

# Longer acting basal insulin analogues ‘Toujeo’ and ‘Tresiba’ reduce treatment side-effects; a therapeutic advance in selected patients

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## Background

Hypoglycaemia, weight gain or high volume insulin dose are unwanted management issues of insulin therapy.

In clinical trials, ultra-long basal analogues insulin Glargine U300 (Toujeo) and insulin Degludec U100 (Tresiba) reduced hypoglycaemic events (HE) and weight gain. These effects are derived from formulation/pharmacokinetic/dynamic difference, compared to Glargine U100.

The clinical utility of these new insulins in selected patients requires evaluation.

## Aims

To assess treatment effects of ultra-long acting basal insulin analogues used for selected clinical reasons in routine practice.

## Methods

- Non-randomised, systematic audit of Type 1 and Type 2 diabetes patients requiring treatment change and switched to ultra-long acting basal analogues between Dec 2015 – March 2017.
- Demographics, disease profiles and reasons for new insulin were obtained from electronic database.
- Weight, BMI, HbA1c, HE and insulin dose collected prospectively at 3-6 and 9-12 months.

## Results (Table 1, Figures 1 & 2)

The study group, type 1 (n=44) and type 2 (n=15) diabetes, were switched to Toujeo (n=21) or Tresiba (n=38) for clinical reasons-hypoglycaemia (62.7%), high basal insulin dose (12.0%), weight control (5.3%), injection-site reaction(1.3%), injection frequency (2.7%), unspecified (1.3%).

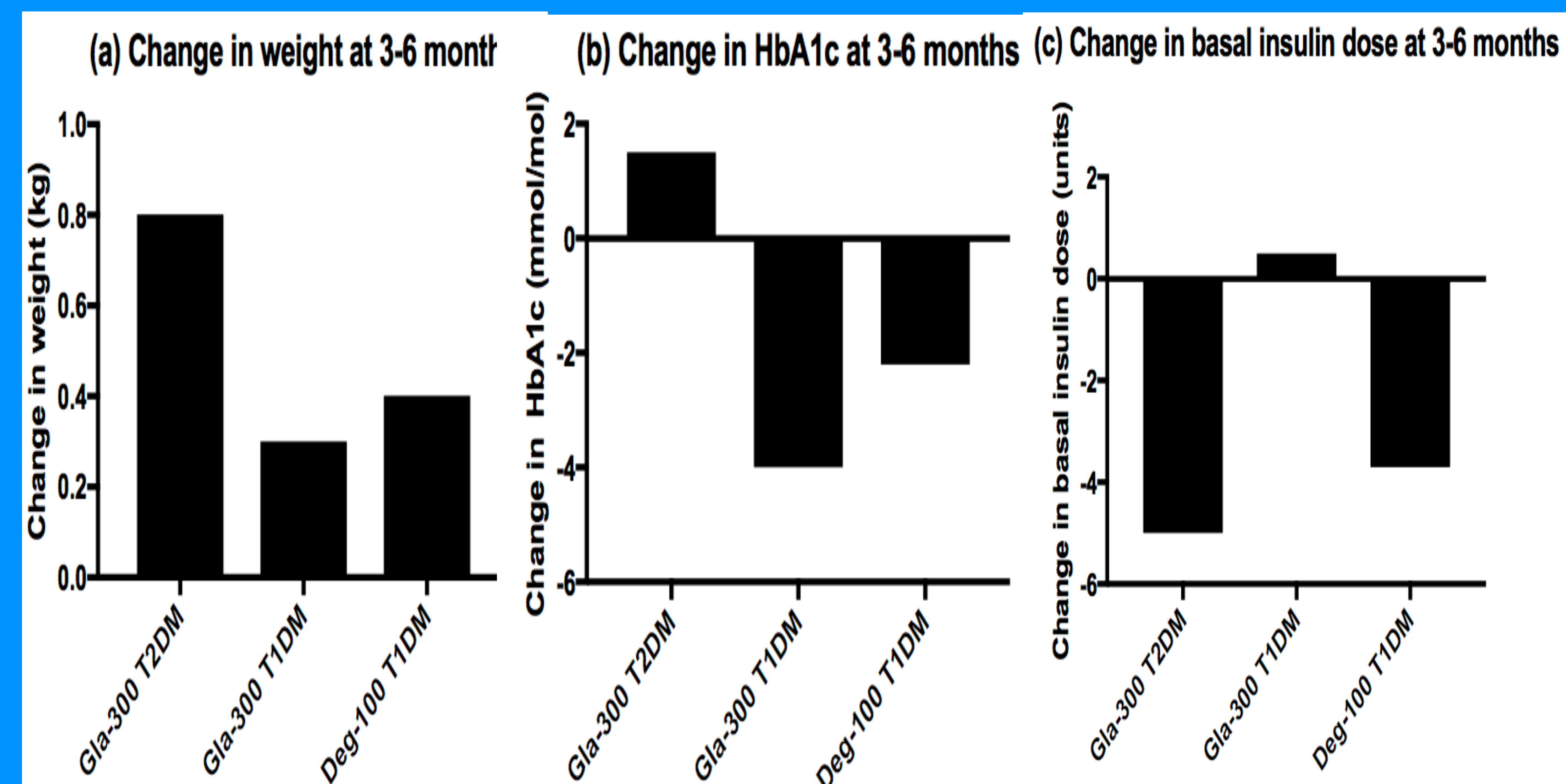
After 6 months, T1DM patients, HbA1c (-3.6%), weight (+0.5%), basal insulin dose (-9.3%), and In T2DM (Toujeo only), HbA1c (+1.9%), weight (+0.9%), and basal insulin dose (-6.8%). At follow-up, HE decreased in T1DM (-54%), T2DM (-36%).

**Table 1**  
Reasons for Glargine U-300 or Degludec-100 initiation

		Glargine 300U/mL		Degludec 100U/mL
		T2DM*	T1DM**	T1DM***
		n(%)	n(%)	n(%)
Hypoglycaemia	All	4(24)	3(43)	40(79)
	Nocturnal	3(18)	3(43)	16(31)
	Day time	1(6)	0(0)	18(35)
	Exercise	0(0)	0(0)	2(4)
	Unspecified	0(0)	0(0)	4(9)
High basal insulin volume		6(35)	3(43)	0(0)
Weight control		3(18)	1(14)	0(0)
Glycaemic control		3(18)	0(0)	8(16)
Injection site reaction		1(6)	0(0)	0(0)
Injection frequency		0(0)	0(0)	2(4)
Unspecified		0(0)	0(0)	1(2)

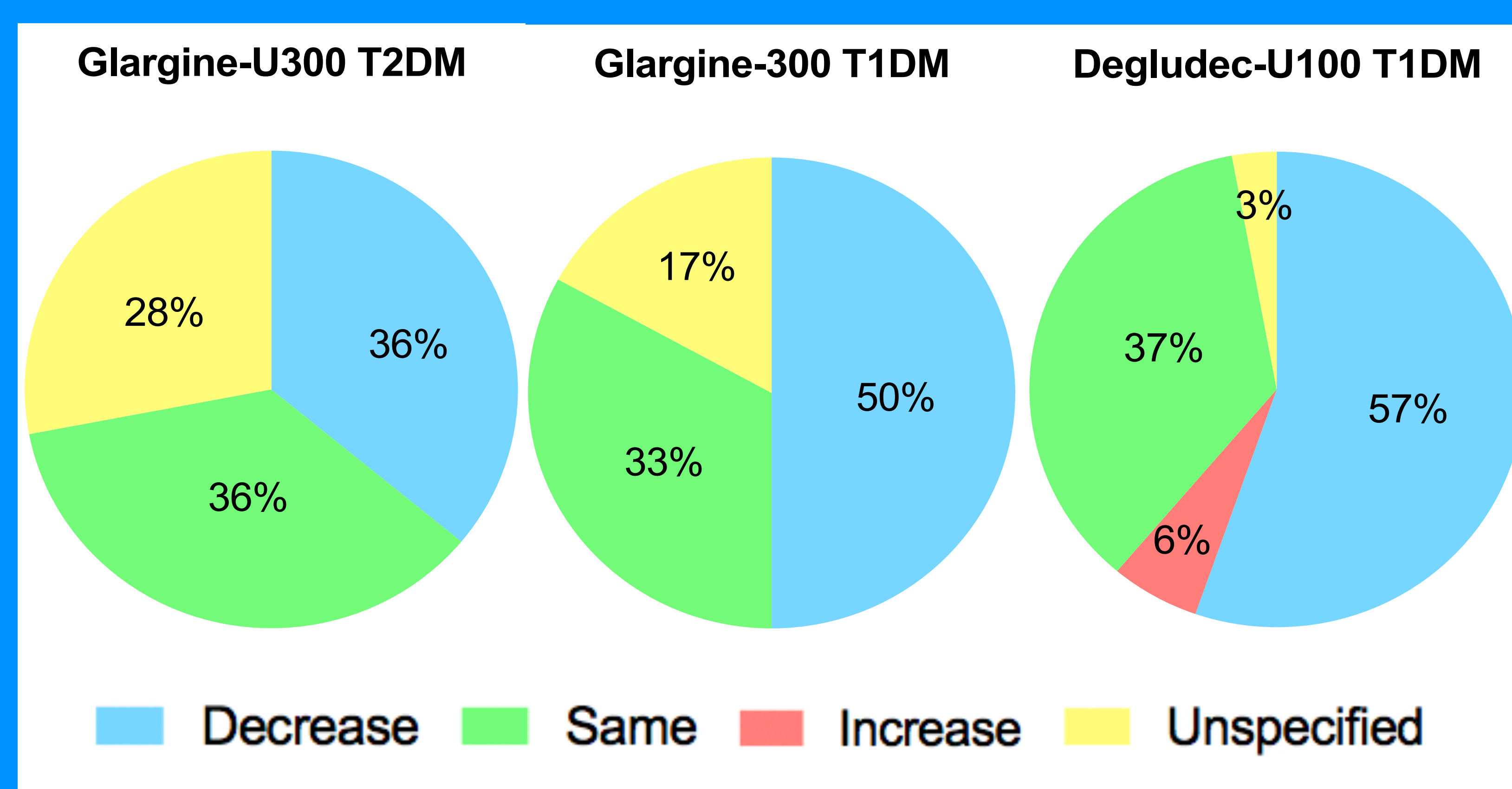
**Figure 1**

Changes in weight, HbA1c and basal insulin dose after switch to insulin Glargine U300 or Degludec U100 at 3-6 months



**Figure 2**

Changes in hypoglycaemic events after 3-6 months with Glargine-U300 in T2DM, and with Glargine-U300 or Degludec-U100 T1DM patients



## Discussion

- Hypoglycaemia, weight gain as well as high volume of insulin dose are important therapeutic challenges with insulin therapy.
- Following the switch to ultra-long insulin, between a third to half patients experienced fewer hypoglycaemic episodes which was associated with improved HbA1c in type 1 diabetes and minor weight changes.
- While in type 2 diabetes on Toujeo, the reduction in hypoglycaemia may be linked to reduction in insulin dose balanced by small change in glycaemic control.

## Conclusions

- In T1DM patients switching to Toujeo or Tresiba may improve management of hypoglycaemia and insulin dose, without compromising glycaemia control.
- In patients with clinical reasons to switch, ultra-long basal insulin analogues improve key therapeutic challenges of insulin therapy.