

# QIPP Detail Aid

Providing support for quality in prescribing

## LONG-ACTING INSULIN ANALOGUES in TYPE 2 DIABETES

### WHAT IS THE PROBLEM?

- Over the 10-year period 2000-2010 the annual cost to the NHS of analogue insulin increased from £18.2 million (12% of total insulin cost) to £305 million (85% of total insulin cost). Assuming all patients using insulin analogues had received human insulin instead, the overall additional cost of analogue insulin over the 10 years was £625 million.
- In the East Midlands in 2011-12, nearly £9.5 million was spent on insulin detemir and insulin glargine. If half of this had been prescribed as human isophane insulin, nearly £2.4 million would have been available for other interventions.

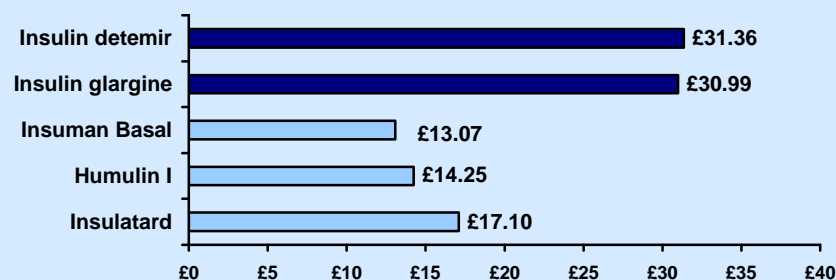
### WHAT IS THE EVIDENCE?

- Long-acting insulin analogues (LAIAs, insulin detemir, insulin glargine) were developed to have more reproducible absorption and more predictable glycaemic control than human insulin.
- In terms of HbA<sub>1c</sub> lowering, there is no difference between LAIAs and human isophane (NPH) insulin. The claimed benefits of the LAIAs relate to their lower rates of hypoglycaemia, and their once daily use. A meta-analysis of 20 trials conducted for NICE found statistically significantly lower rates of nocturnal hypoglycaemia and any hypoglycaemia with the LAIAs compared with human isophane insulin. However, the rates of severe hypoglycaemia were similar between the two groups. None of the trials provided data on effects of LAIAs on the long-term complications of diabetes such as cardiovascular morbidity or mortality or long-term safety data. Furthermore, insulin detemir may be given twice daily, thus losing any benefit of once daily use.
- Two further systematic reviews found no difference between LAIAs and human isophane insulin in HbA<sub>1c</sub> level, severe hypoglycaemic episodes or adverse effects. Both concluded that LAIAs had only minor clinical advantage, if any, over human isophane insulin for most patients with type 2 diabetes.
- NICE clinical guidelines for type 2 diabetes recommend human isophane insulin as first-line if insulin is indicated. A health economic analysis by NICE found that the cost-effectiveness of LAIAs was not favourable.
- A recent BMJ study concluded that the rise of insulin analogues over the last decade has had a substantial financial impact on the NHS, yet over the same period there has been no observable clinical benefit to justify that investment.

### References:

- NICE Clinical Guideline 87 Type 2 diabetes May 2009 (last modified: March 2010)
- Anon Which insulin, regimen and device in type 2 diabetes? Drug Ther Bull 2010; 48: 134-138
- Anon **Type 2 Diabetes** MeReC Bulletin March 2012 22(5)

### WHAT ARE THE COSTS?



Costs for 28 days supply with penfill cartridges at 40 units daily. MIMS May 2012.

### KEY MESSAGES

- Long-acting insulin analogues have no advantages over human isophane insulin in effects on HbA<sub>1c</sub> levels. They have at best, marginal benefits on hypoglycaemic episodes.**
- There are no data on effects of LAIAs on the long-term complications of diabetes, such as cardiovascular morbidity.**
- The market share of insulin analogues has risen from 12% to 84% over the last 10 years and overall annual spend from £18 million to £305 million, with no observable clinical benefit to justify that investment.**
- NICE recommend human isophane insulin as first-line if insulin is indicated in type 2 diabetes; LAIAs should only be used in specific circumstances. Underlying causes of hypoglycaemia should be investigated before an insulin analogue is started.**
- If a LAIA is started due to significant symptomatic hypoglycaemia, the patient should be monitored for hypoglycaemic episodes and switched back to human isophane insulin if no improvement is seen.**

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