

Practical Diabetes

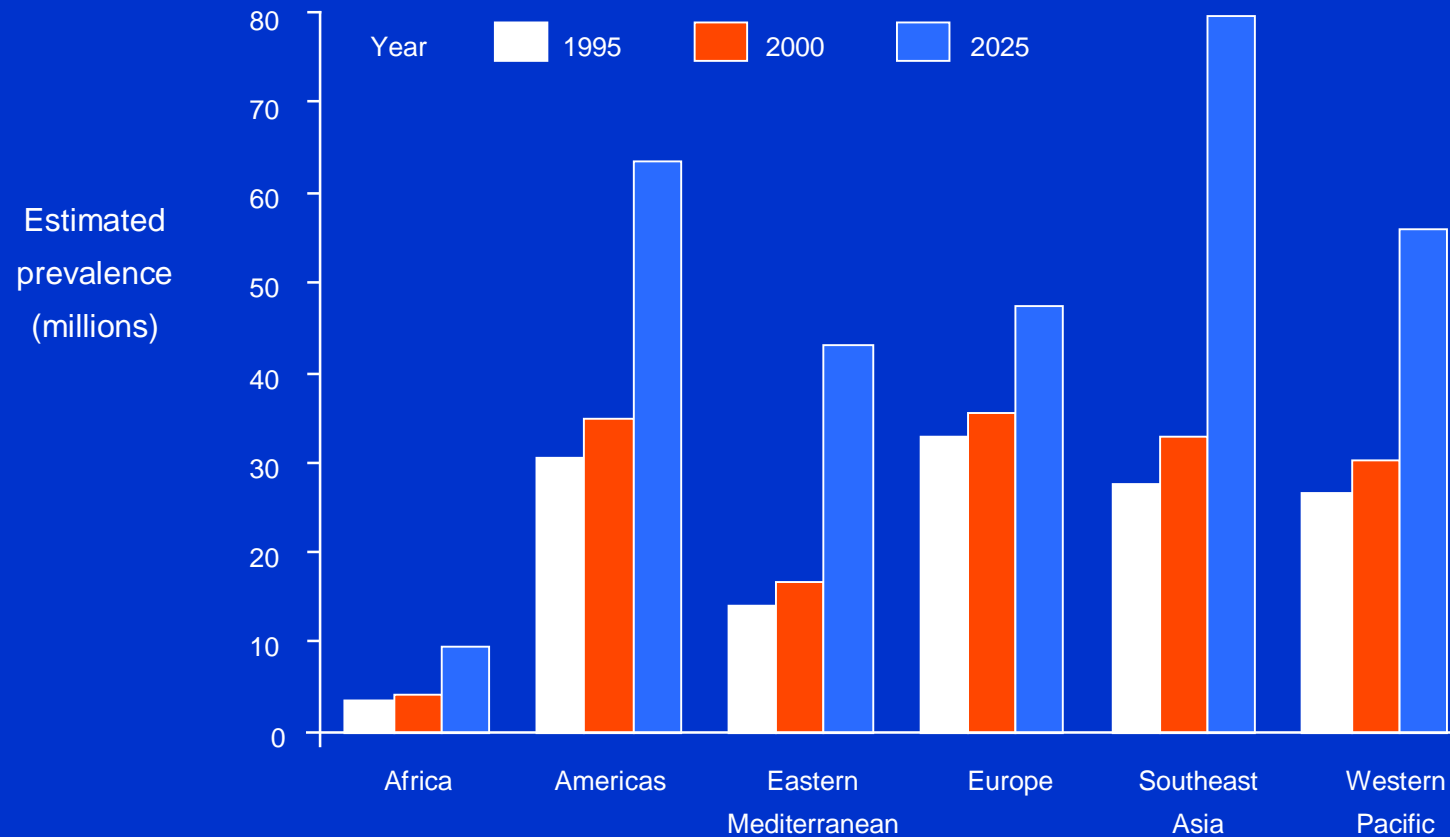
(and don't use so many charts)

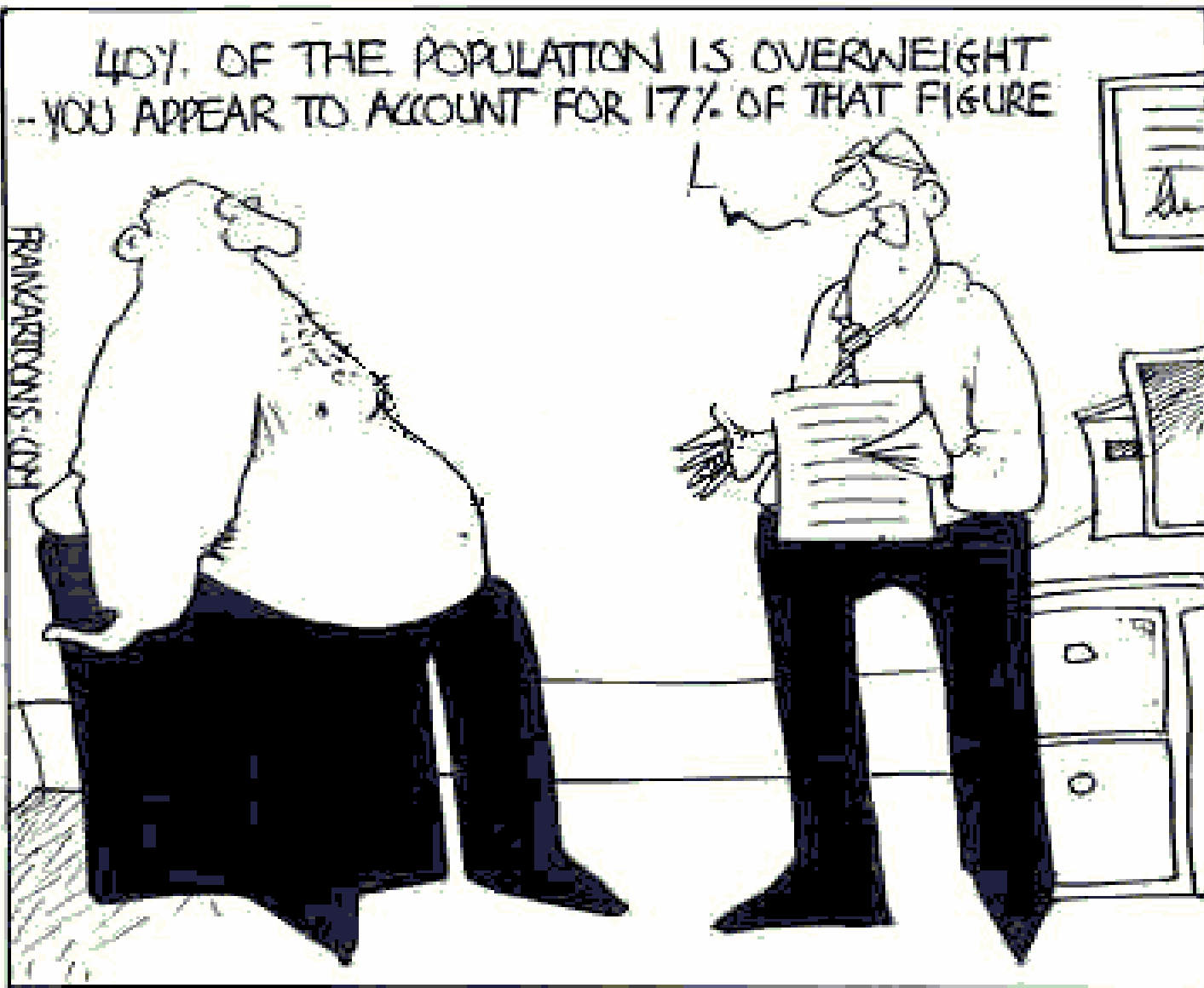
Nic Crook

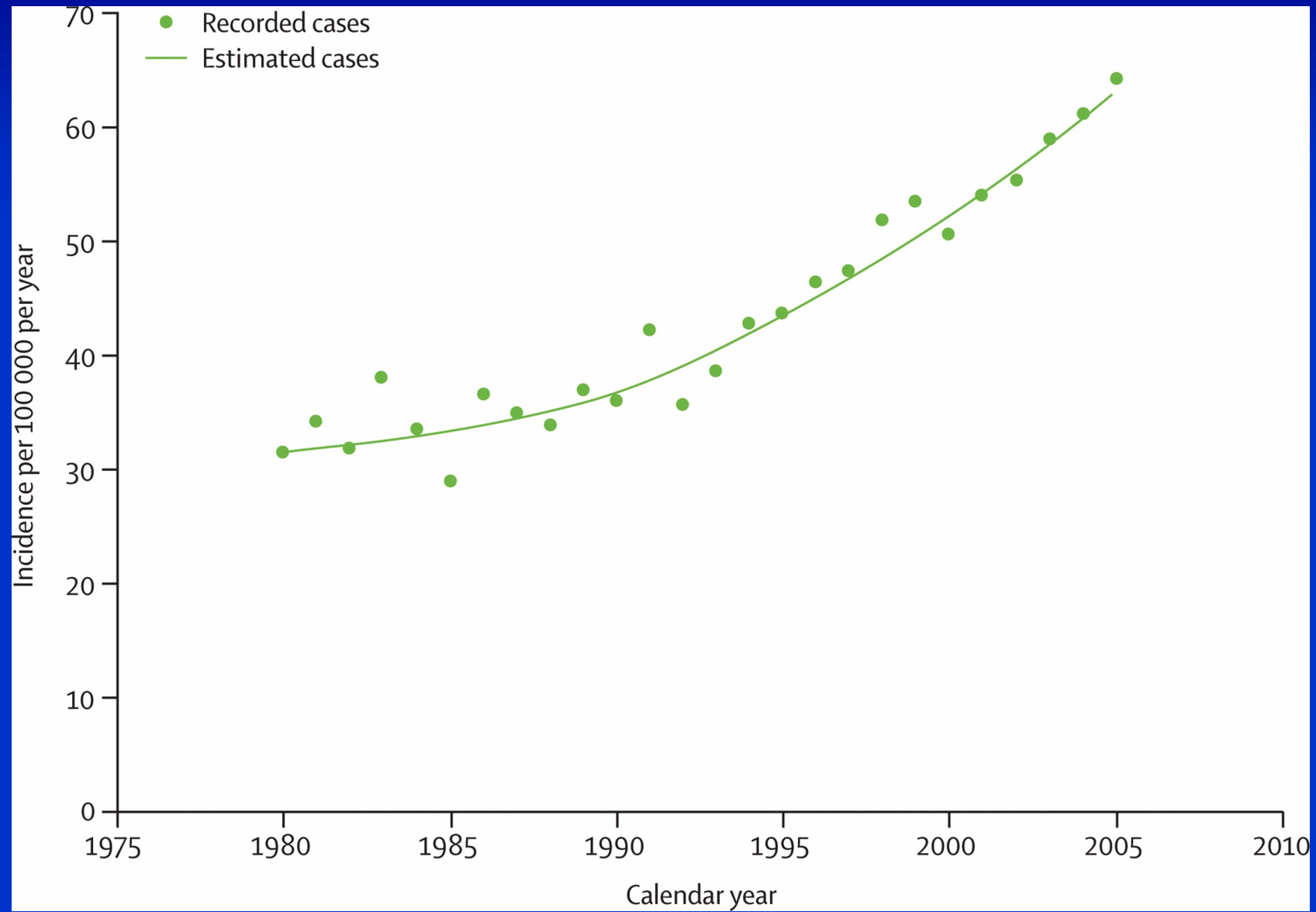
Rotorua Hospital
Private Bag 3023
Rotorua

Kuirau Specialists
1239 Ranolf Street
Rotorua

Worldwide rates of diabetes mellitus: predictions







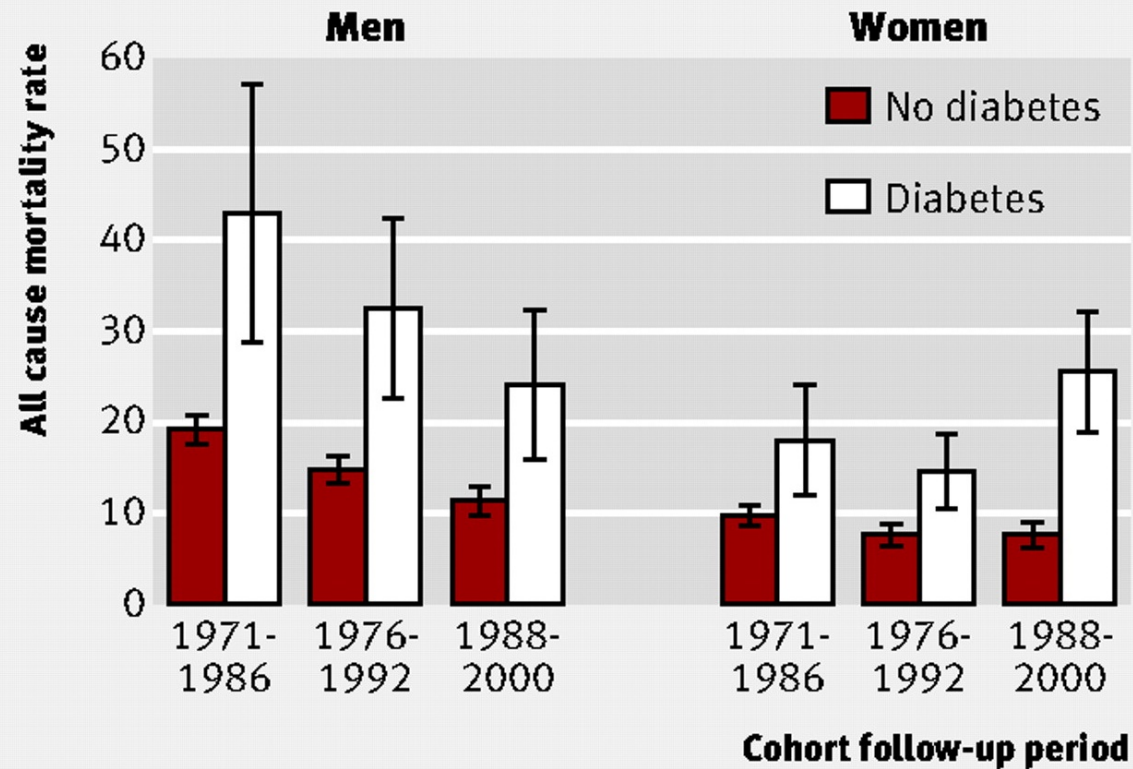
A1cs Since The DCCT

- 8.6% in 396 Canadian Type 1s in 1992 ¹
- 9.7% in 1,120 German children in 1996 ²
- 9.7% in U.S. in NHANES III, 1988 to 1994
- 8.6% in 2,873 European kids and adolescents in 1997 ³
- 9.2% in 62 Canadian Type 1s in 2004
- 8.4% in EDIC trial (followup to DCCT study)

A1c GOAL < 6.5% to 7%

1. Diabetes Care. 1997 May;20(5):714-20
2. Horm Res 1998;50:107-140
3. HB Mortensen et al: Diabetes Care. 1997 May;20(5):714-20

MORTALITY RATES AMONG US POPULATION, 1971-2000

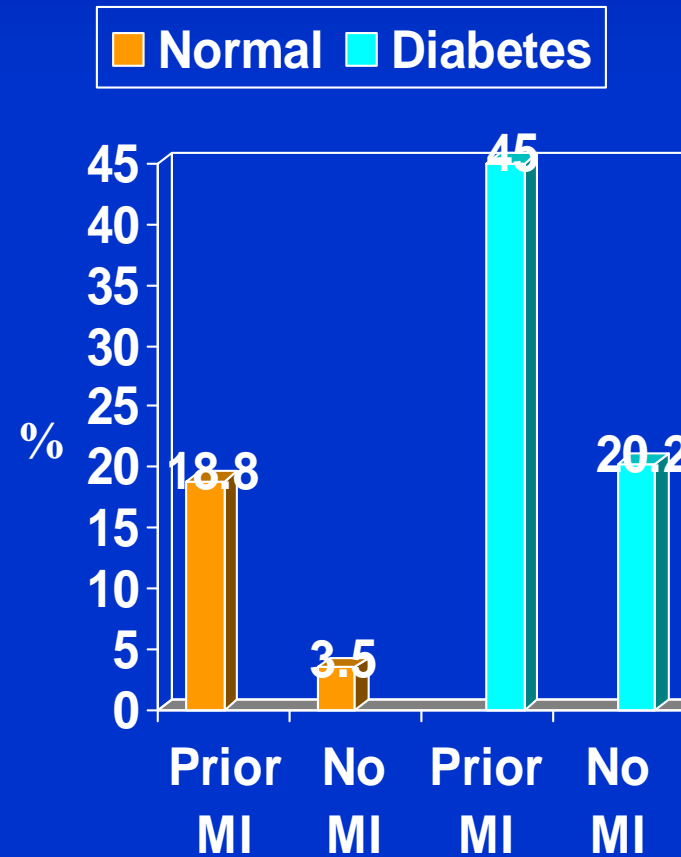


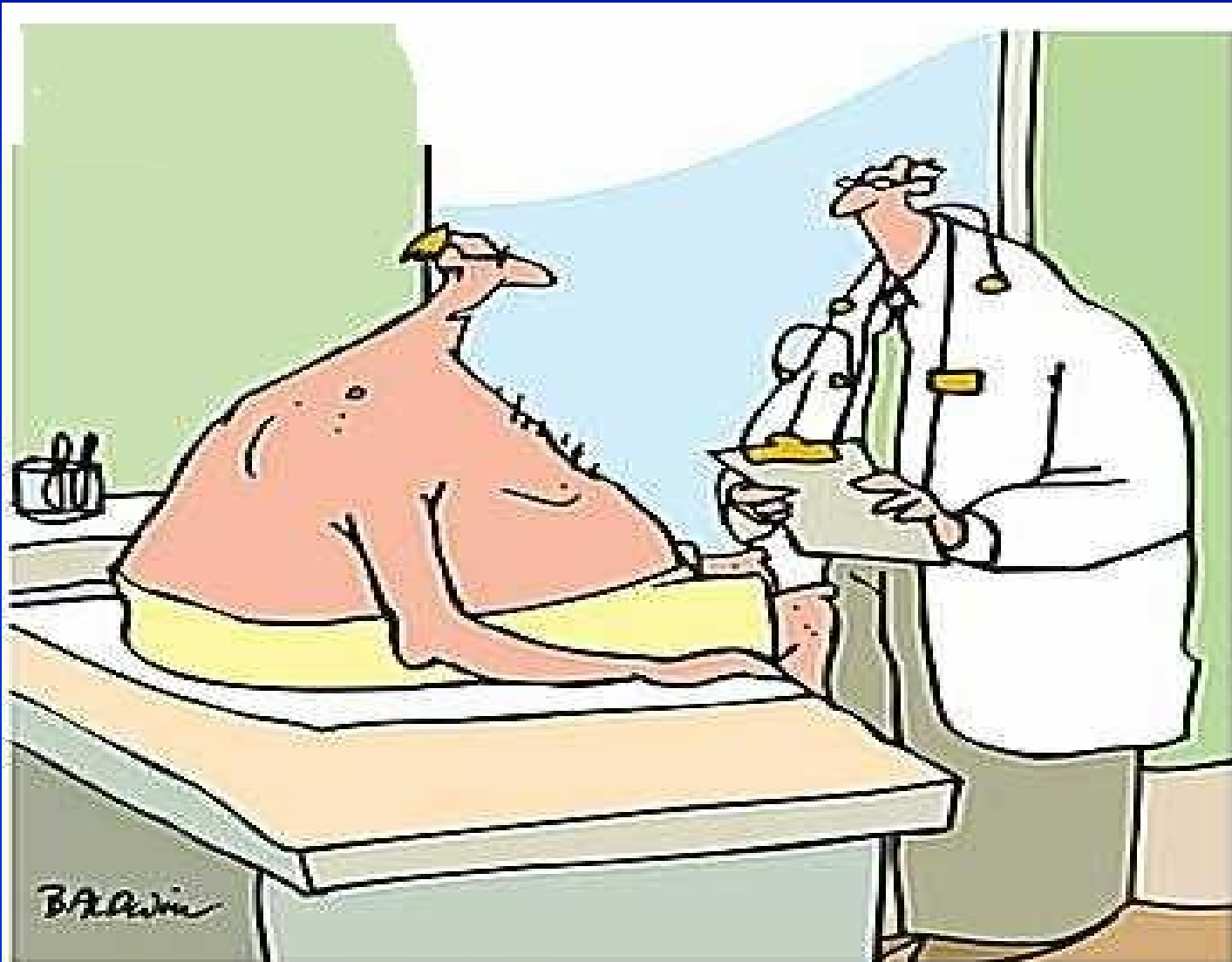
Adapted from Ann Internal Med 2007;147:149-55

BMJ 2007;335:323-324

Mortality

- Haffner S et al
- NEJM '98 339(4):229-34
- 7 year incidence data from population based study
- 1059 type 2 diabetics
- 1373 non-diabetics





“But I do exercise. I exercise discretion.”

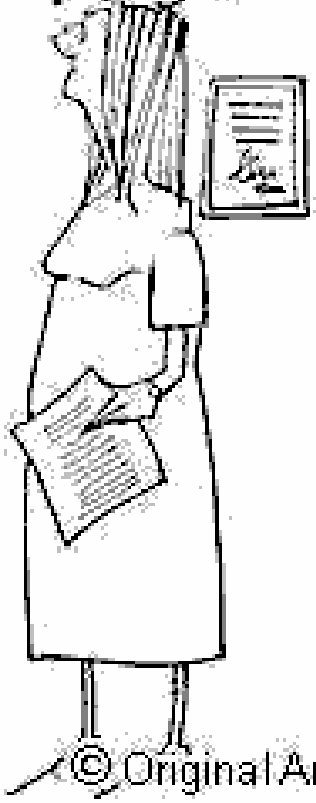
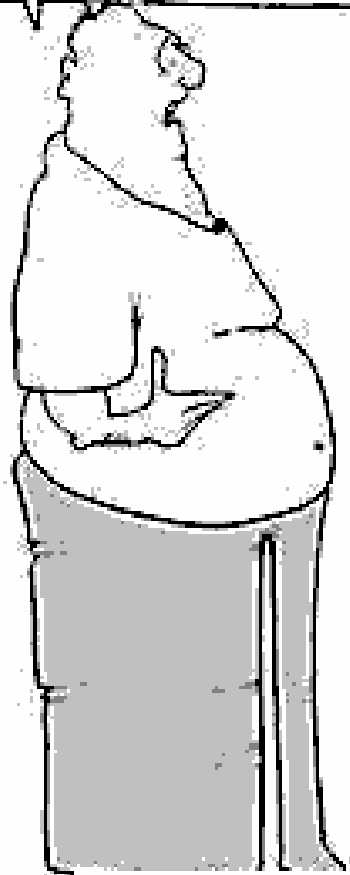
Max MTF and Sulphonylurea

- Alan- 48 Maori male smoker
- HbA1c 8.6%
- BP 142/74
- Cholesterol 4.1mmol/l
- LDLC 2.7 mmol/l
- ACR 7.4
- No MI/angina
- No CVE
- No PVD
- Mild Neuropathy
- Single MA on retinal screening
- What now ??????????

Choices for Alan

- HbA1c – what target, and how ?
- Blood pressure – what target and how ?
- Cholesterol – what target and how ?
- Anything else ?

I DON'T UNDERSTAND
DOX... THE THING IS I
HARDLY EAT ENOUGH
TO KEEP A SPARROW
ALIVE!



© Original Artist

Impact of Weight Loss on Risk Factors

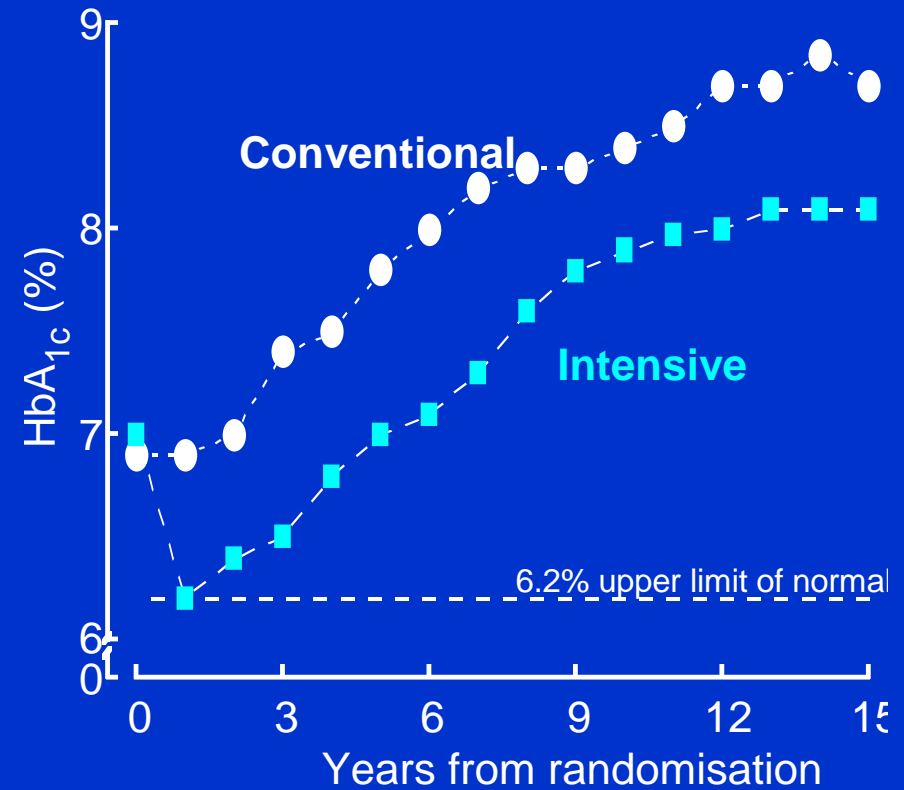
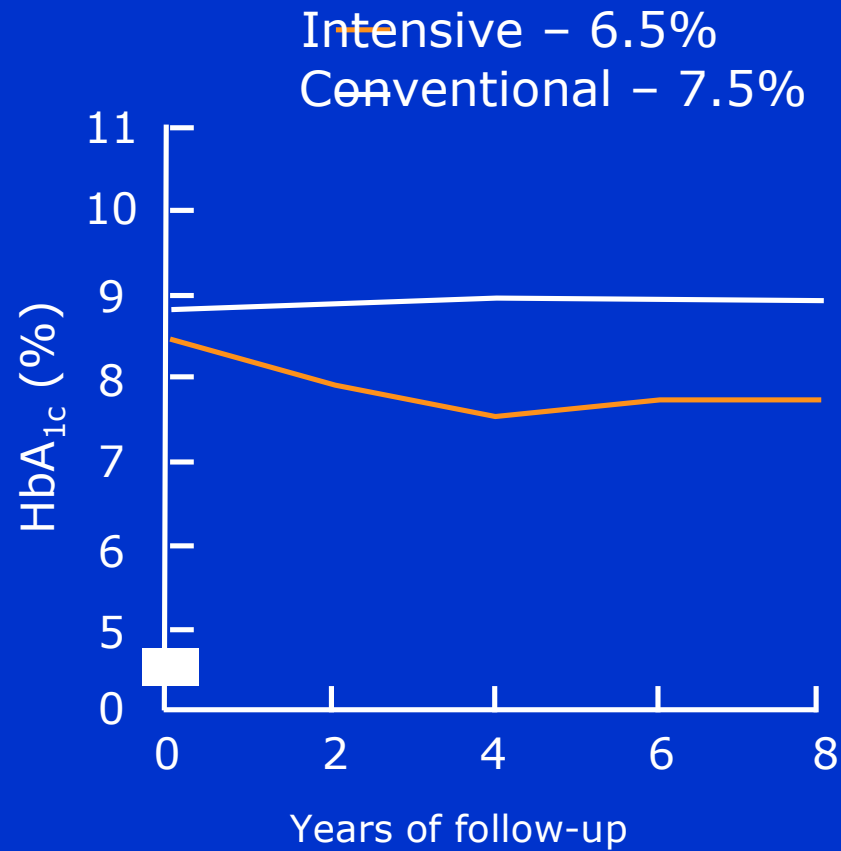
	~5% Weight Loss	5%-10% Weight Loss
HbA1c	 1	 1
Blood Pressure	 2	 2
Total Cholesterol	 3	 3
HDL Cholesterol	 3	 3
Triglycerides		 4

1. Wing RR et al. *Arch Intern Med.* 1987;147:1749-1753.
2. Mertens IL, Van Gaal LF. *Obes Res.* 2000;8:270-278.
3. Blackburn G. *Obes Res.* 1995;3 (Suppl 2):211S-216S.
4. Ditschuneit HH et al. *Eur J Clin Nutr.* 2002;56:264-270.

Choices For Alan (HbA1c = 8.6%)

- Add acarbose
- Add a TZD (pioglitazone or rosiglitazone)
- Add basal insulin – protophane/Humulin NPH
- Add prandial insulin – regular or analogue
- Add both basal and prandial insulin – basal bolus/penmix
 - Add a GLP1 analogue (exenatide)
 - Add a DPP 4inhibitor (sitagliptin)
- Refer to Nic !!!!

Realism in HbA1c targets in NZ



UKPDS data

Adapted from: N Engl J Med 2003;348:383-93

Choices for Alan (BP 142/74)

- Do nothing
- Lifestyle change
- Add Beta Blocker
- Add ACE inhibitor
- Add Thiazide
- Add Calcium Antagonist
- Add Alpha Blocker
- Use something old fashioned

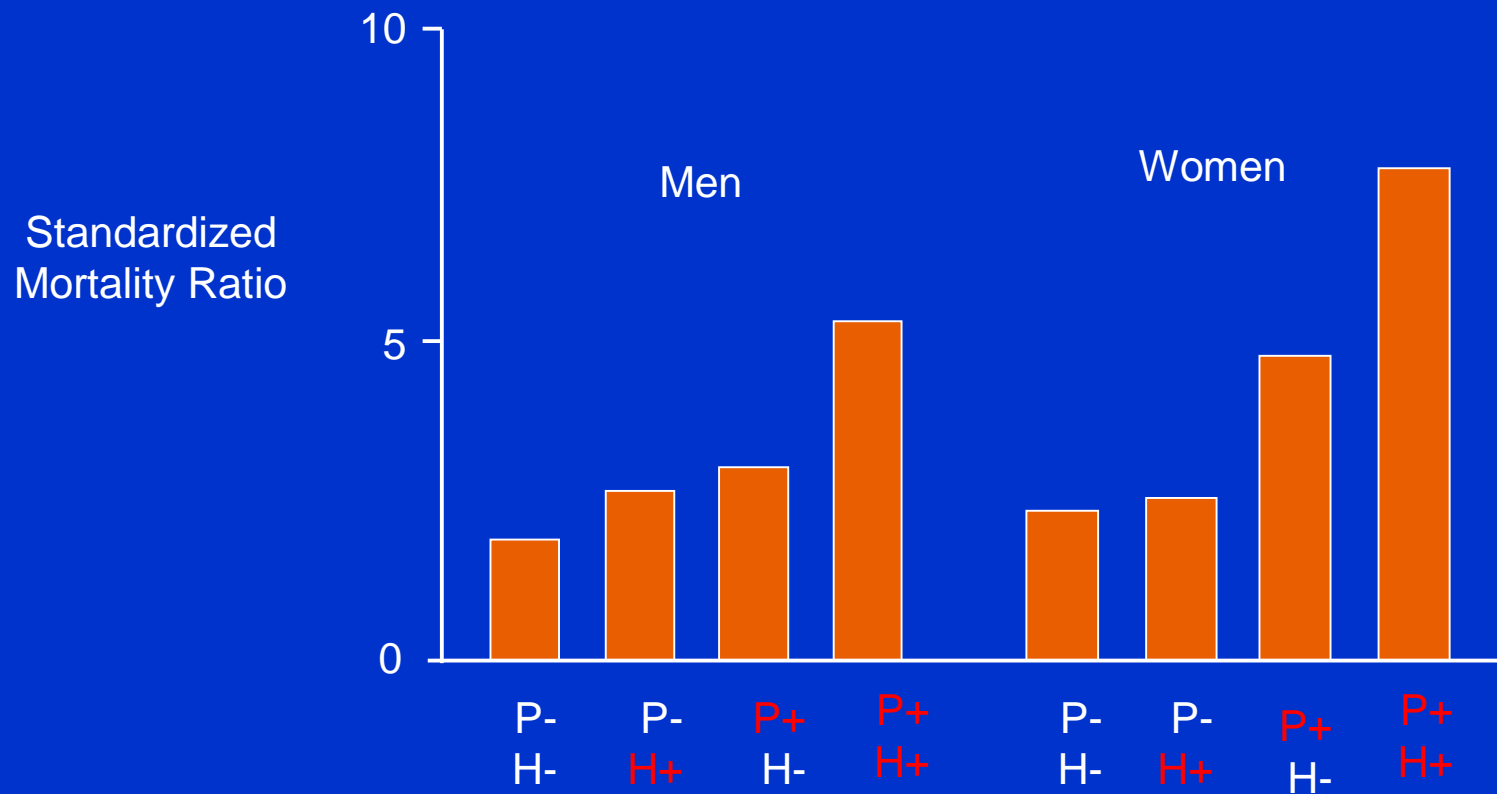
Blood Pressure Control Study

in 1148 Type 2 diabetic patients

a tight blood pressure control policy which achieved
blood pressure of 144 / 82 mmHg gave reduced risk for

any diabetes-related endpoint	24%	p=0.0046
diabetes-related deaths	32%	p=0.019
stroke	44%	p=0.013
microvascular disease	37%	p=0.0092
heart failure	56%	p=0.0043
retinopathy progression	34%	p=0.0038
deterioration of vision	47%	p=0.0036

Excess mortality with hypertension and proteinuria in type 2 diabetes



Status of hypertension (H) and proteinuria (P) in type 2 diabetes

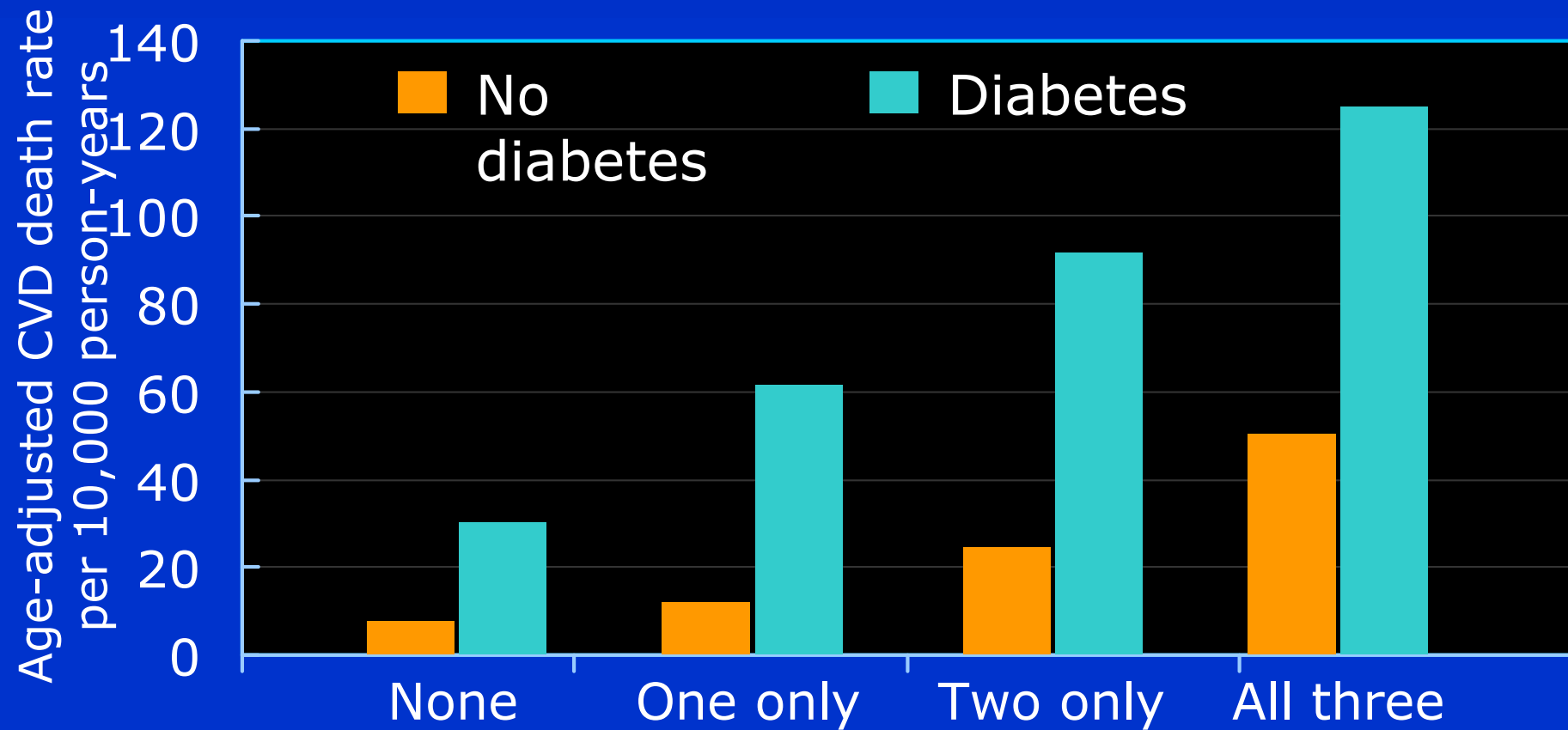
What is it ?



Choices for Alan (Cholesterol 4.1mmol/l)

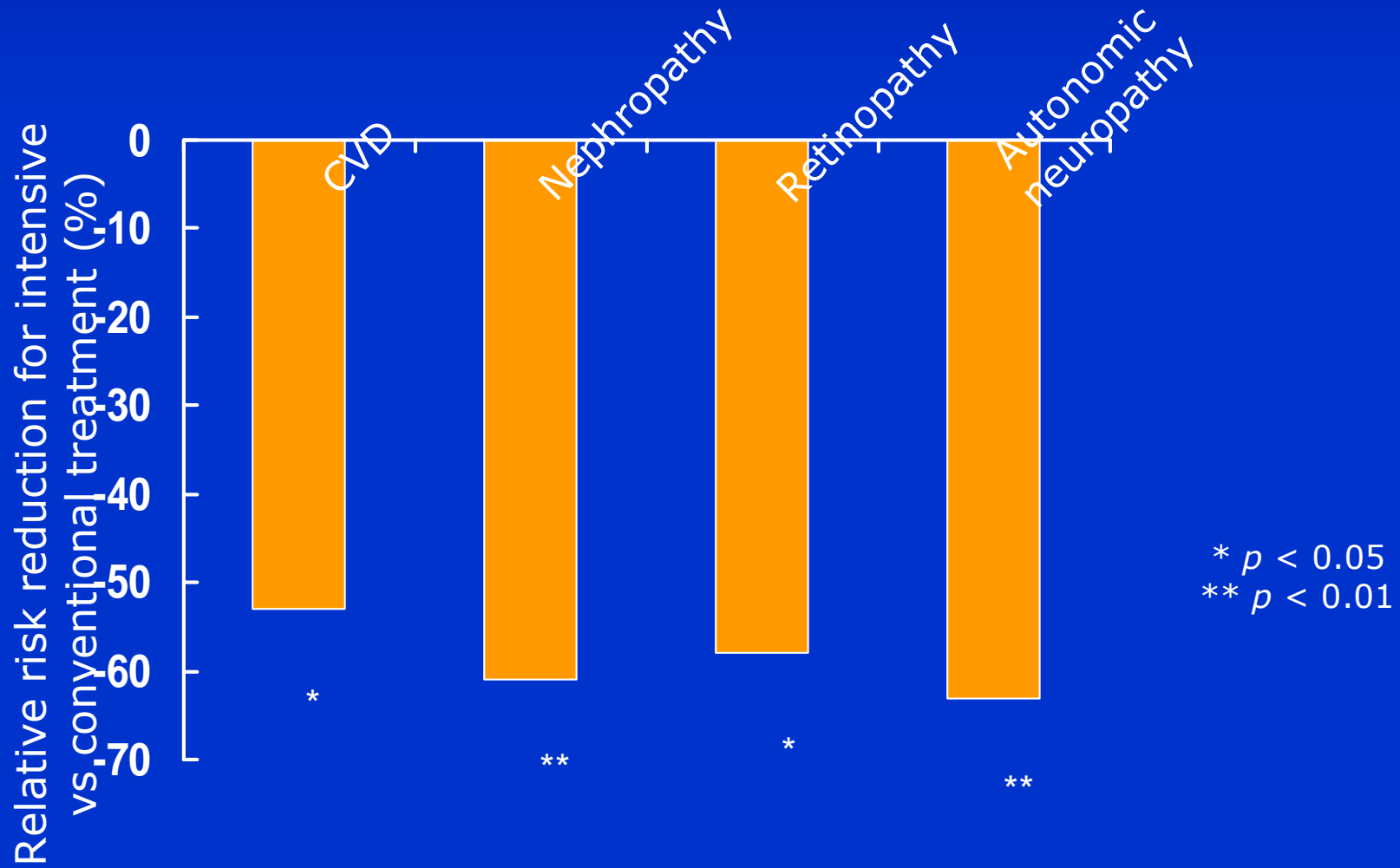
- Do nothing
- Lifestyle change
- Add a statin
- Add a fibrate

Influence of Multiple Risk Factors* on CVD Death Rates in Diabetic and Nondiabetic Men: *MRFIT* Screenees



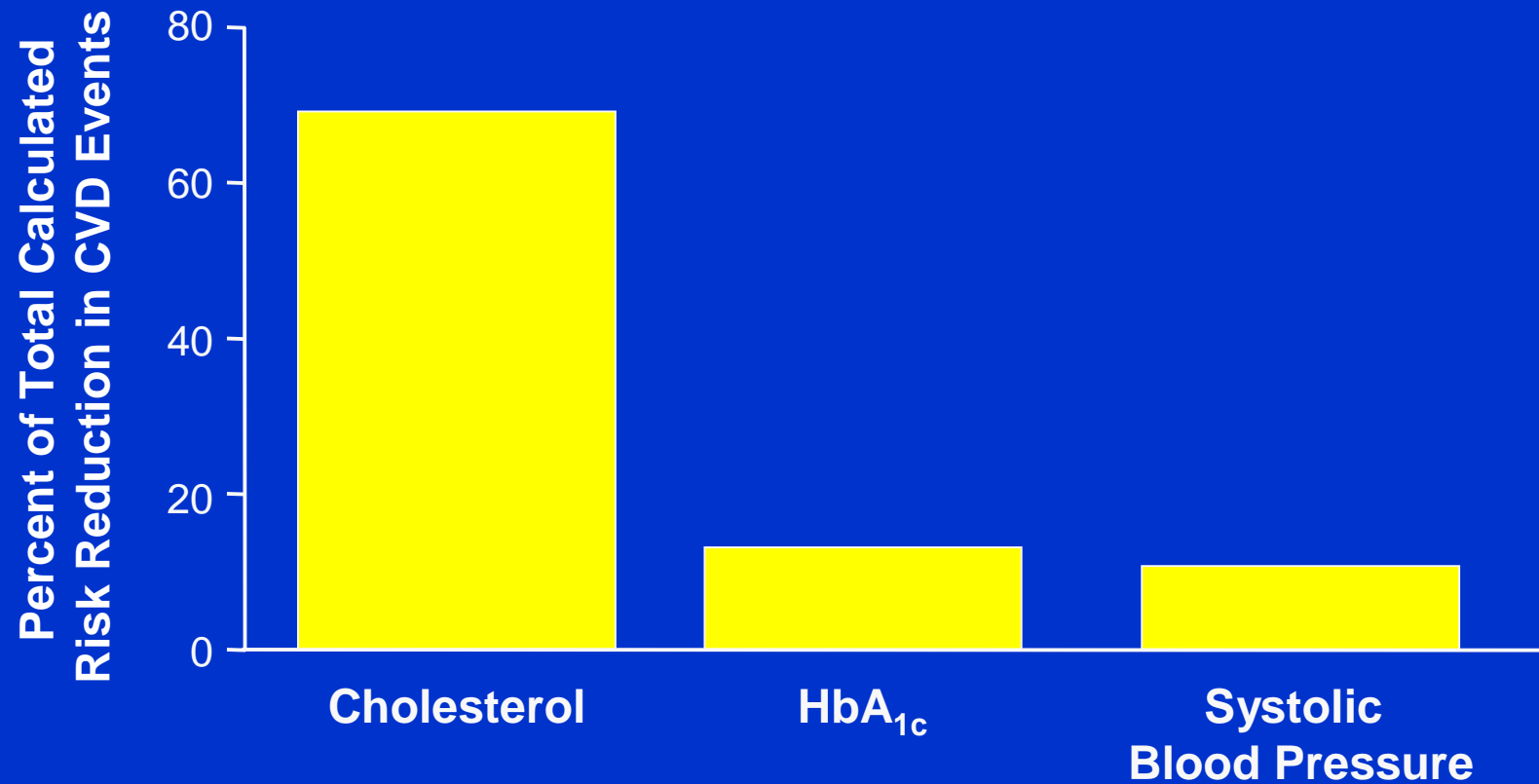
*Serum cholesterol >200 mg/dl, smoking, SBP >120 mmHg
Stamler J et al. *Diabetes Care* 1993;16:434-444

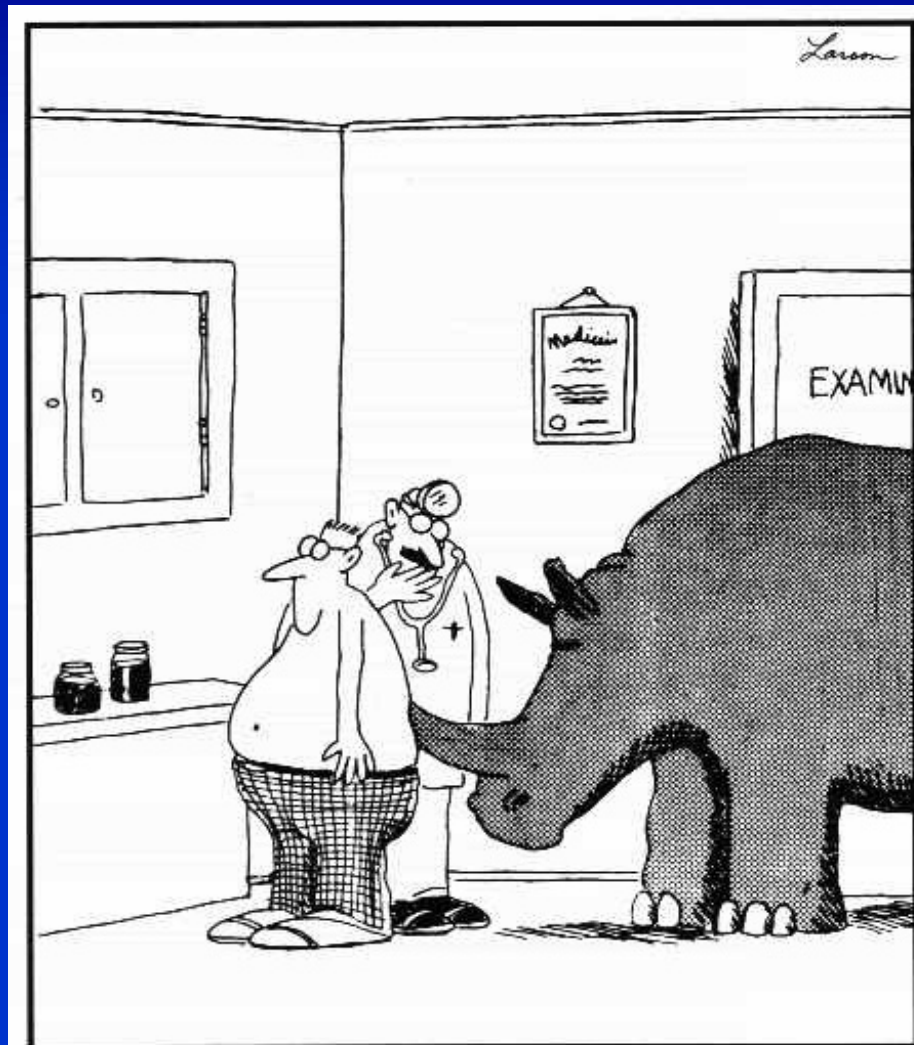
Steno-2: relative risk reduction with intensive treatment



Adapted from: N Engl J Med 2003;348:383-93

Steno 2 – what had the biggest impact on the patient





“Wait a minute here, Mr. Crumbley. ...
Maybe it isn't kidney stones after all.”

Max MTF and Sulphonylurea

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- HbA1c 8.6%
- BP 142/74
- Cholesterol 4.1mmol/l
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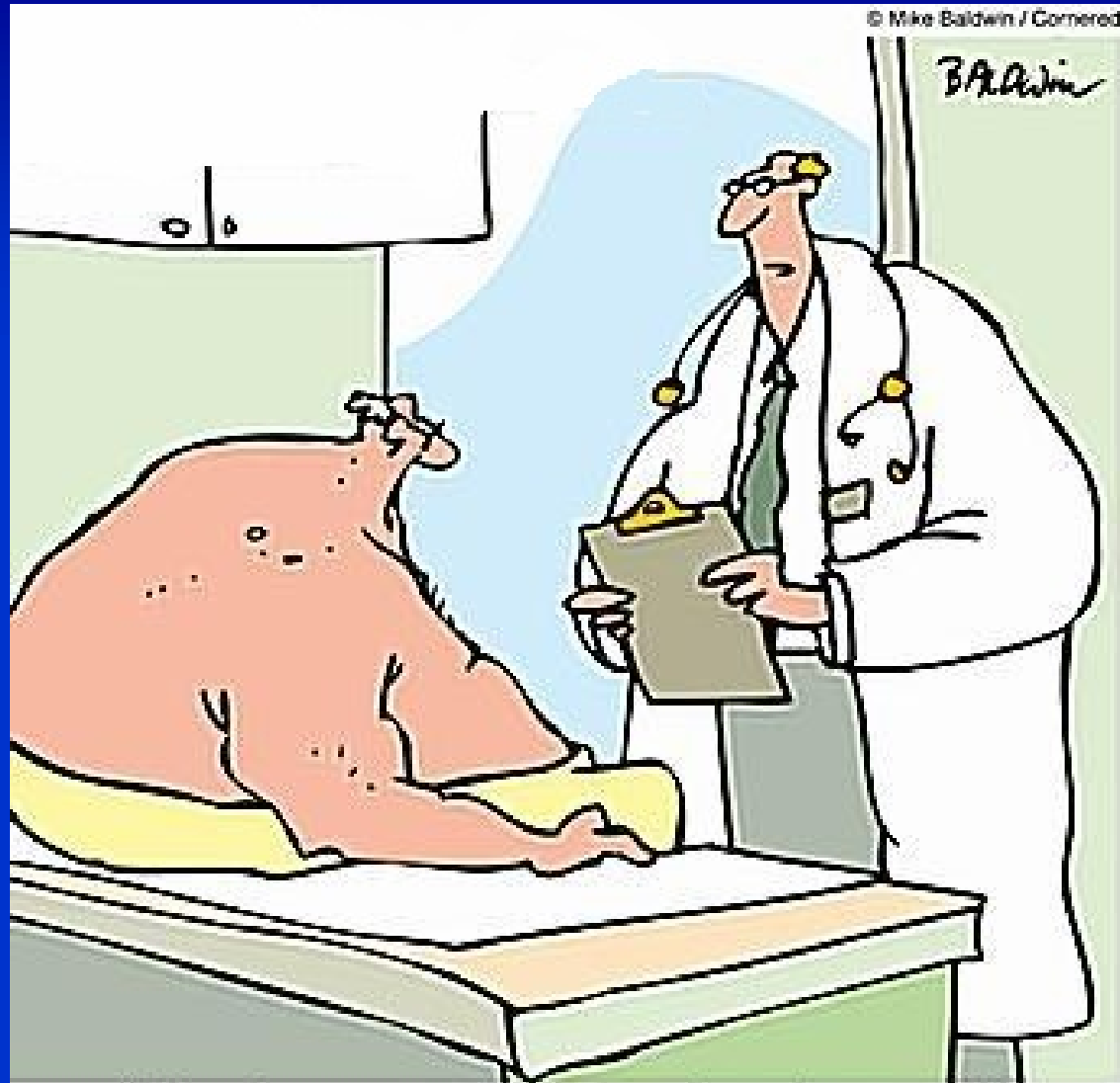
Choices for Alan

- Action

- Stop smoking
- Discuss lifestyle
- Start Statin
- Start ACE I
- Add insulin
- Discuss aspirin

- Target

- Don't smoke
- Weight loss > 5%
- LDL < 1.8mmol/l
- BP < 130/80
- HbA1c < 7.0%
- Take it regularly

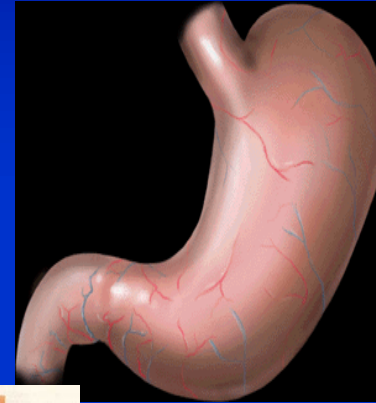
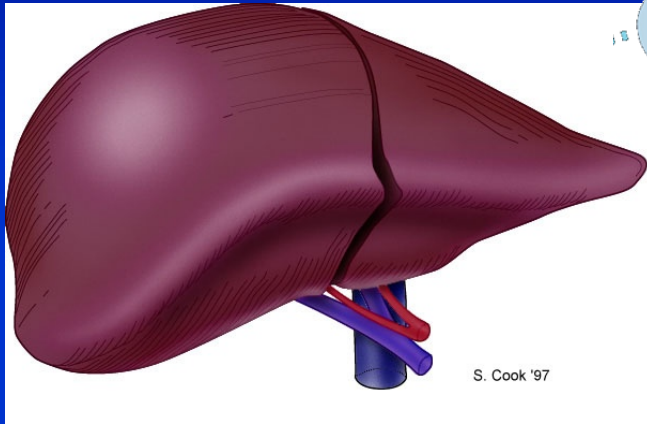


“You’ve got six months, but with aggressive treatment we can help make that seem much longer.”

Exogenous
Glucose

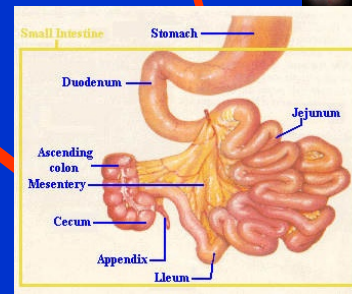
satiety

BRAIN

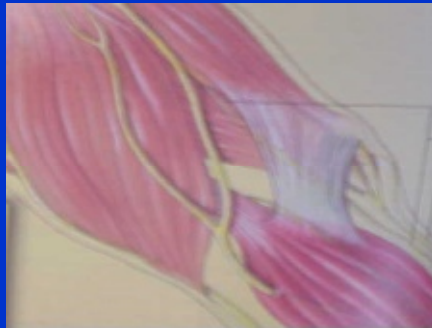


Suppresses
glucose
production

Delays gastric absorption

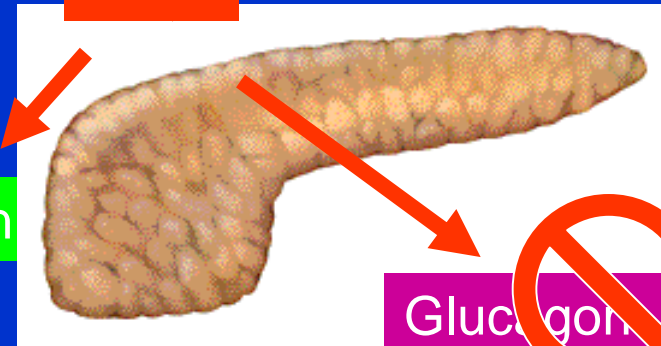


GLP1



Increases insulin
mediated
glucose disposal

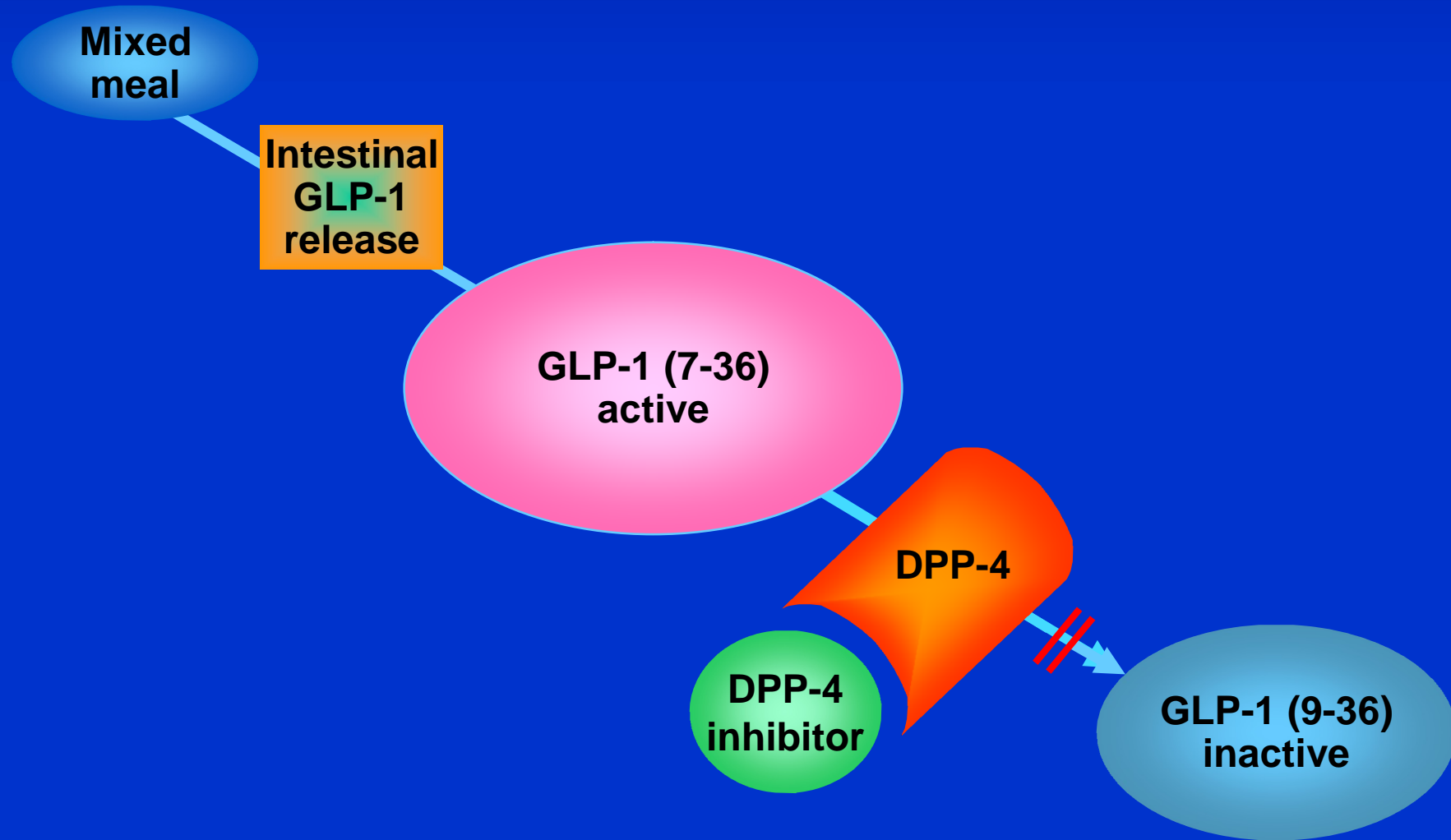
Insulin



Glucagon



Inhibition of DPP-4 Increases Active GLP-1



Adapted from Rothenberg P, et al. *Diabetes*. 2000;49(suppl 1):A39.



"I can't see what's so scary about it,
but it sure made Mom scream."

Clinical Inertia

“Failure to advance therapy when required”

Percentage of Subjects advancing when A1C > 8%

(n=7208)

At Insulin Initiation, the average patient had:

- 5 years with A1C > 8%
- 10 years with A1C > 7%

