



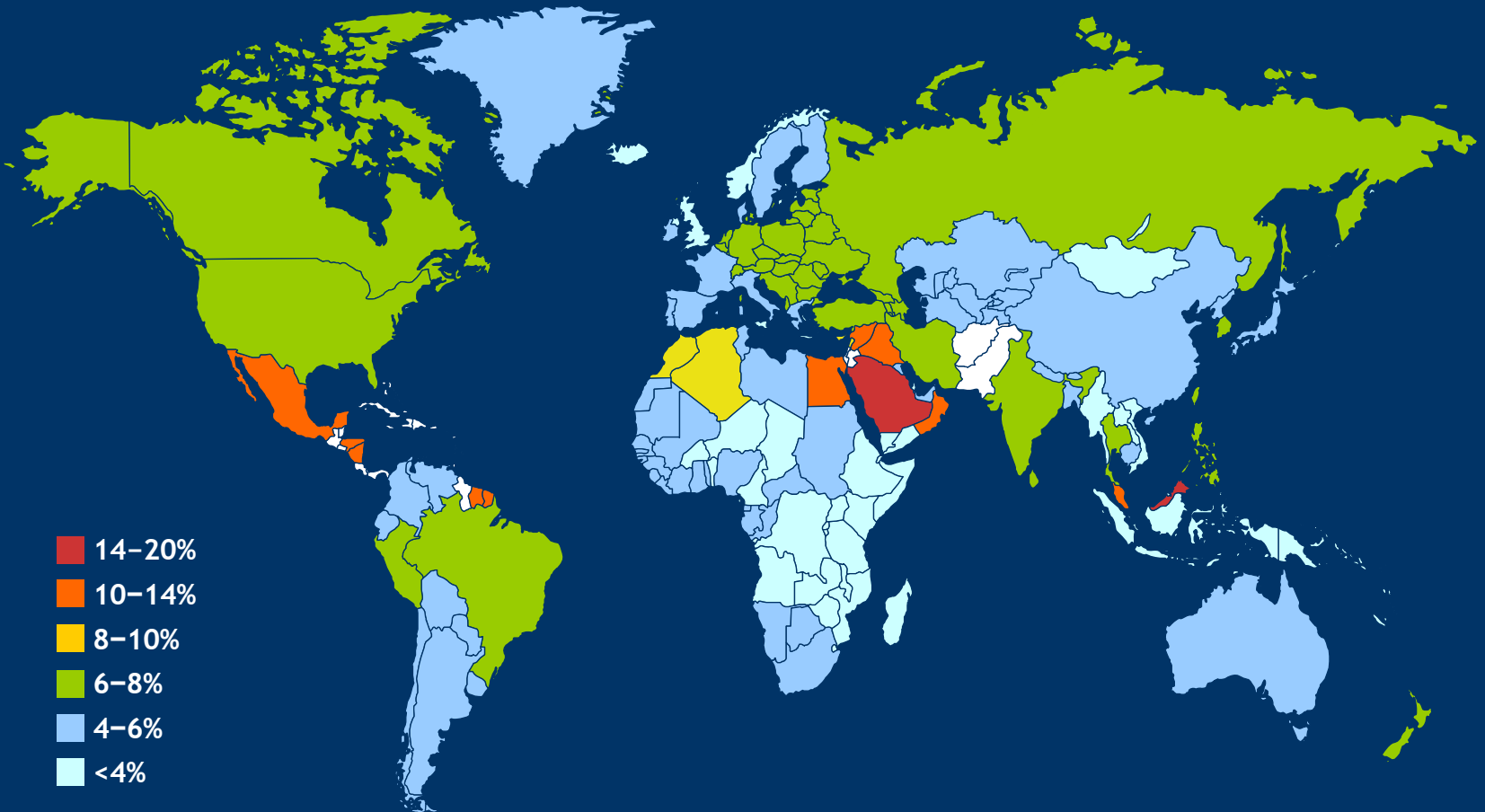
Boehringer Ingelheim  
Research Center  
Biberach, Germany  
Oct 17, 2008

# A new perspective on a growing epidemic

Type 2 Diabetes: The Need for Further Discovery

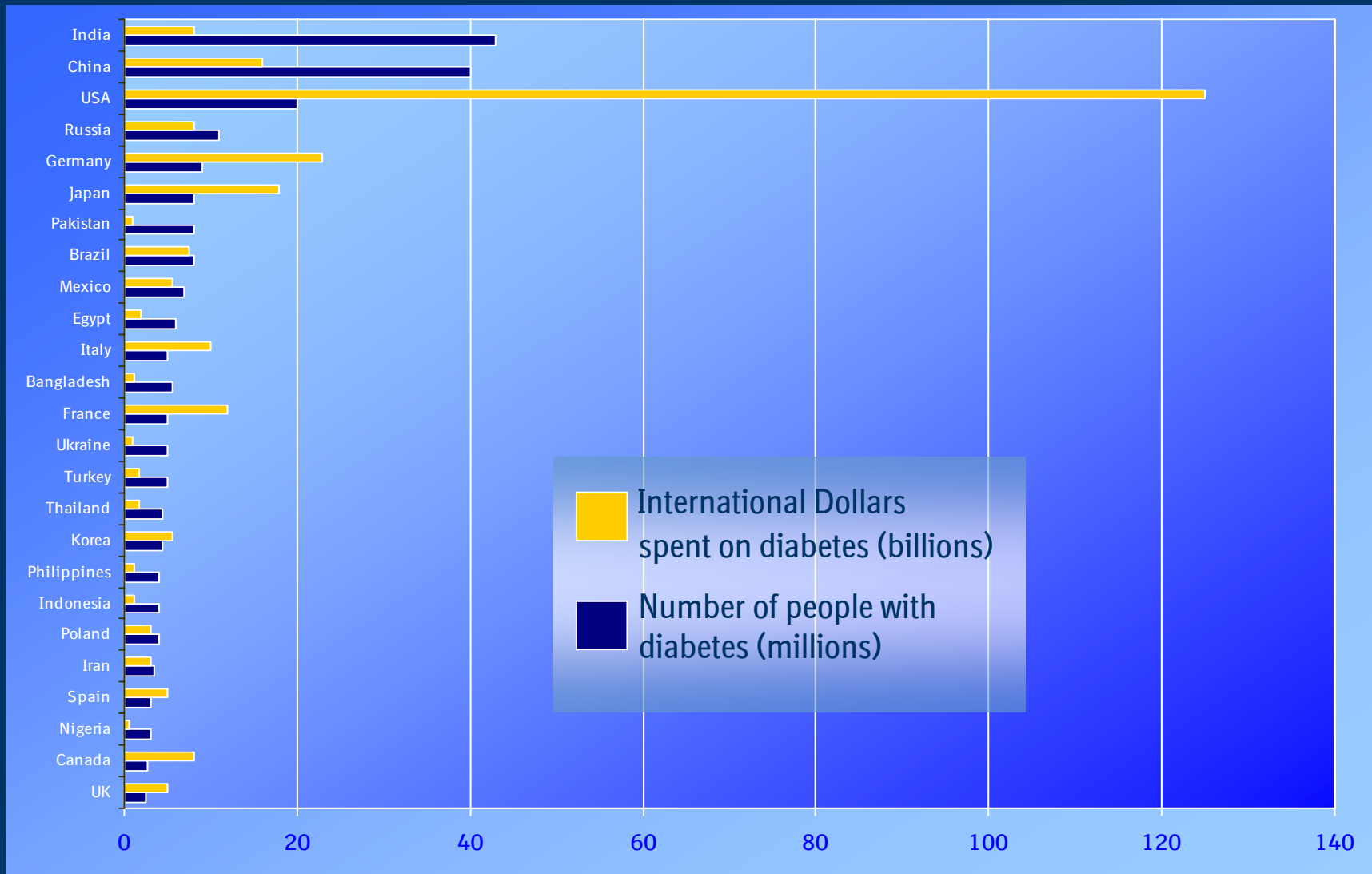
Prof. Matthias Blüher, University Leipzig

# Prevalence Estimates (%) of Adult Diabetes in 2008



International Diabetes Federation. Diabetes Atlas, Second Edition. [www.eatlas.idf.org](http://www.eatlas.idf.org), Accessed March 2008.

# Costs of Diabetes



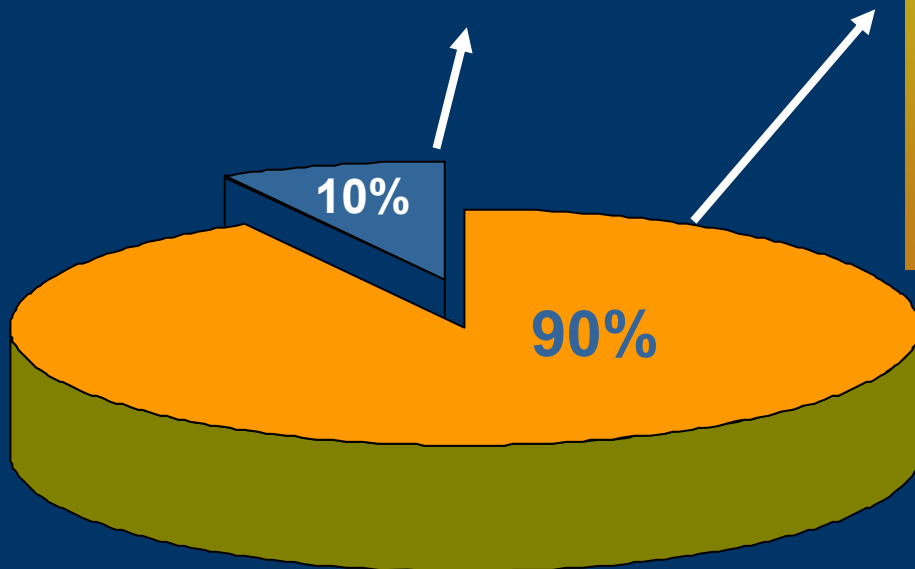
# Two Main Types of Diabetes

## Type 1 Diabetes (10%)

- Body is unable to produce insulin
- Appears typically before age of 40 years

## Type 2 Diabetes (90%)

- Body is not producing enough insulin or is unable to use the insulin effectively (insulin resistance)
- A progressive disease due to beta-cell deterioration
- Typically in older people (age > 40 years)



# Type 2 Diabetes Epidemic Already Starts in Children



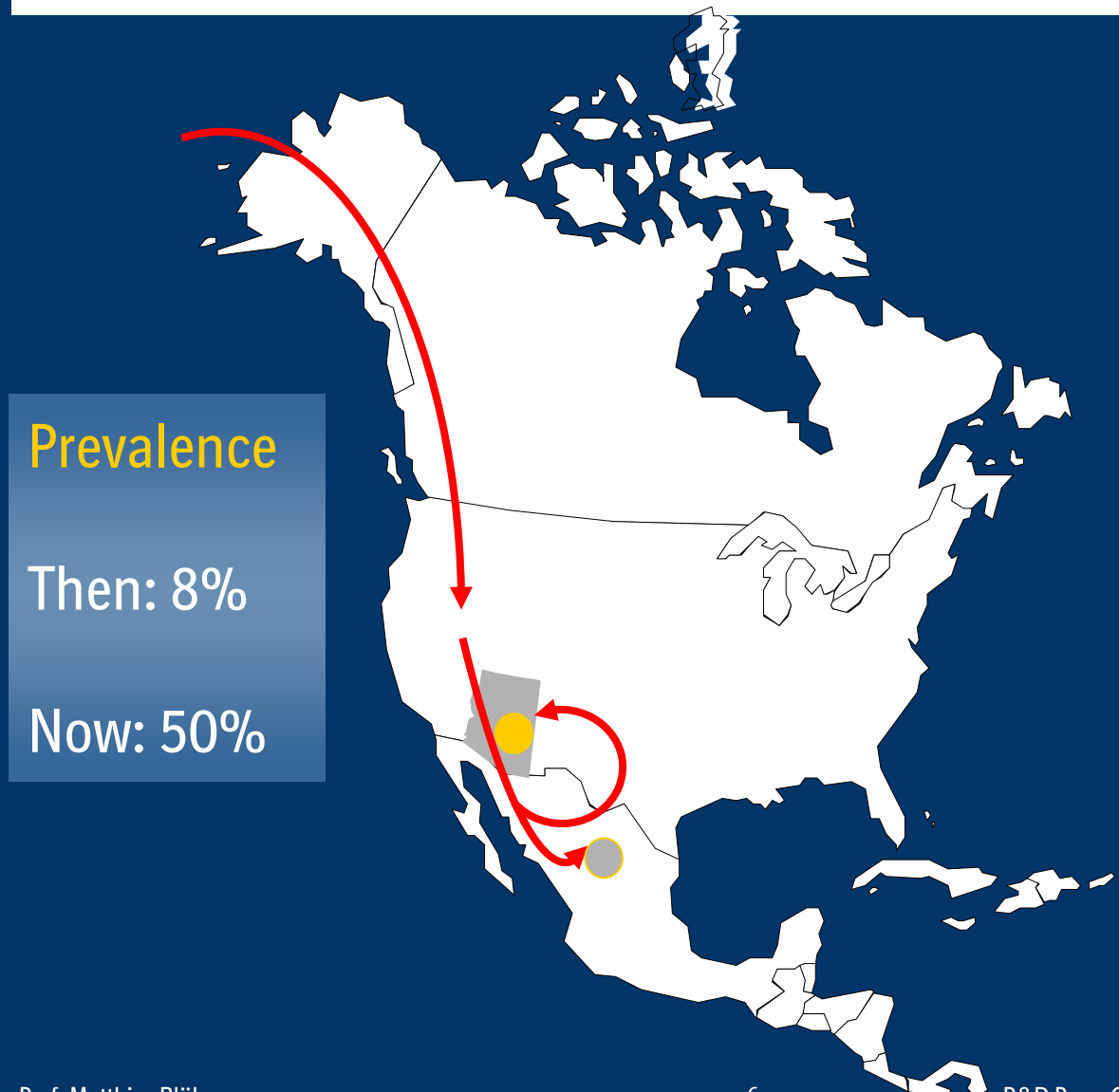
Increased prevalence of obesity of 5-10% in children

Age of type 2 diabetes manifestation shifts towards younger ages

In the last 10 years the number of children with type 2 diabetes increased by ~35%

Mayer-Davis, J Am Diet Assoc. 2008; 108: S45-51  
Reinehr et al., Exp Clin Endocrinol Diabetes. 2005;113: 167-70

# Gene Environment / Behaviour Interaction



## Pima Indians in Arizona

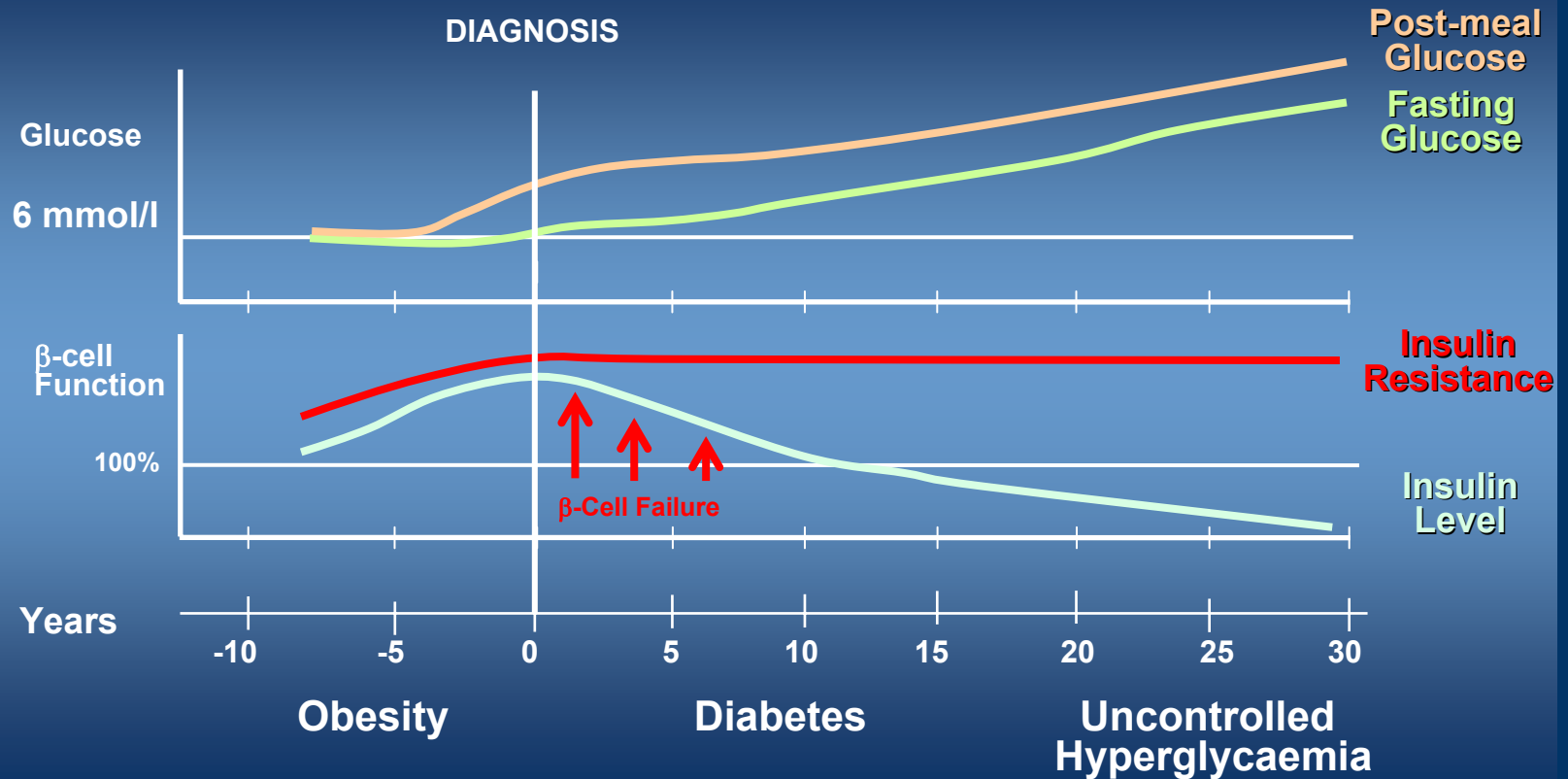
Then



Now

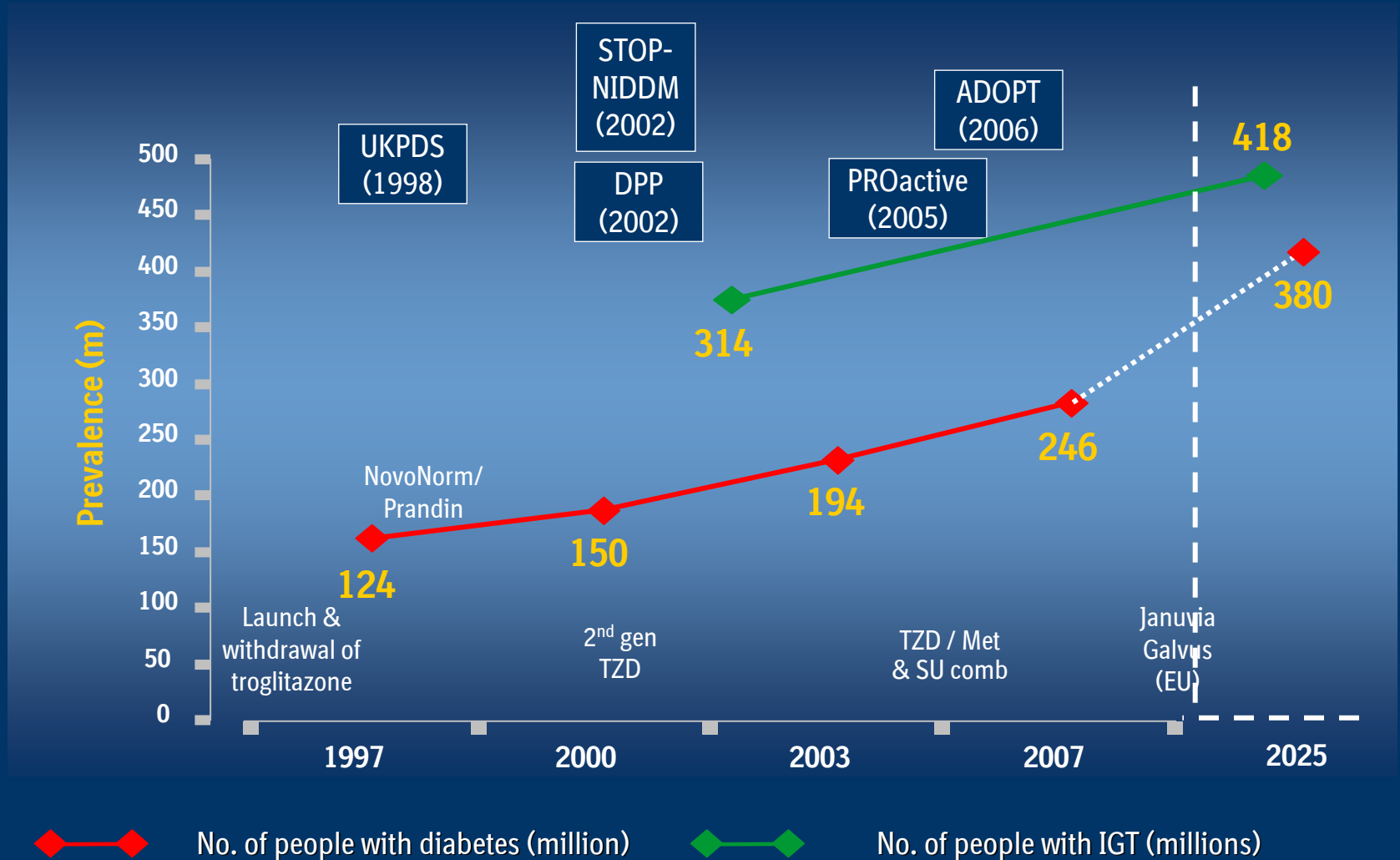


# Natural Progression of Type 2 Diabetes



Adapted from Rickheim P et al. *Type 2 Diabetes Basics*. 2000.

# Ten Years in Diabetes Management



# Type 2 Diabetes: Complications

## Metabolism

- Hypoglycaemia
- Hyperglycaemia

## Macrovascular

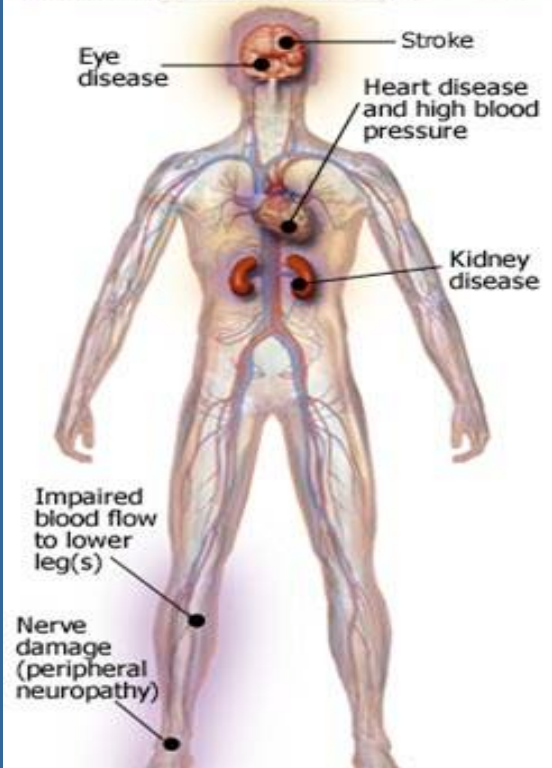
- Heart attack
- Stroke
- other related complications

## Microvascular

- Blindness (Retinopathy)
- Diabetic foot / Amputations (Neuropathy)
- Kidney failure / Dialysis (Nephropathy)

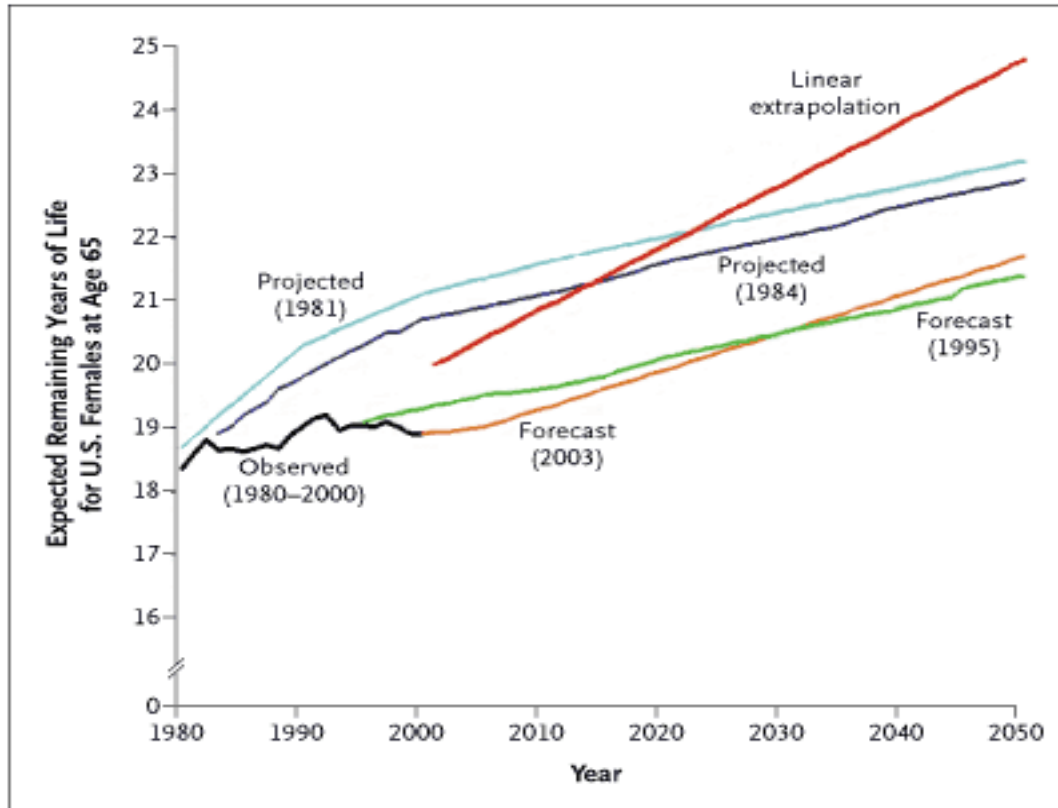
### Diabetes-related Complications

Over time, high levels of blood sugar can lead to the following:



**Novel antidiabetic agents with improved tolerability and effect on disease progression urgently needed**

# First Decline of Life Expectancy

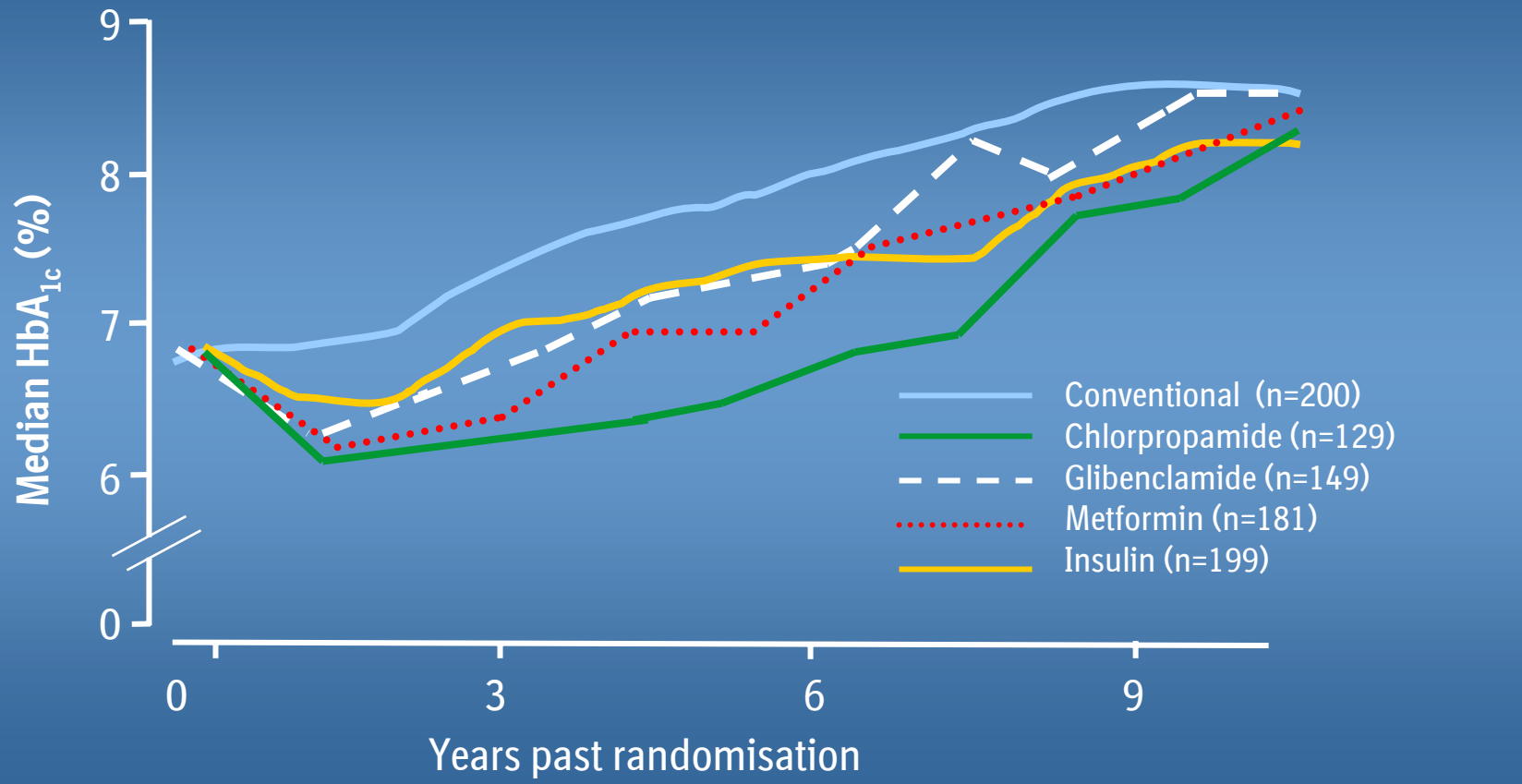


Decline of life expectancy due to obesity / T2 diabetes epidemic in 40 years

Olshansky et al. New Engl J Med 2005; 352:1138

# Type 2 Diabetes: A Progressive Disease

## Monotherapy with Insulin, Sulfonylurea (SU) or Metformin



UKPDS Group. Lancet 352:837-853, 1998

# Type 2 Diabetes: Unmet Needs

Current treatment approaches do not change the natural progression of type 2 diabetes

Needs for type 2 diabetes therapy:

- Better safety / tolerability
- Better efficacy
- Reduce / slow / reverse the progression of disease
- Improve quality of life



**Investments into research for new targets and action principles required!**



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THANK YOU!

International Research & Development Press Conference