

Diabetes in the Americas



Pan American Health Organization



*Regional Office of the
World Health Organization*

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Pan American Health Organization,
Washington DC*

TMM

DIABETES

ARE YOU
AT RISK?



**Never have doctors known so much
about how to prevent and control this
disease, yet the epidemic
keeps on raging.....**

Christine Gorman
Time
Nov 30, 2003

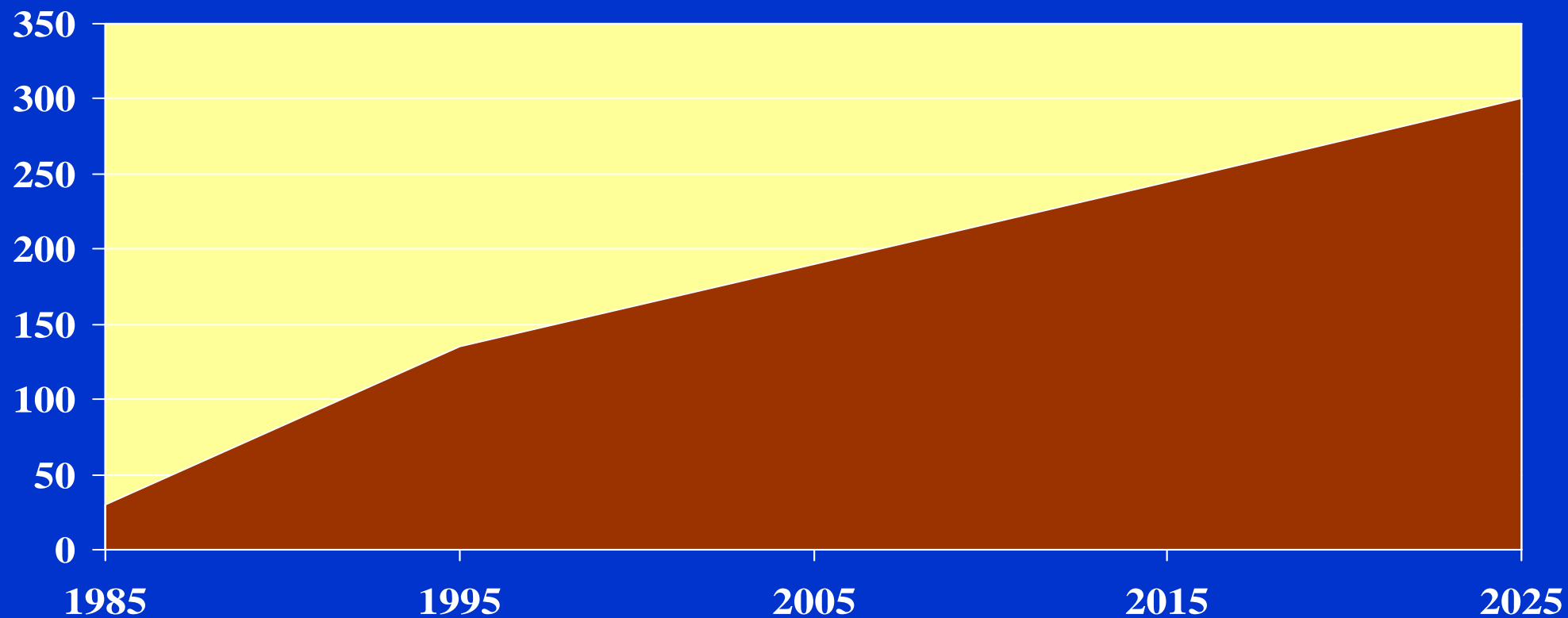
Objectives:

- Provide information on the diabetes epidemic in the Americas
- Present data on the increased risk for CVD among people with diabetes in Latin America and the Caribbean
Multi country data, SABE, CAMDI
- Rationale for the primary prevention of diabetes and its implication for health policy

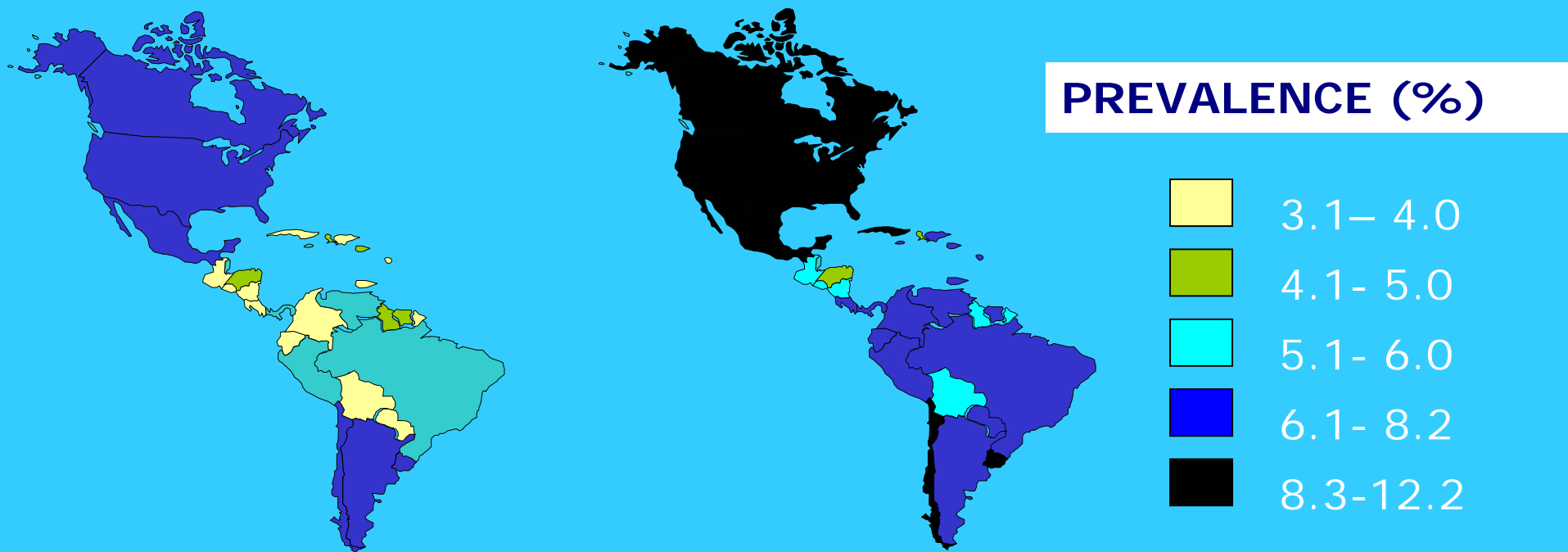
The Prevalence of Type 2 Diabetes
is reaching epidemic proportion

Diabetes in the World: WHO Projections

Millions



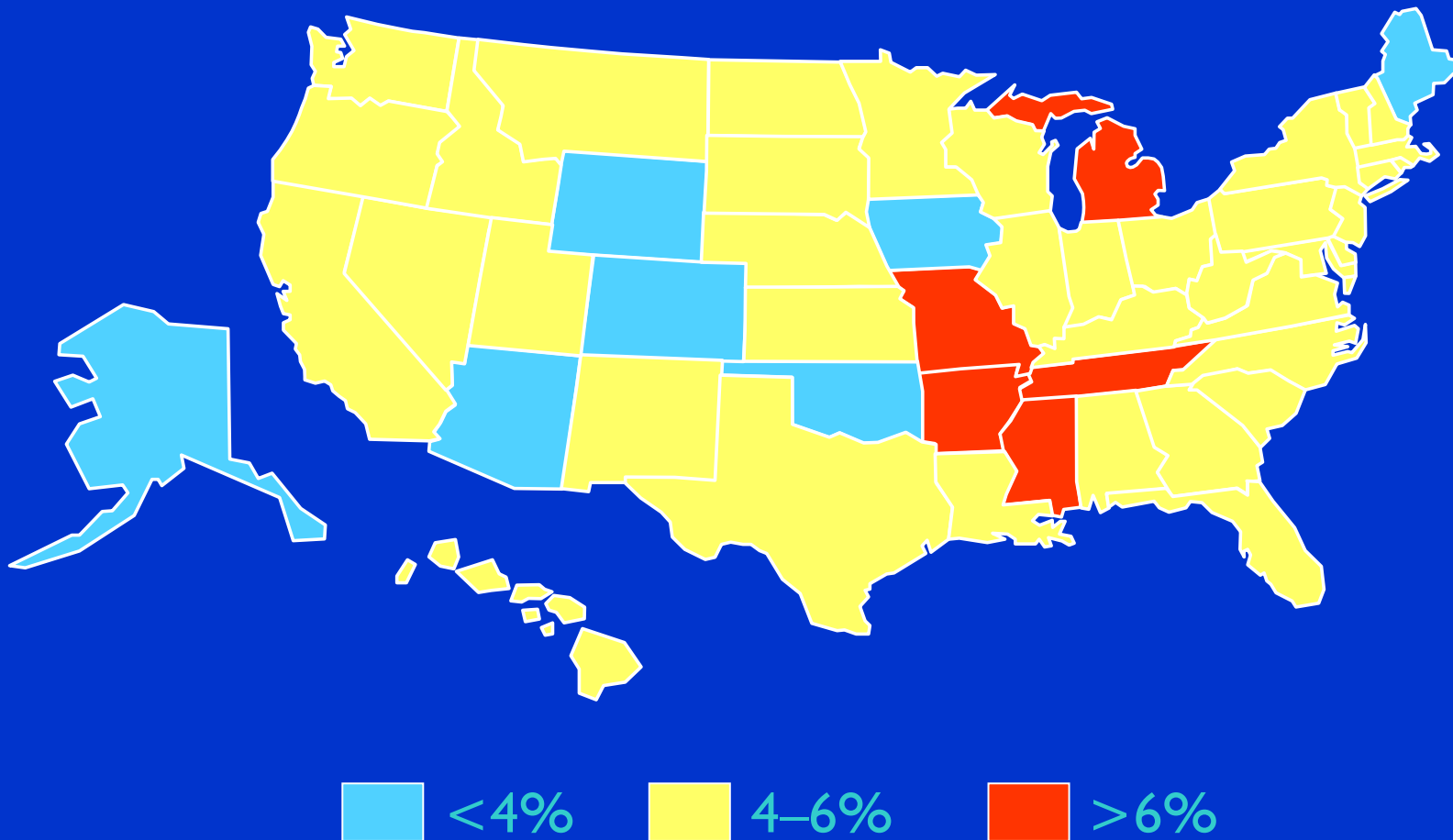
Estimated prevalence of diabetes in the Americas, 2000-2025*



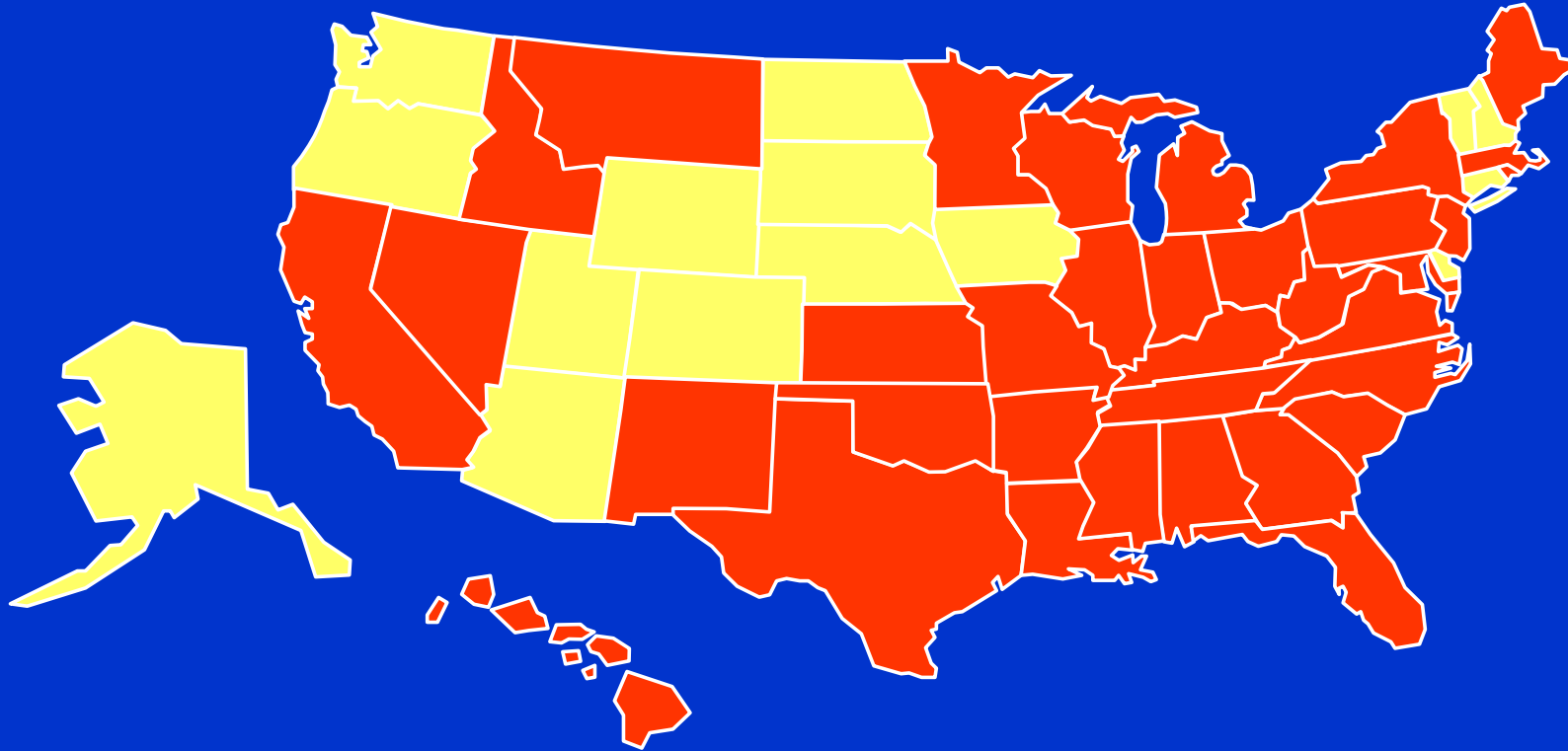
2000: 35 million

2025: 64 Million

Prevalence of Diabetes Among Adults in the US, BRFSS, 1993–1994

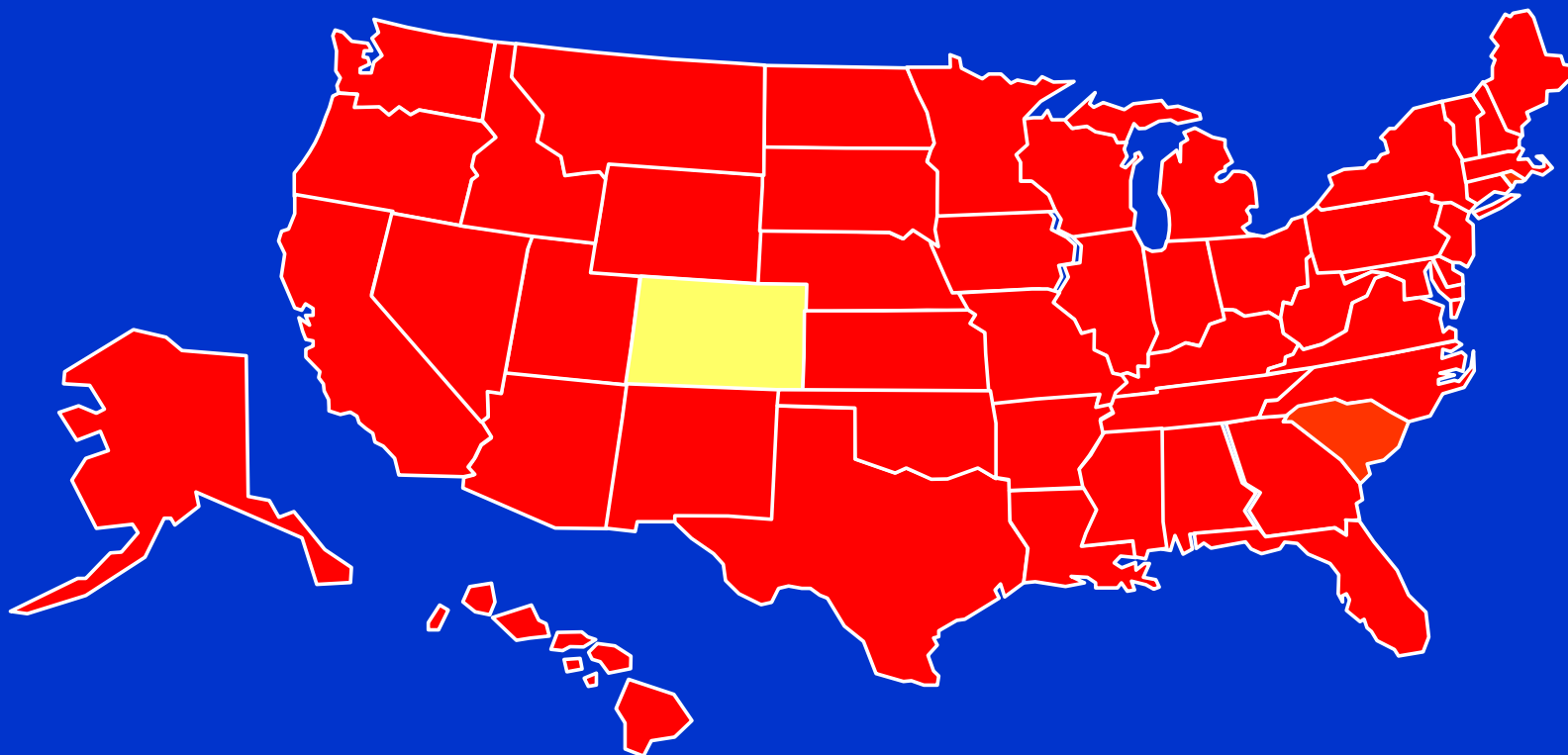


Prevalence of Diabetes Among Adults in the US, BRFSS, 1999

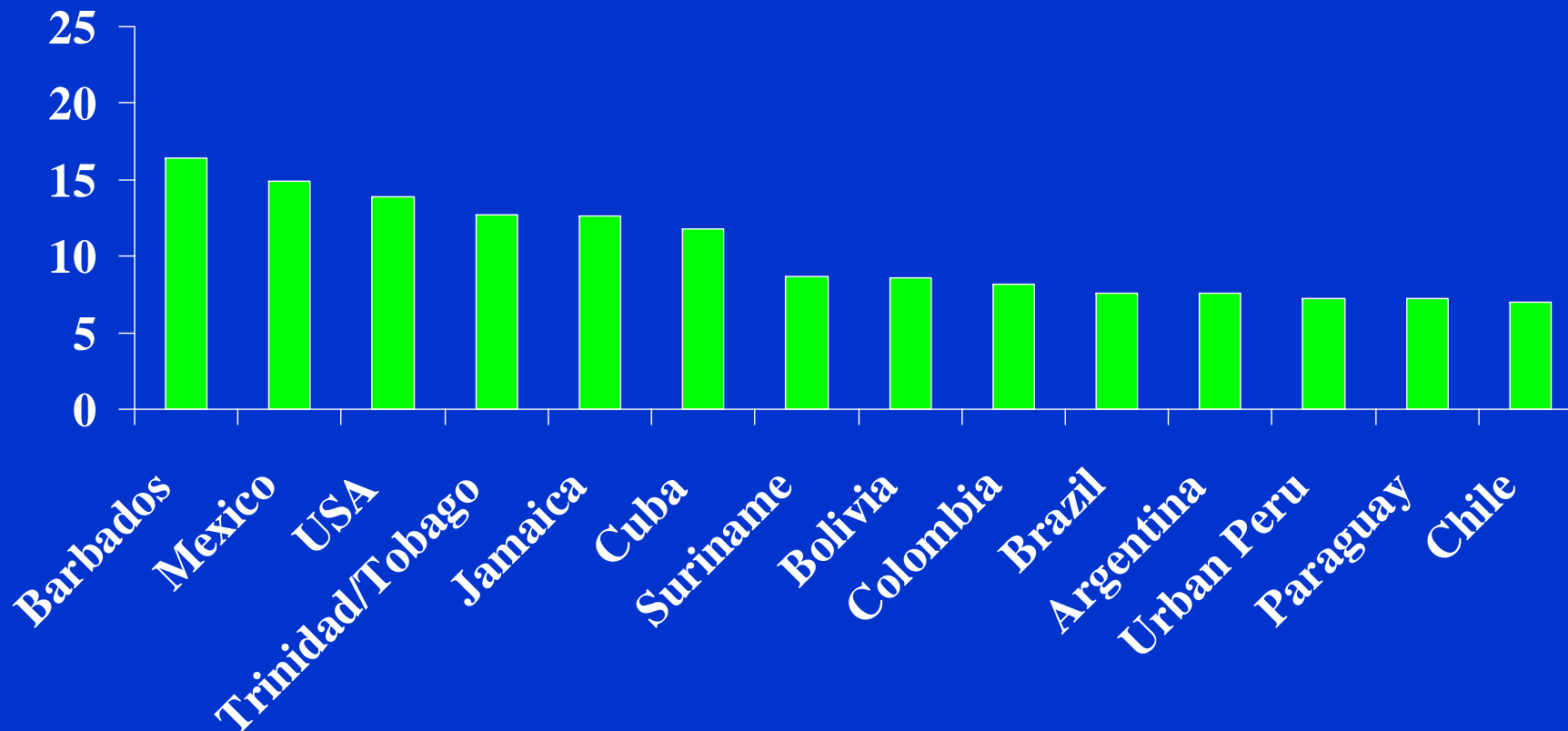


Mohkdad, JAMA 2001

Prevalence of Diabetes Among Adults in the US, BRFSS, 2000



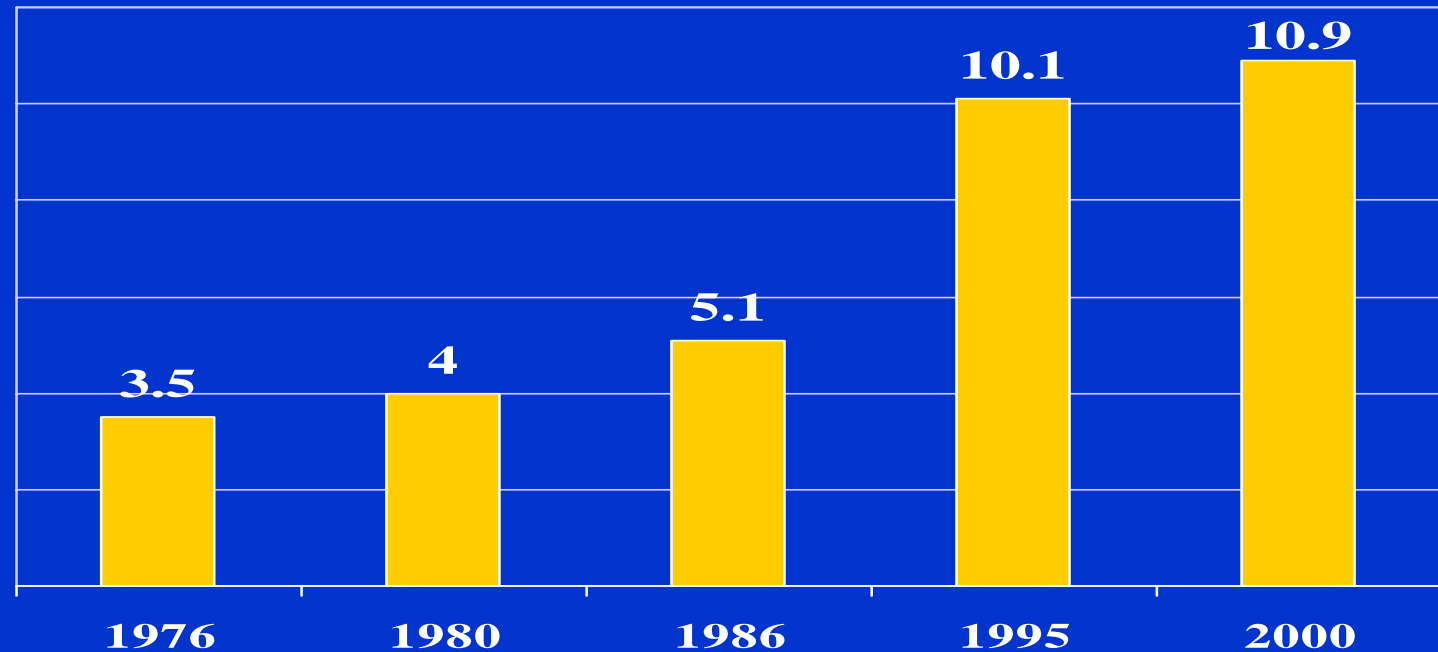
Age-Adjusted* Prevalence of Diabetes in the Americas, 1976-91



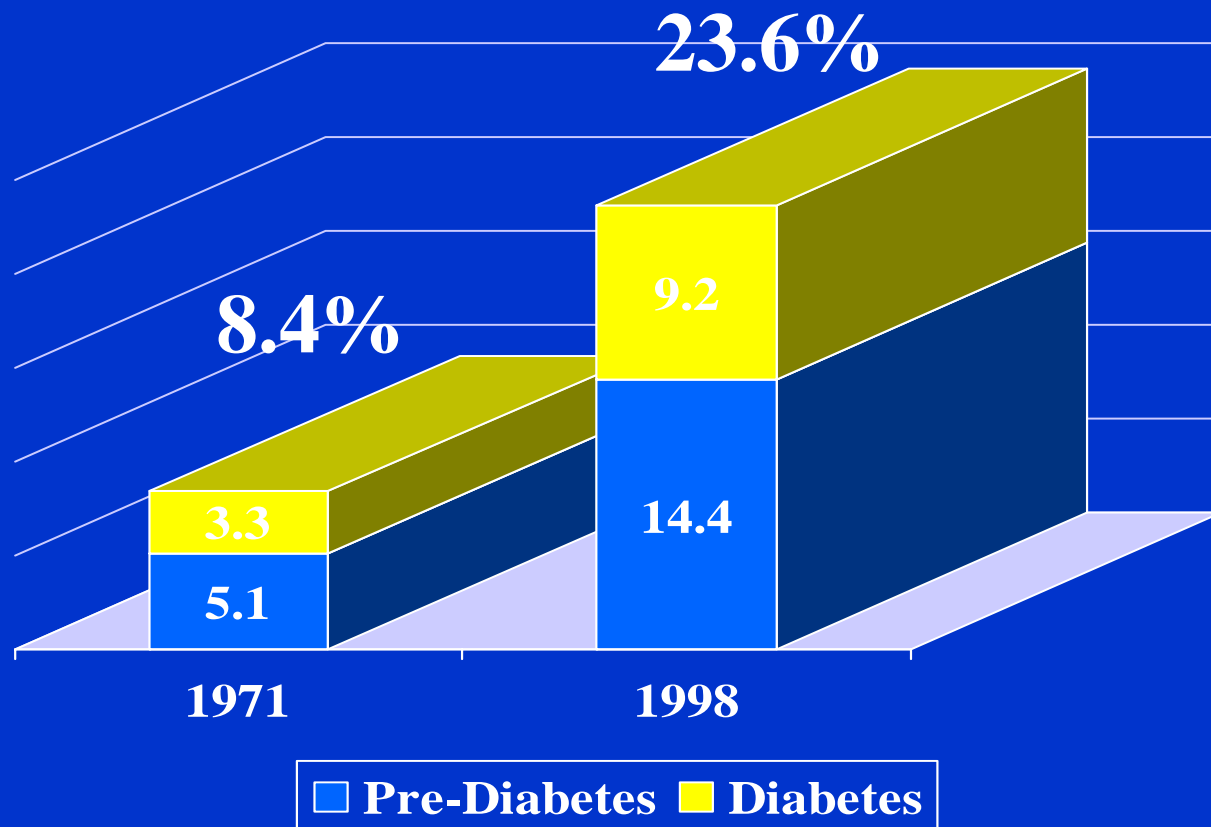
Pan American Health Organization, 2001

*Adjusted to the World Population

Diagnosed Diabetes Mellitus in Puerto Rico



Glucose Intolerance in a Health Area of Havana, Cuba 1971 and 1998

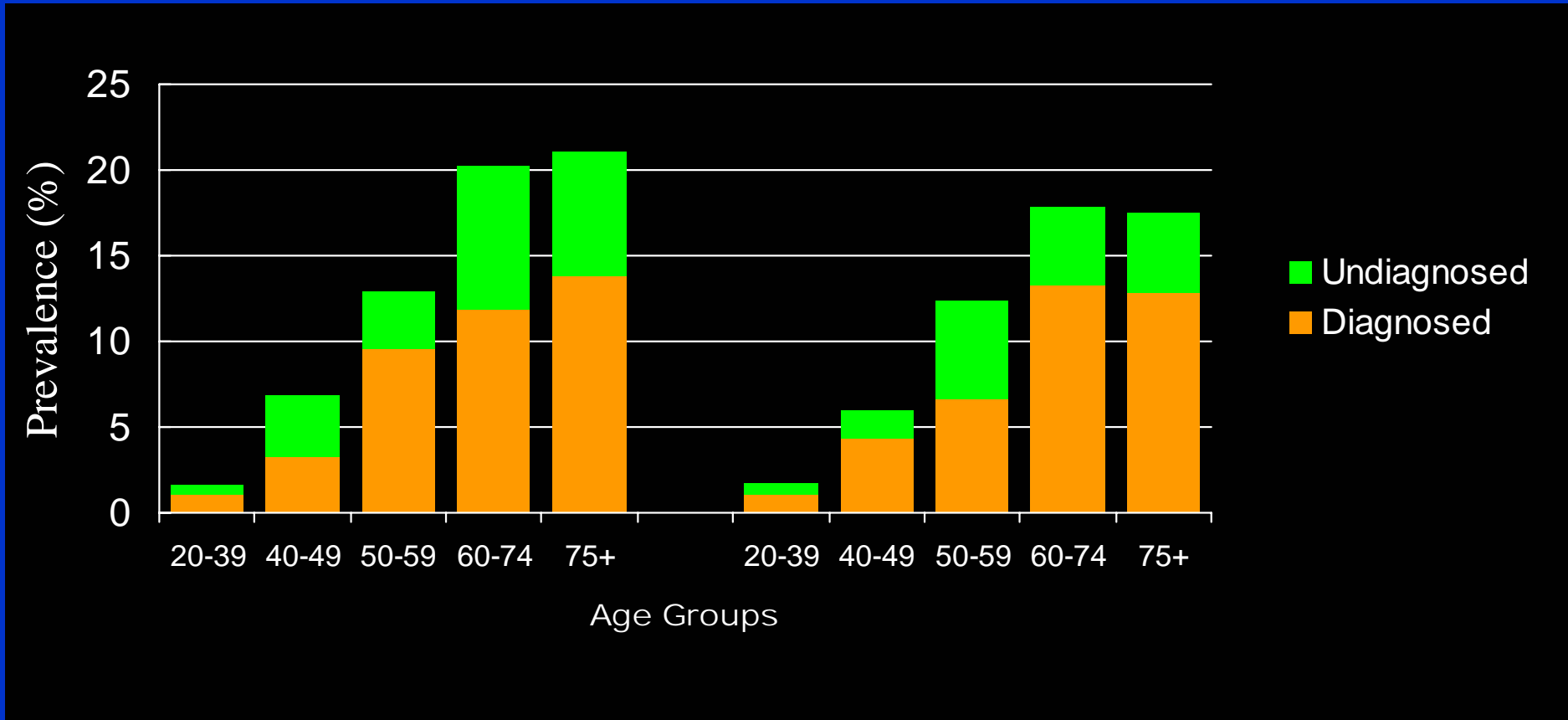


Between a half and a third of those suffering diabetes are not aware of their condition

Diagnosed and Undiagnosed Prevalence of Diabetes by Age in the US (NHANES III)

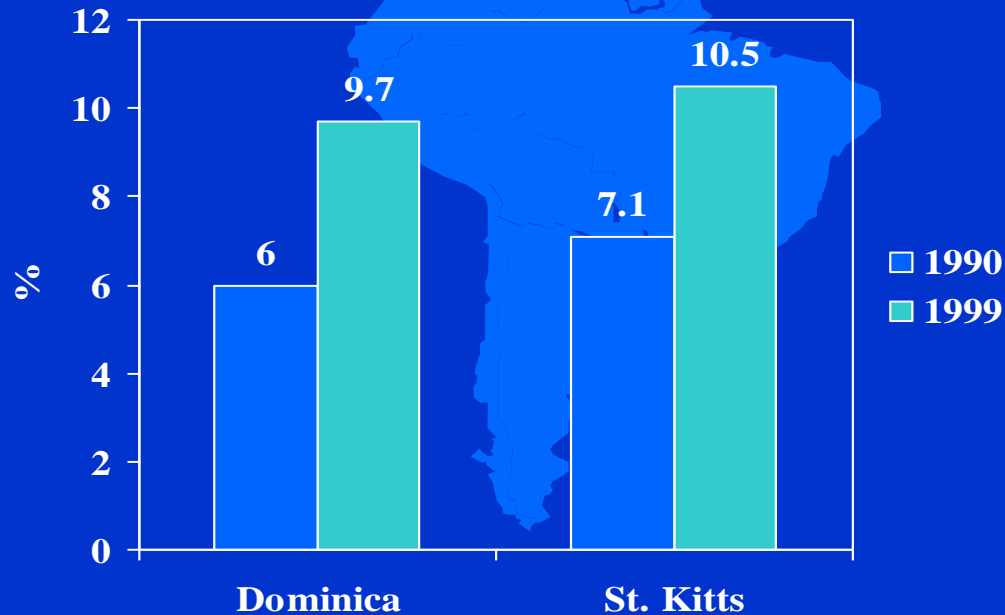
Men

Women



Obesity in Children


The percent of children (0-5) with over nutrition* in LAC has increased over the years



People with Diabetes Present an increased Risk for CVD and Premature Mortality

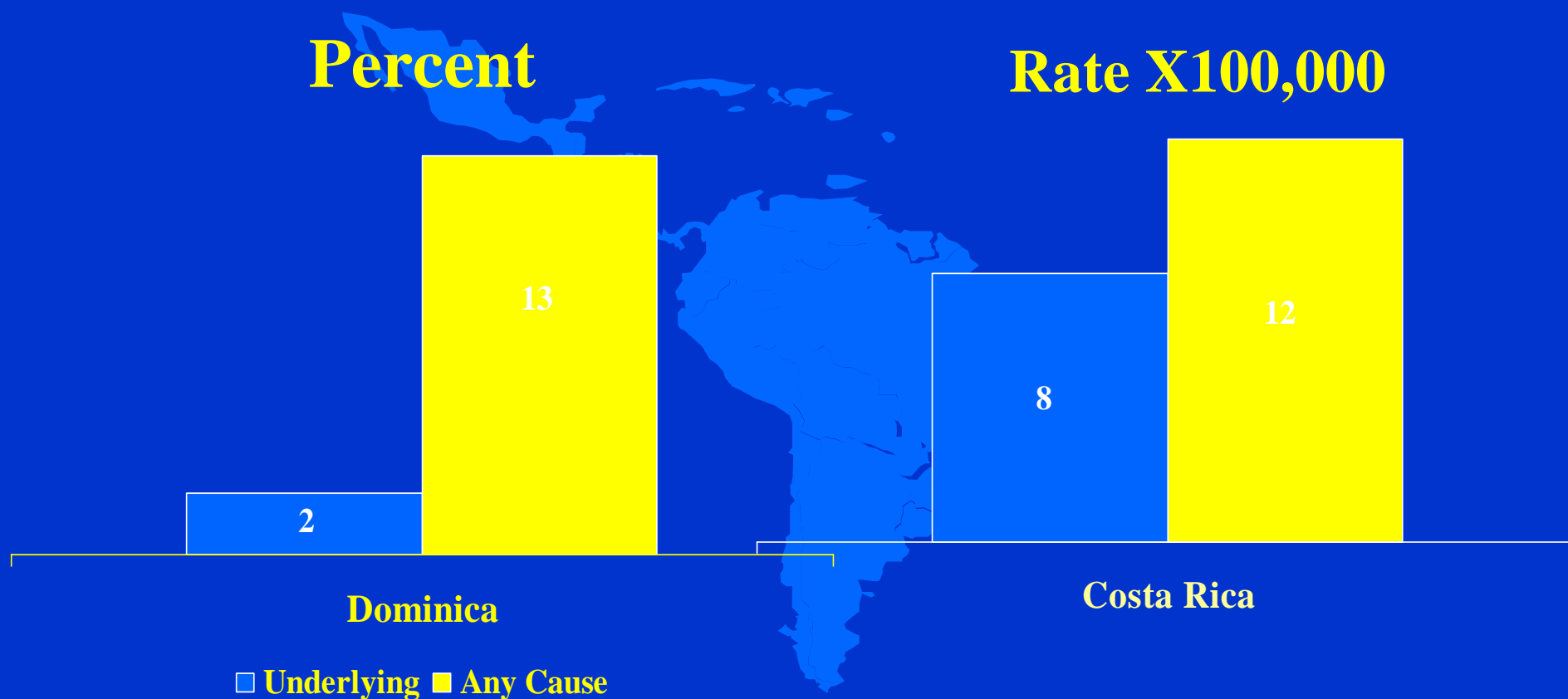
Diabetes-Related Mortality

Mortality among people with diabetes
2.5 times higher



	UNDERLYING	ANY CAUSE
Latin America & the Caribbean	40,000	300,000

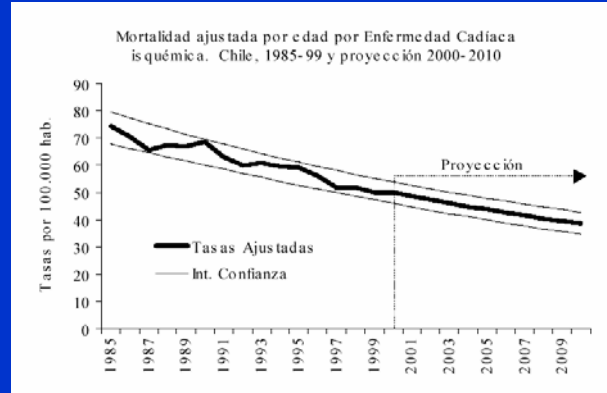
Diabetes Related Mortality



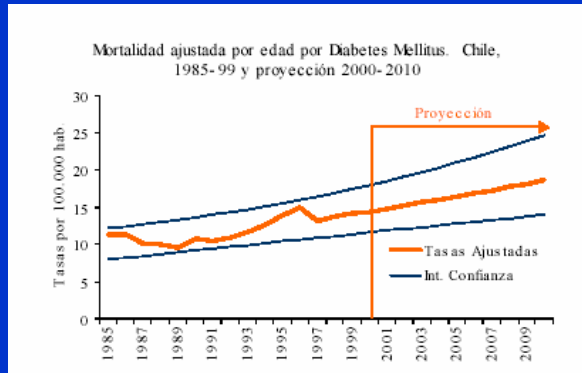
Source: PAHO, CPC, 2000 (Dominica); Rodríguez 1988, Revista Costarricense de Ciencia Medicas (Costa Rica)

Mortality Trend in Chile

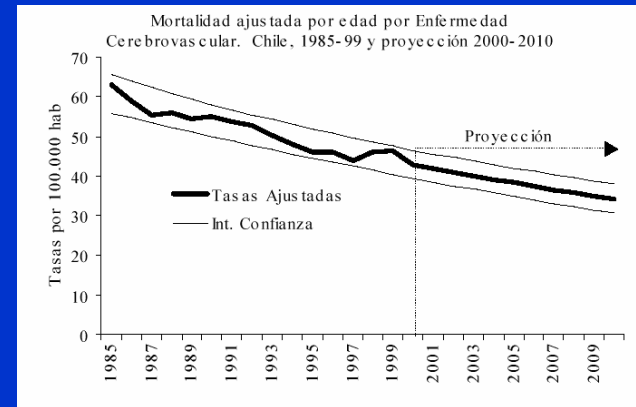
Heart Diseases



Diabetes



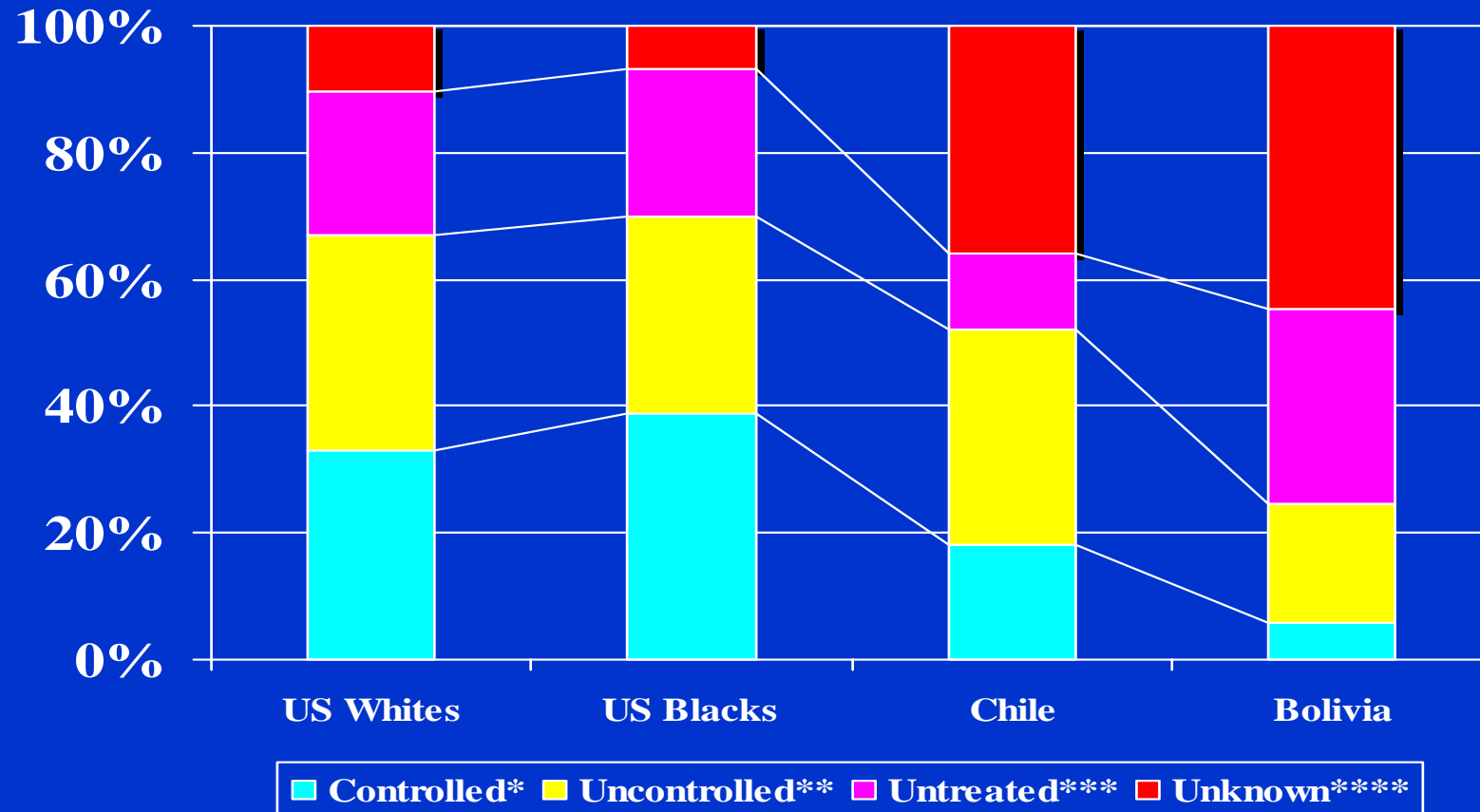
Stroke



Diabetes Complications (Lifetime Risk)

Long-term Complications	%
Neuropathy	44
Nephropathy	38
Heart Diseases	25
End Stage Renal Disease	15
Blindness	12
Stroke	12

Awareness, treatment and control of hypertension among people with diabetes in the U.S. and Latin America



Legend: * Hypertension under treatment, SBP<140 and DBP<90, **Hypertension under treatment, SBP>139 and DBP<89, ***Diagnosed not treated hypertension, ****Newly diagnosed hypertension.

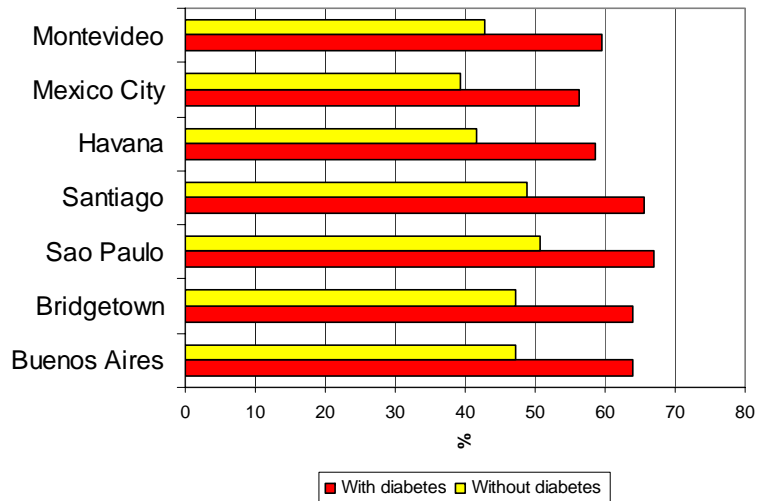
Source:23, unpublished data (Chile and Bolivia)



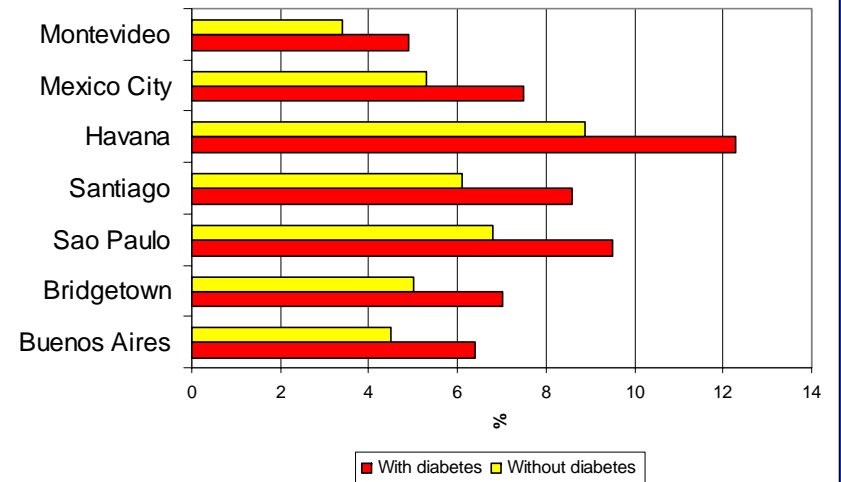
The SABE Project (Salud Bienestar y Envejecimiento)

- **Cluster sampling design of elderly (60+ years)**
- **10,891 participants from Bridgetown, Sao Paulo, Santiago de Chile, Havana, Mexico City and Montevideo**
- **Self-reported prevalence of major NCD's**

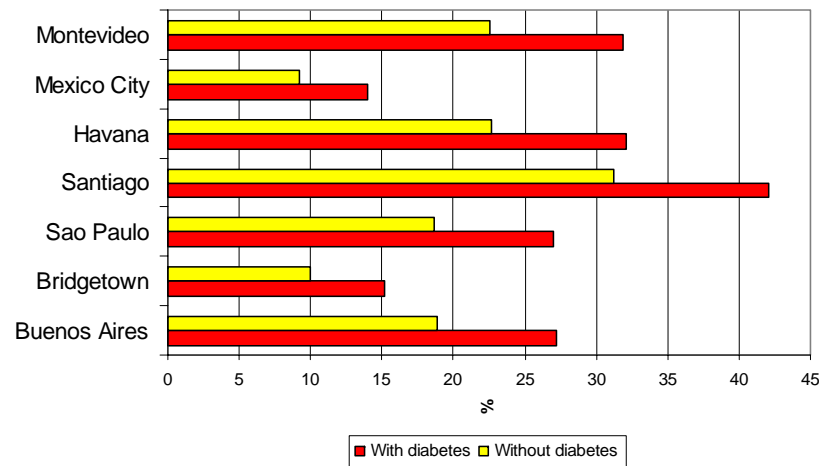
Prevalence of hypertension among the elderly with and without diabetes in seven countries

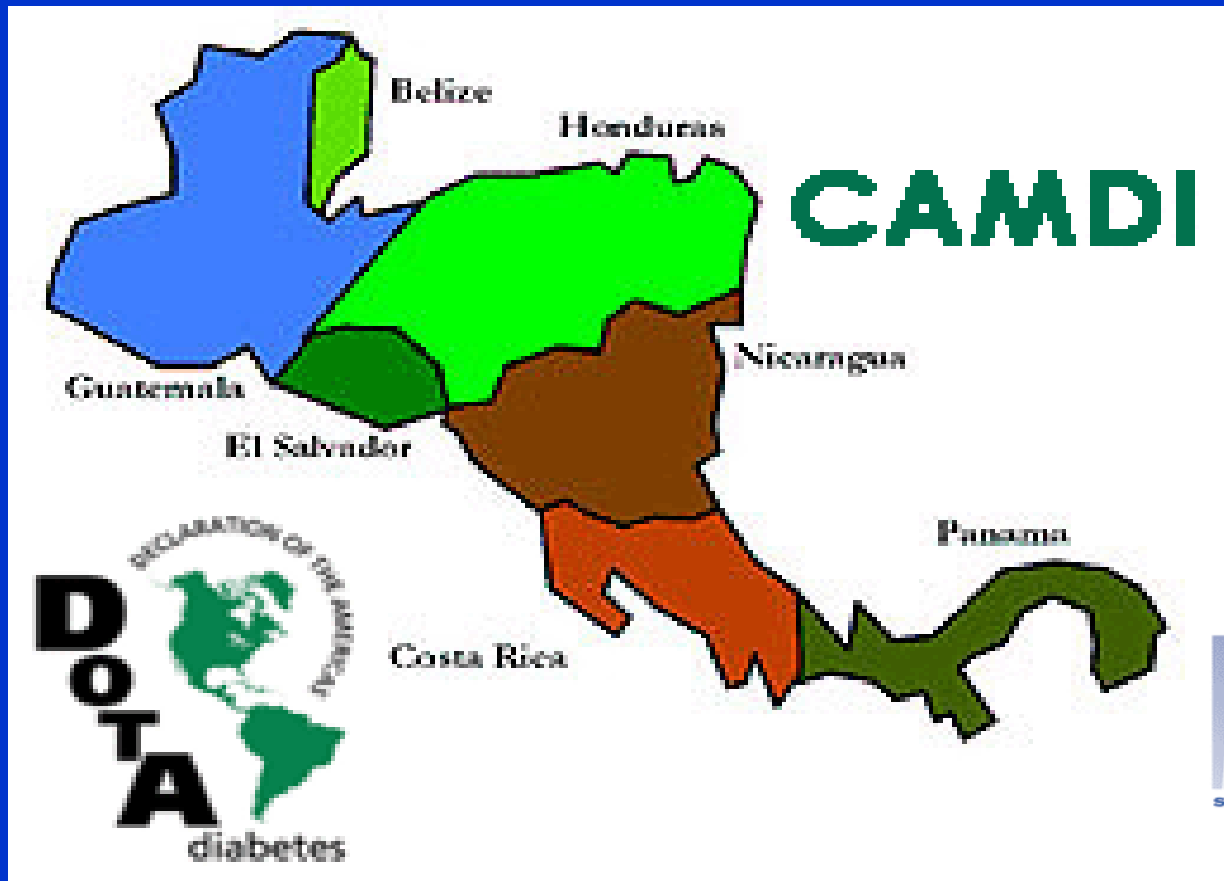


Prevalence of stroke among the elderly with and without diabetes in seven countries



Prevalence of heart diseases among the elderly with and without diabetes in seven countries





**THE CENTRAL AMERICA DIABETES INITIATIVE:
COSTA RICA, EL SALVADOR, HONDURAS, GUATEMALA & NICARAGUA**

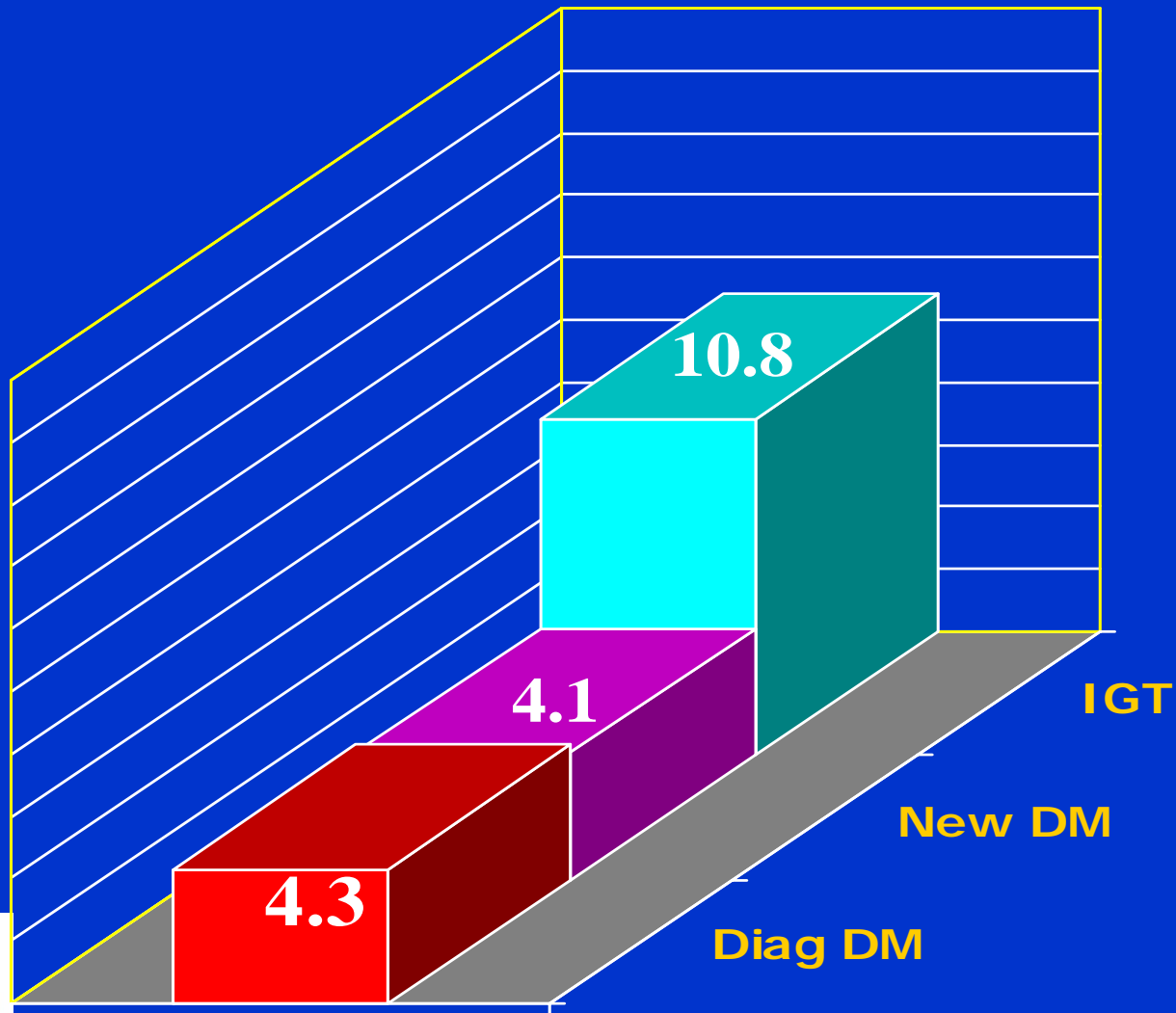
Multinational survey on diabetes, hypertension and other CVD risk factors

Diagnosis of diabetes

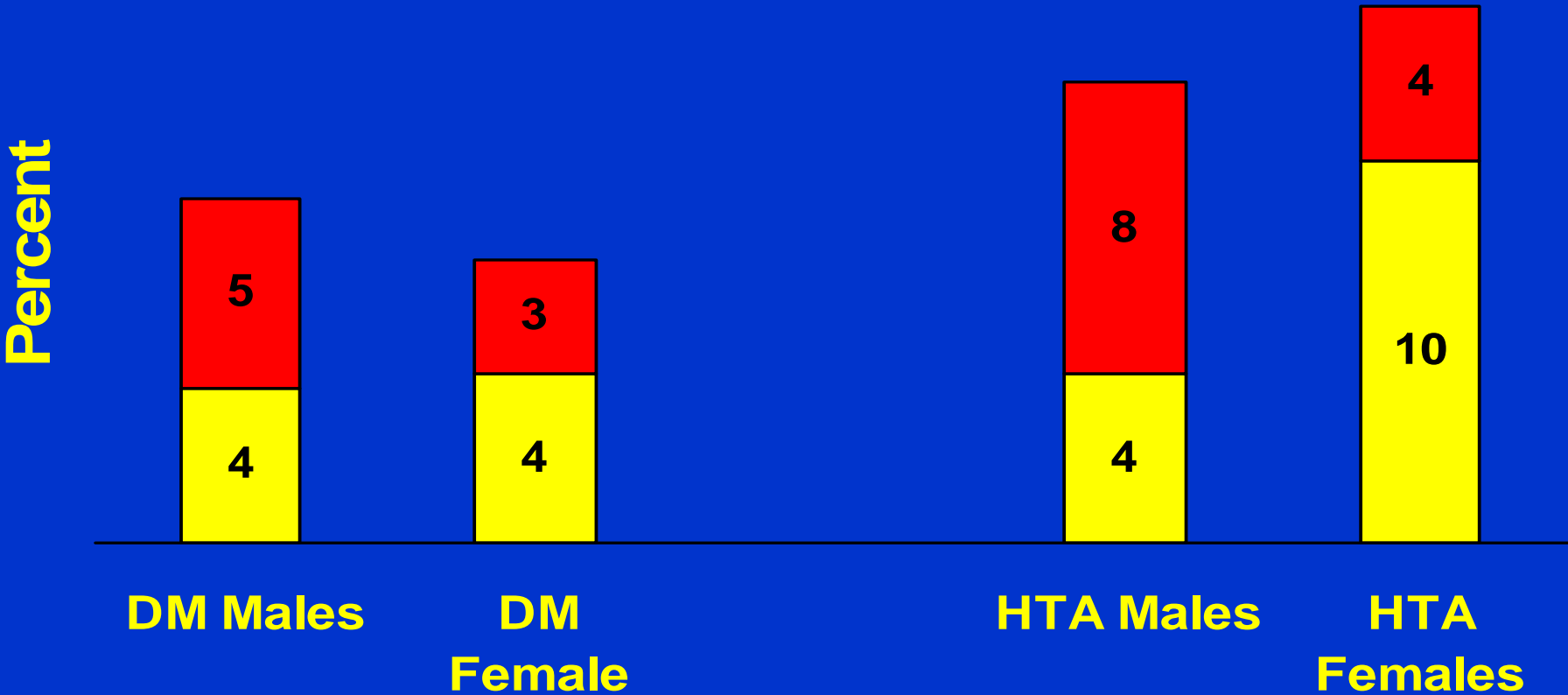
Fasting plasma glucose (≥ 126 mg/dl)
and 2-h post glucose load (≥ 200 mg/dl)

8,000 Participants from Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama.

Glucose tolerance in Guatemala, 2003

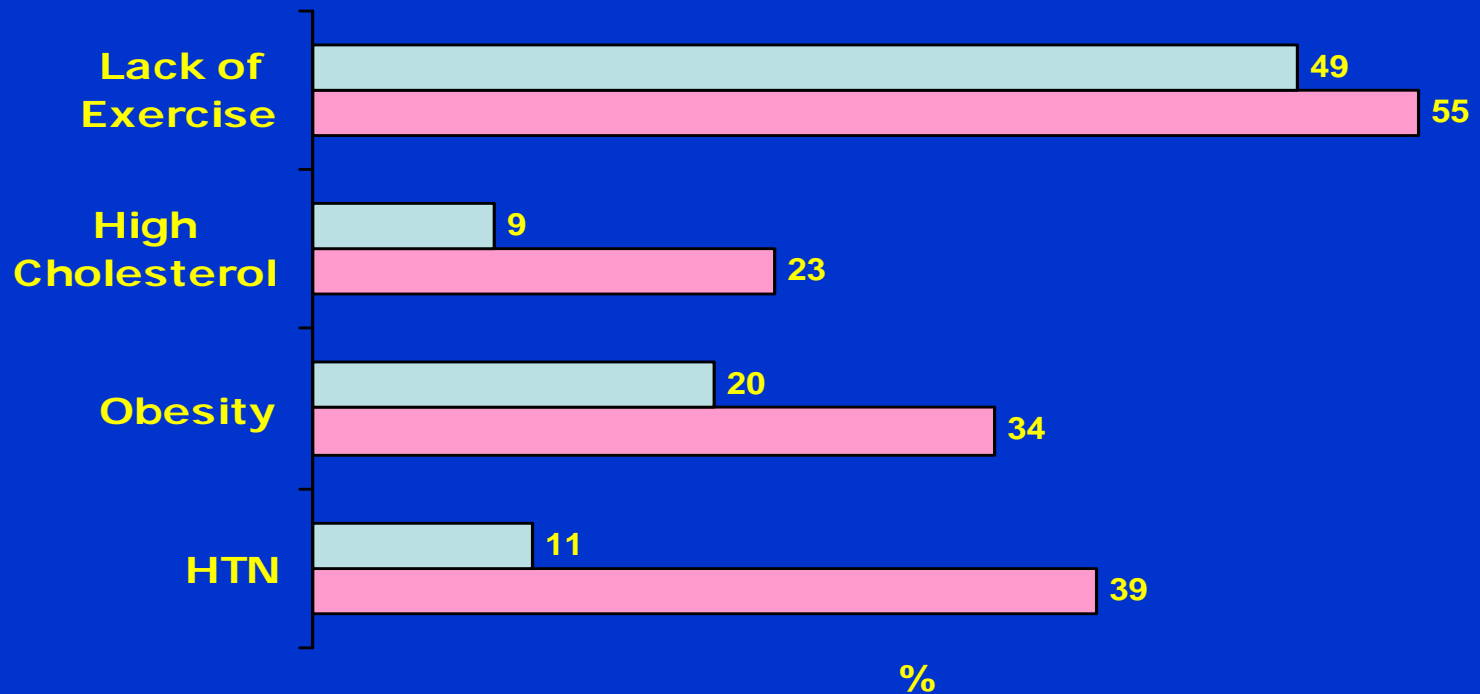


Diagnosed and Undiagnosed Diabetes and Hypertension in Villa Nueva, Guatemala City, 2003.

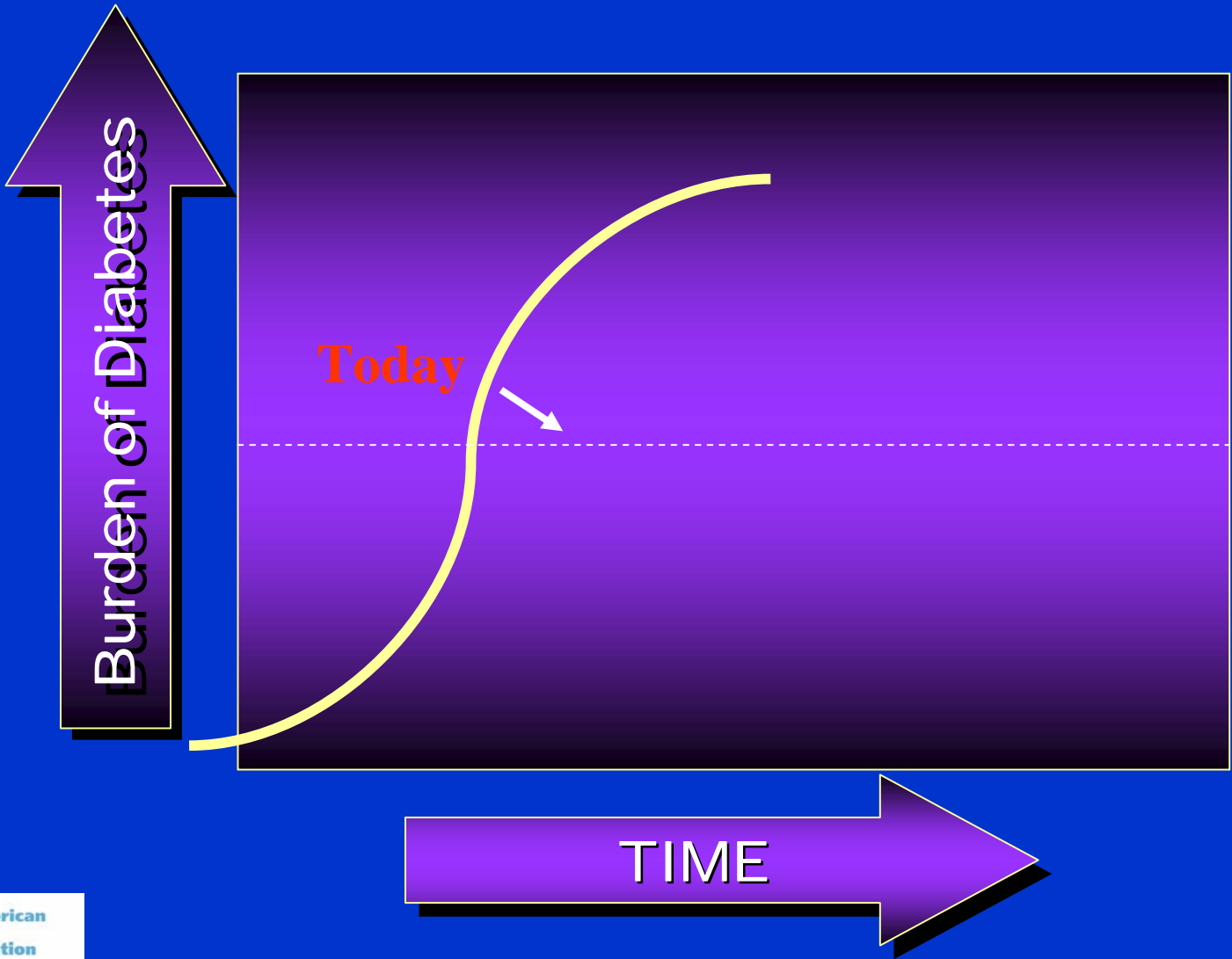


■ Known ■ Newly Diag

CVD Risk Factors among people with and without DM, Guatemala 2003.



■ With DM ■ Without DM



How can we stop
(or slow down) the
the diabetes

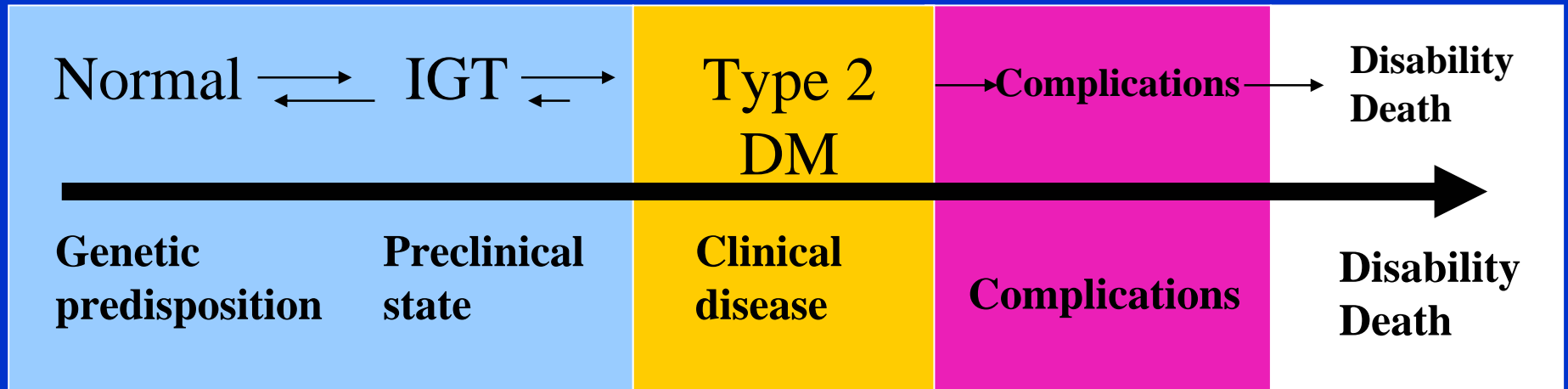
Epidemic ?

Rationale for Primary Prevention

oScientific

oEconomic

Stages in the natural history of Type 2 diabetes



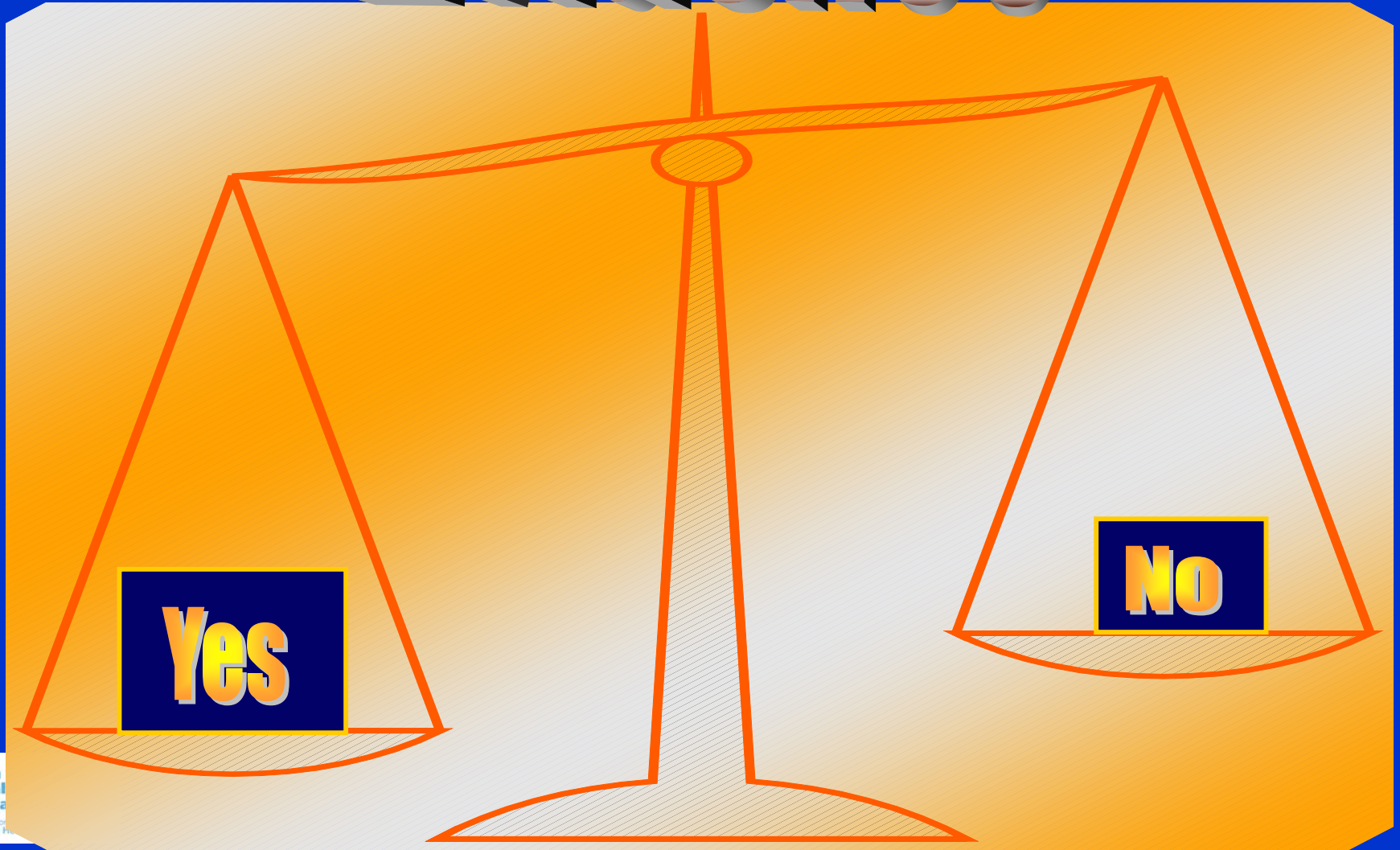
Primary prevention

Secondary prevention

Tertiary prevention

What is the

Evidence



Major Studies

- ✓ **Da Qing IGT and Diabetes Study, China**
- ✓ **Diabetes Prevention Study, Finland**
- ✓ **Diabetes Prevention Program, USA**
- ✓ **STOP NIDDM, Europe, Canada**
- ✓ **Troglitazone in the Prevention of Diabetes (TRIPOD), USA**

Benefits

Study	Reduction in risk (%)	
	Lifestyle	Drug
Da Qing	31-46	
DPS	58	
DPP	58	31
Stop NIDDM		25
TRIPOD		55

What are the current policy recommendations?

American Diabetes Association

Prediabetes:

Opportunistic screening for IGT or IFG:

≥ 45 yrs

Emphasis on those with BMI >25

Consider others if are overweight with risk factors

ADA Position Statement Diabetes Care 2004;27:S47

What are the current policy recommendations?

IDF IGT/IFG Consensus Statement. Report of an Expert Consensus Workshop

IGT or IFG should receive lifestyle advice

If lifestyle fails, consider drugs

Target those at highest risk for DM and CVD

What are the current policy recommendations?

Finnish National Policy

Prediction models for future risk

Use fewer screening tests


Tailor to the individuals' level of risk

Diabetes and Hypertension Screening in Mexico

DIABETES

GUÍA PARA LA DETECCIÓN INTEGRADA DE DIABETES E HIPERTENSIÓN ARTERIAL

Centros Estatales de Capacitación
Subsecretaría de Prevención y Control de Enfermedades
 Coordinación de Vigilancia y Epidemiológica
Programa de Salud del Adulto y el Anciano



HIPERTENSIÓN

PROGRAMA DE SALUD DEL ADULTO Y EL ANCIANO

¿TIENE HIPERTENSIÓN ARTERIAL Y NO LO SABE?

Detección Presión Arterial	1ª Confirmación de Hipertensión Arterial	2ª Confirmación de Hipertensión Arterial																								
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">Sist.</td><td style="text-align: center;">Diast.</td></tr> <tr><td>1ª toma</td><td></td></tr> <tr><td>2ª toma</td><td></td></tr> <tr><td>Promedio</td><td></td></tr> </table>	Sist.	Diast.	1ª toma		2ª toma		Promedio		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">Sist.</td><td style="text-align: center;">Diast.</td></tr> <tr><td>1ª toma</td><td></td></tr> <tr><td>2ª toma</td><td></td></tr> <tr><td>Promedio</td><td></td></tr> </table>	Sist.	Diast.	1ª toma		2ª toma		Promedio		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">Sist.</td><td style="text-align: center;">Diast.</td></tr> <tr><td>1ª toma</td><td></td></tr> <tr><td>2ª toma</td><td></td></tr> <tr><td>Promedio</td><td></td></tr> </table>	Sist.	Diast.	1ª toma		2ª toma		Promedio	
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PROGRAMA DE SALUD DEL ADULTO Y EL ANCIANO

¿TIENE DIABETES Y NO LO SABE? RESPONDA ESTE CUESTIONARIO Y CONOZCA SU CALIFICACION*

Folio No. _____

por la salud
 Subsecretaría de Prevención y Control de Enfermedades
 Coordinación de Vigilancia Epidemiológica
 Programa de Salud del Adulto y el Anciano

Fecha: ___/___/___ Nombre: _____ Edad: _____
 Dirección: _____
 Cuenta con seguridad social Si ___ No ___ IMSS ___ ISSSTE ___ OTRO _____

Para encontrar si está en riesgo de tener diabetes, responda este cuestionario y marque con una cruz la respuesta que se adapte a usted.

<ol style="list-style-type: none"> De acuerdo a mi estatura mi peso es igual o superior al anotado en la tabla. SI <input type="radio"/> NO <input type="radio"/> Normalmente hago poco o nada de ejercicio. SI <input type="radio"/> NO <input type="radio"/> Tengo entre 45 y 64 años de edad. SI <input type="radio"/> NO <input type="radio"/> Tengo 65 años de edad o más. SI <input type="radio"/> NO <input type="radio"/> Alguno de mis hermanos tiene diabetes. SI <input type="radio"/> NO <input type="radio"/> Alguno de mis padres tiene diabetes. SI <input type="radio"/> NO <input type="radio"/> Si usted es mujer y ha tenido bebés de más de cuatro kilo de peso al nacer. SI <input type="radio"/> NO <input type="radio"/> 	<p>PESO CORPORAL DE ALTO RIESGO (Subpeso de 10%)</p> <p>Estatura _____ cm Peso _____ kg (sin zapatos) (medir peso de la ropa)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #f2f2f2;"> <th>Estatura</th> <th>Peso</th> </tr> </thead> <tbody> <tr><td>1.40</td><td>40.0</td></tr> <tr><td>1.42</td><td>40.5</td></tr> <tr><td>1.44</td><td>42.2</td></tr> <tr><td>1.46</td><td>43.9</td></tr> <tr><td>1.48</td><td>45.7</td></tr> <tr><td>1.50</td><td>47.5</td></tr> <tr><td>1.52</td><td>49.3</td></tr> <tr><td>1.54</td><td>51.1</td></tr> <tr><td>1.56</td><td>53.0</td></tr> <tr><td>1.58</td><td>54.9</td></tr> <tr><td>1.60</td><td>56.8</td></tr> <tr><td>1.62</td><td>58.7</td></tr> <tr><td>1.64</td><td>60.7</td></tr> <tr><td>1.66</td><td>62.7</td></tr> <tr><td>1.68</td><td>64.7</td></tr> <tr><td>1.70</td><td>66.7</td></tr> <tr><td>1.72</td><td>68.8</td></tr> <tr><td>1.74</td><td>70.8</td></tr> <tr><td>1.76</td><td>72.9</td></tr> <tr><td>1.78</td><td>75.0</td></tr> <tr><td>1.80</td><td>77.1</td></tr> <tr><td>1.82</td><td>79.2</td></tr> <tr><td>1.84</td><td>81.3</td></tr> <tr><td>1.86</td><td>83.4</td></tr> <tr><td>1.88</td><td>85.5</td></tr> <tr><td>1.90</td><td>87.6</td></tr> <tr><td>1.92</td><td>89.7</td></tr> <tr><td>1.94</td><td>91.8</td></tr> <tr><td>1.96</td><td>93.9</td></tr> <tr><td>1.98</td><td>96.0</td></tr> <tr><td>2.00</td><td>98.1</td></tr> </tbody> </table>	Estatura	Peso	1.40	40.0	1.42	40.5	1.44	42.2	1.46	43.9	1.48	45.7	1.50	47.5	1.52	49.3	1.54	51.1	1.56	53.0	1.58	54.9	1.60	56.8	1.62	58.7	1.64	60.7	1.66	62.7	1.68	64.7	1.70	66.7	1.72	68.8	1.74	70.8	1.76	72.9	1.78	75.0	1.80	77.1	1.82	79.2	1.84	81.3	1.86	83.4	1.88	85.5	1.90	87.6	1.92	89.7	1.94	91.8	1.96	93.9	1.98	96.0	2.00	98.1
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TOTAL _____

SI OBTUVO MENOS DE 10 PUNTOS DE CALIFICACIÓN:
 Está en bajo riesgo de tener diabetes por ahora. Para no saberlo que en el futuro puede tener un riesgo mayor. Se le recomienda adoptar un estilo de vida saludable y aplicar dentro de 2 años nuevamente el cuestionario.

SI OBTUVO 10 o MÁS PUNTOS DE CALIFICACIÓN:
 Si alcanzó 10 o más puntos, está en un alto riesgo de tener diabetes. Hágase la determinación de azúcar en sangre, consulte a su médico y practique estilos de vida saludables.

Glicemia capilar _____ mg/dl
 Prueba confirmatoria _____ mg/dl

*Modificada de ADA



Eliminación

de ayuda



The Primary Prevention of DM in the Americas (lifetime horizon)

- Population at risk (45-64 years): 125,600,974
- Type 2 DM New Cases per Year: 1,117,773
- Potentially Preventable: 550,813
- Needed to Include in Prevention Program : 3,760,676

DM Type 2 Primary Prevention: Future Savings

- **Gain QALY's: 5,444,194**
- **YPLL Saved: \$57,941,304,589**
- **Saving in Direct (Medical care) : \$37,534,686,912**
- **Total Savings: \$95,475,991,501**

Conclusion

- ❖ **Although there is limited data on the prevalence of diabetes and major CVD in LAC, the available information indicates that the prevalence of DM is increasing.**
- ❖ **There is evidence that type 2 DM and some of its complications can be prevented.**

Conclusion

- ❖ **In view of the burden that diabetes represents to people and society there is a need to commence primary prevention strategies as well as improve diabetes management.**