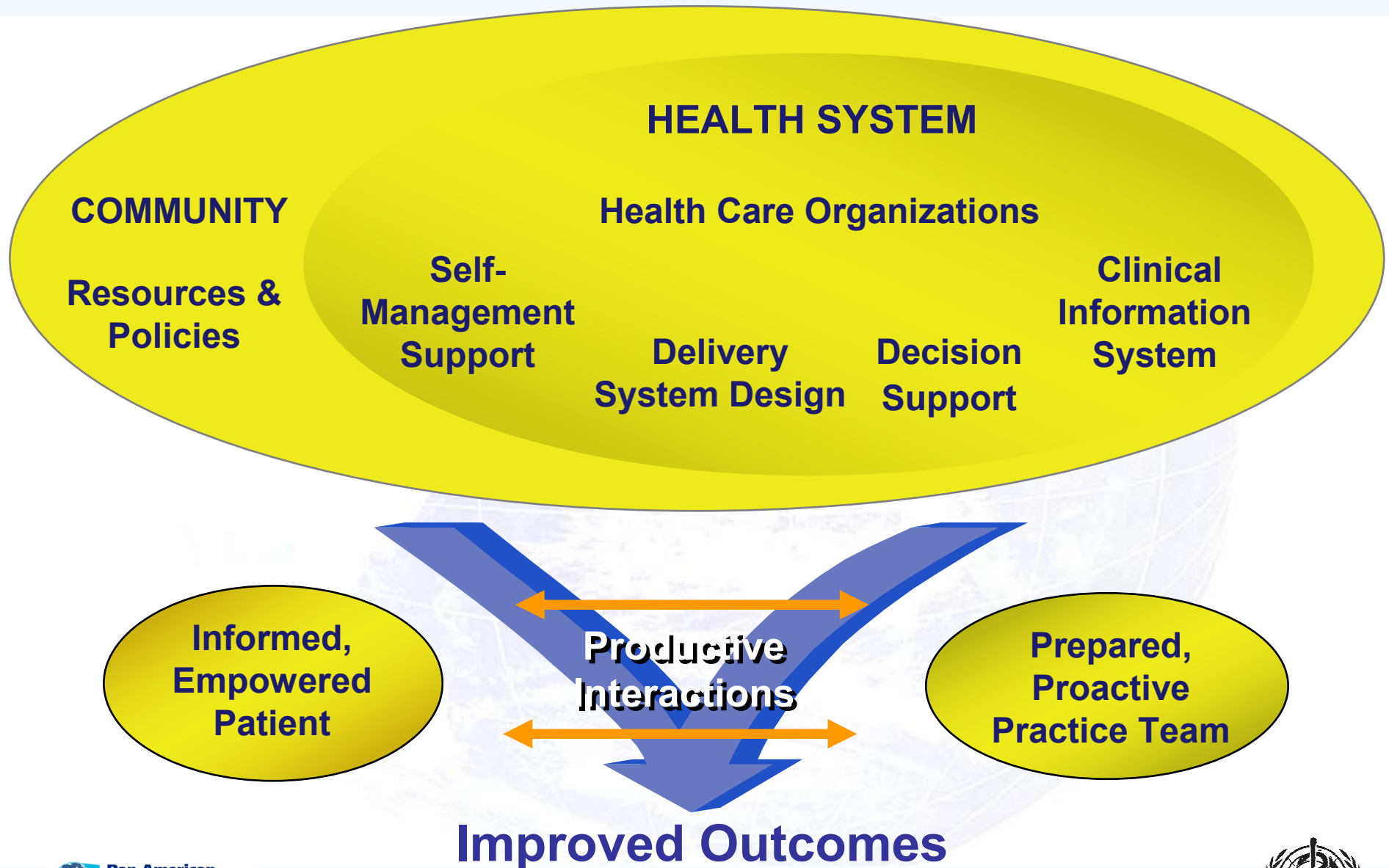
# ***The Costs of Chronic Diseases in Latin America and the Caribbean: The Case of Diabetes***

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PAHO, Washington DC, USA

# Outline

- The burden of diabetes in Latin America & the Caribbean
- The Burden of Diabetes Mortality in the Caribbean
- The Cost of Diabetes Screening: An Example from Brazil
- Cost evaluation with IDF
- Conclusions

# Chronic Care Model



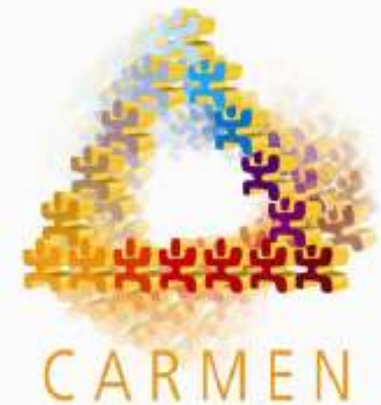


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**Chronic Illness Care**



# Evidence Based Chronic Illness Care

**MILLER** | SCHOOL OF MEDICINE  
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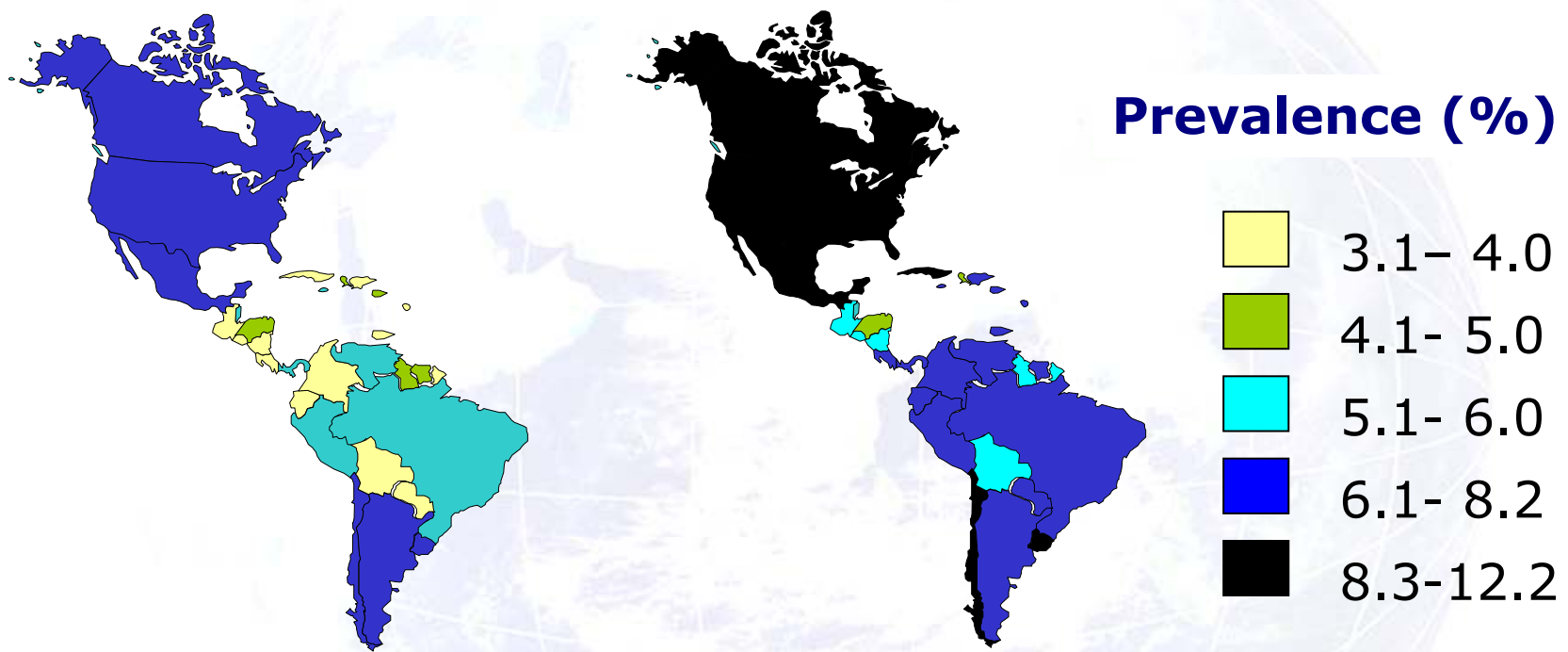
Chronic Illness Care



Cuidados Crónicos

# PREVALENCE

# Prevalence estimates of diabetes in the Americas, 2000-2025\*



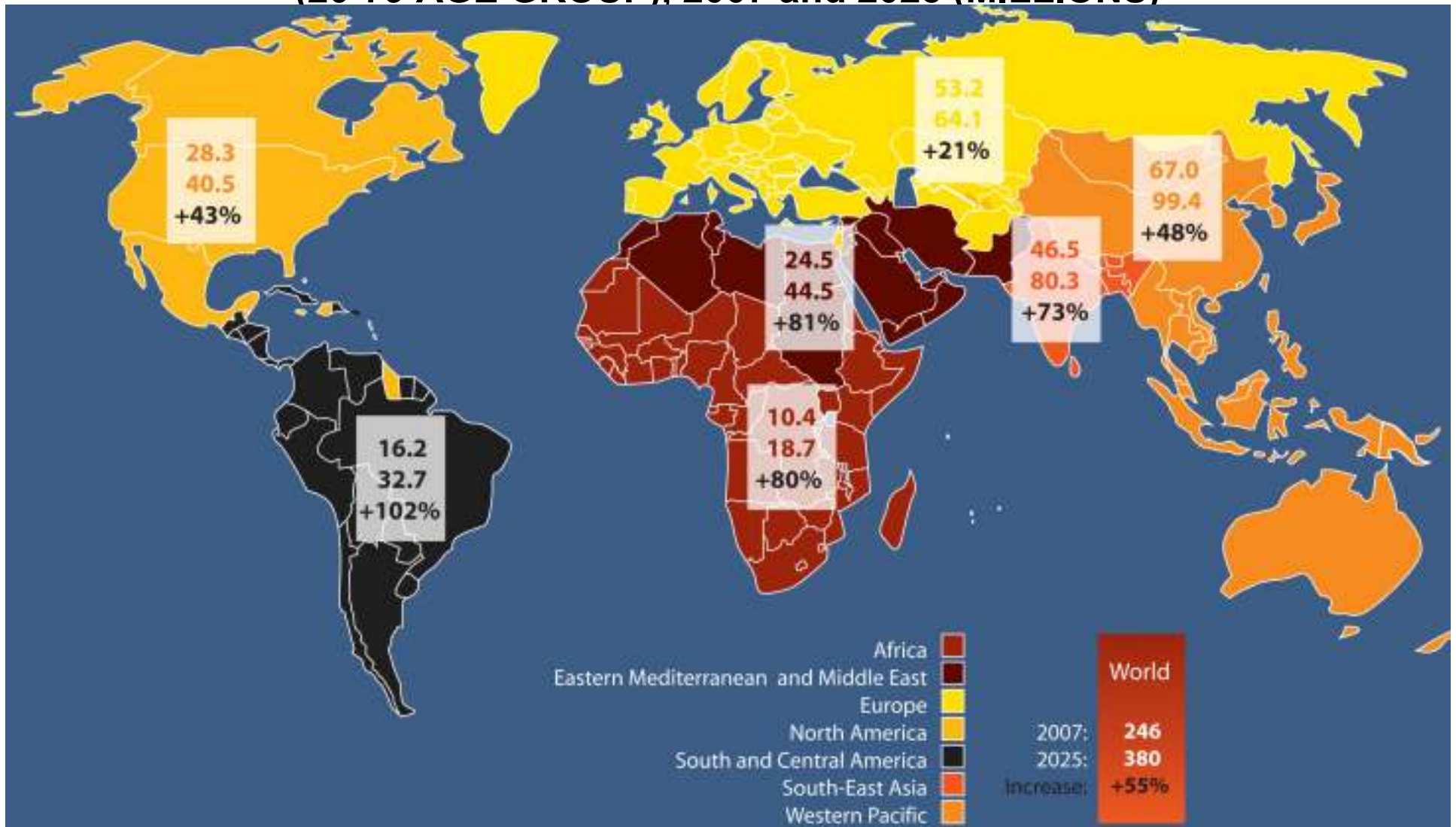
**2000: 35 Million**

**2025: 64 Million**

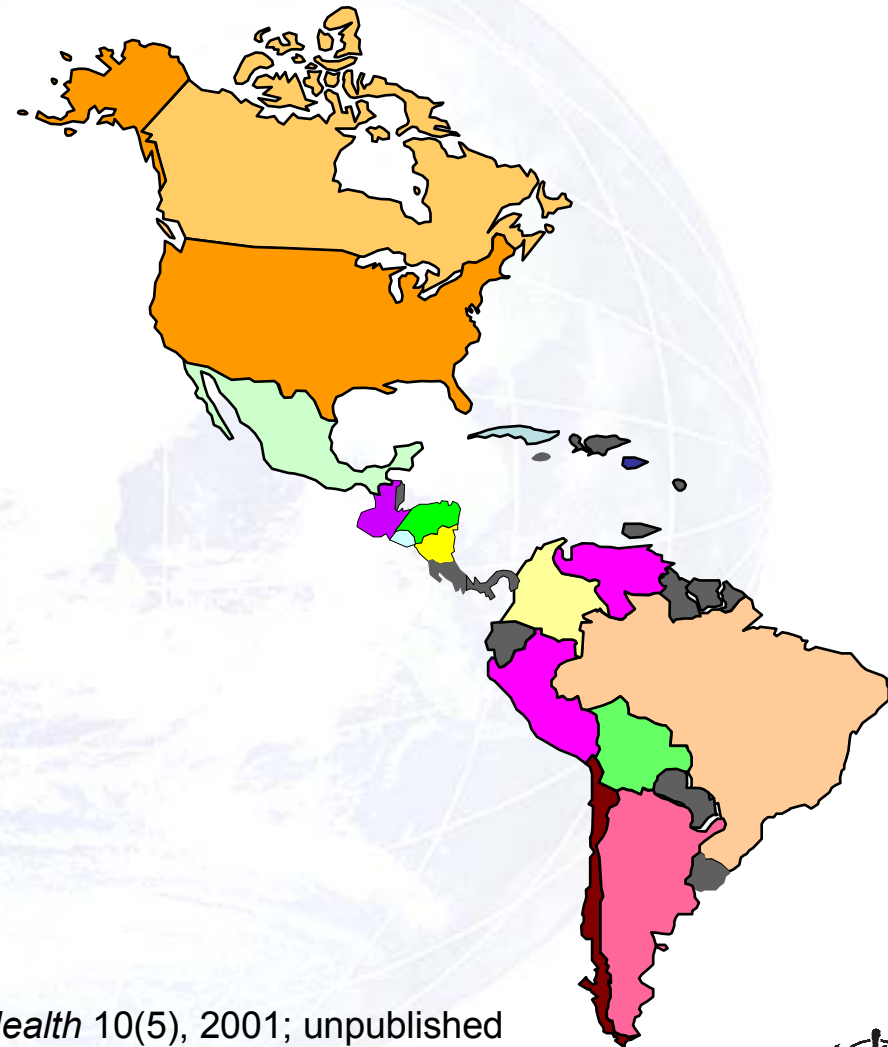
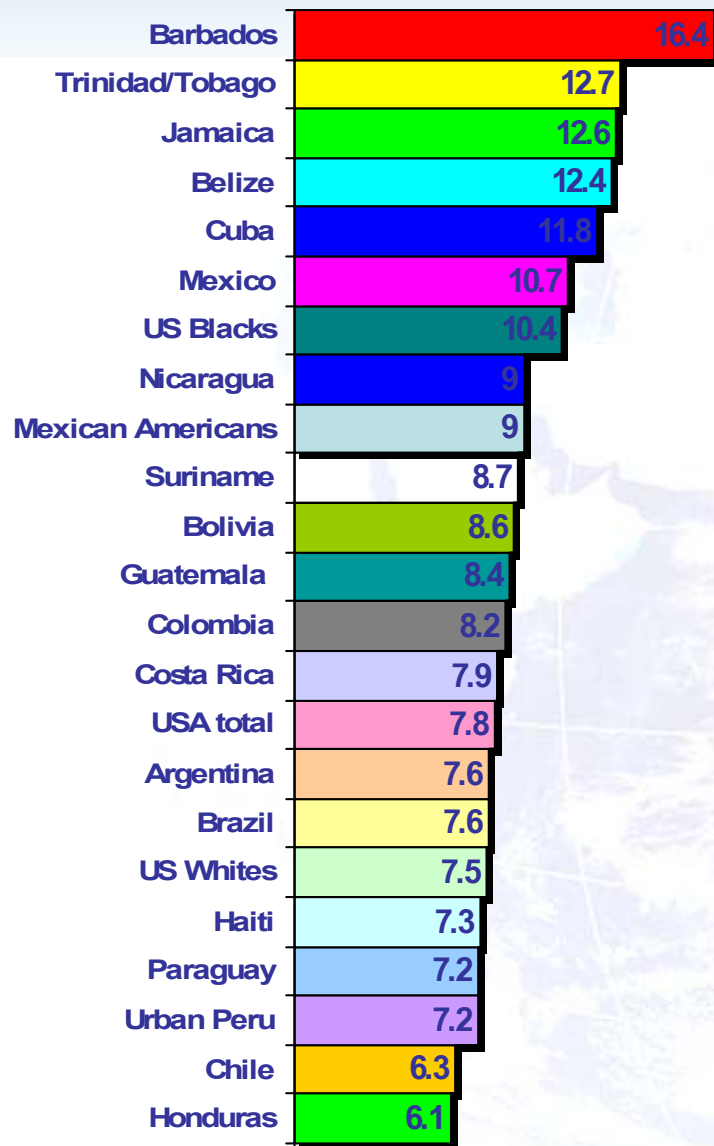
\* Source: King H, Aubert RE, Herman WH. Global Burden of Diabetes, 1995-2025. *Diabetes Care* 1998;21:1414-1431



# GLOBAL PROJECTIONS FOR THE NUMBER OF PEOPLE WITH DIABETES (20-79 AGE GROUP), 2007 and 2025 (MILLIONS)

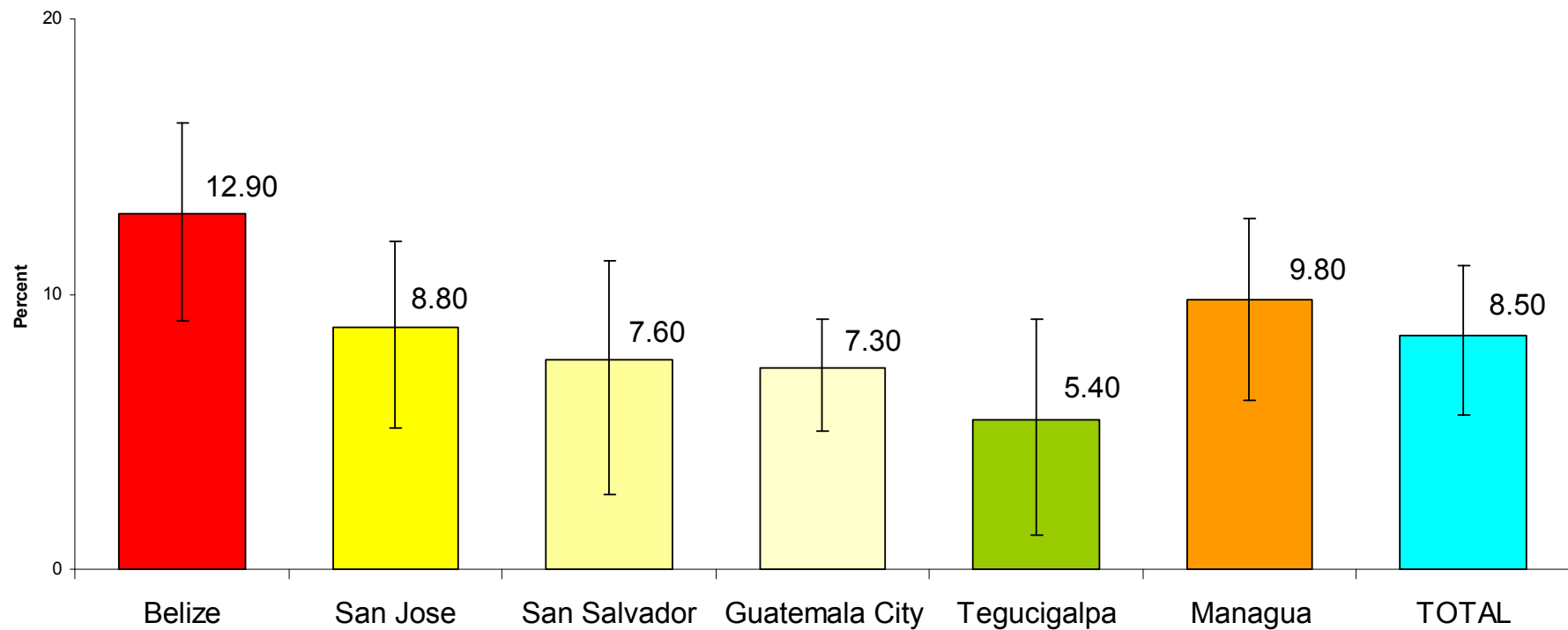


# Prevalence (%) of diabetes among adults in the Americas



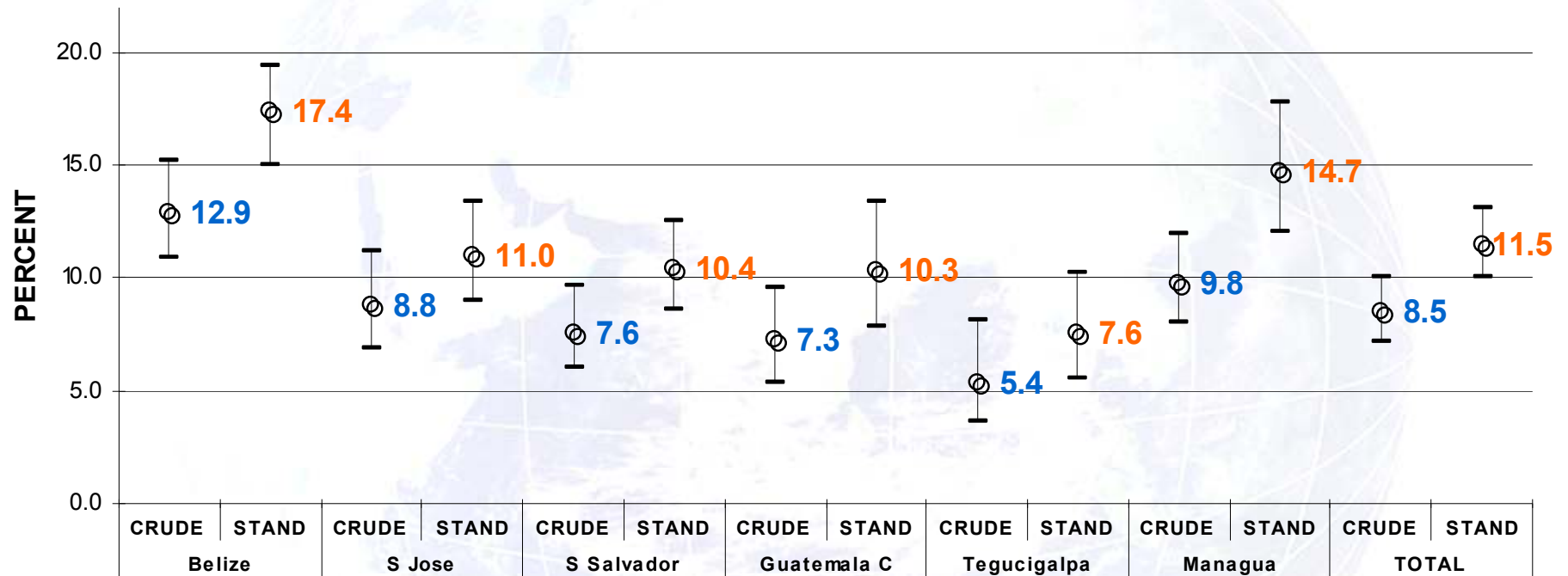
Source: *Pan Am J Public Health* 10(5), 2001; unpublished (CAMDI), Haiti (Diabetic Medicine); USA (Cowie, Diabetes Care)

## Prevalence of DM (%) and 95%-CI among adults by country, the CAMDI Study.

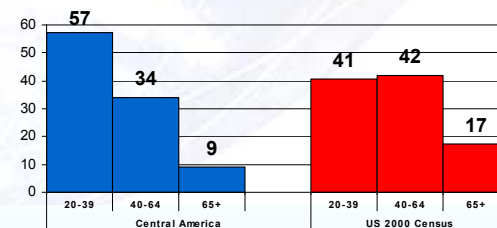


Barceló A, et al. The Growing Threat of Diabetes in the Developing Americas: The Central America Diabetes Initiative. In preparation, 2008.

# Crude and Standardized Prevalence (% , 95%-CI) of Diabetes by site. The CAMDI Survey, 2002-2005



**Standardized by the direct method using the US 2000 Census population as standard**



**In Latin American and the Caribbean, it has been demonstrated that people with diabetes are 1.5 times less frequently employed (36% vs. 56%), 1.8 times less likely to achieve a technical or university degree (7.8% vs. 13.8%), and 2.6 times more frequently permanently disabled (8% vs. 3%).**





# Latin America and the Caribbean

Population = 500 million

People with diabetes = 15.2 million

## Indirect Cost



Deaths  
= 339,035

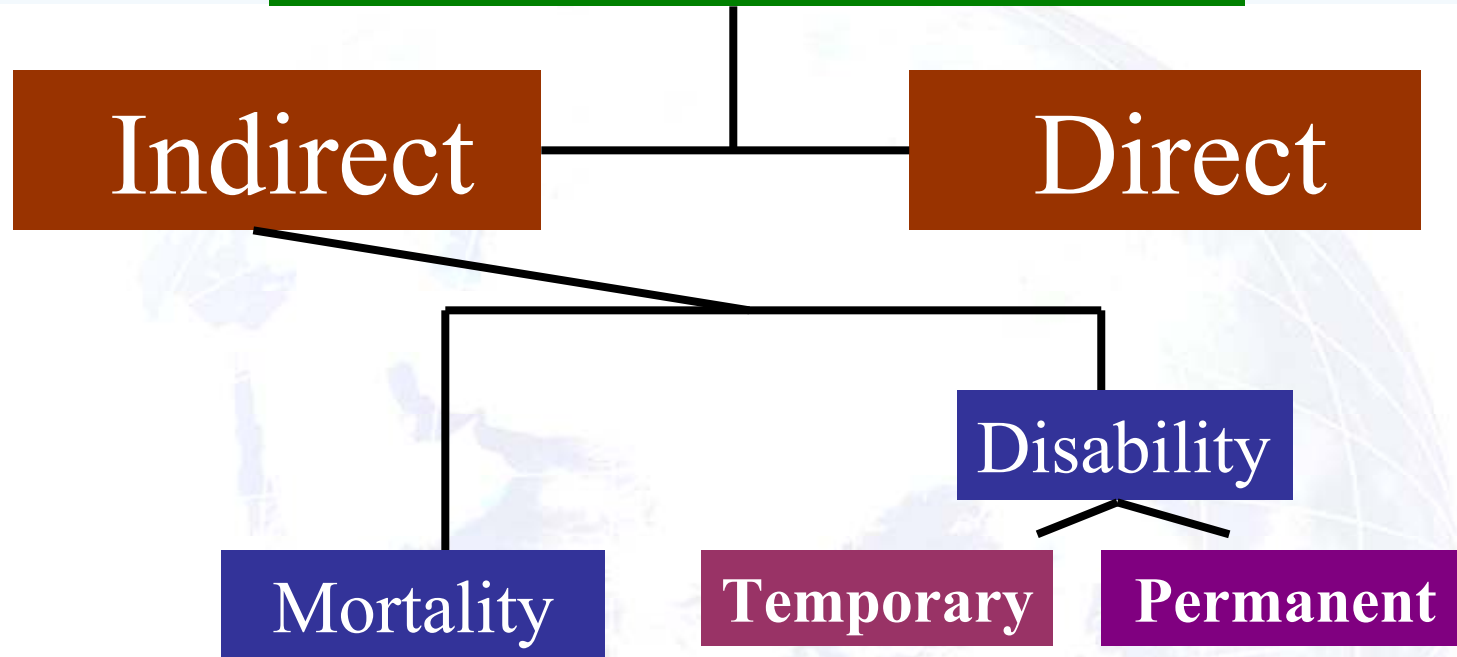


Temporarily  
disabled  
= 2.4 million



Permanently  
disabled = 726,575

# Cost of diabetes



	<b>Mortality</b>	<b>Temporary</b>	<b>Permanent</b>
<b>Number</b>	339,035	6,096,500	726,575
<b>YPLL</b>	757,096	136,701	12,699,087
<b>Cost(US\$)</b>	\$ 3,099 M	\$ 763 M	\$ 50,633 M



# Direct Costs

Hospitalizations



1,012.0 M US\$

Consultations



2,508.4M US\$

Complications



2,480.4 M US\$

Drugs/ Lab



1,940 M US\$

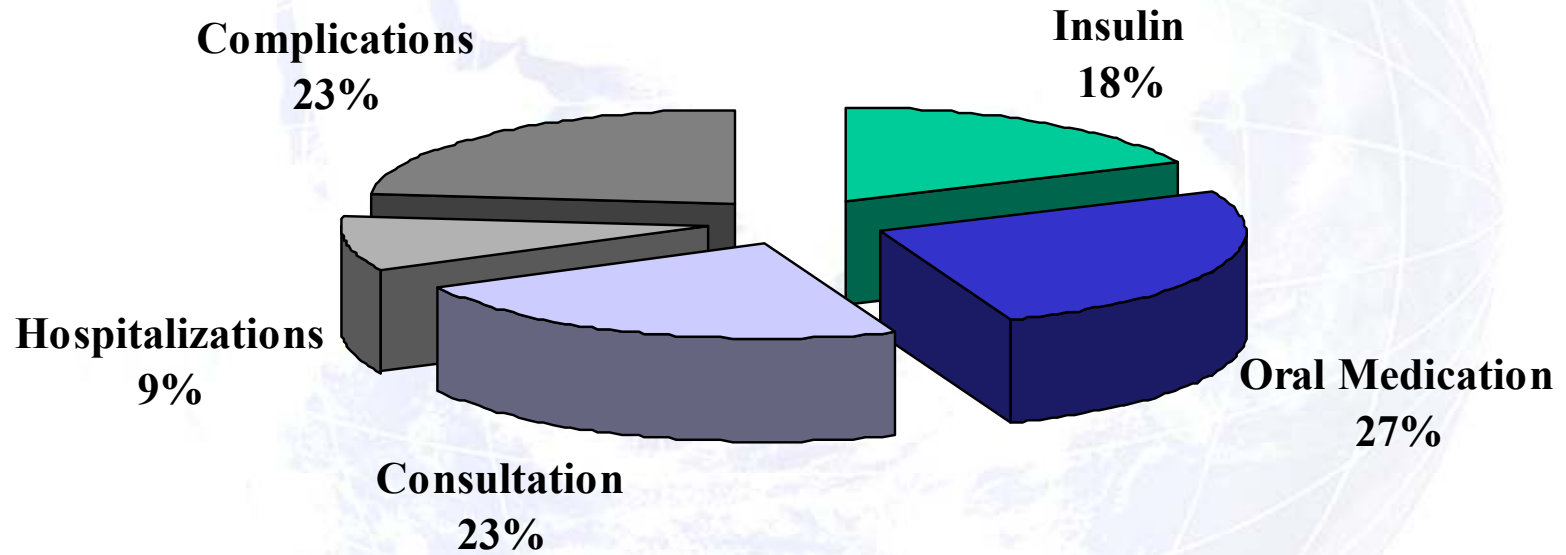


Oral drugs

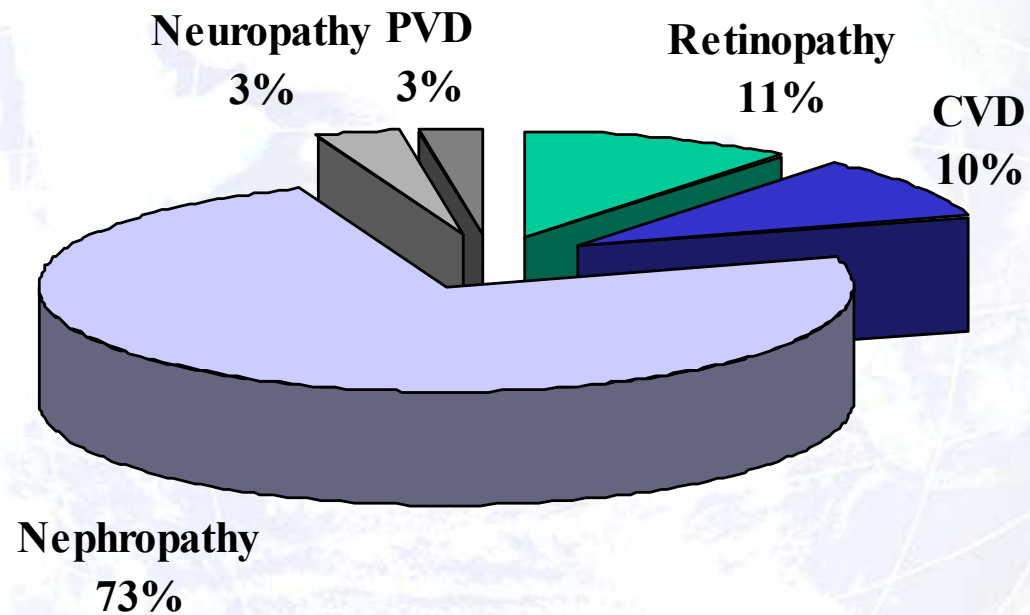
2,780 M US\$

Total= US \$  
10,721 billion

# Direct Cost of Diabetes in Latin America and the Caribbean



# The Cost of Diabetes Complications in Latin America and the Caribbean



# The Burden of Diabetes Mortality in the Caribbean

# Aim

- to estimate the economic cost attributed to diabetes mortality in 10 English speaking Caribbean countries (Antigua & Barbuda, the Bahamas, Barbados, Belize, Dominica, Jamaica, St. Vincent & the Grenadines, St. Kitts and Nevis, St. Lucia and Trinidad & Tobago).

# Methods

A prevalence-based approach using the Population Attributable Fraction (PAF) was combined with the human capital approach to estimate Years of Potential Life Lost (YPLL), and Years of Productive Life Lost (YPLL) due to diabetes mortality among people aged 40 years and older

$$PAF = P_e (RR-1)/(1+(P_e(RR-1))) [1]$$

$P_e$  – proportion of the population exposed to the factor

$RR$  – unadjusted relative risk of mortality associated with diabetes

