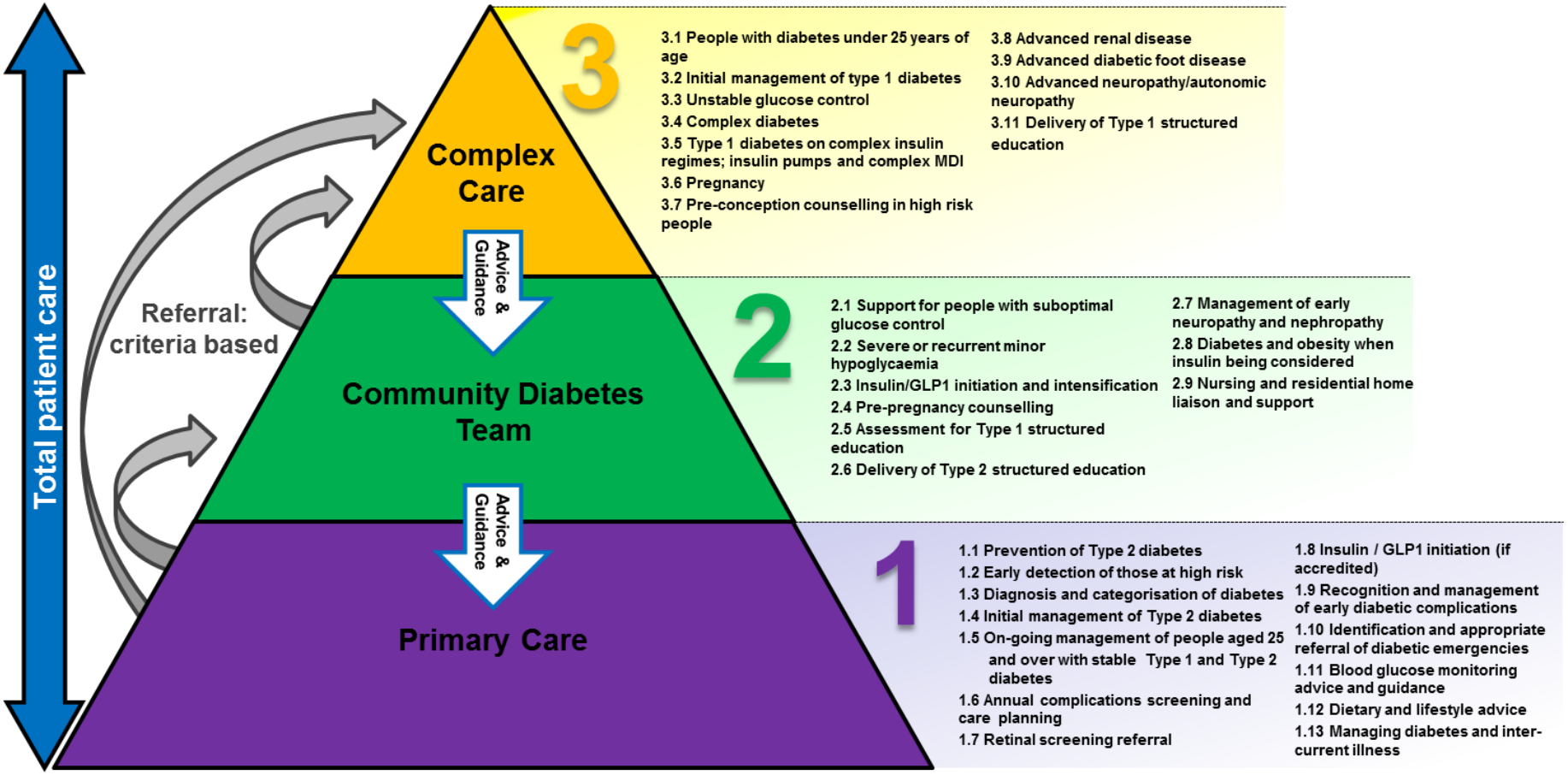
This Session

- The York Diabetes Care Model
- The annual review – what's it for and how to do it
- How to make the diagnosis of diabetes and who to test
- Categorisation of diabetes at diagnosis
- Basics of Insulin

The York Diabetes Care Model



Shared Information Website Development

York Diabetes Education 01904 726 510 York Hospitals NHS

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Welcome to the York Diabetes Education Service

Our team of specialist nurses and dietitians have been helping people with diabetes for 15 years. You can find our details on the Professionals page.

We aim to provide excellent and comprehensive diabetes self-management education for patients in and around York. Our courses cover everything from understanding the diagnosis, through lifestyle and diet to complications and latest treatments.

Once a person fully understands their diabetes they can learn how to control it – so it does not control them.

Based at York Hospital we run courses tailored to the specific needs of different patients. Each one is structured, centred around the patient, and led by highly skilled, enthusiastic professionals.

Patients: please feel free to look around this site and see if any of our programmes might help you. Then talk it through with your GP, who will refer you on to the relevant course.

GPs and other health care professionals: we will soon be adding an automatic referral system to this website. Please feel free to contact us on 01904 726510.

GOOD2GO

Looking to learn about Type 2 diabetes? Then you're Good2Go

Anyone recently diagnosed with Type 2 diabetes, or who has been diagnosed for some time but would benefit from learning more, should consider our Good2Go education programme.

more

Other courses include:

Insulin Skills
... to help people on a twice-daily insulin regime adjust their doses as necessary for optimum health.

more

Carbohydrate Counting
...giving patients on a multiple injection regime the skills to adjust their insulin regime in order to stay healthy – and enjoy more freedom and flexibility.

more

BITES
...the advanced self-management course. This is a three-day workshop to equip people with the skills to master their diabetes.

more

Insulin Pump Training
... for patients with Type 1 diabetes who are to use an insulin pump for the first time.

more

Annual review - clinical scenario

- 71 year old with type 2 diabetes detected in 1996. On Novomix30 and metformin for 5 years. Had one hypo a few years back and worried about recent weight gain. She has angina and mild neuropathy as well as mild background retinopathy. She takes a statin and cholesterol varies from 3.8 – 5.4.
- She has come up for an annual review visit. She is unhappy and wants help ‘sorting out her diabetes’.

HbA1c	BP	BMI
88	162/96	38
84		
87	158/98	36
68		
85	172/98	38
91		
70		

Annual Review - what is it?

- Complications screen (feet, eyes, renal, heart)
- Risk factor assessment (cholesterol, BP)
- Target and medication review (includes compliance)
- Needs assessment (education etc)
- Action plan (care plan)
- Summary for the person with diabetes

Principles of Care Planning

- Setting of joint, realistic and achievable goals in the context of historical performance
- Needs assessment (patient led using prompt list) and information giving
- Medication review (including injection sites, hypos, compliance etc)
- Behaviour change – remember your impact is likely to be minimal at best
- Agree actions (frequently none)
- Record agreed actions

- What is care planning not……..?

Our Prompt List
‘Examples of topics you may want to raise’

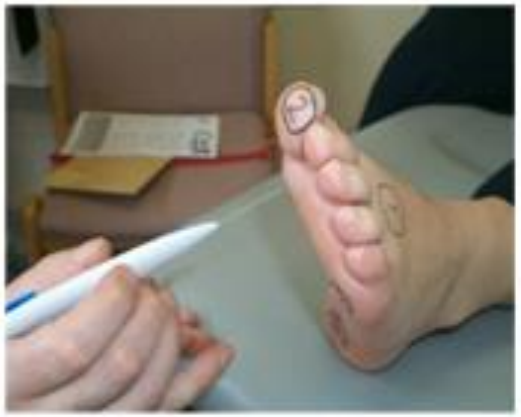
1. Blood sugar control
2. Insulin injection and pumps
3. Hypoglycaemia
4. Diet and weight
5. Foot problems
6. Exercise
7. Alcohol and smoking
8. Depression and anxiety
9. Erectile dysfunction
10. Blood pressure control
11. Diabetes education programmes
12. Planning pregnancy
13. Driving regulations

What else should we consider?

- Results – (given before appointment with written explanation of what they mean)
- Monitoring frequency and glucose record?
- Hypos
- Admissions/events
- Skin/feet
- Chest pain
- Possible thyroid (and other autoimmune) disease in T1DM

Screening for Neuropathy

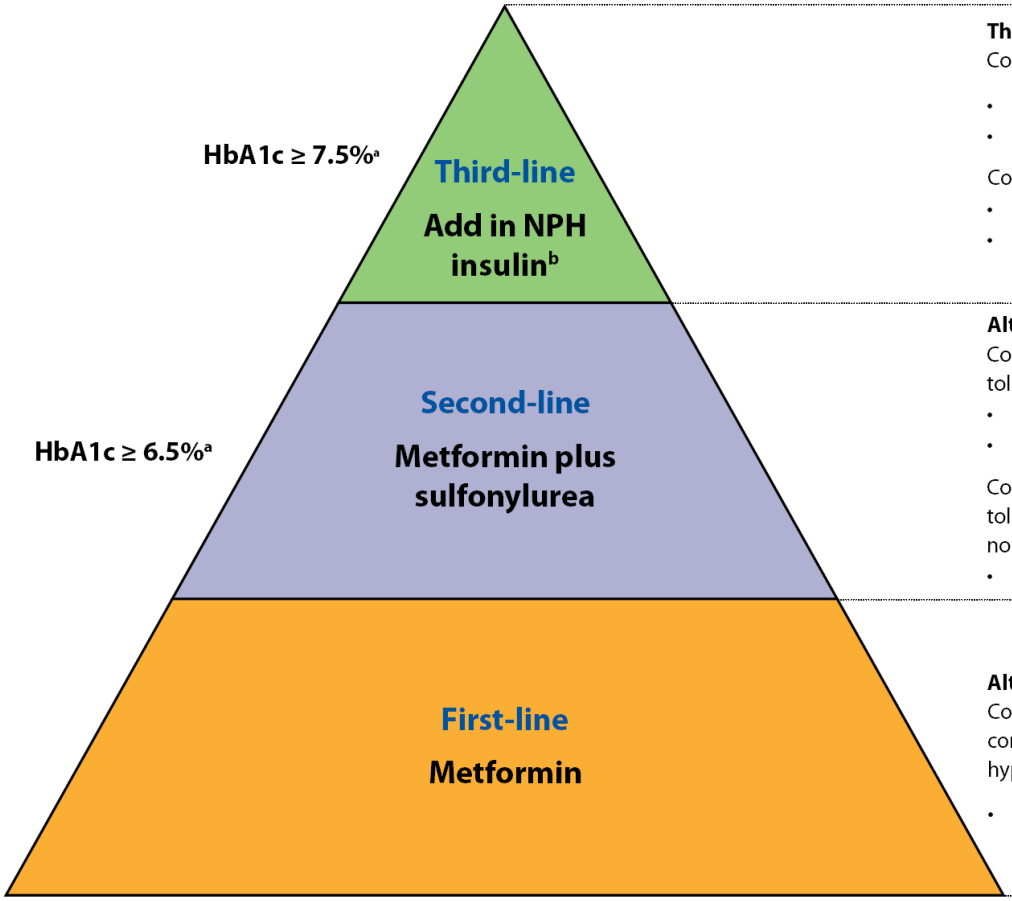
Test Sites



Test sites should avoid areas of callous; 1x dorsum, 1x apex, 2 x plantar 1 x heel

Each site should be tested twice

Summary of NICE Guidance



Alternative options in specific circumstances

Third-line alternatives (see Appendix 1 for details)
Consider only if insulin[b] is unacceptable or inappropriate:

- Metformin + sulfonylurea + pioglitazone ▼
- Metformin + sulfonylurea + sitagliptin ▼

Consider only if specific BMI criteria are met:

- Metformin + sulfonylurea + exenatide ▼
- Metformin + sulfonylurea or pioglitazone ▼ + liraglutide ▼ 1.2mg

Alternatives to metformin + sulfonylurea as second line (dual therapy)
Consider only if either metformin or a sulfonylurea is contraindicated or not tolerated, or there is a significant risk of hypoglycaemia with a sulfonylurea:

- Metformin or sulfonylurea + pioglitazone ▼
- Metformin or sulfonylurea + sitagliptin ▼ or vildagliptin ▼[c]

Consider only if either metformin or a sulfonylurea is contraindicated or not tolerated, and also both pioglitazone and a gliptin are contraindicated or not tolerated:

- Metformin or sulfonylurea + liraglutide ▼ 1.2mg

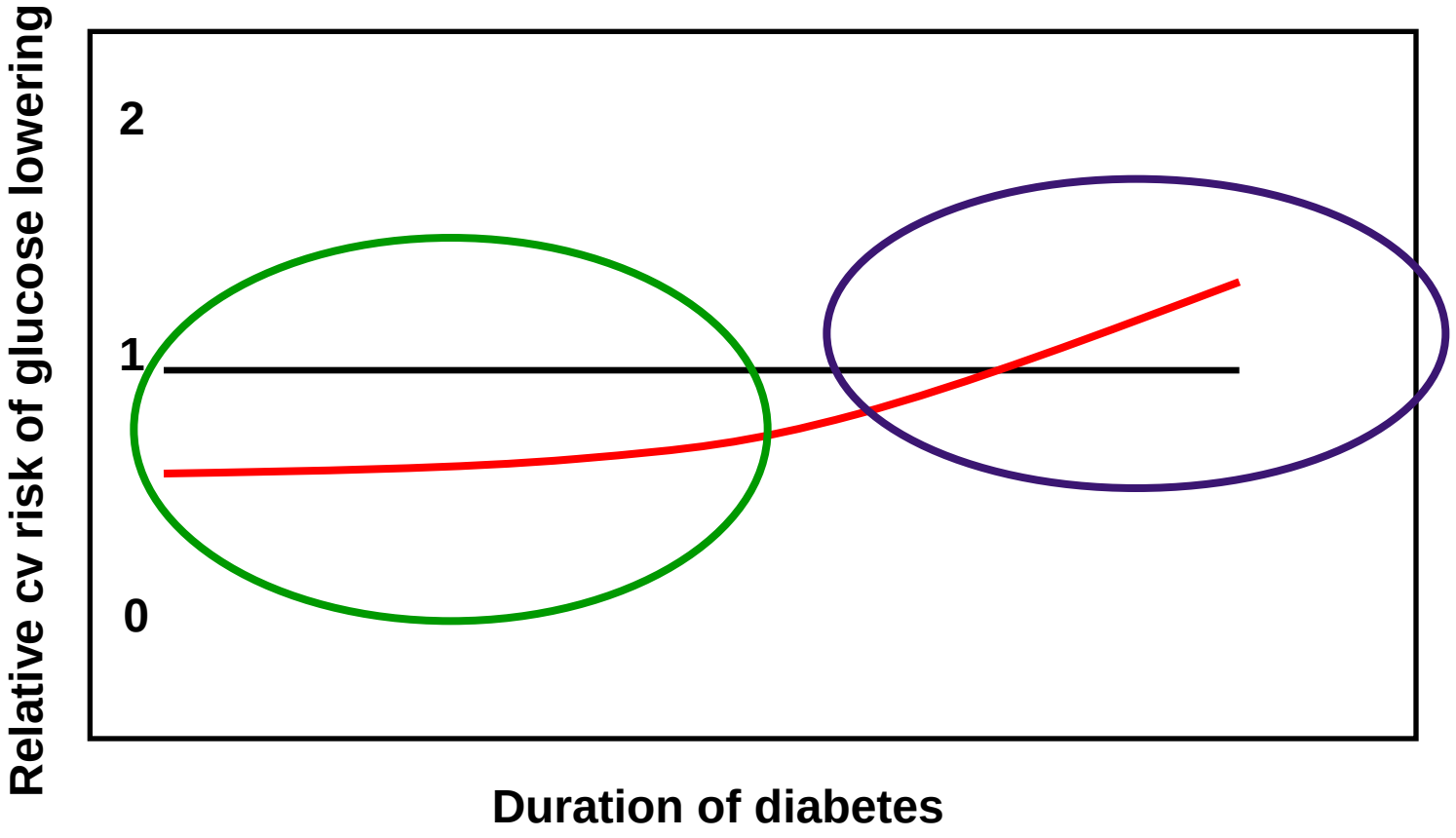
Alternative to metformin as first line (monotherapy)
Consider only if the patient is not overweight, or metformin is contraindicated or not tolerated, or a rapid response is needed to control hyperglycaemic symptoms

- Sulfonylurea

Newer hypoglycaemic drugs are effective at reducing HbA1c levels, but they all lack robust clinical outcome data

Is intensive glucose control appropriate for all patients?

A Model of Intensive Glucose Lowering in Type 2 Diabetes?



ADA EASD Position Statement

Diabetologia
DOI 10.1007/s00125-012-2534-0

POSITION STATEMENT

Management of hyperglycaemia in type 2 diabetes: a patient-centered approach. Position statement of the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD)

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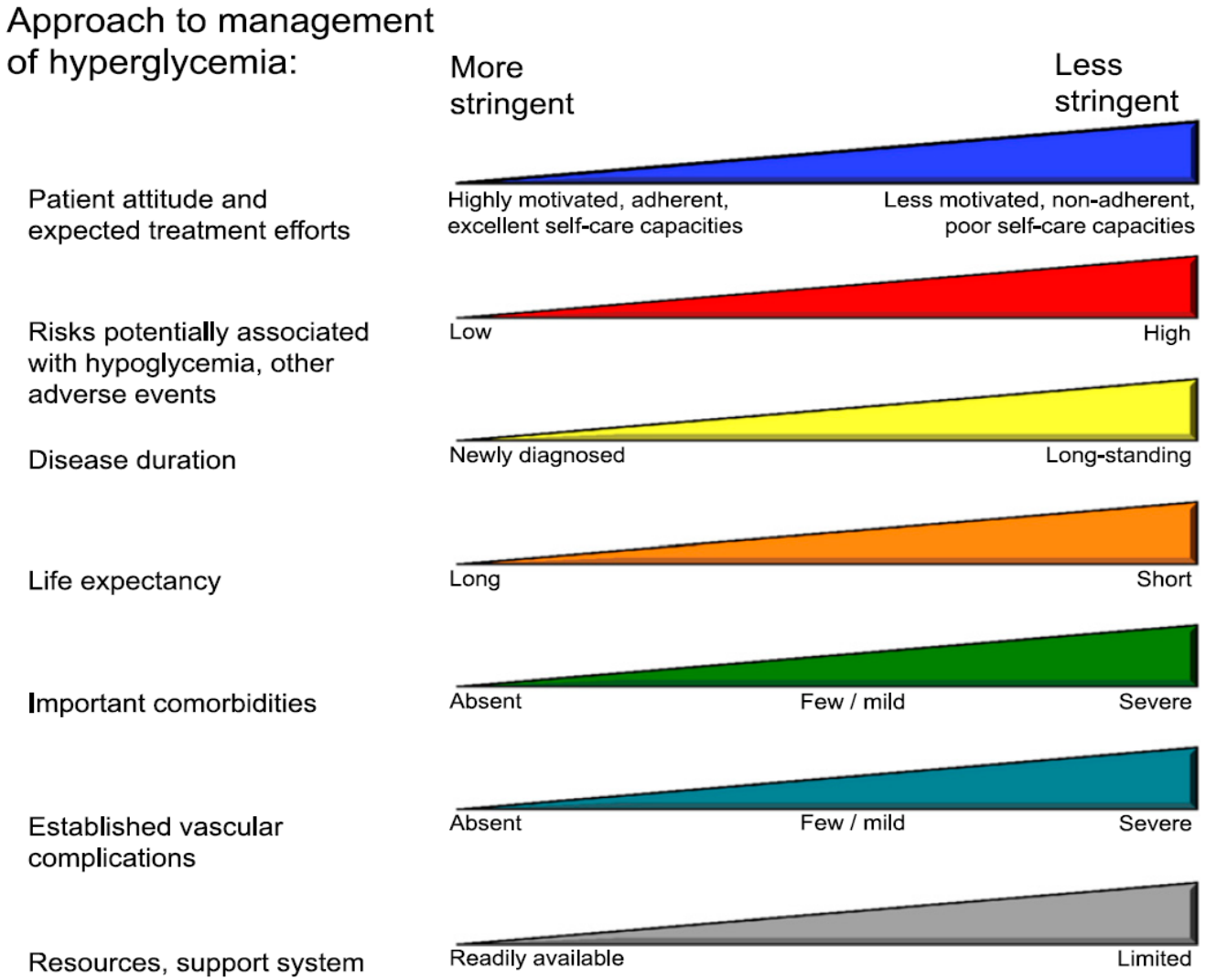
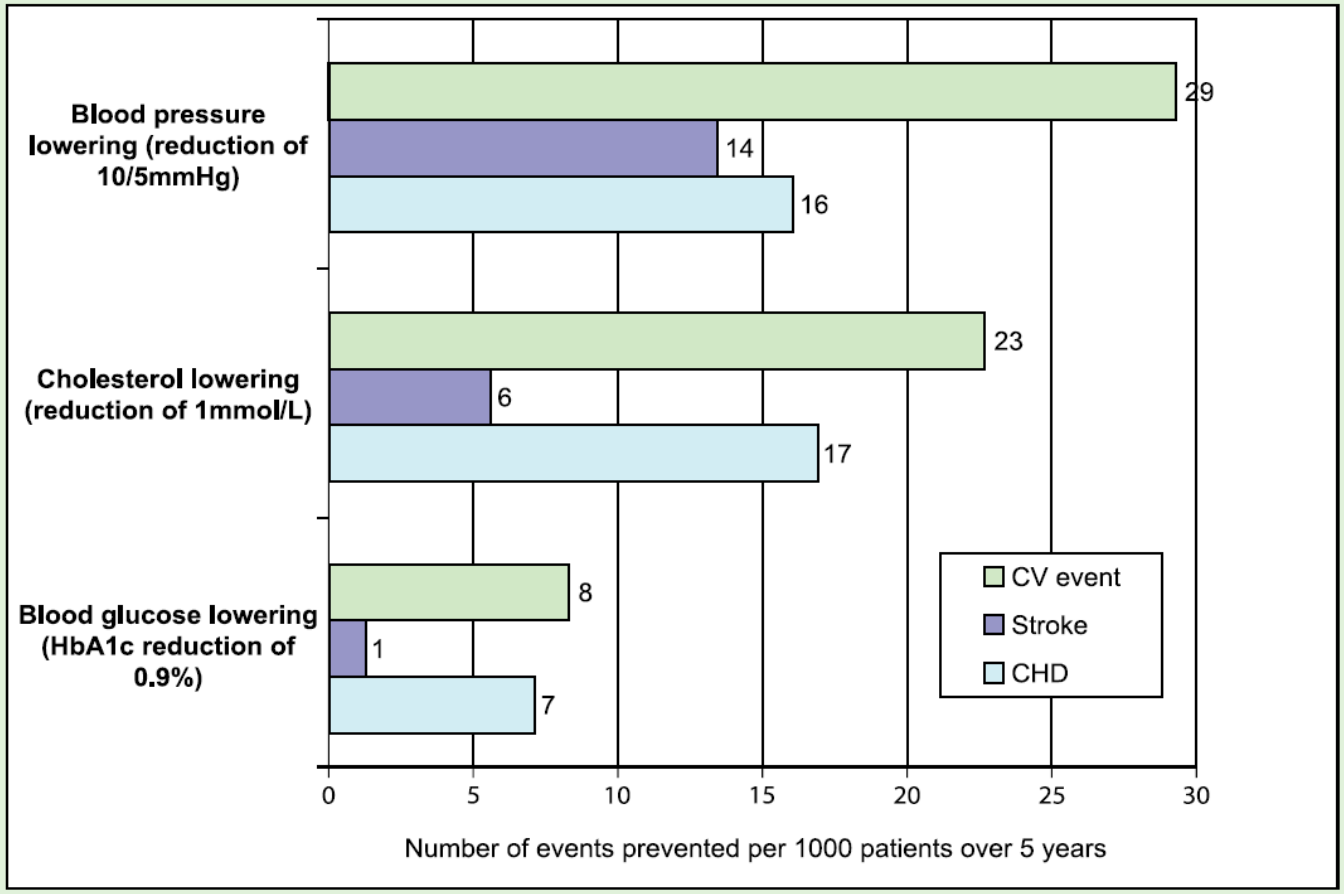
An Aid to Decision Making in Type 2 Diabetes



Management of Hyperglycemia in Type 2 Diabetes: A Patient-Centered Approach

Position Statement of the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD)

Keep glucose lowering in perspective



Yudkin JS, et al. Intensified glucose lowering in type 2 diabetes: time for a reappraisal. Diabetologia 2010;53:2079–85

Making a Difference

There is evidence that we invest too much patient and health care professional time in efforts that may at best do no good and at worst cause harm. Good clinical care also means recognising when we are unlikely to make a difference

Only bark up the

trees with cats in them!

Annual review - clinical scenario

- 76 year old with type 2 diabetes detected in 2000. On metformin, Gliclazide and Sitagliptin for 3 years. Feel tired and is worried about recent weight gain. She has angina, mild neuropathy and mild background retinopathy. She takes a statin and Ramipril for hypertension. Cholesterol varies from 3.8 – 5.4 on Simvastatin.
- She has come up for an annual review visit. She is unhappy and wants help ‘sorting out her diabetes’. Is it time for Insulin?

HbA1c	BP	BMI
88	162/96	38
84		
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68		
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91		
70		

Annual review - clinical scenario

- 25 year old man with type 1 diabetes. He is on an MDI regime and tests his glucose 8-10 times each day. He has no hypos but has occasional readings below 4. He drives a car. He has attended a BITES course and doesn't want an insulin pump.
- What would you say to him at annual review visit?

HbA1c	BP	BMI
58	120/74	24
60		
56		
62		
56	118/68	24

Key Learning Points
Evidence Based Review

- Only offer what makes a difference
- Promote self efficacy at every opportunity
- Efficiency of care contacts – sometimes less is more?
- Consciously avoid the trap of undue optimism
- Stop medicines that don't make a difference

Preventing type 2 diabetes: risk identification and interventions for individuals at high risk

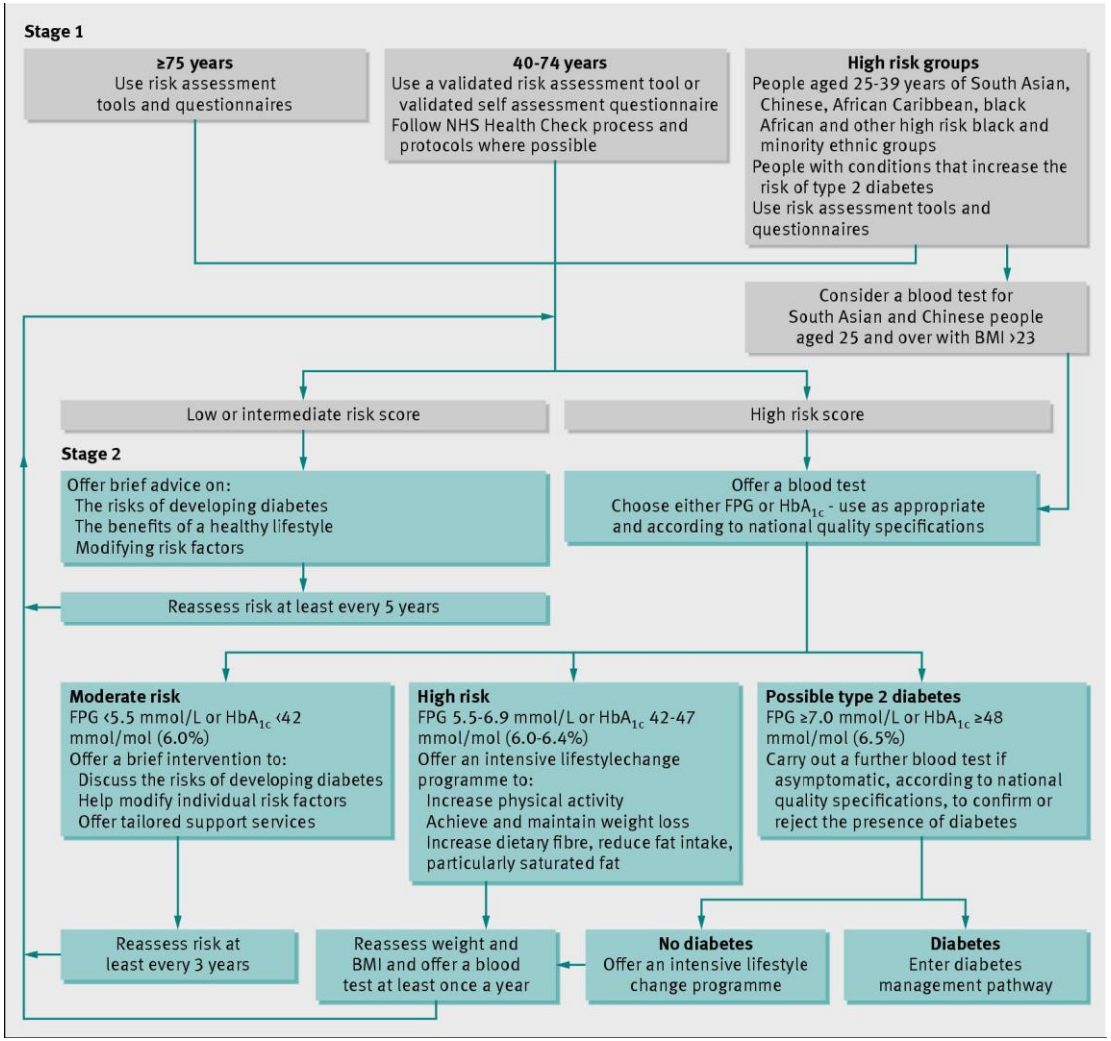
Issued: July 2012

NICE public health guidance 38

guidance.nice.org.uk/ph38

NHS
National Institute for
Health and Clinical Excellence

A Two Stage Screening Process



NHS
National Institute for Health and Clinical Excellence

Diagnosis of Diabetes

- **Normal** — Fasting plasma glucose (FPG) <6 mmol/l). HbA1c <42 mmol/mol. 2-h PG <7.8 mmol/l

- **Categories of increased risk for diabetes** (not clinical entities)
  - **Impaired fasting glucose (IFG)** — FPG ≥6 to 6.9 mmol/l)
  - **Impaired glucose tolerance (IGT)** — 2-h PG (75 g OGTT) ≥7.8 to 11.1 mmol/l)
  - **A1C** — 42-47 mmol/mol (6.0 to 6.4%)

- **Diabetes mellitus** — A1C ≥48 mmol/mol (6.5%), FPG 7.0 mmol/l, 2-h PG >11.1 mmol/l; random PG >11.1 mmol/l

In the absence of unequivocal symptomatic hyperglycemia, the diagnosis of diabetes must be confirmed on a subsequent day (no delay) by repeat measurement, repeating the same test for confirmation. If two tests don't agree then repeat the one that suggests diabetes

The following is recommended for those at high risk of developing diabetes

- High diabetes risk HbA1c 42-47 mmol/mol (6.0 – 6.4%)
  - Provide intensive lifestyle advice
  - Warn patients to report symptoms of diabetes
  - Monitor HbA1c annually
  - Metformin and Orlistat if evidence of progression
- HbA1c under 42 mmol/mol (6.0%)
  - These patients may still have high diabetes risk
  - Review the patient's personal risk and treat as "high diabetes risk" as clinically indicated

Key Learning Points
Screening and Diagnosis

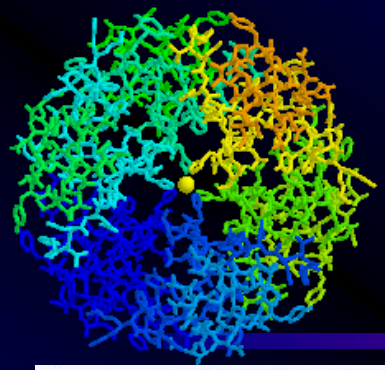
- Use NICE PH38 pathway to identify people at high risk
- HbA1c has some significant advantages over fasting glucose for diagnosis
- If using HbA1c then very few OGTTs are required

Categorisation (could this person have type 1 diabetes?)

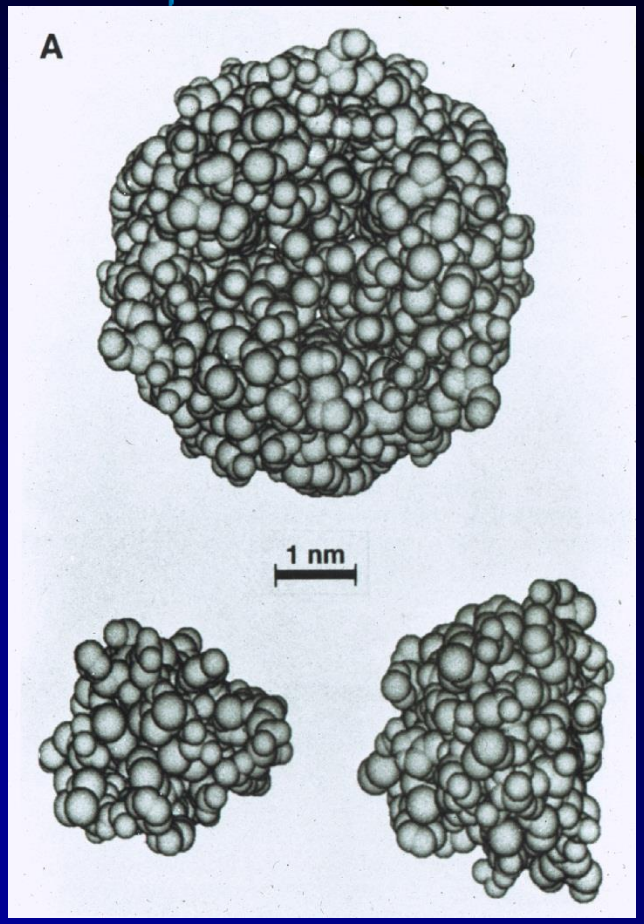
- 46 year old plasterer comes into your surgery and tells you he has had blurred vision for 4 weeks and he's had to buy two new pairs of glasses. His optician has had a good look at his eyes and says she can't find anything wrong.
- In the past week or two he's lost a few pounds in weight and he's been thirsty and drinking a lot of water. You wonder whether he has diabetes and a random glucose is 16 mmol/l. His urine contains a small amount of ketones but he hasn't eaten all day. His BMI is 32.
- He tells you that his father has type 2 diabetes and hypertension but his own blood pressure is normal. He has become more sedentary at work recently and his diet less healthy. He is due to depart for a long awaited holiday in a few hours but thought he better get checked out before he went

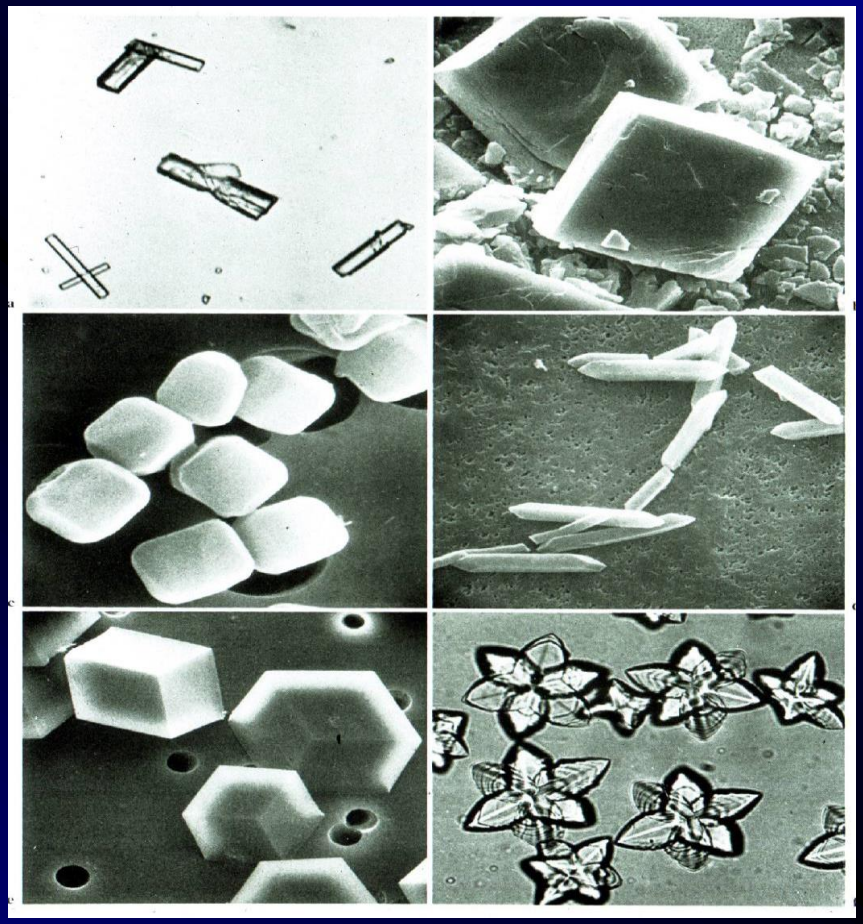
Key Learning Points
Categorisation

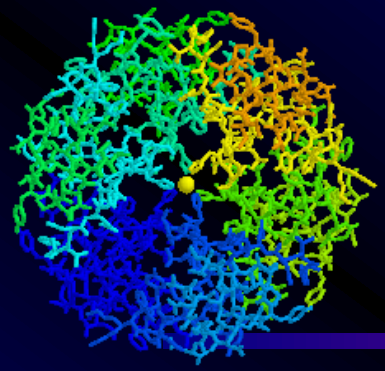
- The increasing prevalence of obesity has changed the appearance of people with type 1 diabetes
- Consider the diagnosis in all newly presenting patients
- Clues can be subtle and presentation atypical
- Refer all people with new type 1 direct to the diabetes centre in working hours unless clearly in need of admission



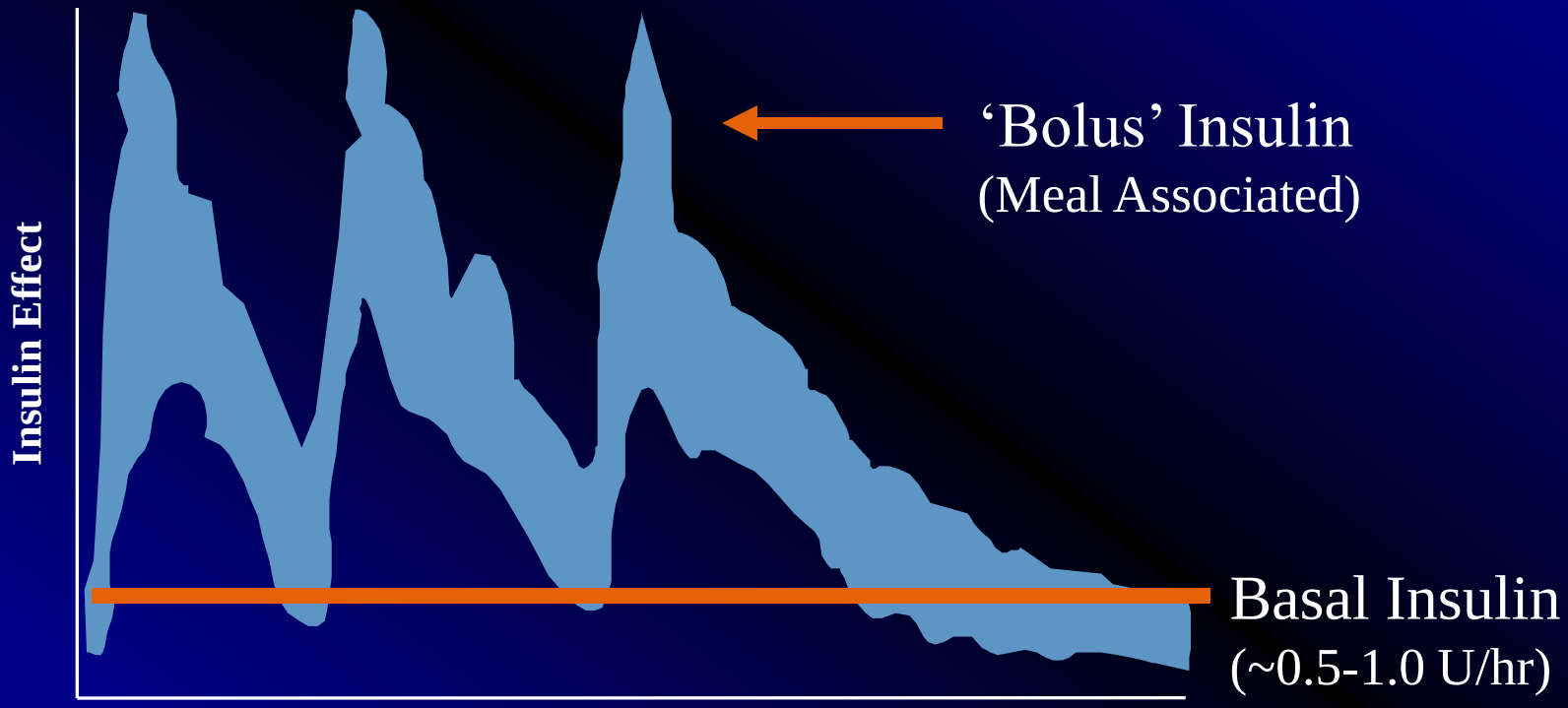
Insulin: The Miracle Drug Basics



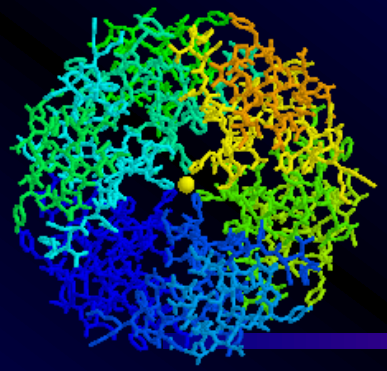




Normal Pancreas



Insulin is released in response to varying blood glucose levels and hypoglycemia does not occur



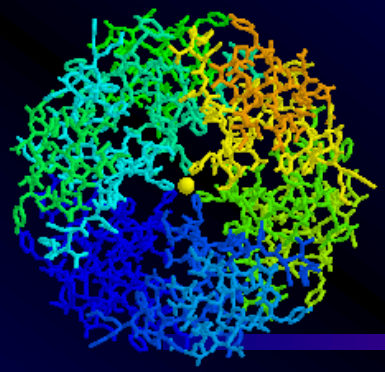
Basal vs Bolus Insulin

BASAL INSULIN

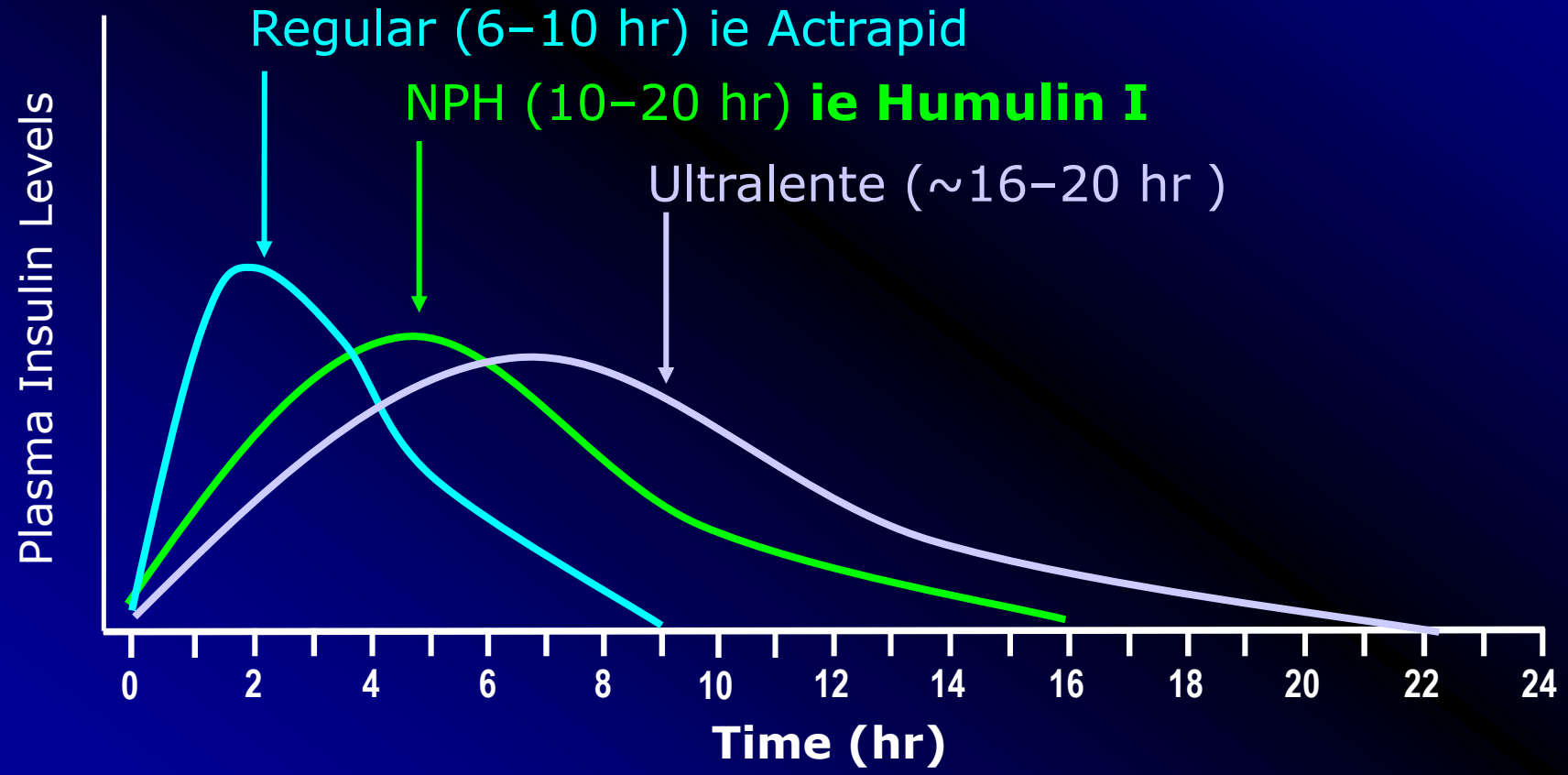
- Suppress hepatic glucose production (overnight and intermeal)
- Prevent catabolism (lipid and protein)
  - Ketosis
  - Unregulated amino acid release
- Reduce glucolipotoxicity

BOLUS INSULIN

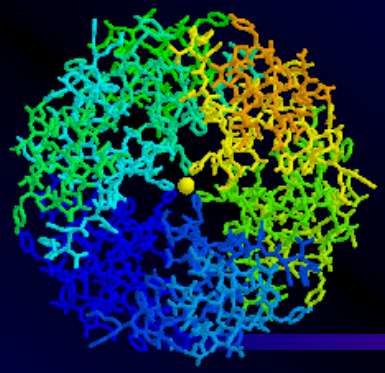
- Meal-associated CHO disposal
- Storage of nutrients
- Help suppress inter-meal hepatic glucose production



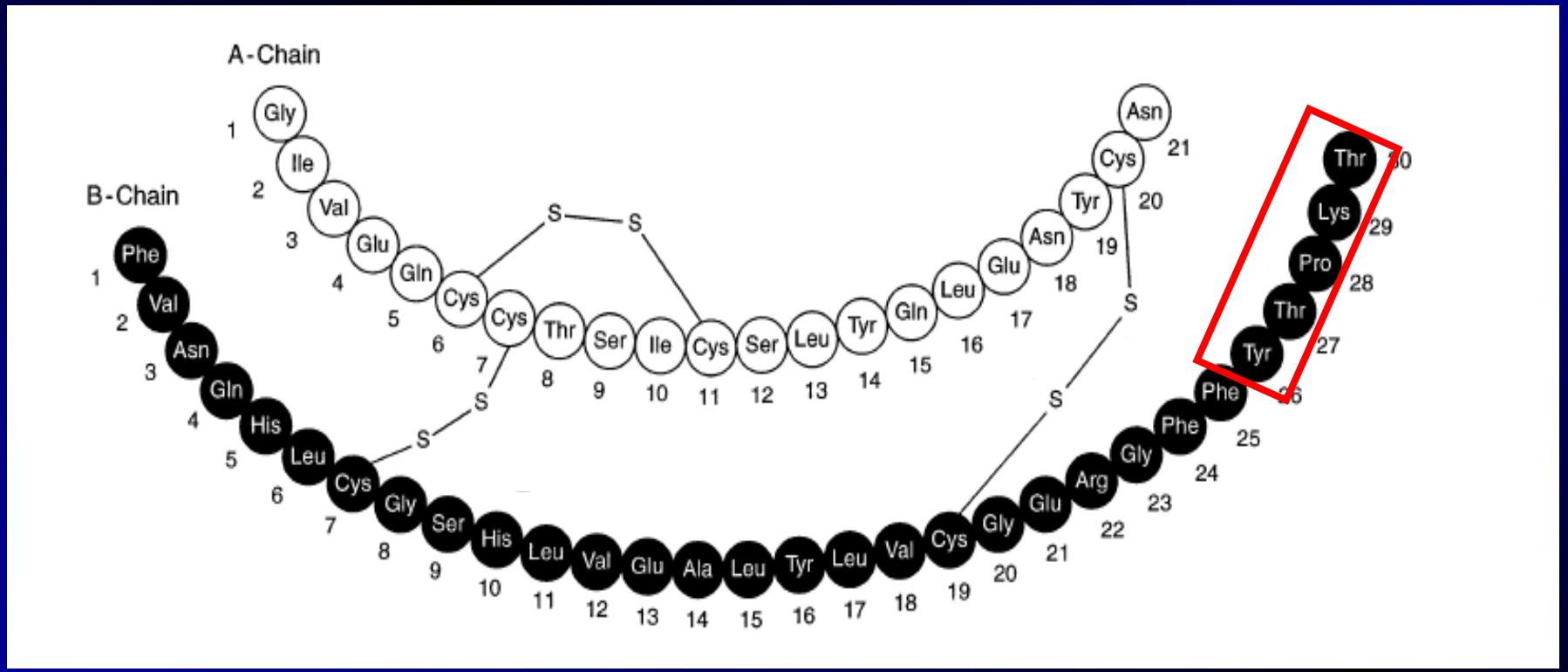
Insulin Profiles

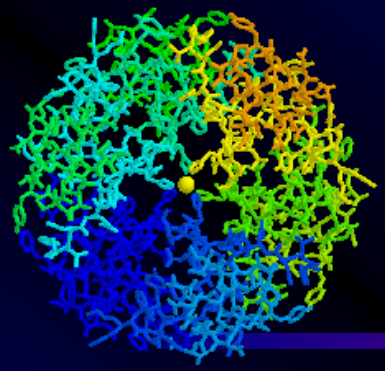


Rosenstock J. *Clin Cornerstone.* 2001;4:50-61.

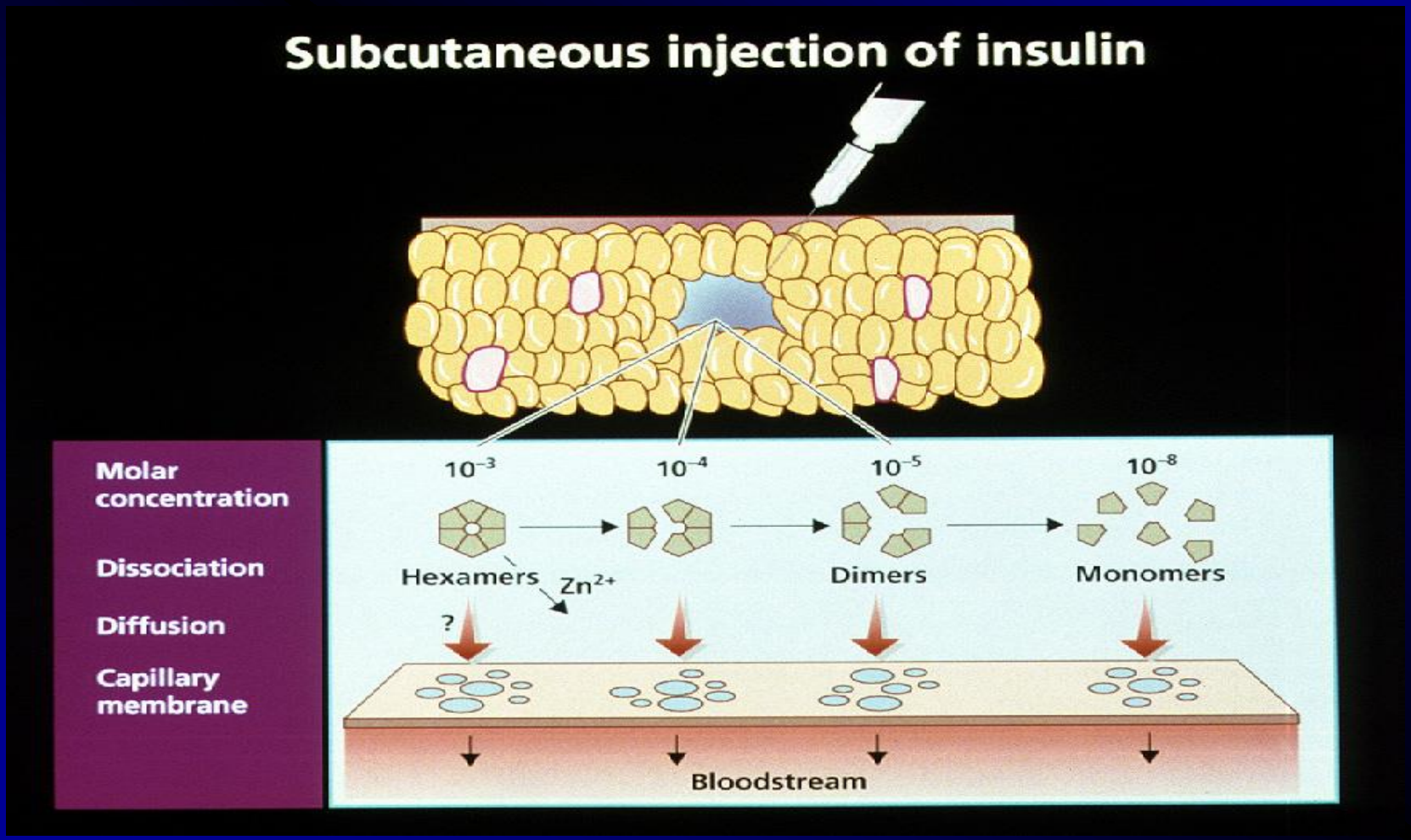


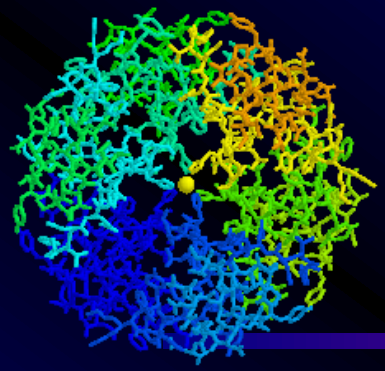
Insulin Self Association Sites



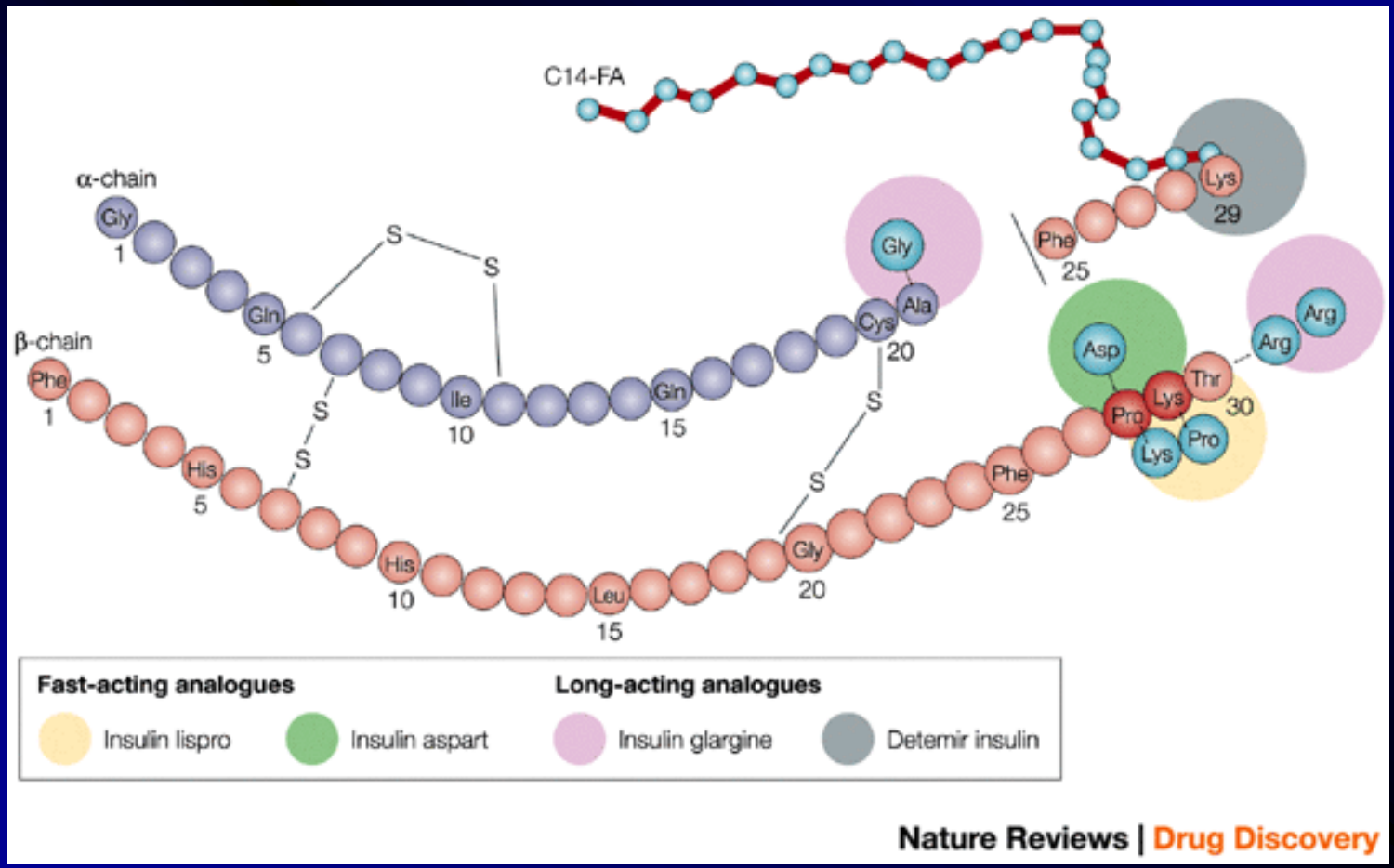


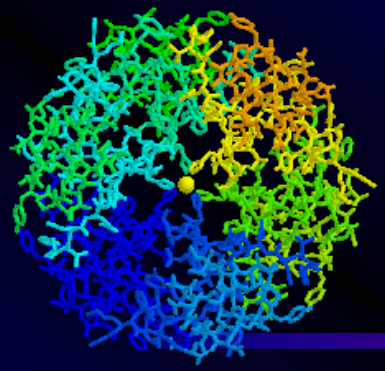
The Diffusion Of Insulin



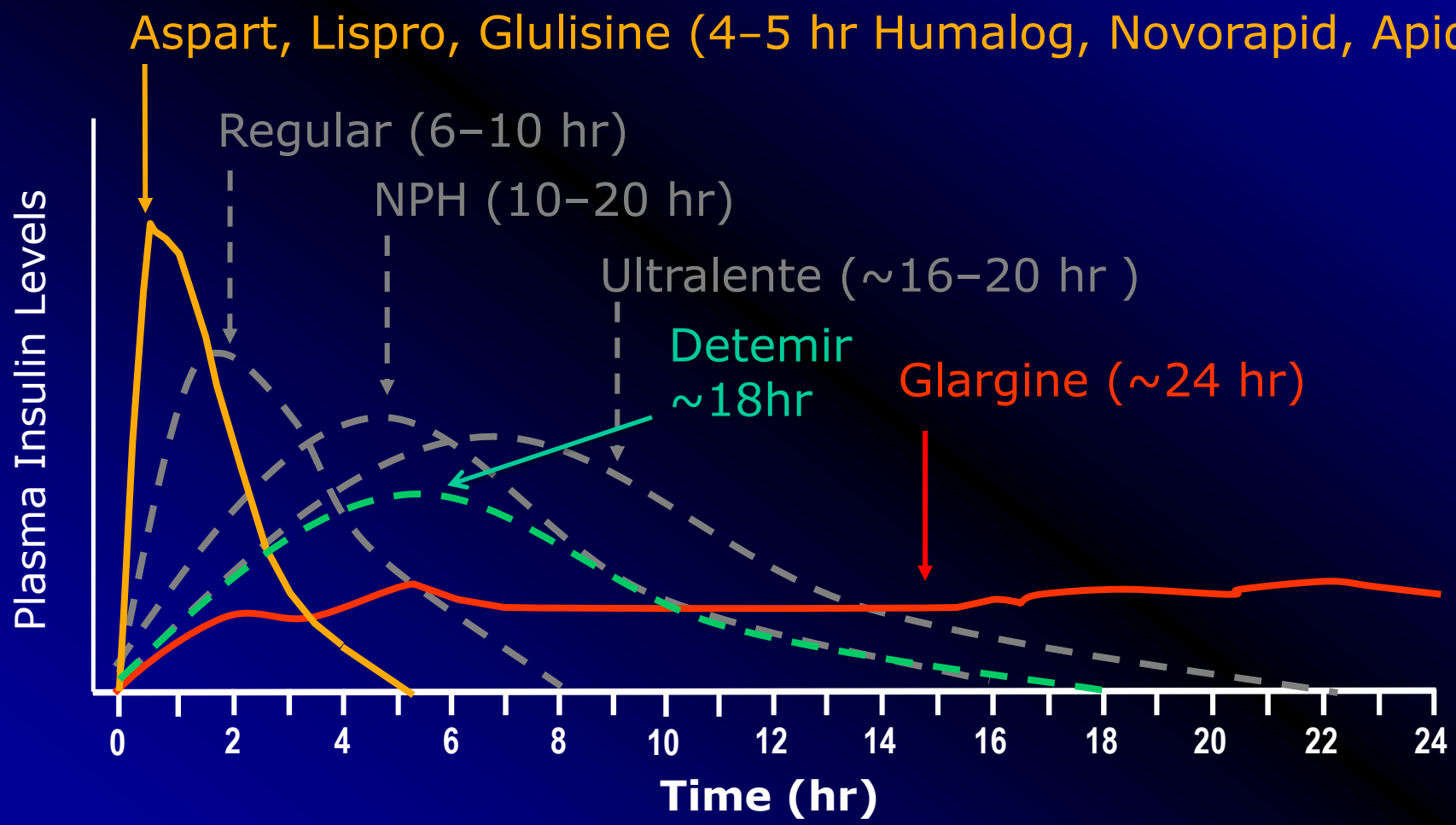


Designer Insulin



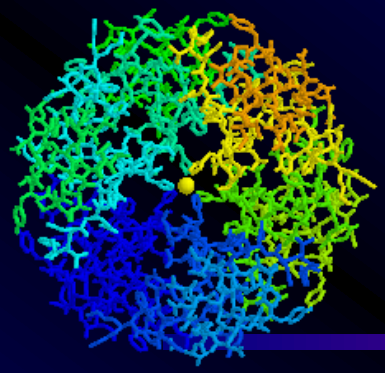


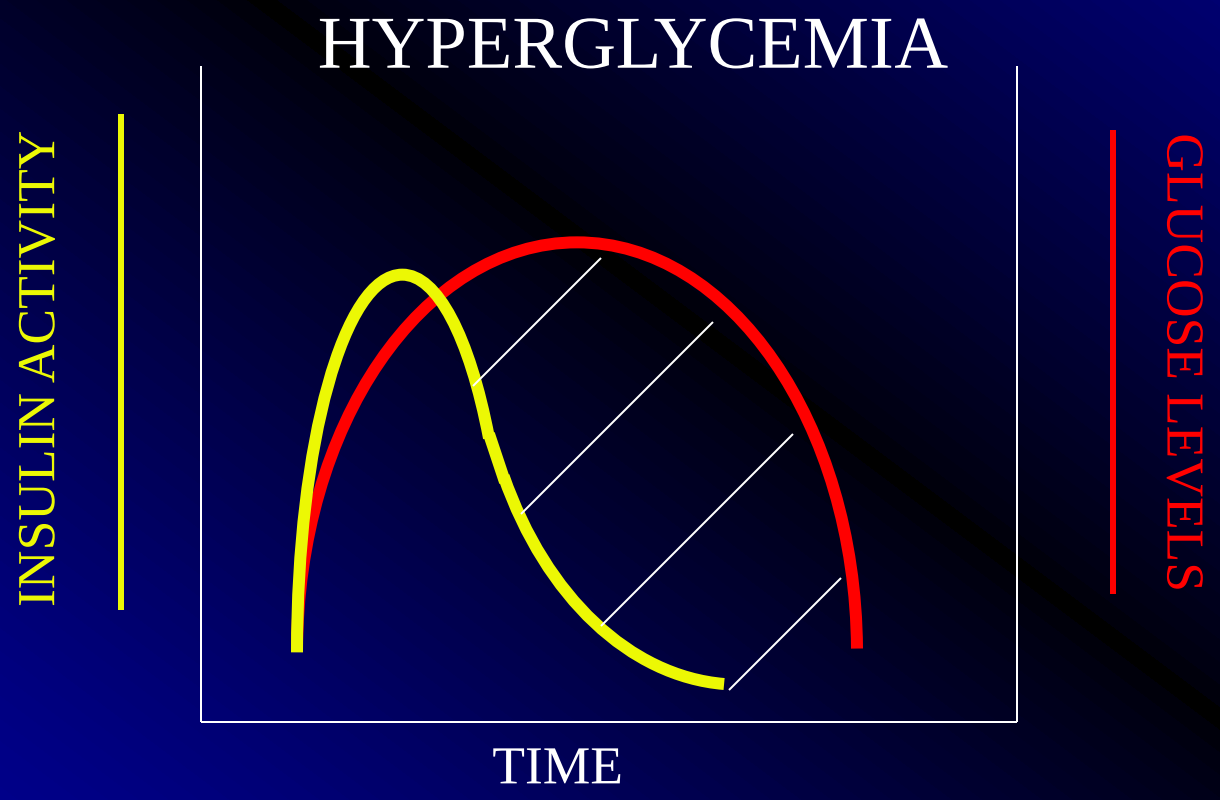
Analog Insulin Profiles



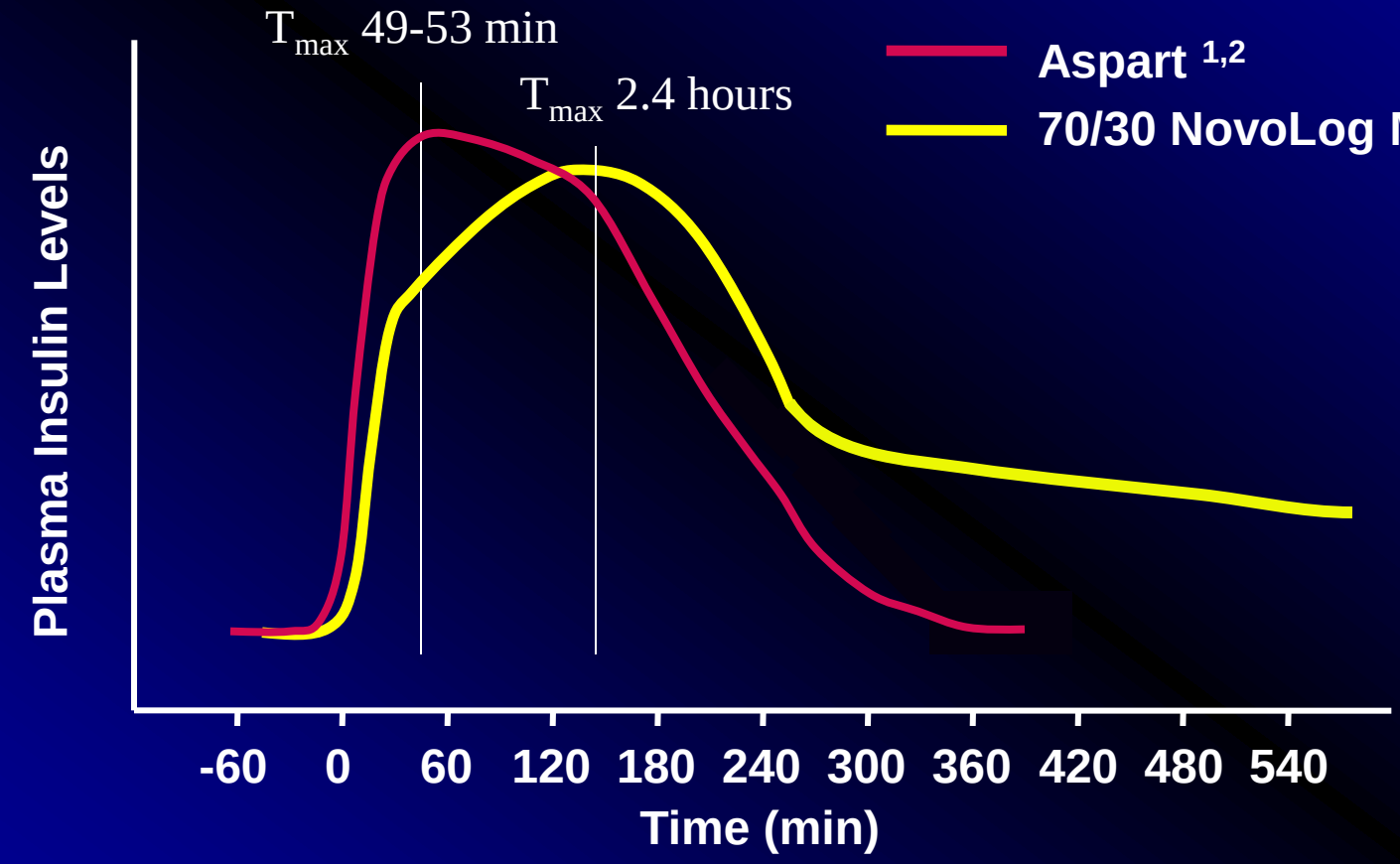
Rosenstock J. *Clin Cornerstone.* 2001;4:50-61.

Fatty Meals---Rapid Acting Insulin



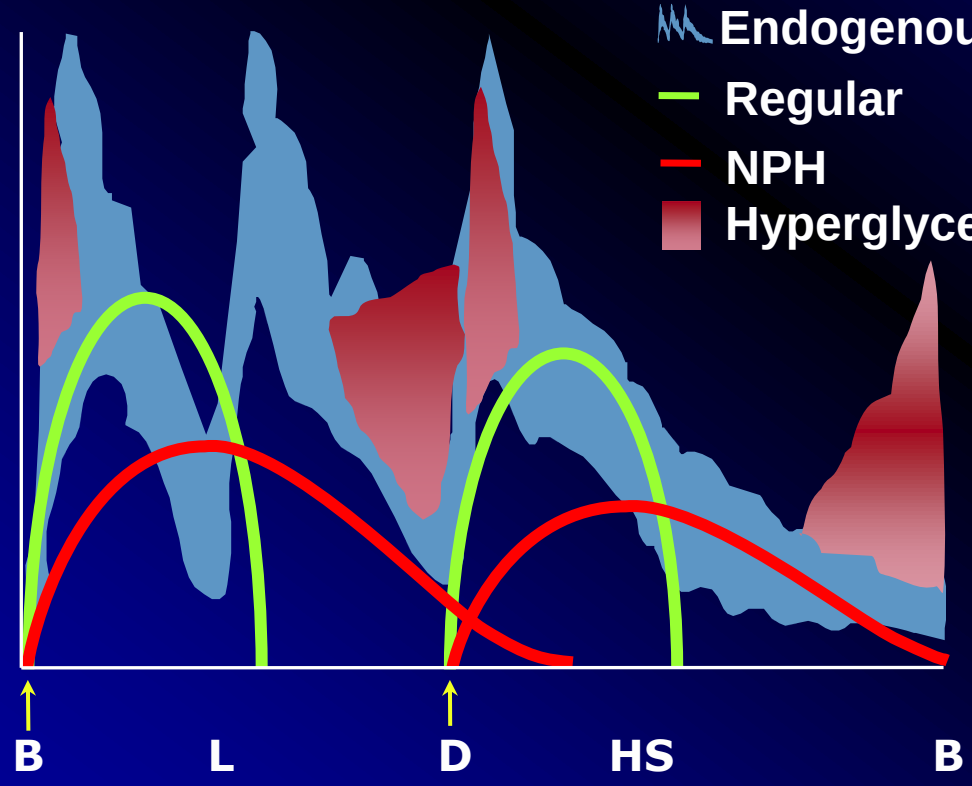


Effect of Premixing on Rapid-Acting Analog Properties



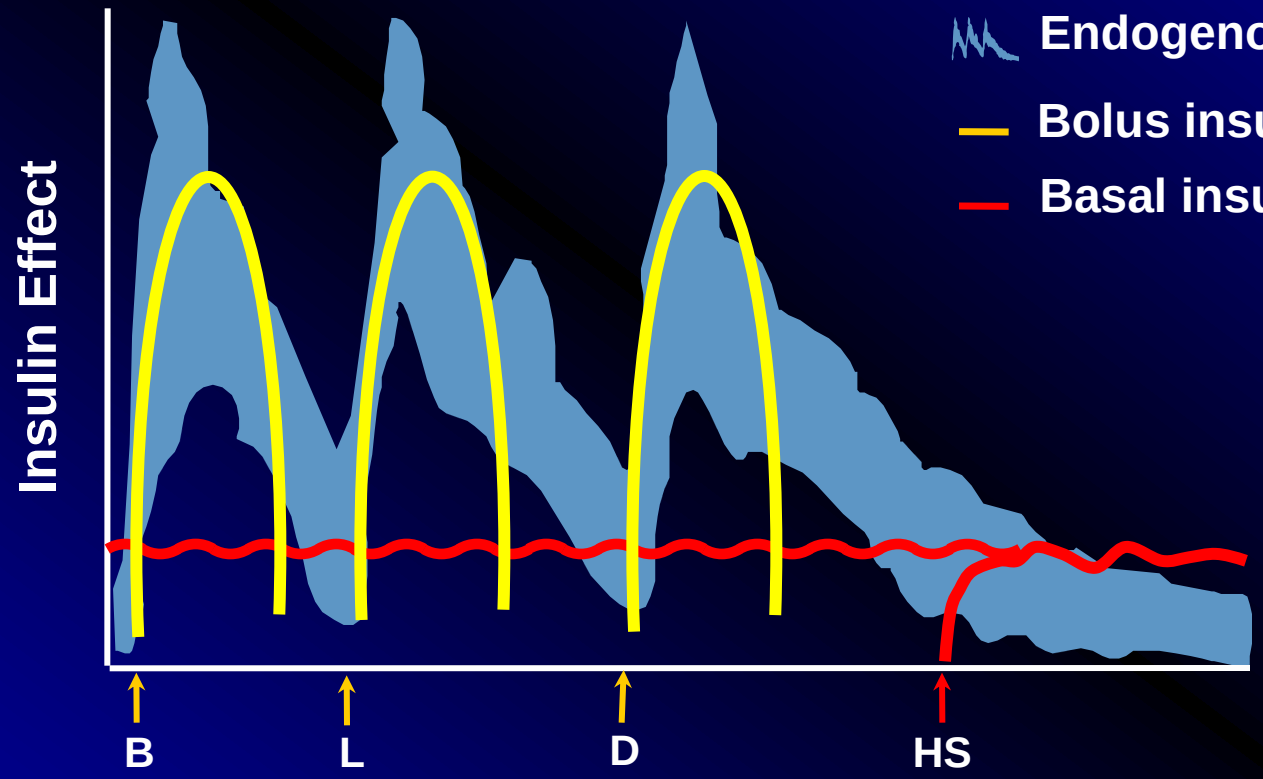
1. Hedman CA et al. Diabetes Care 2001;24:1120-1121
2. Home PD et al. Eur J Clin Pharm 1999;55:199-201
3. Novo Nordisk, data on file

Basic Insulin Regimen: Split-Mixed Regimen or Premix



- Does not mimic normal physiology
- Requires meal consistency
- Snacking may result in weight gain
- Hypo- and hyperglycemia

Basal-Bolus or Physiologic Insulin Therapy



Adapted with permission from McCall A. In: *Insulin Therapy*. Leahy J, Cefalu W, eds. New York, NY: Marcel Dekker, Inc; 2002:193