

**World Diabetes Foundation Summit for Latin America**

**Salvador, Bahia, Brazil**

**30 June – 2 July 2010**

# **Estimates of the global and regional burden of diabetes**

**Gojka Roglic**



World Health  
Organization



International  
Diabetes  
Federation

# IDF DIABETES ATLAS

4<sup>th</sup> Edition



International  
Diabetes  
Federation

IDF DIABETES ATLAS

# Number of persons with diabetes in the world 2010 (IDF Atlas, 4th ed)

- 285 million in 2010
- 438 million in 2030

# Number of persons with IGT in the world 2010 (IDF Atlas, 4th ed)

- 344 million in 2010
- 472 million in 2030

# Top 10 countries in the number of persons with diabetes (millions)

2010	
1. India	50.7
2. China	43.2
3. USA	26.8
4. Russian Fed	9.6
5. Brazil	7.6
6. Germany	7.5
7. Pakistan	7.2
8. Japan	7.1
9. Indonesia	7.0
10. Mexico	6.8

# Top 10 countries in the number of persons with diabetes (millions)

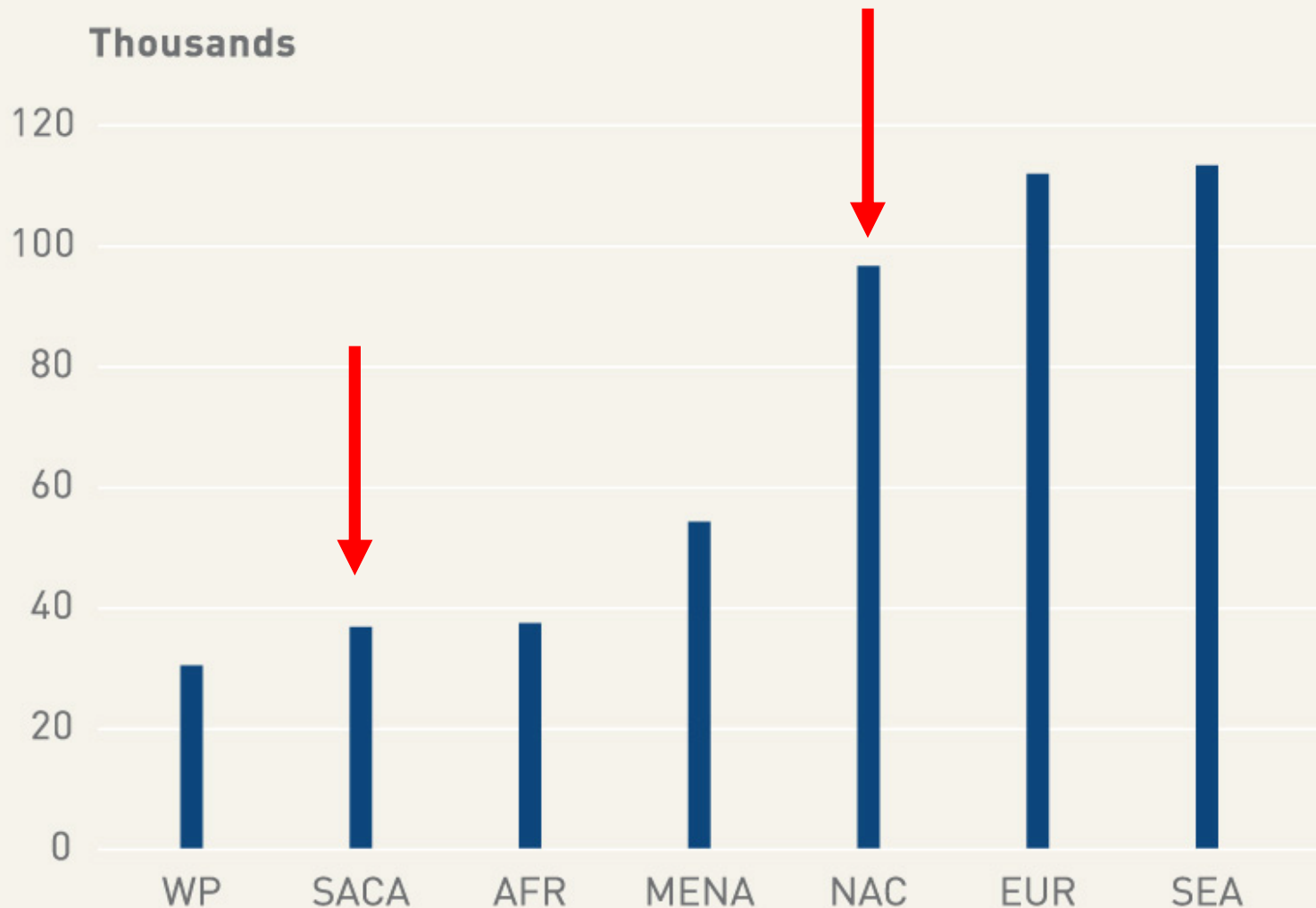
2010	
1. India	50.7
2. China	<del>43.2</del> 92.4
3. USA	26.8
4. Russian Fed	9.6
5. Brazil	7.6
6. Germany	7.5
7. Pakistan	7.2
8. Japan	7.1
9. Indonesia	7.0
10. Mexico	6.8

# Top 10 countries in diabetes prevalence in the world ( IDF Atlas, 4<sup>th</sup> ed)

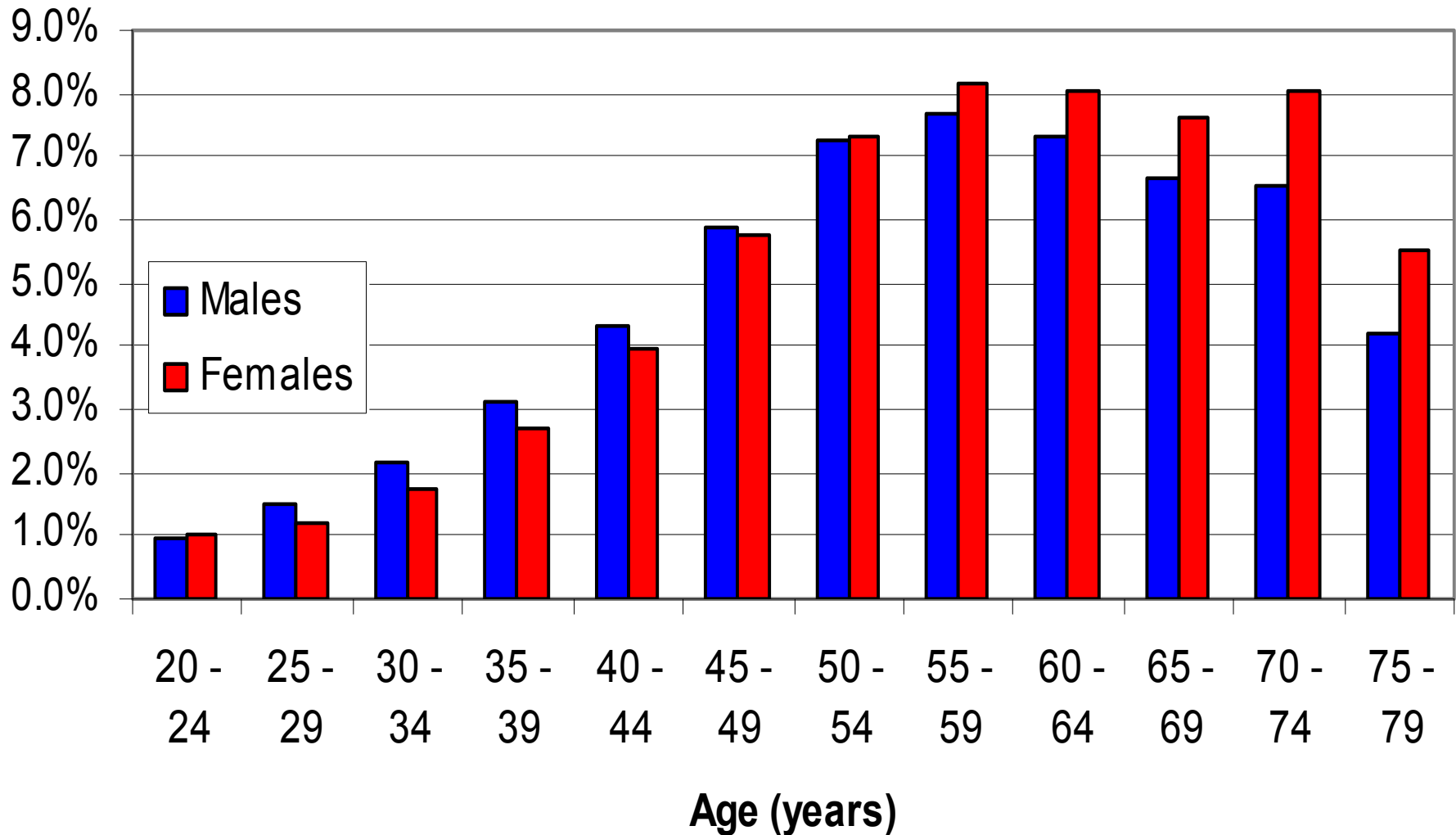
Rank and country	Age-adjusted prevalence of diabetes in 20-79 yr age group (%)
1. Nauru	30.9
2. United Arab Emirates	18.7
3. Saudi Arabia	16.8
4. Mauritius	16.2
5. Bahrain	15.4
6. Kuwait	14.6
7. Seychelles	14.4
8. Tuvalu	13.9
9. Oman	13.4
10. Trinidad & Tobago	11.7

FIGURE 2.4

# Estimated number of prevalent cases of type 1 diabetes in children, 0-14 years, by region, 2010 (IDF Atlas, 4<sup>th</sup> ed)



# World diabetes prevalence in 2010 (IDF Atlas)



# What is the burden of diabetic complications ?

- No recent global/country estimates....
  - Very few population-based studies
  - Lack of standardized definitions



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**Global Burden of Disease update for 2005**



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# Percentage of blindness caused by diabetes

( Adapted from WHO, 2002)

Region	% of all blindness
Africa	?
North America	17
Latin America & Caribbean	7
Eastern Mediterranean	3
Europe	16
South-East Asia	3
Western Pacific (developed)	17
Western Pacific (developing)	5



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# Latin America?

- **WHO:** AMRO/PAHO (North & South America, Caribbean, sub-classified by child & adult mortality)
- **IDF:** NAC (North America & Caribbean) and SACA (South & Central America)
- **World Bank:** LAC (Latin America & Caribbean) and EME (Established market economies)



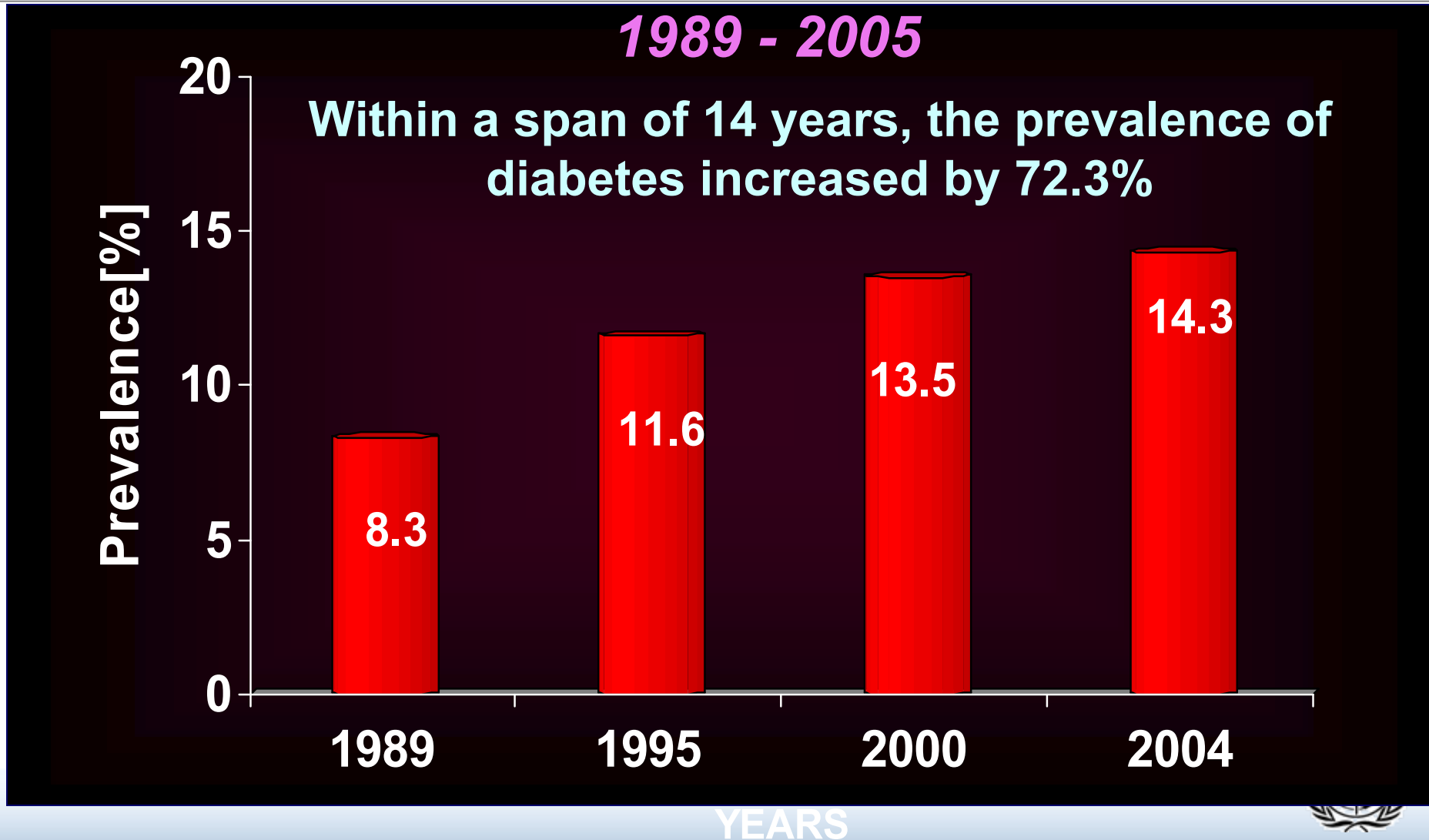
# Latin America & Caribbean

- 33 countries
- 12 had own diabetes survey data
- 6 surveys > 10 years old (Jamaica 1999 used for 10 countries)



# RISING PREVALENCE OF DIABETES IN URBAN INDIA

(Mohan, 2006)

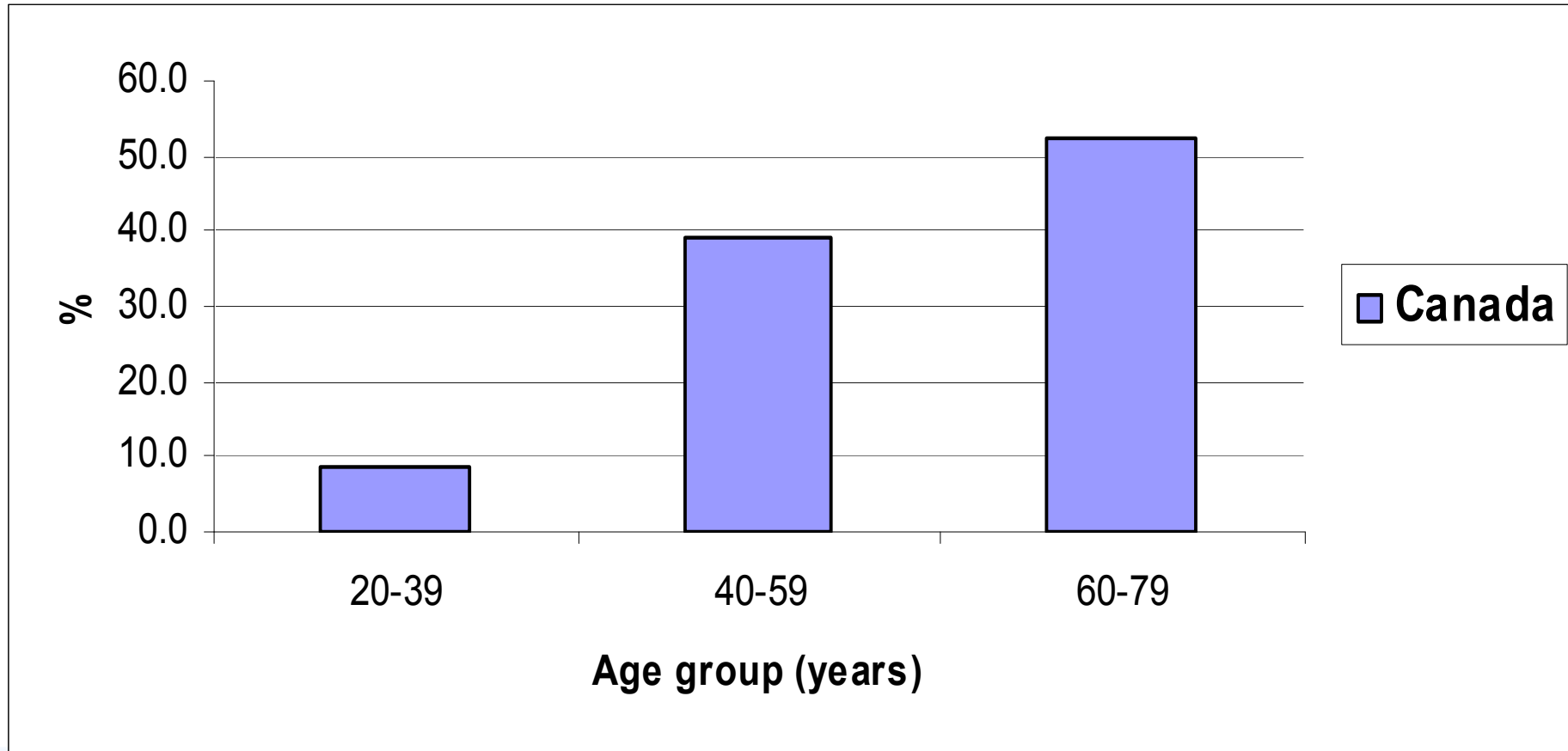


# Diabetes in adults 20-79 yrs in Latin America & Caribbean, 2010 (IDF Atlas, 4<sup>th</sup> ed)

- **11.2 million men**
- **14.5 million women**

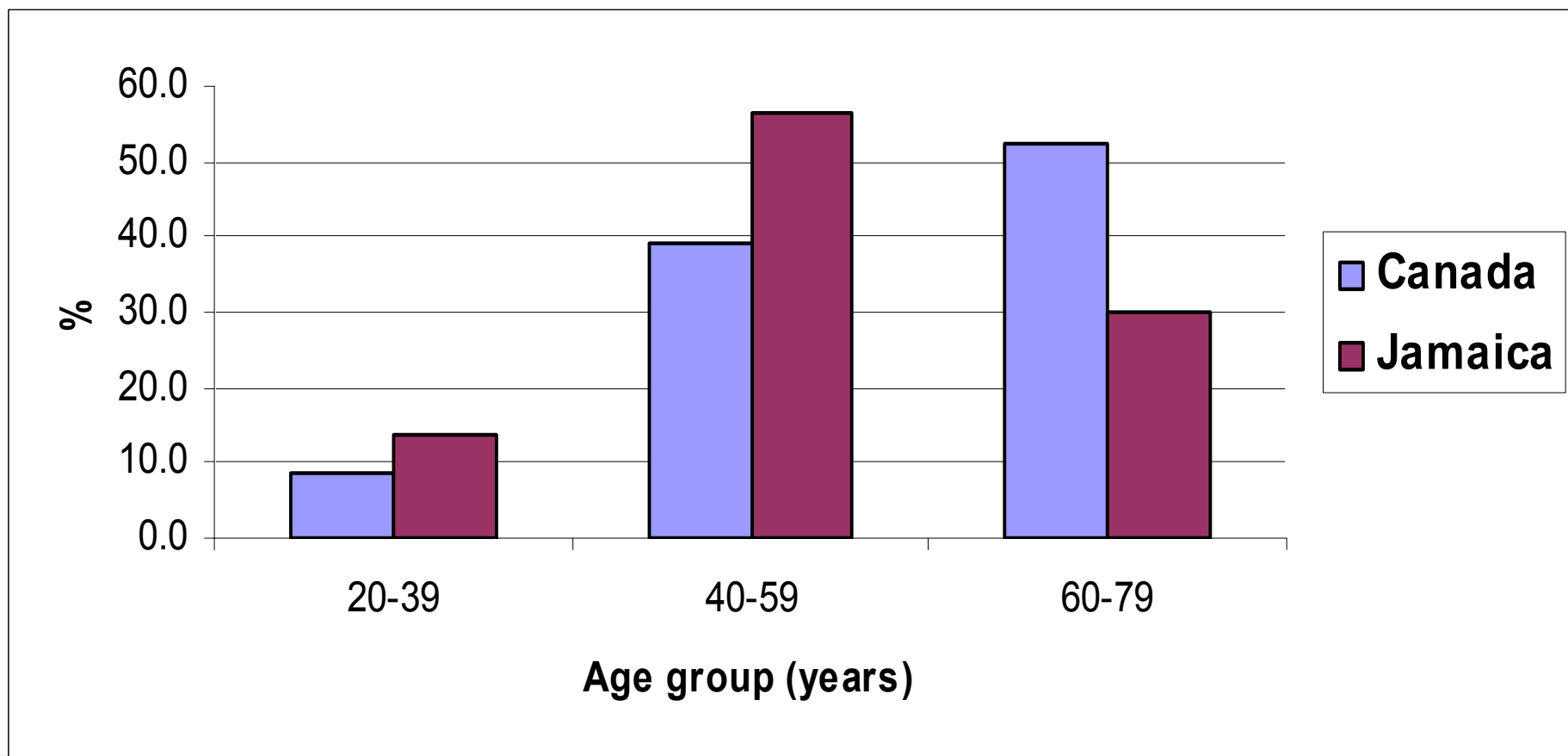


# Age distribution of persons with diabetes , 2010 (IDF Atlas, 4<sup>th</sup> ed)



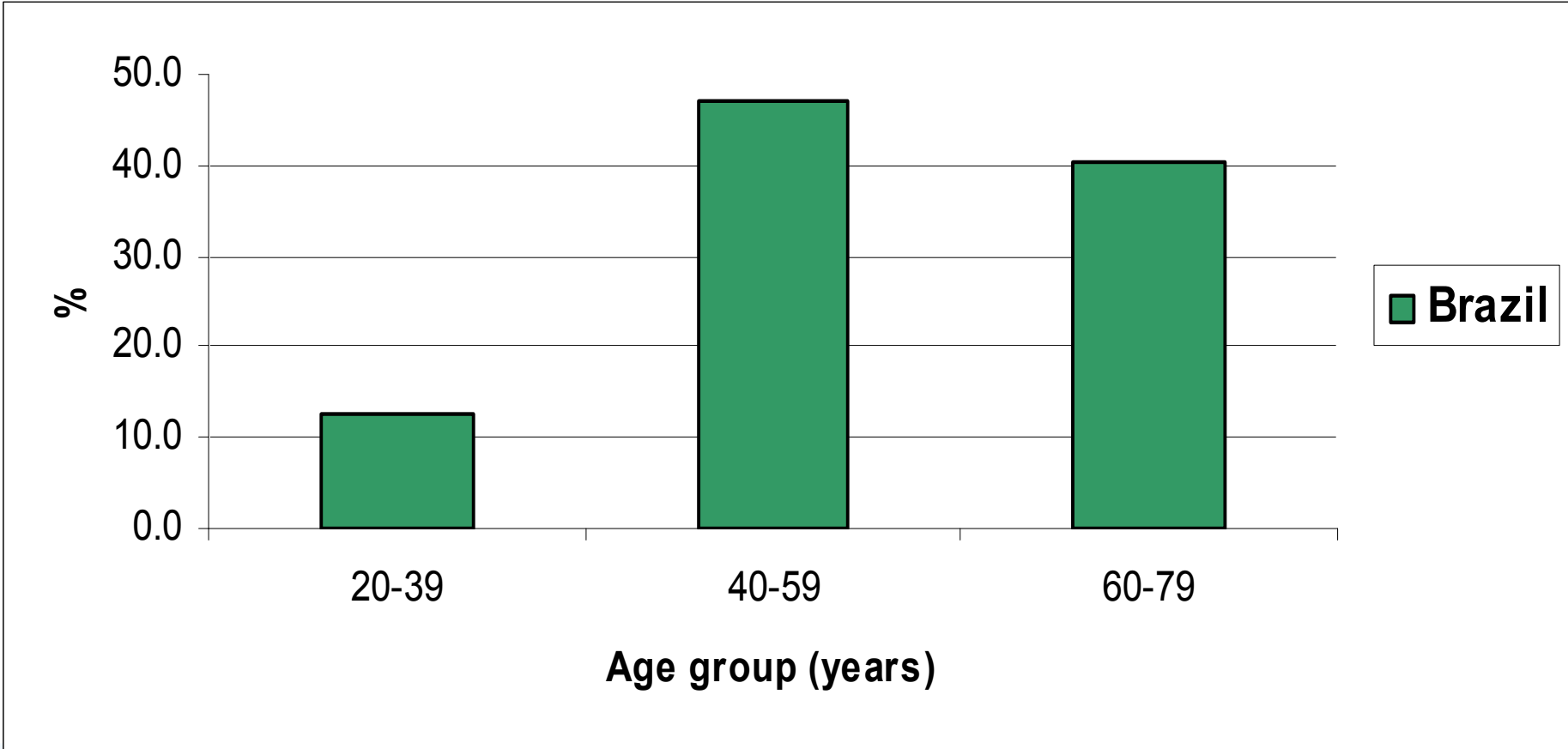
# Age distribution of persons with diabetes , 2010 (IDF

Atlas, 4<sup>th</sup> ed)



# Age distribution of persons with diabetes , 2010 (IDF

Atlas, 4<sup>th</sup> ed)



# Latin America & Caribbean: top 5 countries in the number of persons with diabetes (millions)

	Millions
<b>1. Brazil</b>	<b>7.6</b>
<b>2. Mexico</b>	<b>6.8</b>
<b>3. Argentina</b>	<b>1.6</b>
<b>4. Venezuela</b>	<b>1.0</b>
<b>5. Cuba</b>	<b>0.9</b>

# Latin America & Caribbean: top 5 countries in diabetes prevalence in adults 20-79 yrs, 2010

<b>Country</b>	<b>Age-adjusted prevalence (%)</b>	<b>Crude prevalence (%)</b>
<b>Trinidad &amp; Tobago</b>	<b>11.7</b>	<b>11.4</b>
<b>Dominican Republic</b>	<b>11.2</b>	<b>10.4</b>
<b>Mexico</b>	<b>10.8</b>	<b>10.1</b>
<b>Jamaica</b>	<b>10.6</b>	<b>10.2</b>
<b>Suriname</b>	<b>10.5</b>	<b>10.3</b>

(IDF Atlas, 4th ed)



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# Latin America & Caribbean: bottom 5 countries in diabetes prevalence in adults 20-79 yrs, 2010

<b>Country</b>	<b>Age-adjusted prevalence (%)</b>	<b>Crude prevalence (%)</b>
<b>1. Paraguay</b>	<b>4.9</b>	<b>4.2</b>
<b>2. Colombia</b>	<b>5.2</b>	<b>4.8</b>
<b>3. Ecuador</b>	<b>5.9</b>	<b>5.5</b>
<b>4. Bolivia</b>	<b>6.0</b>	<b>5.2</b>
<b>5. Peru</b>	<b>6.2</b>	<b>5.6</b>

(IDF Atlas, 4th ed)



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## Highest prevalence

- Mix of upper and lower middle-income countries
- Mostly islands

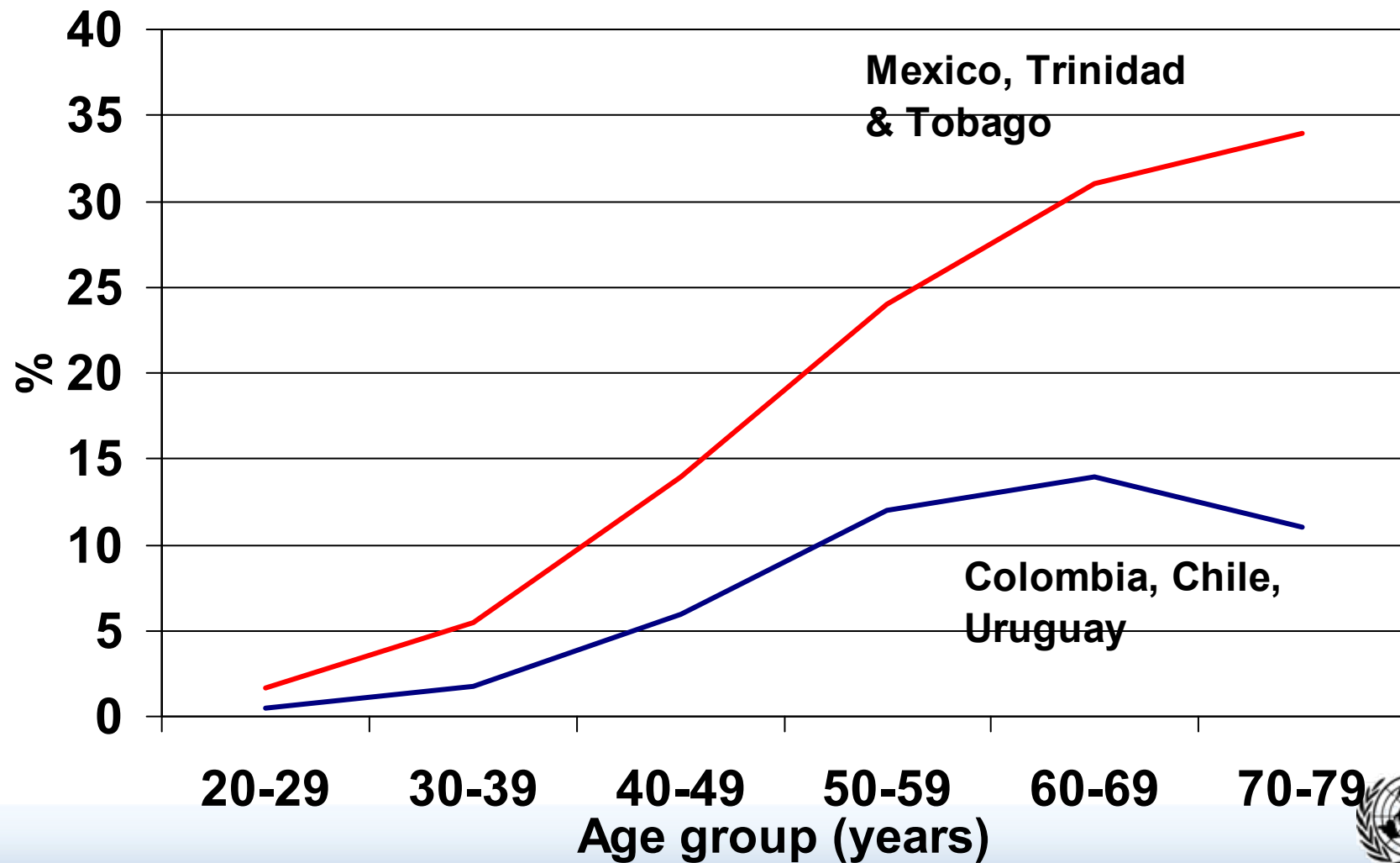
## Lowest prevalence

- Lower middle-income countries
- West coast/central S America



# Age-specific prevalence of diabetes in females , 2010

(IDF Atlas, 4<sup>th</sup> ed)



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# Number of deaths attributable to diabetes in the year 2010 (IDF Atlas, 4<sup>th</sup> ed)

**3.9 million**



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# Number of deaths attributable to diabetes in the year 2007 (IDF Atlas, 3<sup>rd</sup> ed)

**3.7 million**

**HIV/AIDS deaths: 2.1 million (WHO)**



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# Number of deaths due to diabetes in Latin America & Caribbean in 2010 (IDF Atlas, 4<sup>th</sup> ed)

**114,000 men**

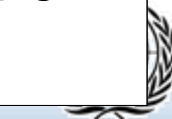
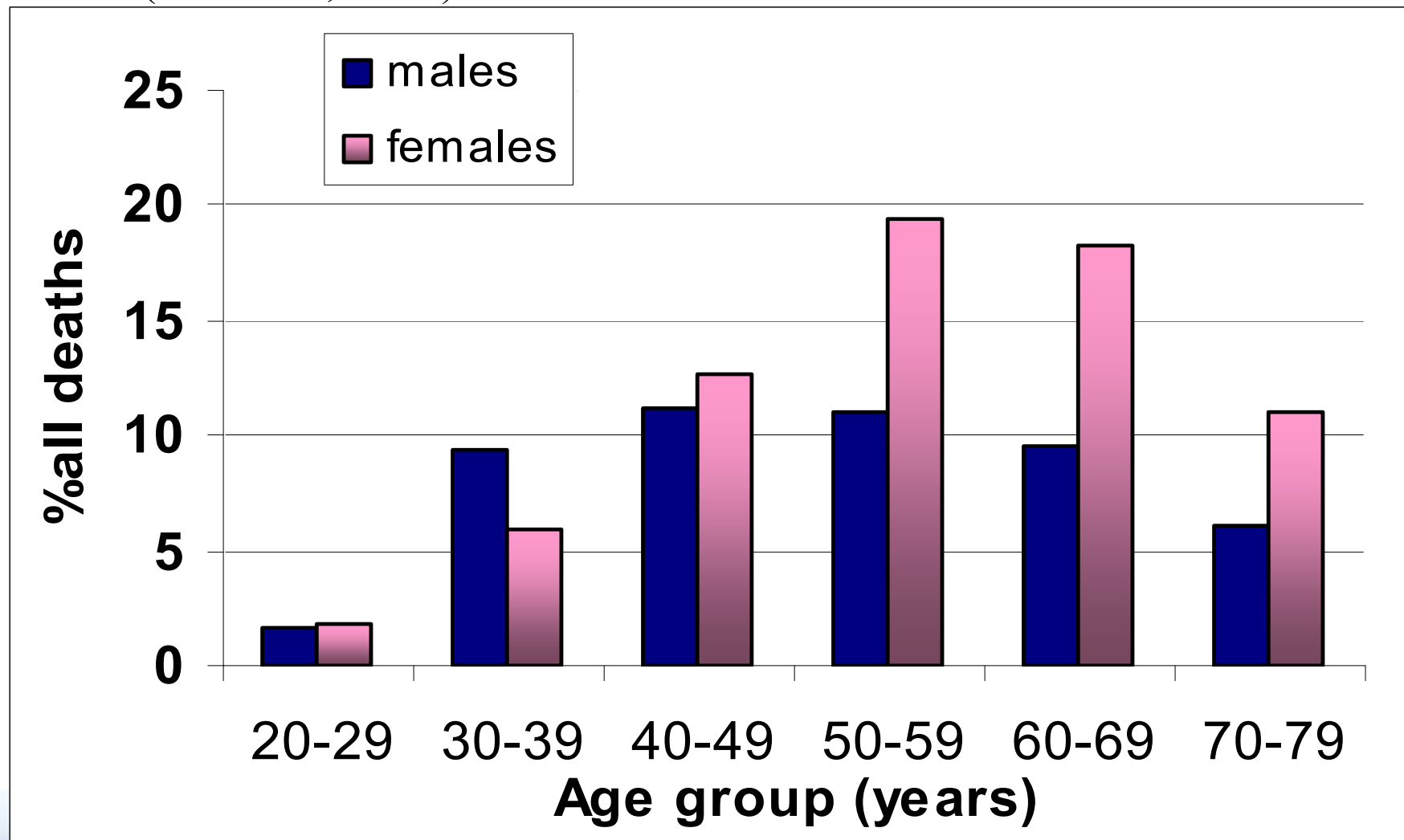
**125,000 women**



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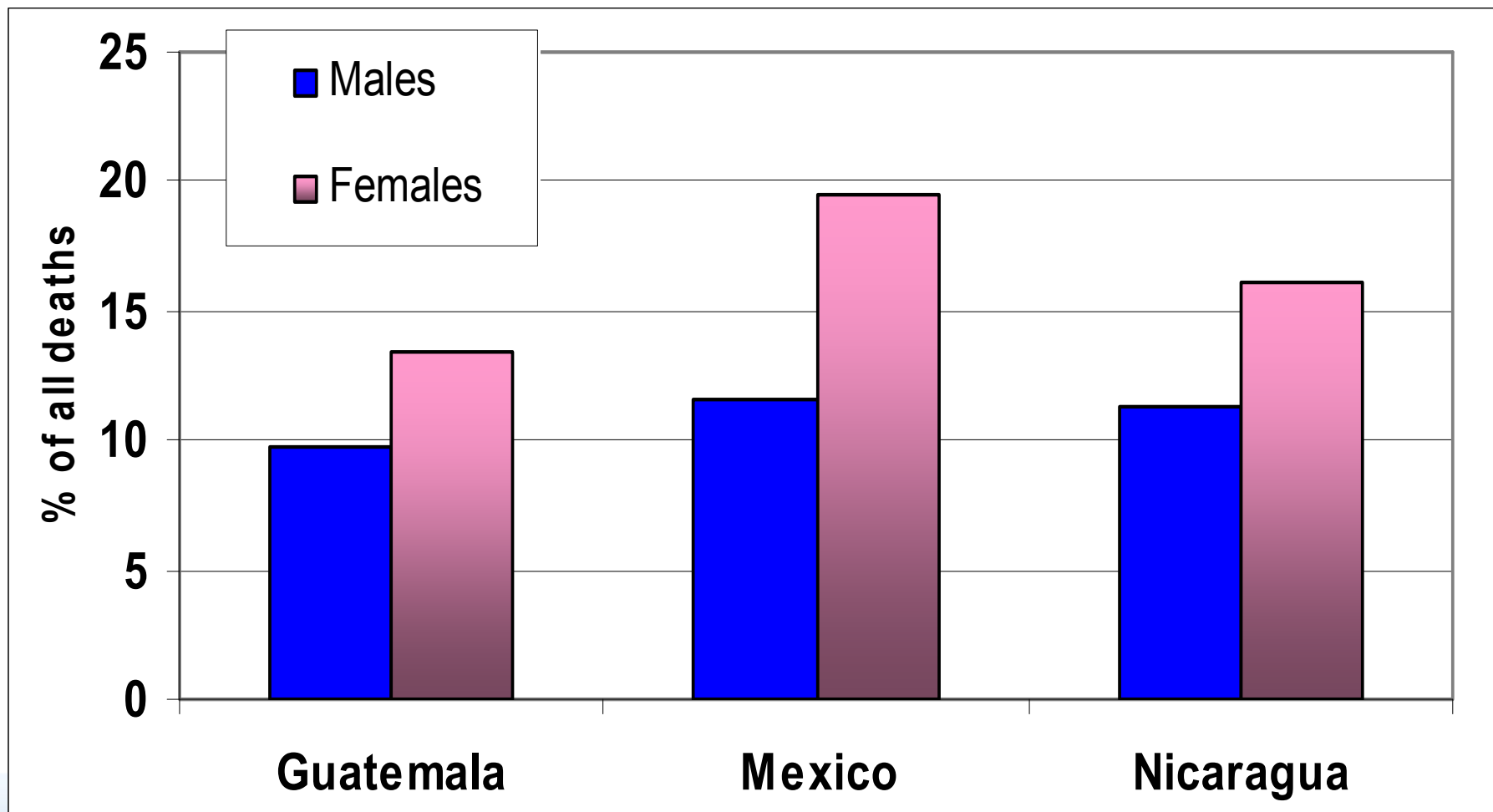
# Excess deaths attributable to diabetes in Latin America & Caribbean as percentage of all deaths,

**2010** (IDF Atlas, 4<sup>th</sup> ed)



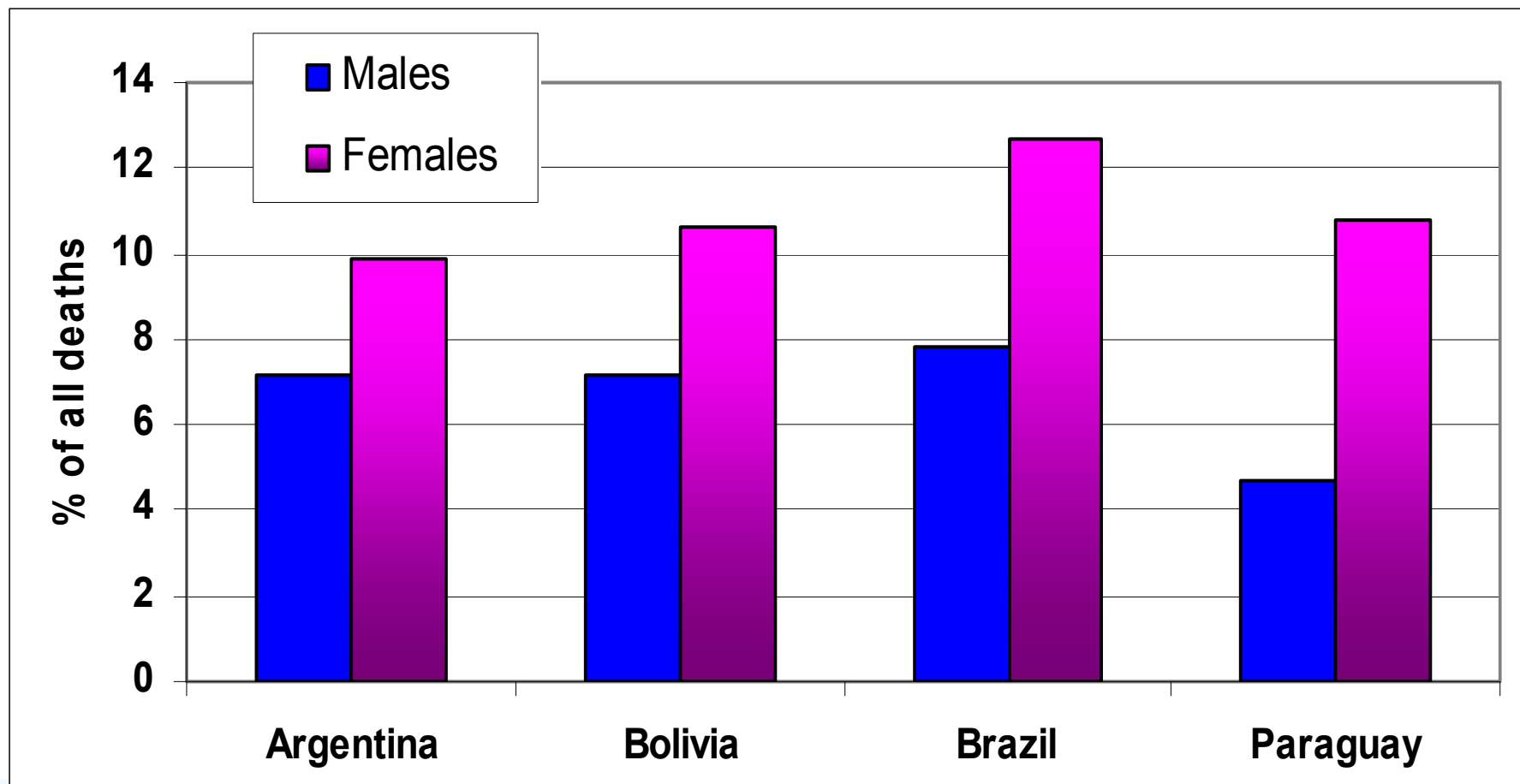
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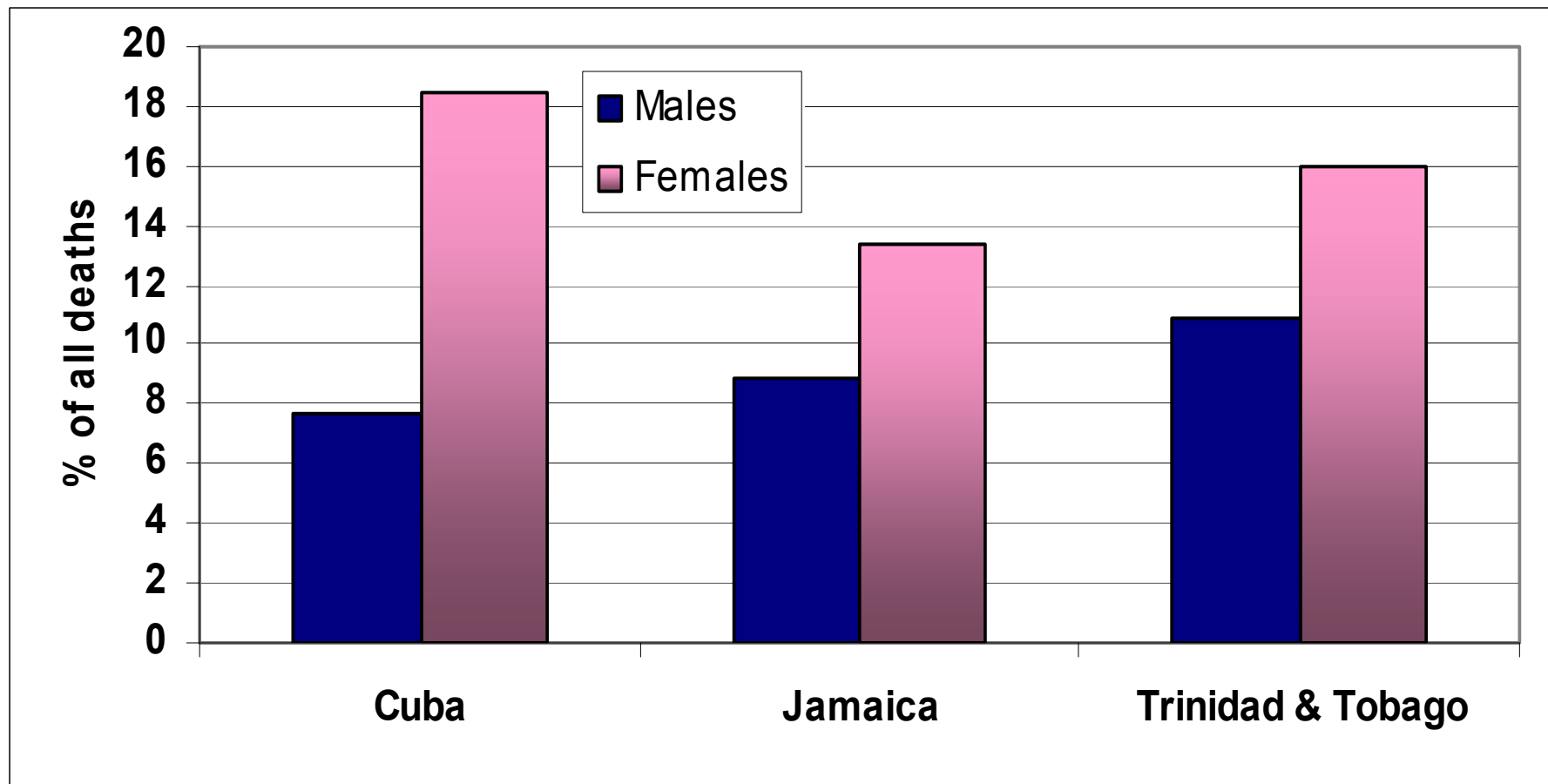
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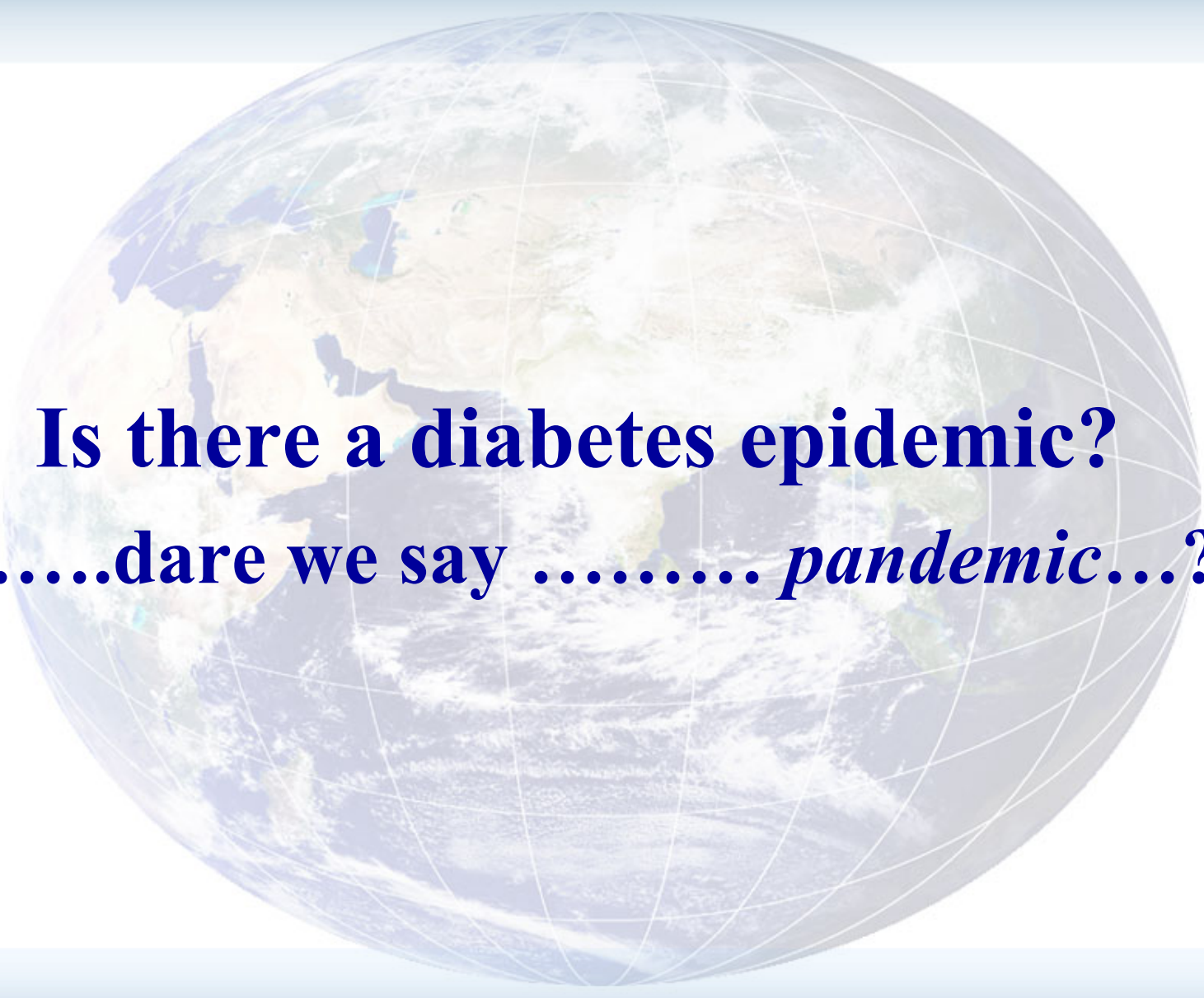
**2010** (IDF Atlas, 4<sup>th</sup> ed)



# Excess deaths attributable to diabetes in Latin America & Caribbean as percentage of all deaths,

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**Is there a diabetes epidemic?  
.....dare we say ..... *pandemic*...?**



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# Possible causes of increasing diabetes prevalence

(from Colagiuri et al, 2005)

- Ageing of the population
- Younger age at onset
- Decreasing mortality
- Increasing incidence



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**Explain only 20-25% increase in prevalence**



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**Explain only 20-25% increase in prevalence**

- **Increasing incidence!**





**".....there are now indications of a rapid increase in the disease that are in complete accord with the recognized clinical association between diabetes and increased food consumption, reduced physical exertion and obesity..... "**

**Diabetes Mellitus. Report of a WHO Expert Committee, 1965**



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