Supplementary Appendix

Supplementary Table S1. Inputs for probabilistic sensitivity analysis

	Type 1 diabetes mellitus (basal–bolus insulin)			Type 2 diabetes mellitus (basal-only insulin)		
Hypoglycaemia rate-ratios	Rate ratio	SE of log ratio	Distribution	Rate ratio	SE of log ratio	Distribution
Daytime	0.98	0.0215	Lognormal	0.80	0.0580	Lognormal
Nocturnal	0.76	0.0514	Lognormal	0.76	0.0846	Lognormal
Severe	0.74	0.1016	Lognormal	0.49	0.3287	Lognormal
Glargine U100 dose	Mean	SE	Distribution	Mean	SE	Distribution
Basal	40.58	2.4875	Normal	82.66	2.9675	Normal
Bolus	31.93	2.0515	Normal	N/A		
Dose ratios	Ratio	SE of log ratio	Distribution	Ratio	SE of log ratio	Distribution
Basal	0.97	0.0126	Lognormal	0.96	0.0106	Lognormal
Bolus	0.97	0.0190	Lognormal	N/A		
Hypoglycaemia disutility	Disutility value	SE	Distribution	Disutility value	SE	Distribution
Daytime	0.0054	0.0007	Normal	0.0054	0.0007	Normal
Nocturnal	0.0077	0.0009	Normal	0.0077	0.0009	Normal
Severe	0.0623	0.0043	Normal	0.0623	0.0043	Normal

Glar U100, insulin glargine 100 units/mL; SE, standard error

Supplementary Table S2. One-way sensitivity analysis: Type 1 diabetes mellitus

	ΔCosts Degludec–glargine U100 (£)	ΔQALYs Degludec–glargine U100	ICER (£/QALY) Degludec vs. glargine U100
Base case	**23**	**0.0232**	**984**
Baseline hypoglycaemia rates			
UKHSG (T1DM using insulin >15 years)[1]: non-severe: 29, severe: 3.2	-77	0.0603	Dominant
Donnelly 2005[2]: non-severe: 41.74, severe: 1.15	16	0.0314	495
Dornhorst 2007[3]: non-severe: 44.1, severe: 3	-70	0.0618	Dominant
Östenson 2014[4]: non-severe: 91 (22% nocturnal), severe: 0.7	27	0.0485	548
Degludec/glargine U100 hypoglycaemia rate ratios			
Inclusion of non-significant rate ratios	22	0.0247	898
Maintenance rate ratios	5	0.0322	145
Maintenance rate ratios, incl. non-significant	3	0.0365	76
Non-severe hypoglycaemia healthcare costs			
Base case values –20%	23	0.0232	1006
Base case values +20%	22	0.0232	962
Severe hypoglycaemia healthcare costs			
Base case values –20%	32	0.0232	1398
Base case values +20%	13	0.0232	570
Waugh 2010[5]: inflation adjusted	44	0.0232	1897
No severe hypo costs	71	0.0232	3055
Insulin doses			
Non-significant rate ratios	16	0.0232	676
No dose differences	37	0.0232	1579
WHO DDD[6] (40 IU basal and 40 IU bolus in both arms)	35	0.0232	1525
Needles per day			
IGlar U100 two needles per day	-13	0.0232	Dominant
SMBG tests per week			
1 less SMBG test per week with degludec	5	0.0232	195
2 fewer SMBG tests per week with degludec	-14	0.0232	Dominant
3 fewer SMBG tests per week with degludec	-32	0.0232	Dominant
Hypoglycaemic event disutilities			
Evans 2013[7] (all five countries): non-severe day/night: 0.0041/0.0067, severe: 0.0565	23	0.0208	1097
Lauridsen 2014[8]: diminishing marginal utility approach	23	0.0197	1161
Dosing flexibility utility[a] (not included in base case)			
Boye 2011[9]: 0.006	23	0.0292	782
Evans 2013[10]: 0.016	23	0.0392	582

Work loss costs arising from hypoglycaemia			
Inclusion of work loss costs: Adapted from Brod 2011[11] Reviriego 2008[12]. £37.65, £64.40, £132.08	-66.53	0.0232	Dominant

[a]Able to administer dose at any time of the day; Dominant, improved quality of life at lower cost

ICER, incremental cost-effectiveness ratio; IU, insulin units; glargine U100, insulin glargine 100 units/mL; SMBG, self-measured blood glucose; T1DM, type 1 diabetes mellitus; QALY, quality-adjusted life-year.

Supplementary Table S3. One-way sensitivity analysis: Type 2 diabetes mellitus

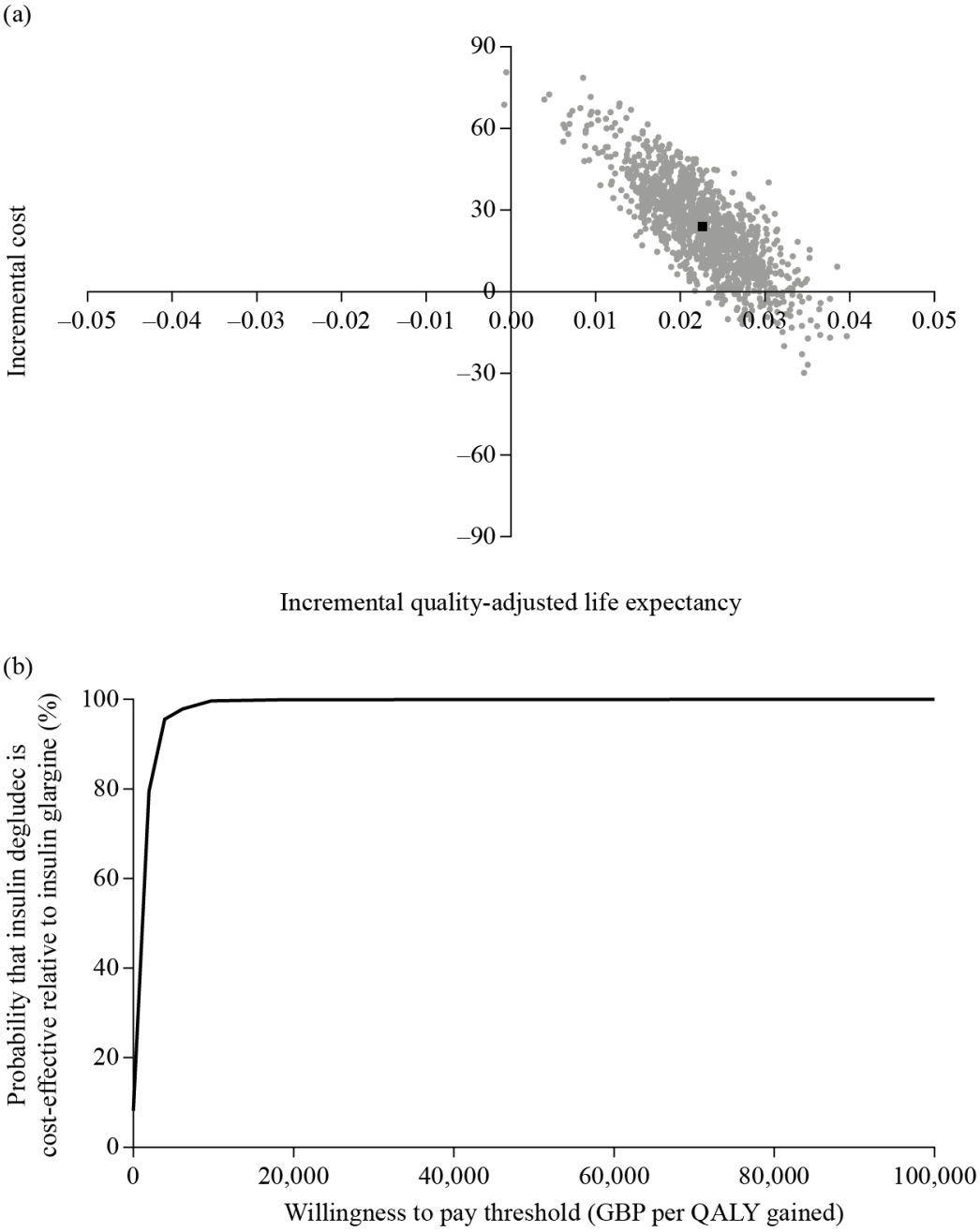
	ΔCosts Degludec–glargine U100 (£)	ΔQALYs Degludec–glargine U100	ICER (£/QALY) Degludec vs. glargine U100
Base case	**117**	**0.0065**	**17939**
Baseline hypoglycaemia rates			
UKHSG (T2DM insulin <2 years)[1]: non-severe: 4.08, severe: 0.1	115	0.0086	13274
UKHSG (T2DM insulin >5 years)[1]: non-severe: 10.2, severe: 0.7	-21	0.0359	Dominant
Donnelly 2005[2]: non-severe: 16.02, severe: 0.35	49	0.0326	1518
Dornhorst 2007[3]: non-severe: 8.3, severe: 0.8	-41	0.0365	Dominant
Östenson 2014[4]: non-severe: 20.3 (32% nocturnal), severe: 0.1	100	0.0303	3300
Degludec/glargine U100 hypoglycaemia rate ratios			
Include non-significant rate ratios	117	0.0065	17939
Maintenance rate ratios	137	0.0050	27467
Maintenance rate ratios, incl. non-significant	118	0.0076	15494
Non-severe hypoglycaemia healthcare costs			
Base case values –20%	118	0.0065	18013
Base case values +20%	117	0.0065	17865
Severe hypoglycaemia healthcare costs			
Base case values –20%	121	0.0065	18564
Base case values +20%	113	0.0065	17314
Waugh et al. 2010[5], inflation adjusted	133	0.0065	20333
No severe hypo costs	138	0.0065	21062
Insulin doses			
Non-significant rate ratios	117	0.0065	17939
No dose differences	155	0.0065	23674
WHO DDD[6] (40 IU in both arms)	63	0.0065	9653
Needles per day			
IGlar U100 two needles per day	82	0.0065	12529
SMBG tests per week			
1 less SMBG test per week with IDeg	99	0.0065	15142
2 fewer SMBG tests per week with IDeg	81	0.0065	12344
3 fewer SMBG tests per week with IDeg	62	0.0065	9547
Hypoglycaemic event disutilities			
Evans 2013[7] (all five countries): non-severe day/night: 0.0041/0.0067, severe: 0.0565	117	0.0056	21011
Lauridsen 2014[8]: diminishing marginal utility approach	117	0.0061	19313
Dosing flexibility utility[a] (not included in base case)			
Boye 2011[9]: 0.006	117	0.0125	9357

Evans 2013[10]: 0.013	117	0.0225	5206
Work loss costs arising from hypoglycaemia			
Inclusion of work loss costs: Adapted from Brod 2011[11] and Reviriego 2008[12]. £37.65, £64.40, £132.08	84	0.0065	12835

[a]Able to administer dose at any time of the day; Dominant, improved quality of life at lower cost

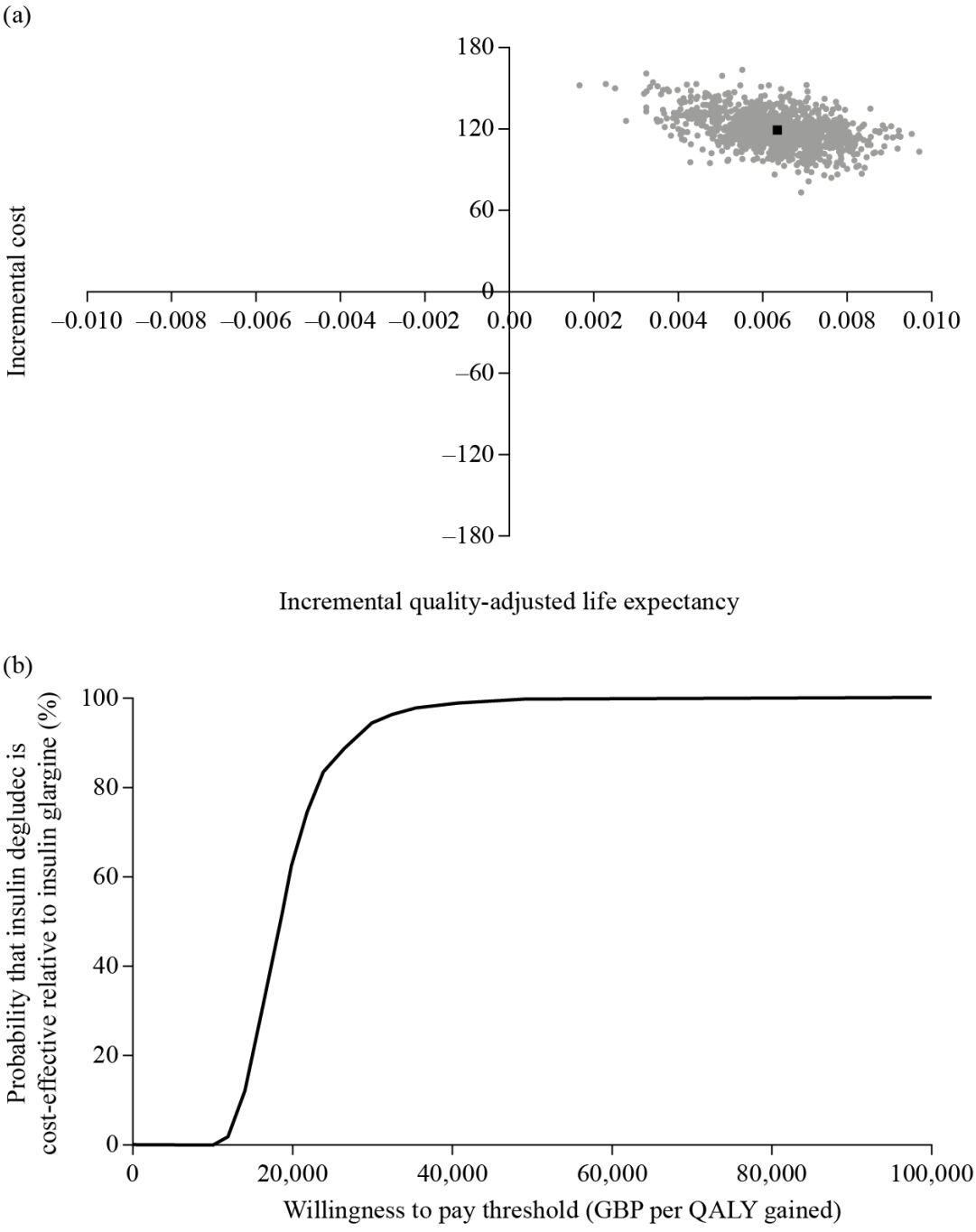
ICER, incremental cost-effectiveness ratio; IU, insulin units; glargine U100, insulin glargine 100 units/mL; SMBG, self-measured blood glucose; T2DM, type 2 diabetes mellitus; QALY, quality-adjusted life-year.

Supplementary Fig. S1. Probability analysis distribution for ICER for degludec vs. glargine U100 (top) and probability of degludec being cost-effective vs. glargine U100 based on UK willingness-to-pay threshold (bottom): Type 1 diabetes mellitus[a]



[a]Probabilistic sensitivity analysis based on 1000 iteration where stochastic parameters were varied based on standard errors and relevant distributions. GBP, pounds sterling; ICER, incremental cost-effectiveness ratio; glargine U100, insulin glargine 100 units/mL; QALY, quality-adjusted life-year.

Supplementary Fig. S2. Probability analysis distribution for ICER for degludec vs. glargine U100 (top) and probability of degludec being cost-effective vs. glargine U100 based on UK willingness-to-pay threshold (bottom): Type 2 diabetes mellitus[a]



[a]Probabilistic sensitivity analysis based on 1000 iteration where stochastic parameters were varied based on standard errors and relevant distributions. GBP, pounds sterling; ICER, incremental cost-effectiveness ratio; glargine U100, insulin glargine 100 units/mL; QALY, quality-adjusted life-year.

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