



Insulin Leadership Summit

THE FUTURE OF TYPE 2 DIABETES IN PRIMARY CARE FROM SANOFI-AVENTIS

Starting Insulin in General Practice

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Auckland DHB / my version + Counties DHB version

Starting Insulin

- surprisingly simple, safe and effective
- surprisingly well-received by patients
- GPs and PNs can start and manage nearly all

When

- if glycaemic control unacceptably high for this patient
 - 25% at any one time
- if patient is doing as well as can/will with weight, diet and exercise
 - Opportunity to review, refer
- on maximum (tolerated) metformin and sulphonylurea
 - Consider pioglitazone, acarbose, unfunded new medications

Prepare the patient

- usually months (or years) in advance
- Give positive message
 - “Nearly everyone tells me it was easier than they thought it would be”
 - “Nearly everyone tells me they feel better”

Self-testing

- Patient needs to know how to test own glucose at home with a meter. PN can teach.
- Educate about hypos, though in practice unlikely unless they are thin.
- Meters available on script
- Lancets are ***not*** free, available from pharmacy or Diabetes Auckland or Diabetes NZ via mail order.

Provide a script

- Protaphane or Humulin N
 - usually Penfill preferred to syringe and vial
 - Lantus / glargine, good option not available to GPs for initial therapy
- Needles (up to 100 subsidised)
- give Novopen (available free from NovoNordisk) or BD pen (available free from Eli Lilly)
 - Carry a stock

Getting on with it

- At end of day - to see you or PN
 - tell patient he/she will give first injection. Demonstrate dialling up 10U of insulin and injecting into air. Then get patient to do it - pulls up shirt/ blouse, takes pinch of skin between thumb and forefinger, pushes needle vertically into top of raised skin, pushes plunger, withdraws.
- Starting with 10U (Very slim 6U or very obese 20U)
 - CM: Weight in kg x 0.2, less 2 units
 - CM: Consider twice daily if obese and/or $HbA_{1c} > 10\%$
- Continue metformin, preferably b.d.
- Continue sulphonylurea for the moment

- Bring patient back into surgery daily at end of day until you/PN and patient are happy with injection technique, priming pen, changing cartridges
- People are usually confident after initial visit and one or perhaps 2 more.
- Shift injection time at home *to bedtime*
 - CM: 2-3 hours after dinner

- **Patient checks fasting glucose** each morning
 - Increase 2U every 2 days
 - CM: 2-4U every 3-4 days
 - Target glucose 5-6 fasting
- **As fasting glucose comes down**, ask patient to check glucose before lunch and before evening meal, as the glucose will start to drop then, too.
- Reduce and then stop the sulphonylurea
- **Do not reduce metformin**

- **If / when get to 40U insulin** switch to twice daily Penmix 30 or Humulin 30/70
 - current dose of insulin and cut it 2/3 before breakfast and 1/3 before dinner (not before bed)
 - stop the sulphonylurea completely
 - this is clearly under-treating then adjust to tests
- **Recheck HbA1c** after about 2 months
- **If you achieve major fall (>2.5%) in HbA1c**, consider bringing forward next retinal screen, as *temporary* worsening of retinopathy may occur.
- **Recheck HbA1c every 3-4 months**

Time period of action

useful to think of tabs lasting 12 or 24 hours

metformin
and/or
sulphonylurea



confirm by testing before tea

given at
breakfast



confirm by testing (yesterday's
dose) before breakfast)



bb

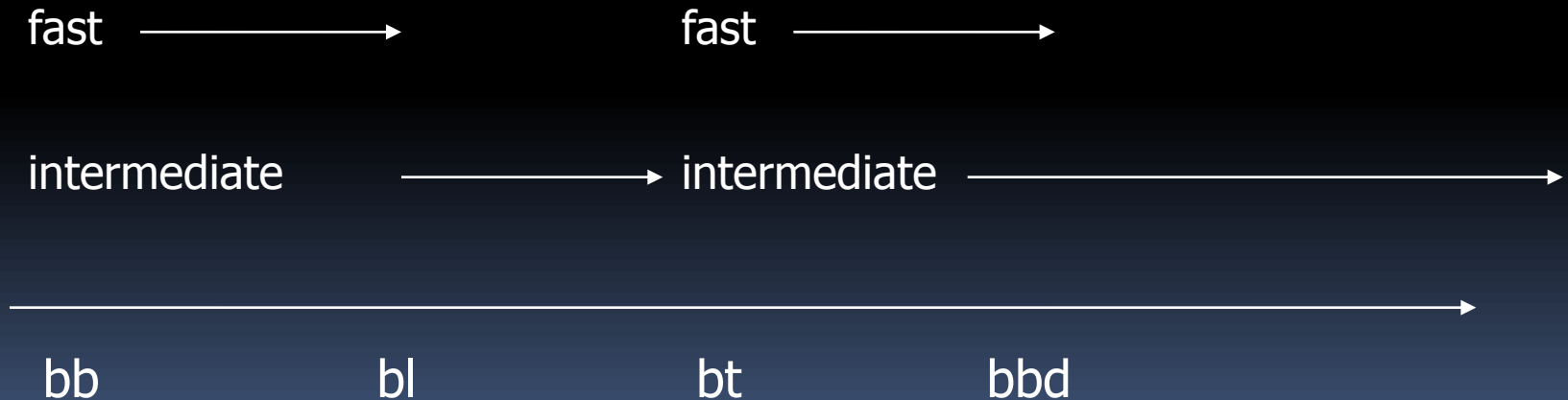
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bt

bbd

Time period of action contd

useful to think of insulin acting in specific slots
between meals

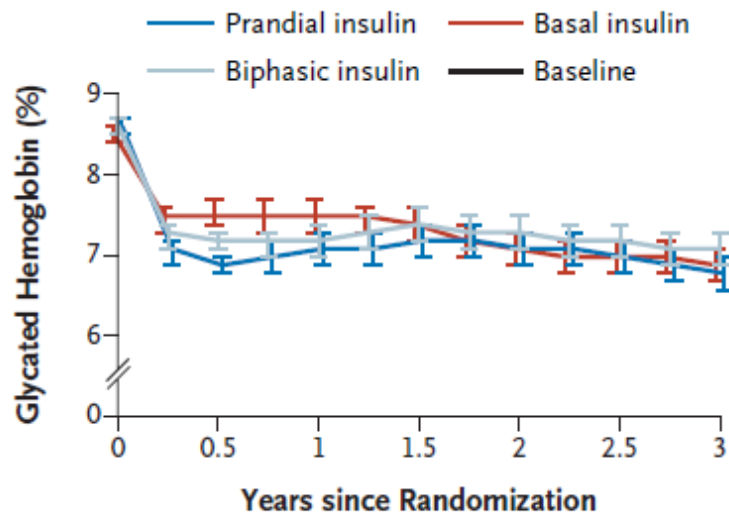


Treating to Target in Type 2 Diabetes Trial Design

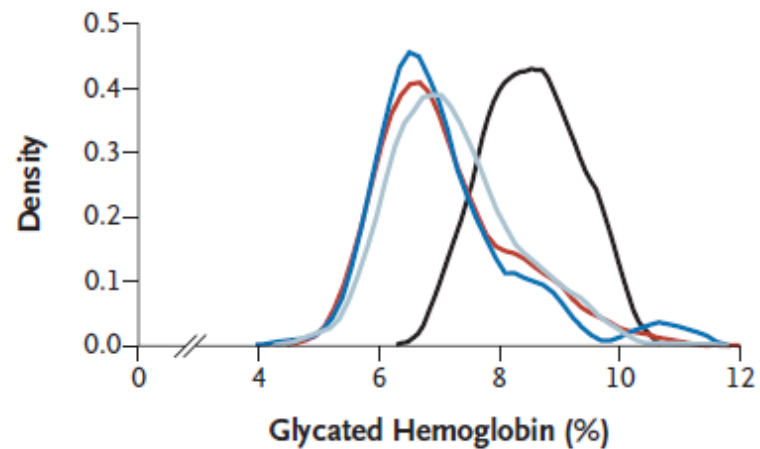
- Three-arm trial in 708 patients with type 2 diabetes from 58 UK and Irish centres
- Evaluating addition of three different analogue insulin regimens to dual oral antidiabetic therapy
- Open-label randomisation to:
 - Twice a day biphasic insulin (NovoMix 30)
 - Three times a day prandial insulin (NovoRapid)
 - Once a day basal insulin (Levemir) before bed, with a morning injection added if necessary

4T study 3 year results

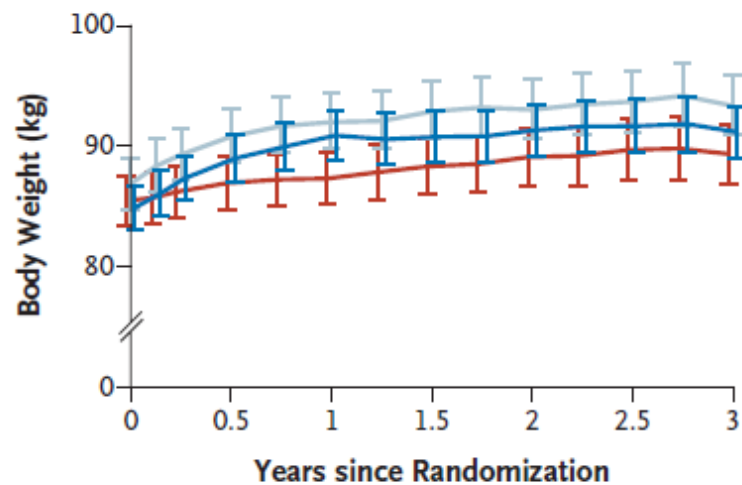
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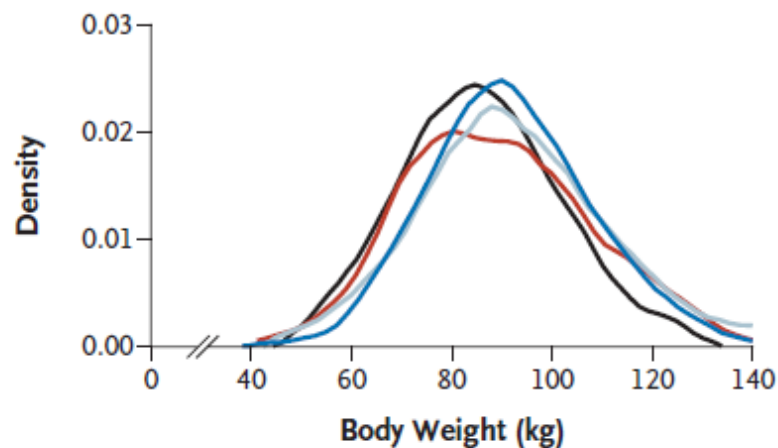
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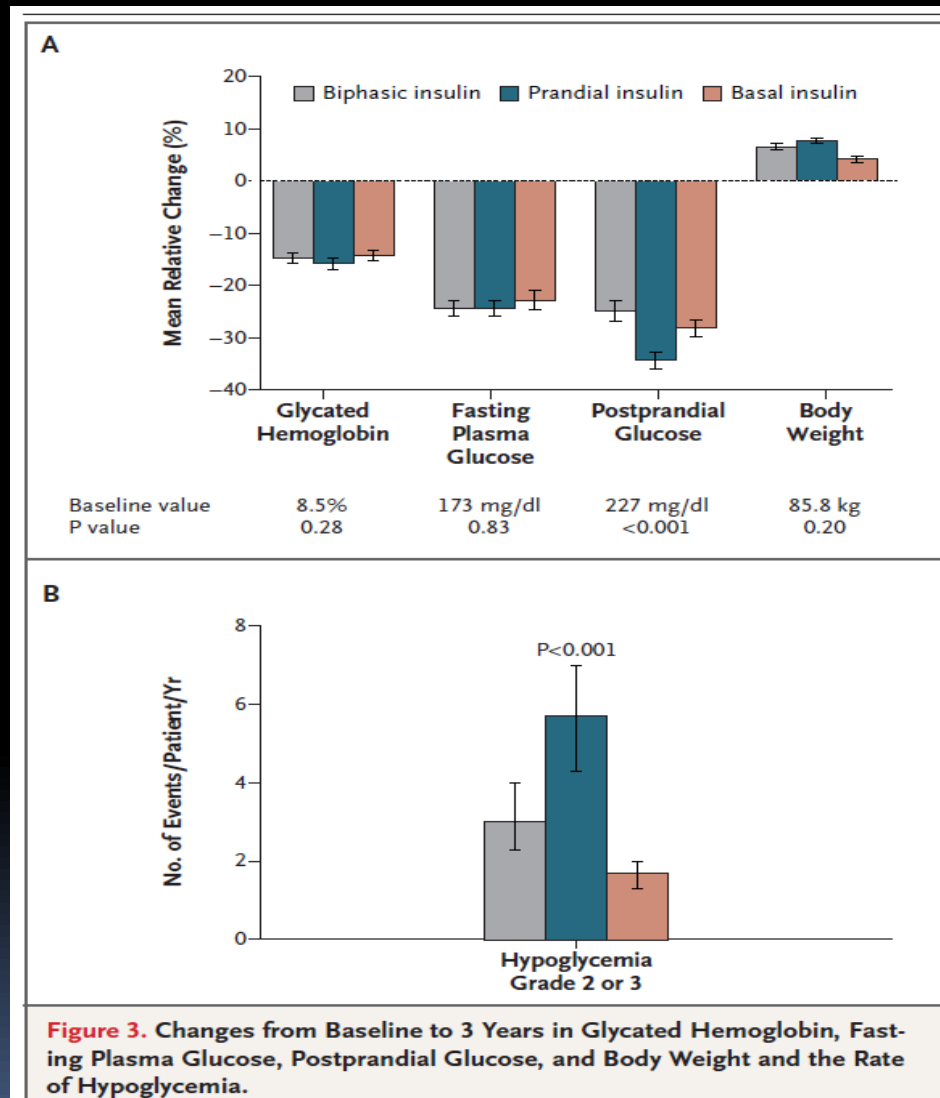
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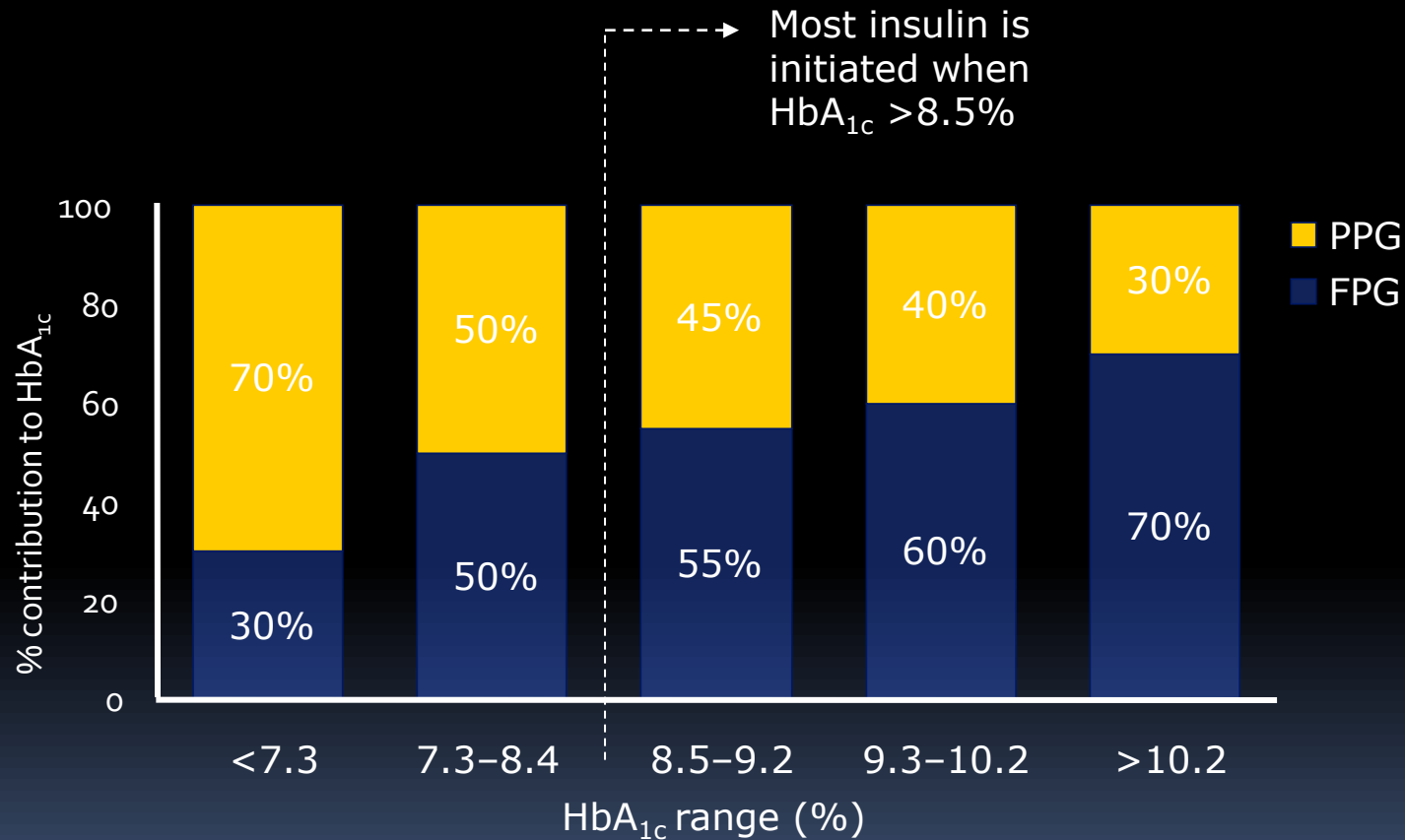
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4T study 3 year results

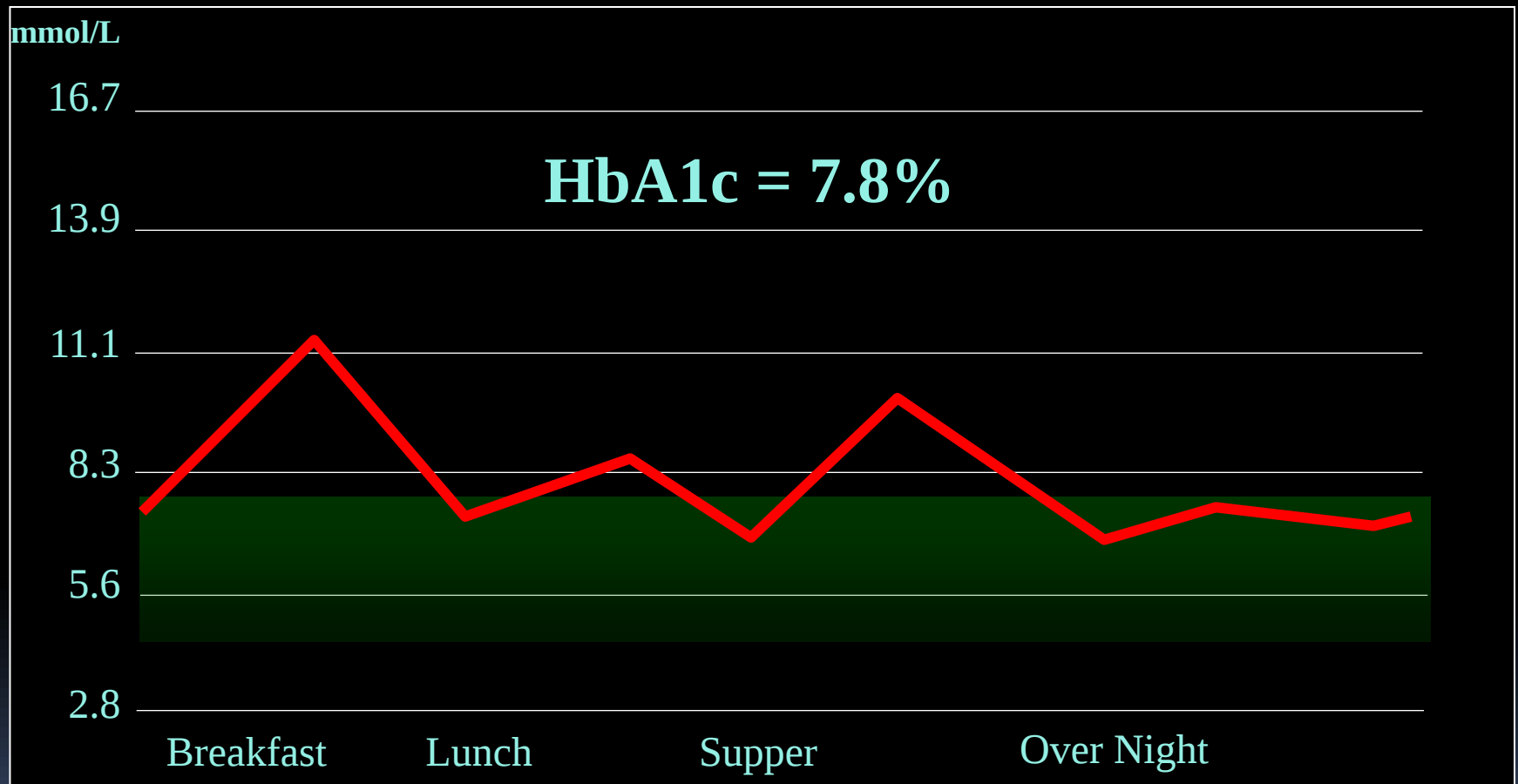


To normalise blood glucose both FPG and PPG must be reduced



Adapted from Monnier et al. Diabetes Care, 2003

HbA1c's are not created equal



HbA1c's are not created equal

