



L'Evoluzione della  
Diabetologia alla luce del  
Piano Nazionale Diabete

XX CONGRESSO  
NAZIONALE  
2015

Centro Congressi  
Magazzini del Cotone  
Genova  
13|16  
MAGGIO 2015

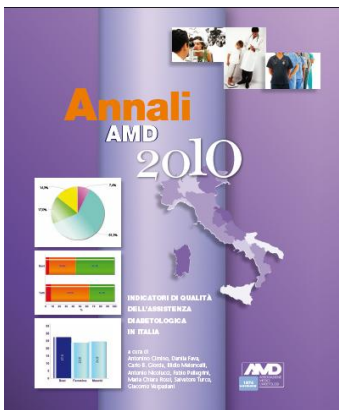


Soluzioni innovative e attuali risposte ai bisogni della terapia  
insulinica

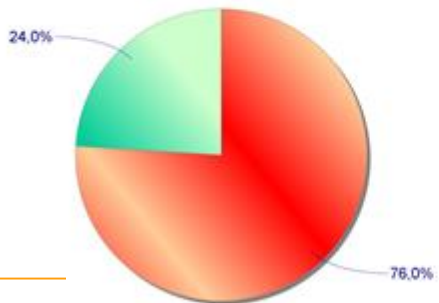
# **Insulina degludec: dalle premesse degli studi registrativi alle conferme della pratica clinica**

Paola Ponzani  
S.S.D. Endocrinologia, Diabetologia e Malattie Metaboliche  
ASL 3 Genovese

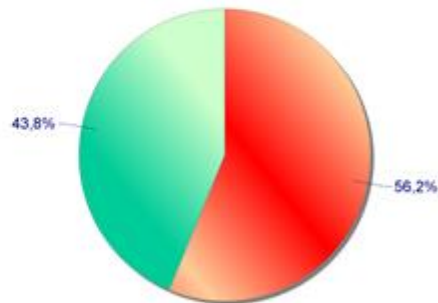
# Soggetti con HbA1c (norm. a 6) <=7.0%



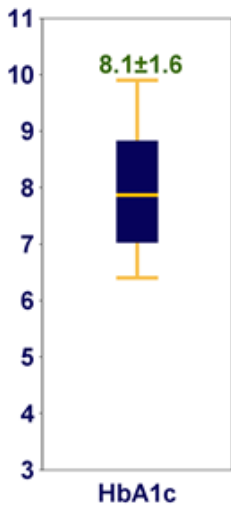
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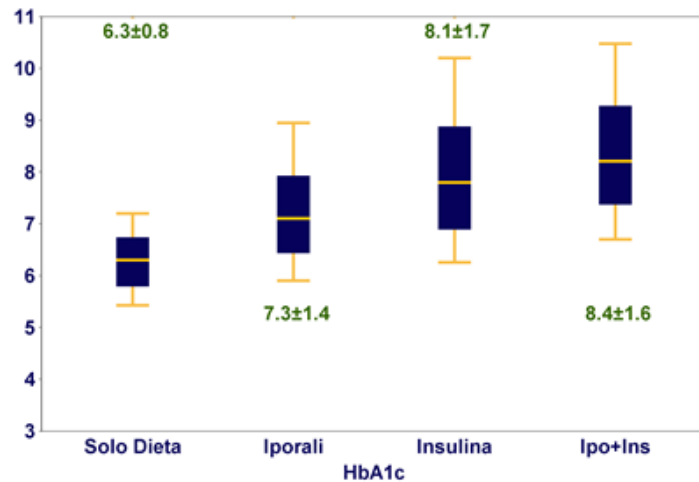
## DM2



## DM1



No SI





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**TRESIBA**<sup>®</sup>  
insulin degludec [rDNA origin] injection

Raggiungimento  
dei target

Ipoglicemie

Copertura  
delle 24 ore

**I bisogni  
insoddisfatti  
della terapia  
insulinica**

Qualità di  
vita

Variabilità

Flessibilità

Aderenza alla  
terapia

# Le ipoglicemie sono una barriera al raggiungimento di un buon controllo glicemico

*"if it was not for the barrier of hypoglycaemia, people with diabetes mellitus could have normal HbA<sub>1c</sub> values throughout a lifetime of diabetes"*

*P. E. Cryer, 2001 Claude Bernard Lecture*

*"Hypoglycemia is a major limiting factor in the management of type 1 and type 2 diabetes, indeed were it not for the problem of hypoglycemia, glycemia targets would be much easier to achieve"*

*Carrie Fidler, J Med Econ 2011*

# Incidenza delle ipoglicemie in Italia

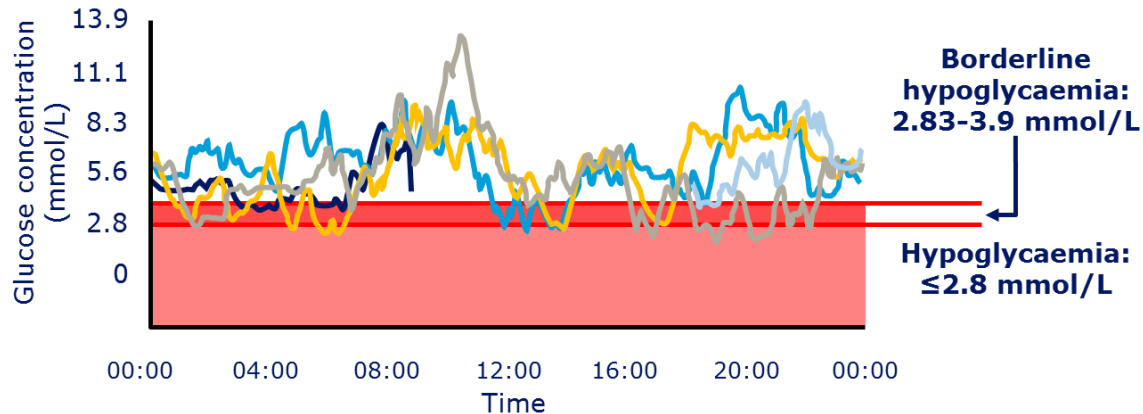
## Risultati dello studio HYPOS-1

	DMT1 BB	DMT2 BOT	DMT2 BB
Severe	0,49	0,10	0,29
Sintomatiche Totali	46,5	10,76	18,36
Sintomatiche Diurne	33,8	9,0	14,41
Sintomatiche Notturne	11,7	1,9	4,42

(numero di episodi per persona/anno)

# E' molto difficile stimare la reale incidenza delle ipoglicemie

- Il monitoraggio continuo della glicemia (CGMS) rivela frequenti episodi di ipoglicemia asintomatica o non riconosciuta



- E' molto difficile stimare la reale incidenza degli episodi ipoglicemici<sup>1</sup>

- Il 63% dei pazienti con DMT1 e il 47% dei pazienti con DMT2 hanno episodi di ipoglicemia di cui non avvertono sintomi o che non sono riconosciuti<sup>1</sup>
- Il 74% di tali episodi si sono verificati di notte

# RUN STUDY

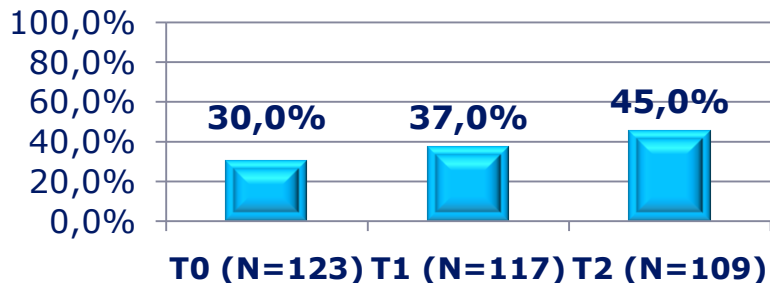
- ✓ Studio spontaneo, osservazionale, a braccio-singolo, multicentrico, per valutare i “bisogni insoddisfatti” della terapia con analoghi basali dell’insulina (detemir, IDet, glargine, IGla) nei pazienti diabetici T1 e T2
- ✓ Esplorare, in un contesto di pratica clinica reale, la prevalenza di ipoglicemie totali, notturne e severe nei soggetti in trattamento con analoghi basali dell’insulina e valutare la percentuale di pazienti non a target nel digiuno e nel pre-dinner con una singola somministrazione di queste molecole
- ✓ 474 pazienti: 125 Tipo 1 – 187 Tipo 2 BOT – 161 Tipo 2 BB



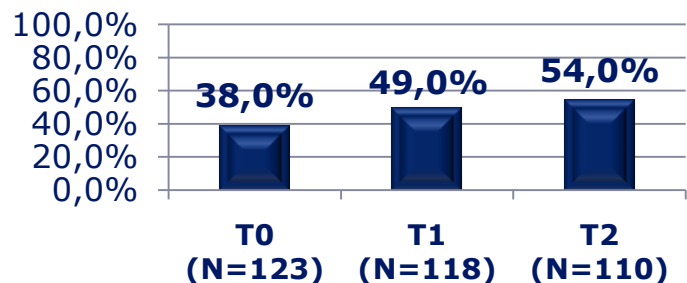
- ❑ GHISONI Guglielmo - SSD Diabetologia ASL3 Genovese - GE NERVI
- ❑ PONZANI Paola - SSD Diabetologia ASL3 Genovese – ARENZANO (GE)
- ❑ CARRO Stefano - Diabetologia ASL5 – LA SPEZIA
- ❑ BASSO Ruggiero - Diabetologia ASL2 - SAVONA
- ❑ REBORA Alberto - OSP. S.Paolo - SAVONA
- ❑ CALVO Giacomo - OSP. S.Corona – PIETRA LIGURE (SV)
- ❑ RAFFA Maurizio e SIDOTI Marilena - CEM SANREMO-ASL1 Imperiese SANREMO
- ❑ PASCUZZO Maria Divina - ASL TO2 - Lungo Dora Savona- TORINO
- ❑ GIOVAGNETTI Marilena – UO Diabetologia Osp. Macerata ASUR Marche Area Vasta 3
- ❑ D'ANGELO Federica - INRCA ANCONA
- ❑ DEL SINDACO Paola – Servizio Diabetologico ASL PERUGIA
- ❑ MARINO Cecilia – Servizio di Diabetologia Osp. BRANCA (PG)
- ❑ DI LORETO Chiara - Servizio Diabetologico ASL PERUGIA
- ❑ BROGNA Francesco - Diabetologia ASLTO2 - TORINO

# Raggiungimento dei target nei diabetici tipo 1

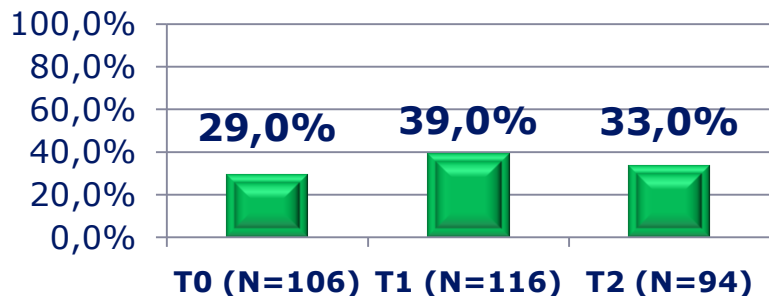
## HbA1c ≤ 7%



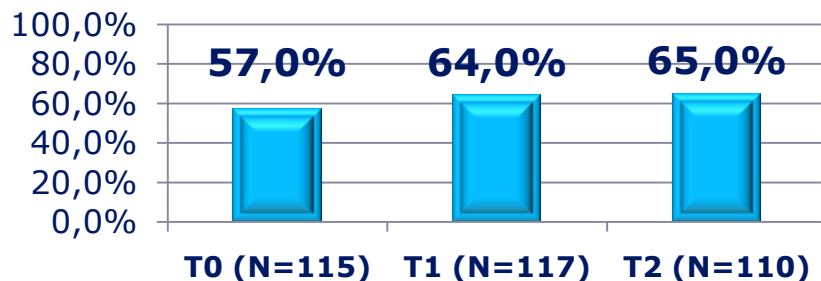
## FPG ≤ 130mg/dl



## PDPG ≤ 130mg/dl

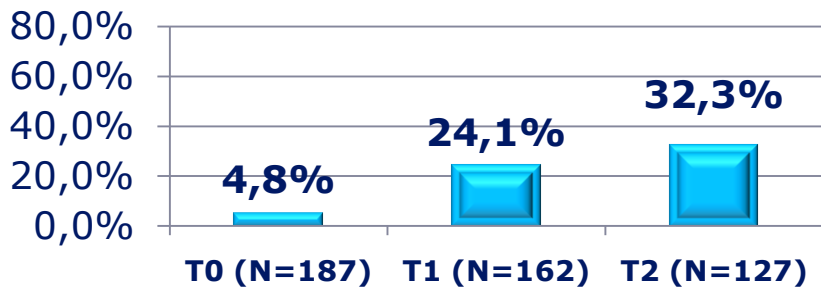


## PPG ≤ 160mg/dl

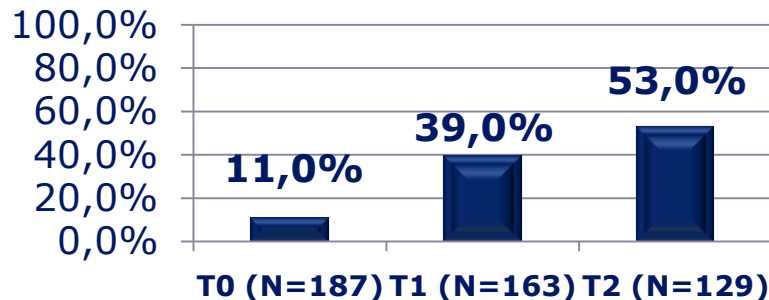


# Raggiungimento dei target nei diabetici tipo 2 BOT

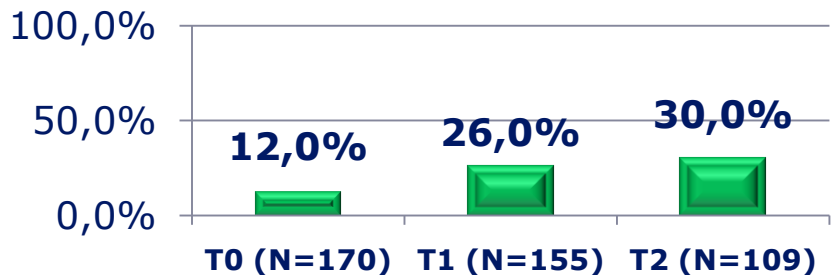
## HbA1c ≤ 7%



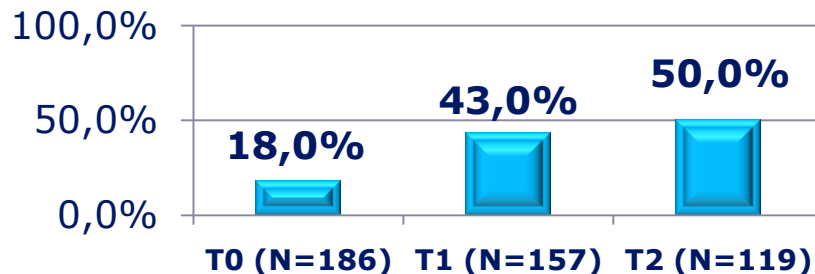
## FPG ≤ 130mg/dl



## PDPG ≤ 130mg/dl

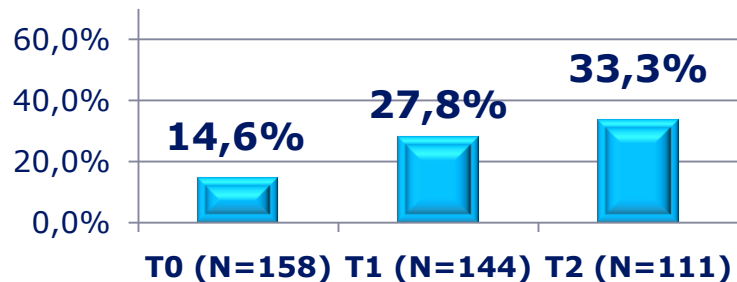


## PPG ≤ 160mg/dl

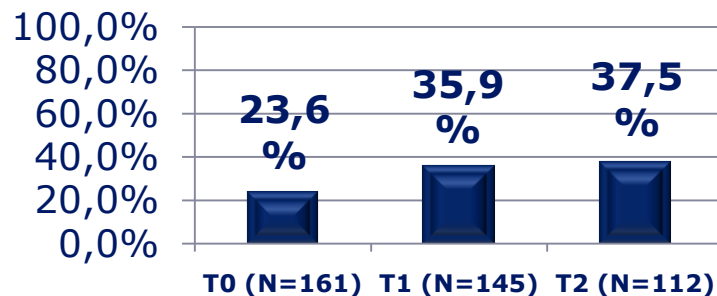


# Raggiungimento dei target nei diabetici tipo 2 BB

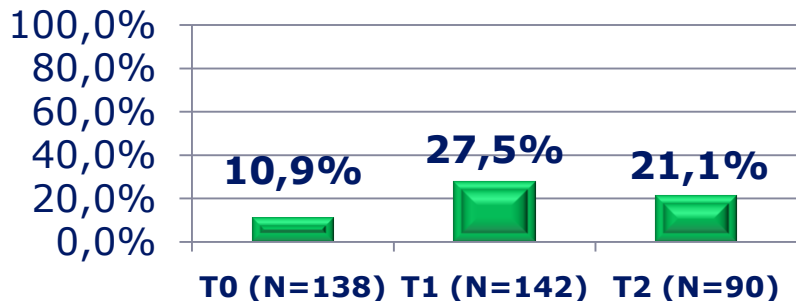
## HbA1c ≤ 7%



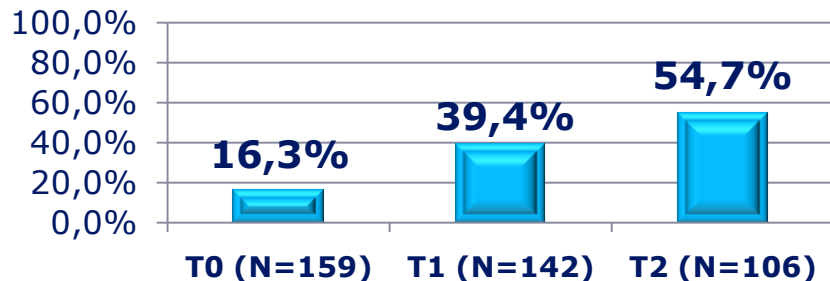
## FPG ≤ 130mg/dl



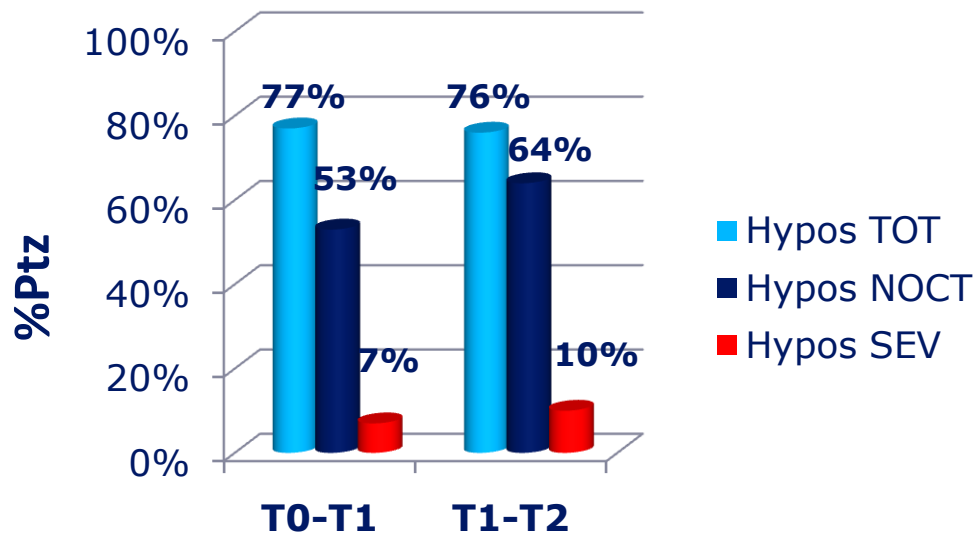
## PDPG ≤ 130mg/dl



## PPG ≤ 160mg/dl

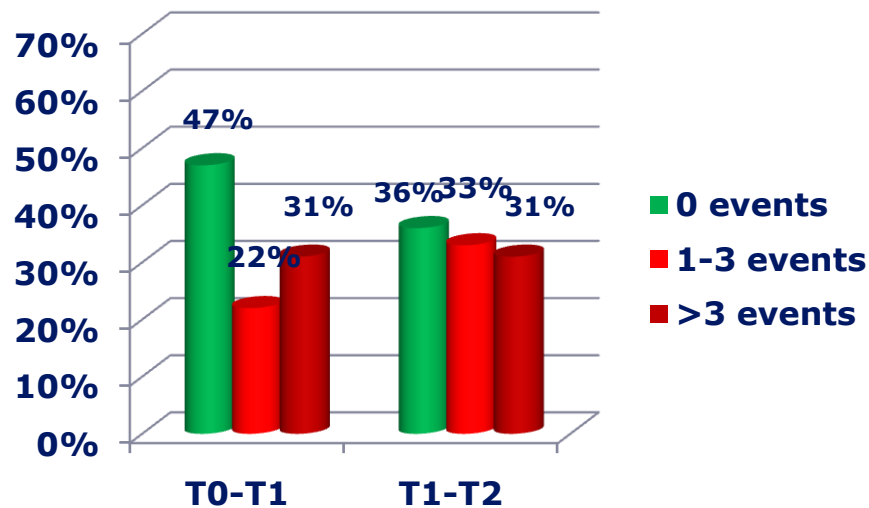


# Eventi ipoglicemici nel tipo 1

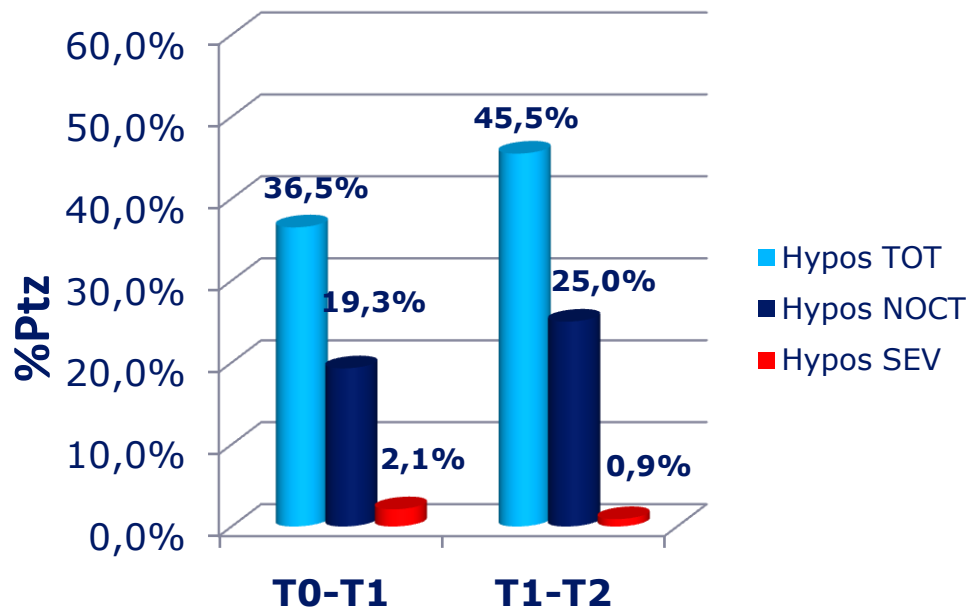


Soggetti con  $\geq 1$  evento

## Ipoglicemie notturne

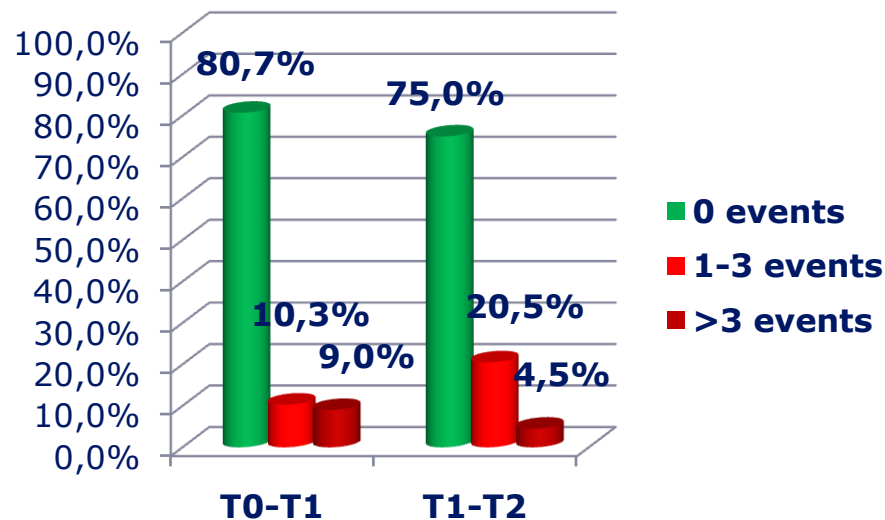


# Eventi ipoglicemici nel tipo 2

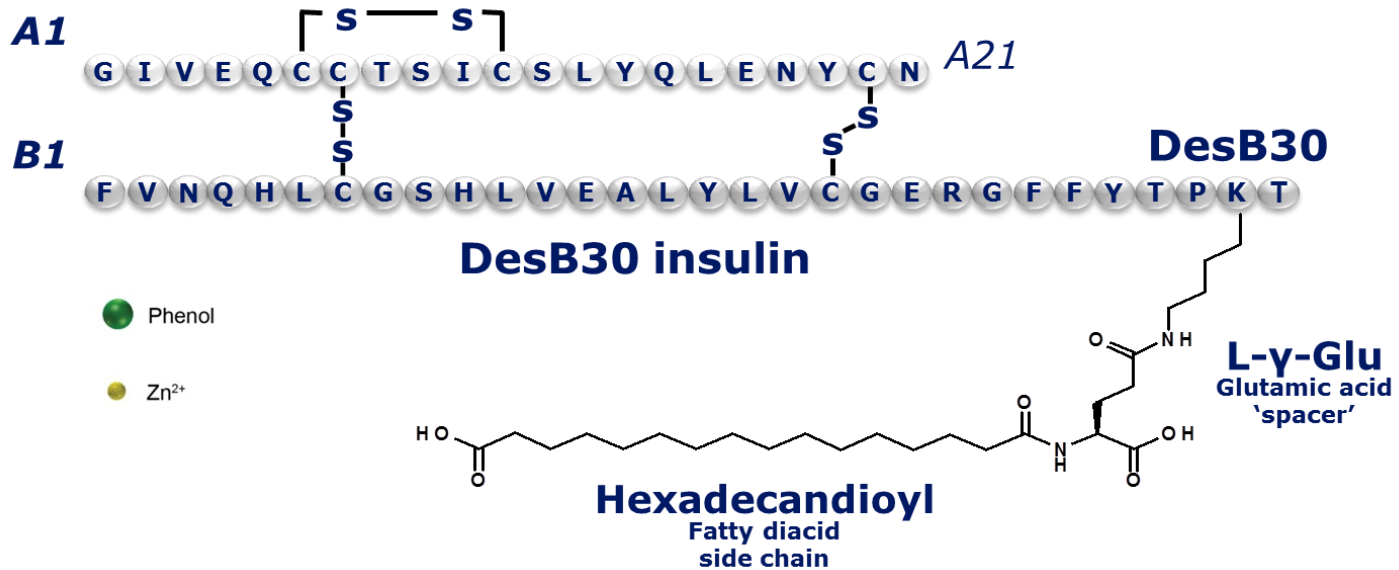


Soggetti con  $\geq 1$  evento

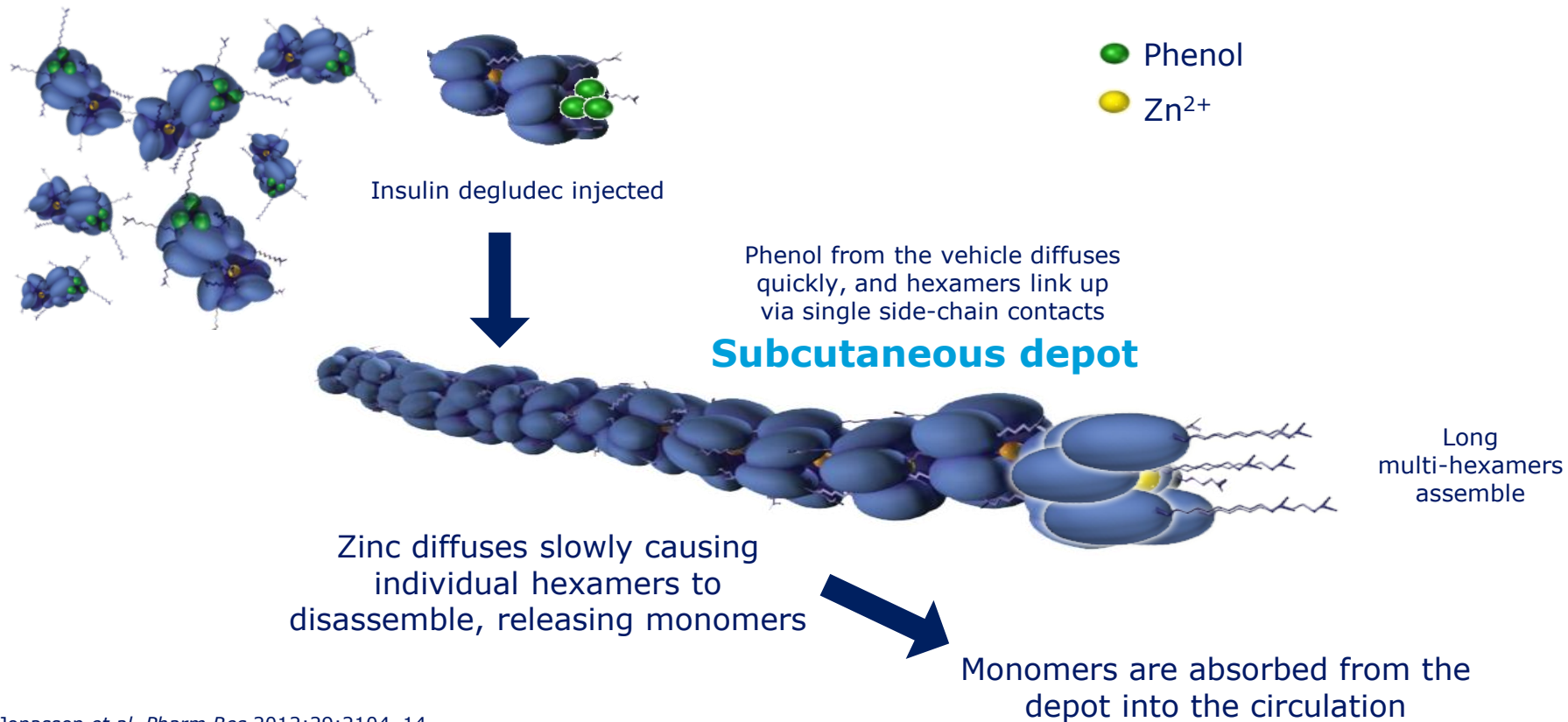
## Ipoglicemie notturne



# Insulina degludec

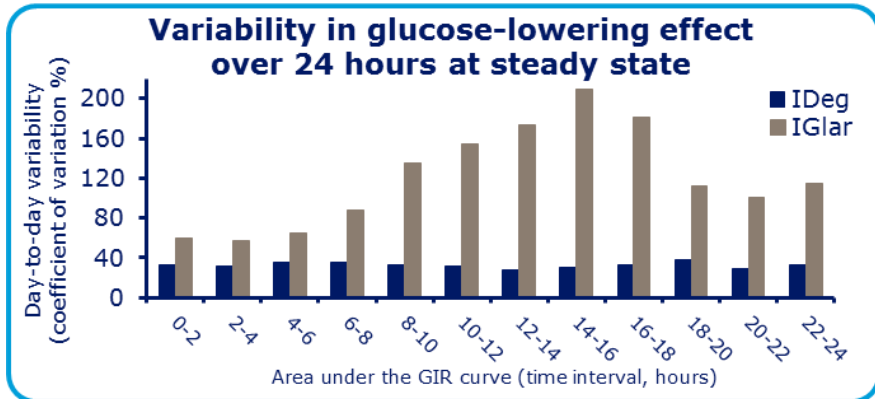
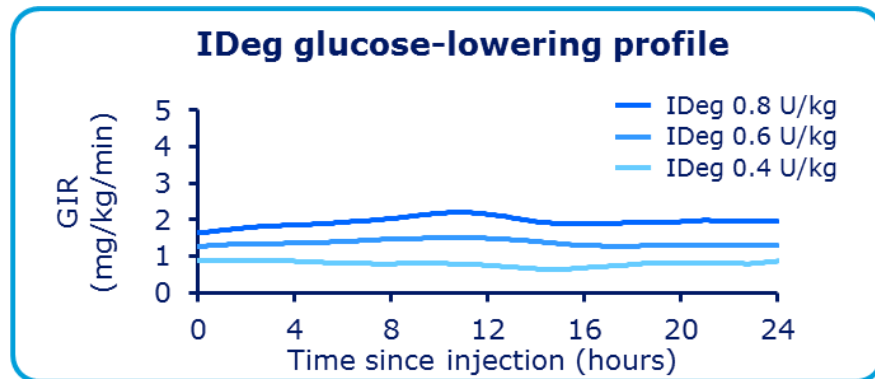
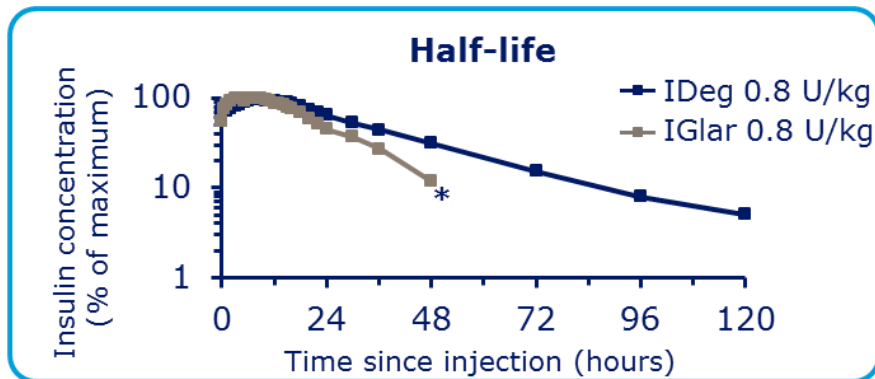


# Insulin degludec: from injection to slow release from the subcutaneous depot





# IDeg has a flat glucose-lowering profile with a half-life twice as long as IGLar and four-times lower day-to-day variability



**IDeg half-life (25.4 hours) is twice that of IGLar (12.5 hours)**

**IDeg variability is four-fold lower than IGLar**

# Quali benefici clinici attesi?

Longer duration  
of action



Control fasting blood glucose  
with one injection per day in all  
individuals

Flat time-action  
profile




















Lower risk of hypoglycaemia

Less day-to-day  
variability



Potential for titration to lower  
FPG target without  
hypoglycaemia

# Insulin degludec once-daily phase 3a

Type 1 diabetes	Type 2 diabetes	
 BB T1 LONG (3583) Basal-bolus n=629  	 BB (3582) Basal-bolus met $\pm$ TZD, n=1006  	 LOW VOLUME (3672) U200 Basal start met $\pm$ DPP-4, n=460
 FLEX T1 (3770) Flexible basal n=493  	 FLEX (3668) BOT met $\pm$ OADs, n=687	 ONCE ASIA (3586) Basal start met $\pm$ SU/ $\alpha$ -gluc, n=435
 BB T1 (3585) Basal-bolus n=456	 ONCE LONG (3579) Basal start met $\pm$ DPP-4, n=1030  	 EARLY (3580) Basal start SITA $\pm$ OADs, n=458



vs insulin detemir



T1

and



T2

vs insulin glargine

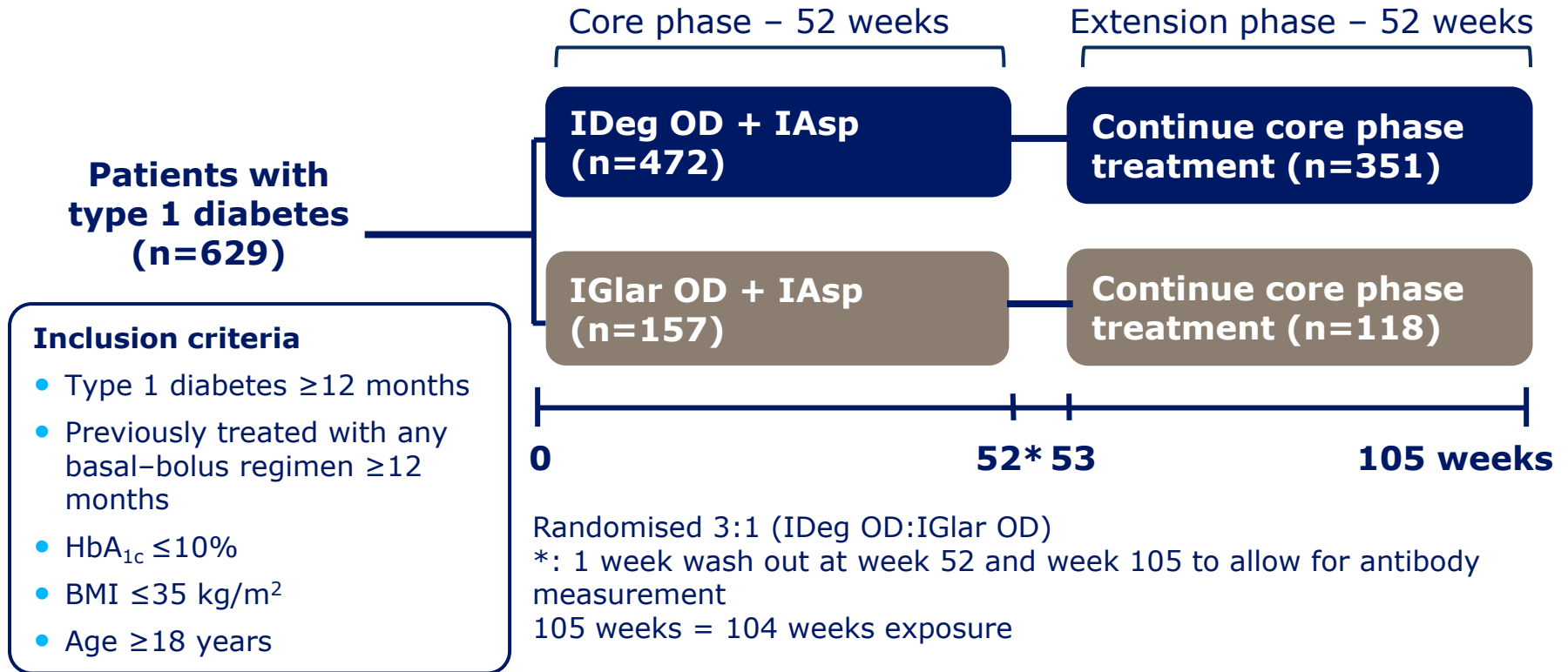


vs sitagliptin

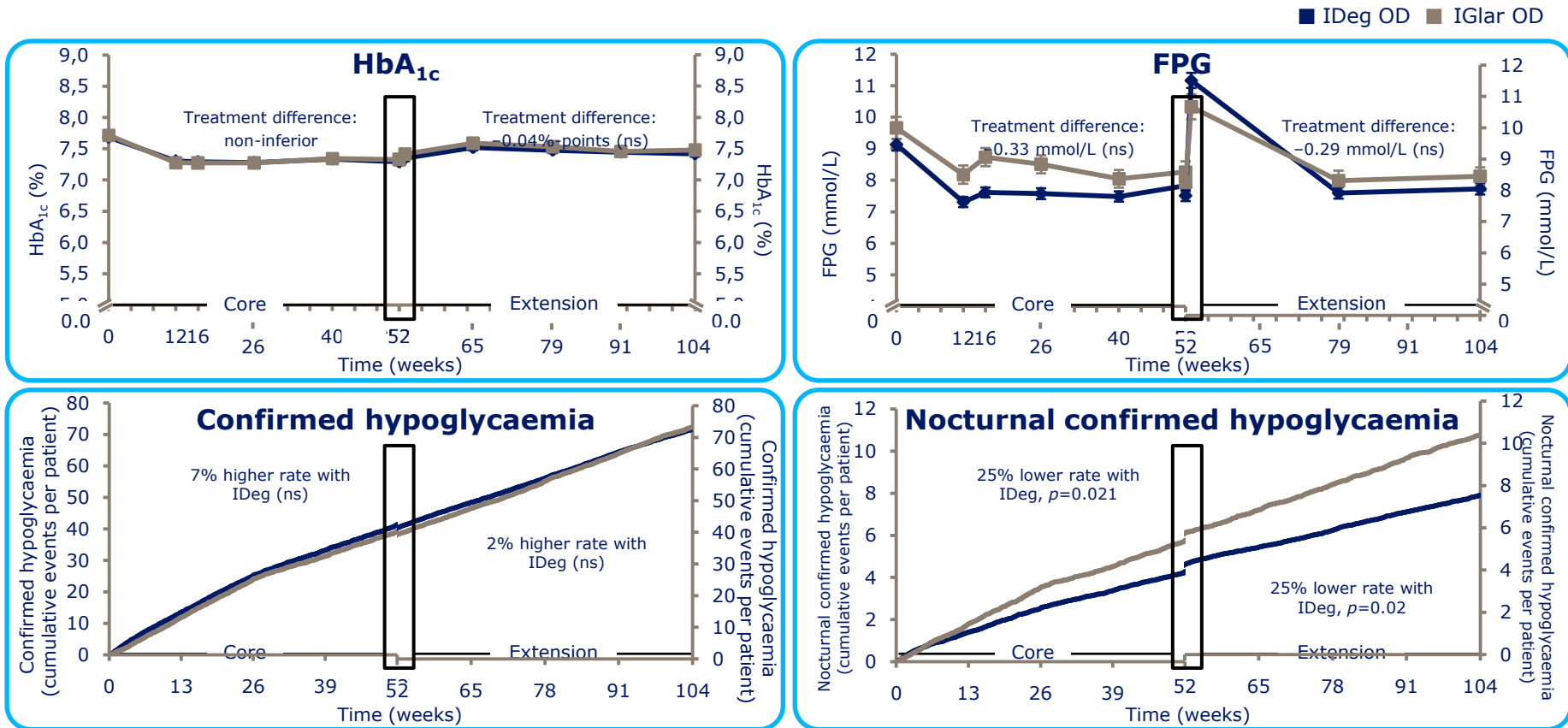


Published

# Basal-bolus in T1D: study design



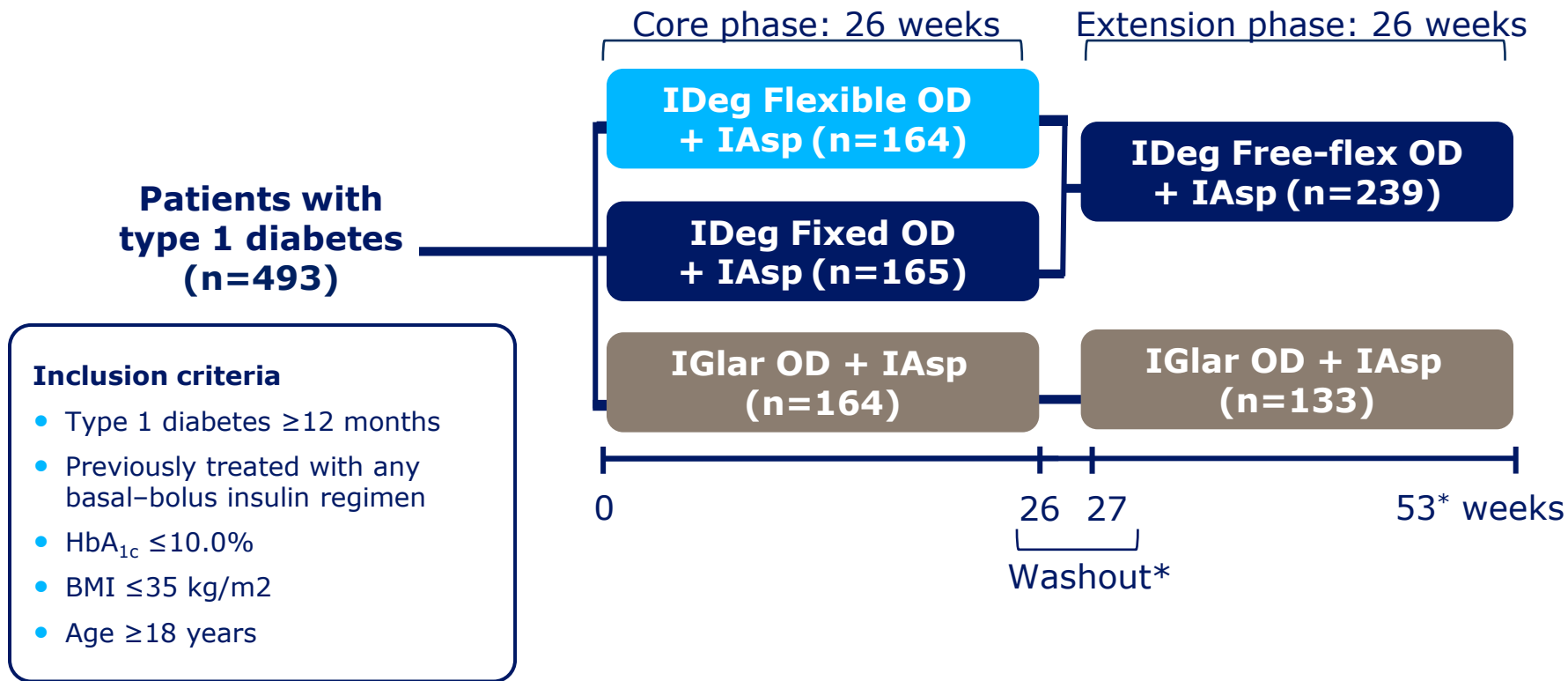
# Basal-bolus in T1D – 2 years results



Black box denotes both treatment arms switching to NPH for 1 week then resuming IDeg or IGlax to allow for antibody measurement

Heller *et al. Lancet* 2012;379:1489-97; Bode *et al. Diabetic Med* 2013;30:1293-7

# Flexible vs Fixed dosing in T1D: study design

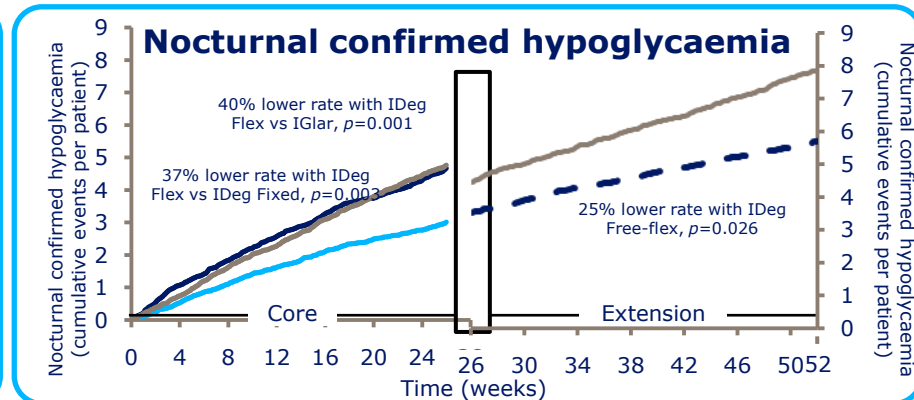
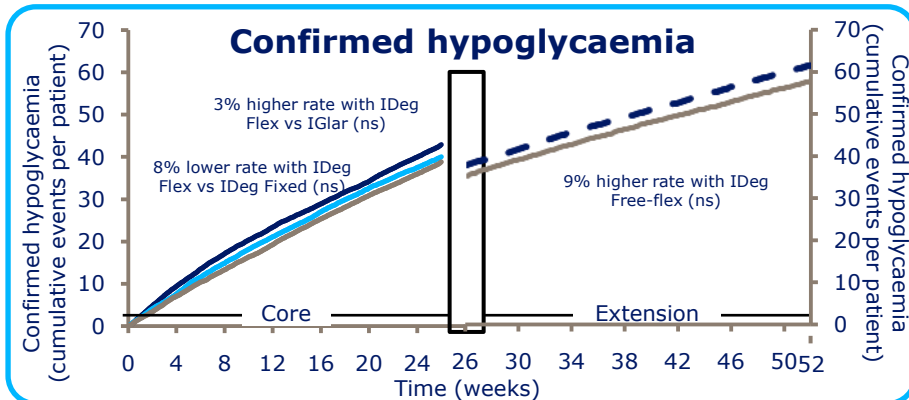
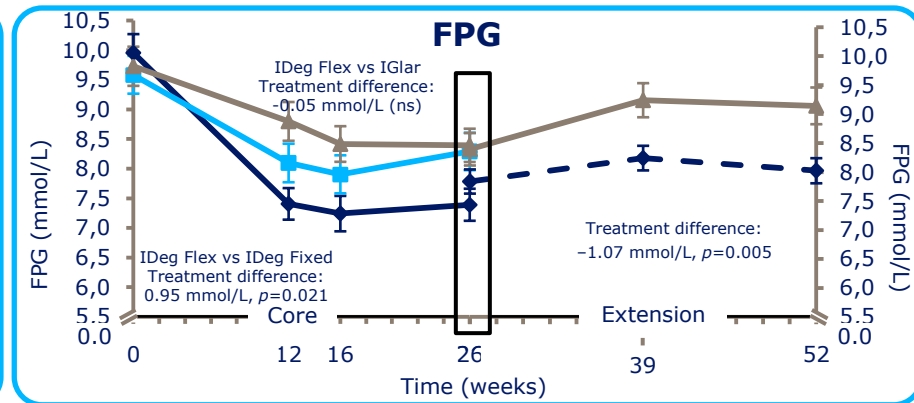
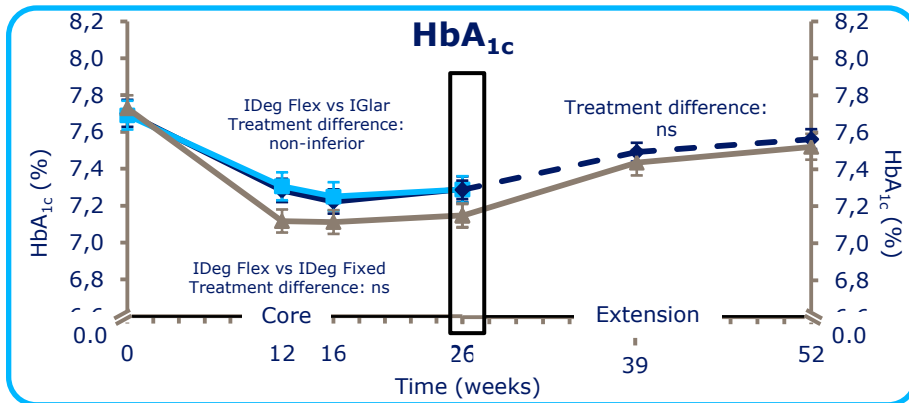


\*1-week wash out (week 26-27), hence 53 weeks = 52 weeks of exposure  
Mathieu et al. *J Clin Endocrinol Metab* 2013;98:1154-62

# Flexible vs Fixed dosing in T1D: results

## BEGIN FLEX T1D – 1 year

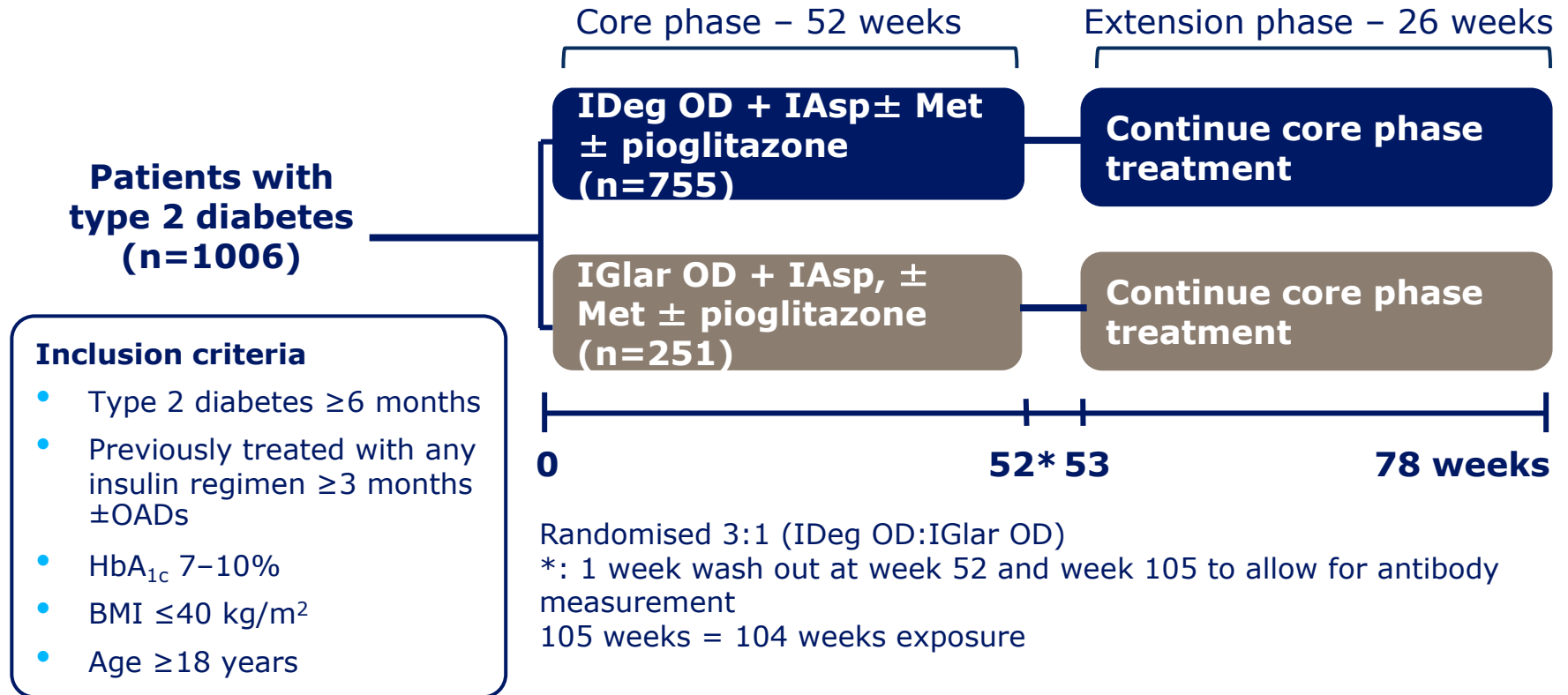
■ IDeg Flexible OD ■ IDeg Fixed OD ■ IGlax OD



Black box denotes both treatment arms switching to NPH for 1 week then resuming IDeg or IGlax to allow for antibody measurement

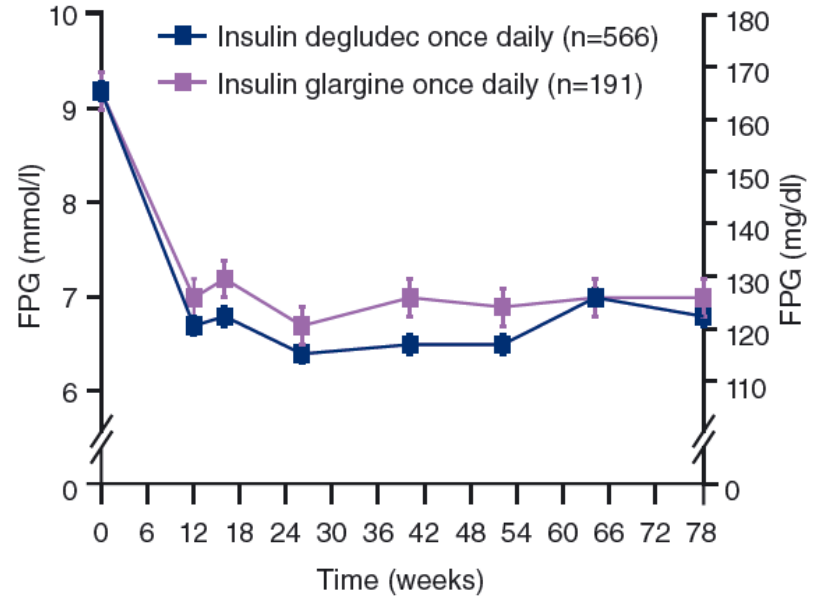
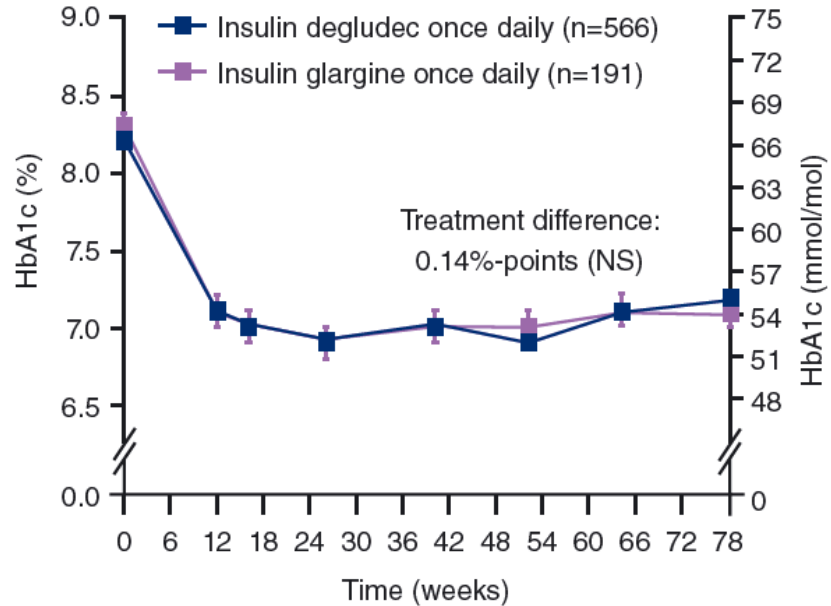
Mathieu *et al.* *J Clin Endocrinol Metab* 2013;98:1154–62

# Basal-bolus in T2D: study design

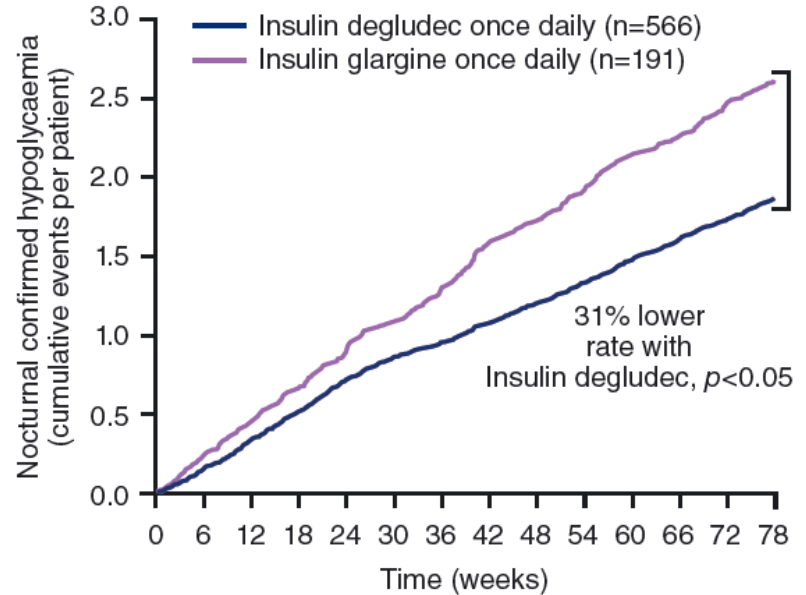
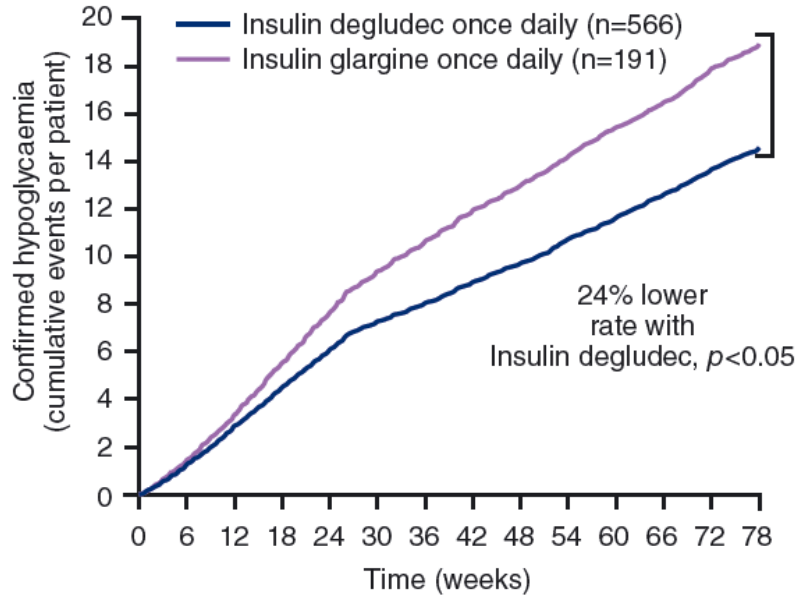




# Basal-bolus in T2D – 1,5 year results: HbA1c/FPG



# Basal-bolus in T2D – 1,5 year results: Hypos



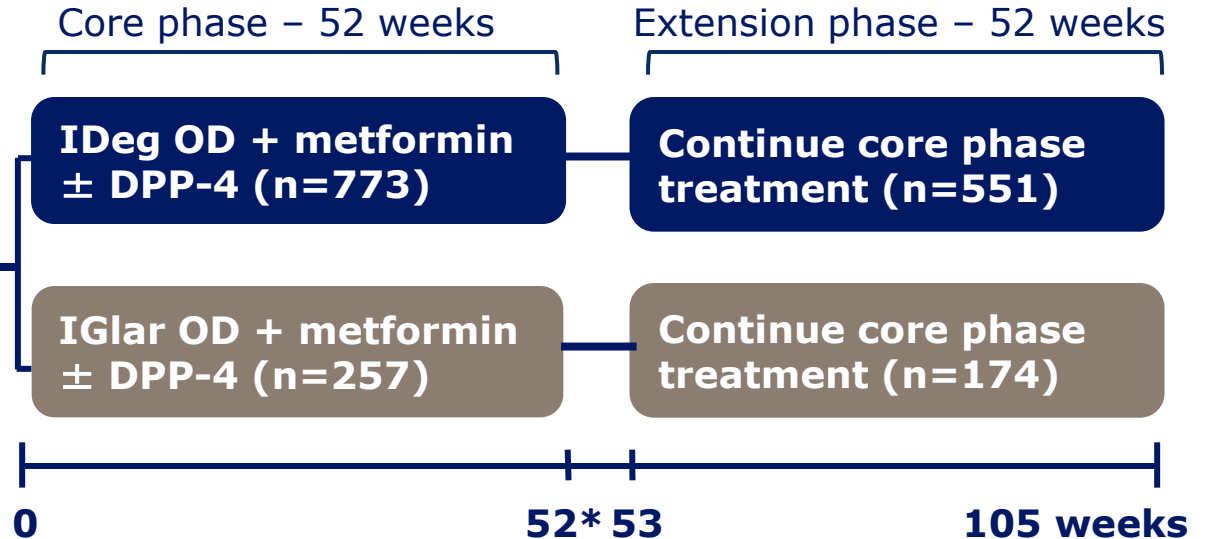
# Insulin-naïve T2D: study design

BEGIN ONCE LONG – 2 years

Insulin-naïve patients with type 2 diabetes (n=1030)

## Inclusion criteria

- Type 2 diabetes  $\geq 6$  months
- Insulin naïve, treated with metformin  $\pm$  SU, DPP-4 or acarbose for  $\geq 3$  months
- HbA<sub>1c</sub> 7.0–10.0%
- BMI  $\leq 40$  kg/m<sup>2</sup>
- Age  $\geq 18$  years



Randomised 3:1 (IDeg OD: IGLar OD)

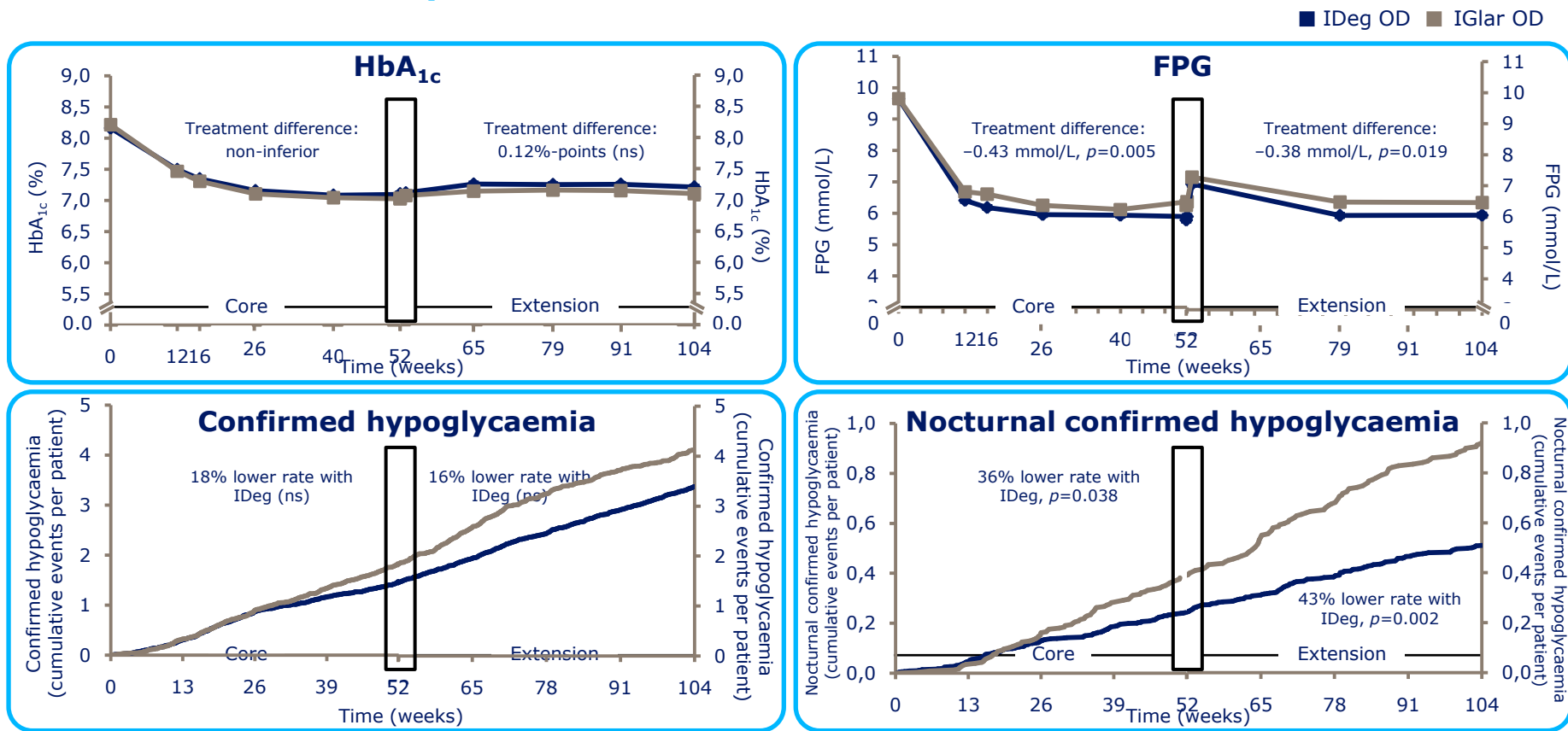
\*1 week wash-out (week 52) to allow for antibody measurement, hence 105 weeks = 104 weeks' exposure

OD, once daily

Zinman *et al. Diab Care* 2012;35:2464–71; Rodbard *et al. Diabetic Med* 2013;30:1298–304

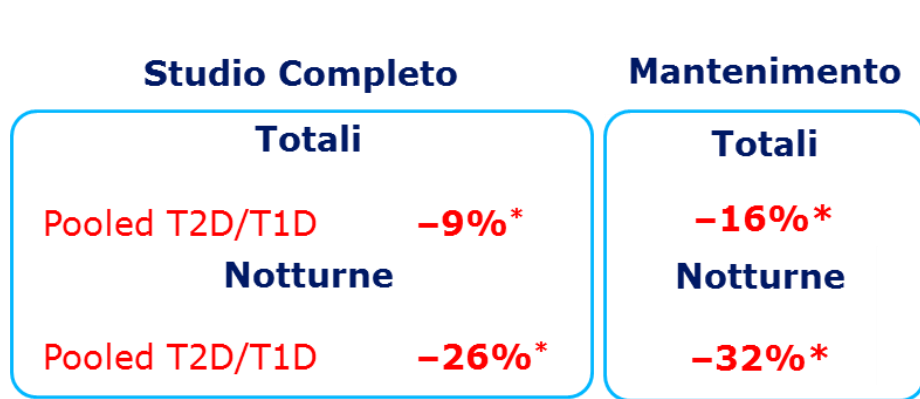
# Insulin-naïve T2D: results

## BEGIN ONCE LONG – 2 years



Black box denotes both treatment arms switching to NPH for 1 week then resuming IDeg or IGlur to allow for antibody measurement  
 Zinman *et al. Diab Care* 2012;35:2464–71; Rodbard *et al. Diabetic Med* 2013;30:1298–304

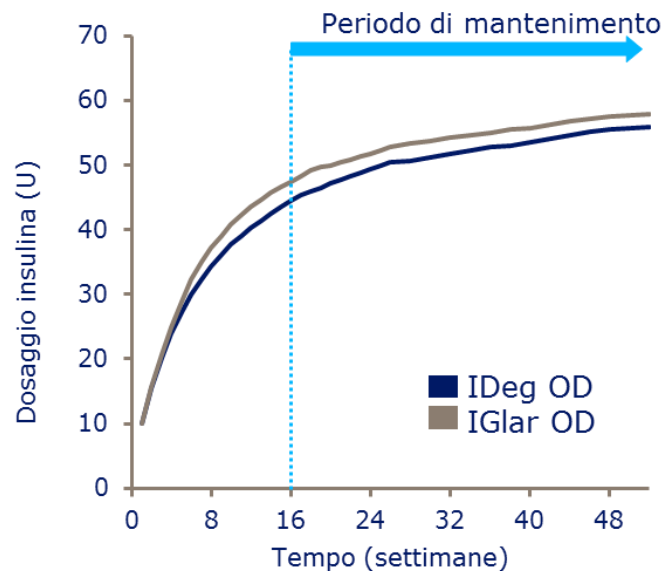
# Meta-analisi ipoglicemie negli studi BEGIN®



**Riduzione rischio di ipoglicemia con IDeg versus IGlAr**

\*Statistically significant,  $p < 0.05$

Ratner et al. *Diabetes Obes Metab* 2013;15:175-84



## RCP (par. 5.1)

In una meta-analisi pianificata in modo prospettico su sette studi confermativi treat-to-target, condotti in pazienti con diabete mellito di tipo 1 e di tipo 2, **Tresiba® è risultato superiore rispetto all'insulina glargine** (somministrata secondo indicazioni) in termini di **riduzione degli episodi di ipoglicemia confermati** emersi durante il trattamento (portando ad un beneficio nel diabete mellito di tipo 2, vedere Tabella 2) **e di episodi di ipoglicemia notturna confermata**. La riduzione di ipoglicemia è stata raggiunta ad un **più basso livello di FPG** con Tresiba® che con insulina glargine.

# Reduction in confirmed hypoglycaemia: total treatment and maintenance period

## Total treatment period

Overall	
Insulin-naïve T2D	<b>-17%*</b>
Pooled T2D	<b>-17%*</b>
Pooled T1D	<b>+10%</b>
T1D and T2D	<b>-9%*</b>

## Maintenance period

Overall	
Insulin-naïve T2D	<b>-28%*</b>
Pooled T2D	<b>-25%*</b>
Pooled T1D	<b>+2%</b>
T1D and T2D	<b>-16%*</b>

## Nocturnal

Insulin-naïve T2D	<b>-36%*</b>
Pooled T2D	<b>-32%*</b>
Pooled T1D	<b>-17%</b>
T1D and T2D	<b>-26%*</b>

## Nocturnal

Insulin-naïve T2D	<b>-49%*</b>
Pooled T2D	<b>-38%*</b>
Pooled T1D	<b>-25%*</b>
T1D and T2D	<b>-32%*</b>

\* $p < 0.05$

Ratner *et al. Diabetes Obes Metab* 2013;15:175–84

# Insulin Degludec Versus Insulin Glargine in Type 1 and Type 2 Diabetes Mellitus: A Meta-Analysis of Endpoints in Phase 3a Trials

**Table 2** Meta-analysis comparing insulin degludec once daily with insulin glargine once daily: HbA<sub>1c</sub> and FPG [9–12, 14, 15]

Category	Trials	Change in HbA <sub>1c</sub> (%-points): IDeg–IGlar			Change in FPG (mmol/L): IDeg–IGlar		
		<i>n</i> (total)	Estimate	95% CI	<i>n</i> (total)	Estimate	95% CI
T1DM <sub>B/B</sub>	3583	IDeg 637	0.06	−0.04; 0.15	IDeg 629	−0.61*	−1.13; −0.10
	3770	IGlar 321			IGlar 317		
T2DM <sub>insulin-naïve</sub>	3579	IDeg 1,290	0.08	−0.01; 0.16	IDeg 1,278	−0.34*	−0.54; −0.15
	3586	IGlar 632			IGlar 627		
	3672						
T2DM <sub>B/B</sub>	3582	IDeg 744	0.08	−0.05; 0.21	IDeg 740	−0.29	−0.65; 0.06
		IGlar 248			IGlar 248		

CI confidence interval, FPG fasting plasma glucose, HbA<sub>1c</sub> glycosylated hemoglobin, IDeg insulin degludec, IGlar insulin glargine, *n* number of patients, T1DM<sub>B/B</sub> basal–bolus-treated type 1 diabetes mellitus, T2DM<sub>B/B</sub> basal–bolus-treated type 2 diabetes mellitus, T2DM<sub>insulin-naïve</sub> insulin-naïve type 2 diabetes mellitus

\* Significant based on 95% CI

# Insulin Degludec Versus Insulin Glargine in Type 1 and Type 2 Diabetes Mellitus: A Meta-Analysis of Endpoints in Phase 3a Trials

**Table 3** Total daily insulin dose [basal + bolus (if relevant)] in U/kg (adjusted for covariates<sup>a</sup>)

Category	IDeg	IGlar	Estimated treatment ratio (95% CI) <sup>a</sup>
T1DM <sub>B/B</sub>	<i>n</i> = 634	<i>n</i> = 314	
End of trial	0.68 U/kg	0.77 U/kg	0.88*** (0.85; 0.92)
T2DM <sub>insulin-naïve</sub>	<i>n</i> = 1,267	<i>n</i> = 625	
End of trial	0.39 U/kg	0.43 U/kg	0.90** (0.85; 0.96)
T2DM <sub>B/B</sub>	<i>n</i> = 749	<i>n</i> = 249	
End of trial	1.22 U/kg	1.18 U/kg	1.03 (0.97; 1.10)

Data are observed mean and week 52 values are presented with the LOCF approach  
*ANOVA* analysis of variance, *CI* confidence interval, *LOCF* last observation carried forward, *IDeg* insulin degludec, *IGlar* insulin glargine, *n* number of patients, *T1DM<sub>B/B</sub>* basal–bolus-treated type 1 diabetes mellitus, *T2DM<sub>B/B</sub>* basal–bolus-treated type 2 diabetes mellitus, *T2DM<sub>insulin-naïve</sub>* insulin-naïve type 2 diabetes mellitus

\*\* *P* = 0.0004; \*\*\* *P* < 0.0001

<sup>a</sup> Estimated using ANOVA with treatment, sex, antidiabetic therapy at screening, age, and baseline dose as covariates



# Riassunto benefici dimostrati nella fase 3A

- Profilo farmacocinetico e farmacodinamico piatto e più stabile
- Maggiore durata di azione
- Minore variabilità inter giornaliera e intra giornaliera (4 volte inf)
- Nel tipo 2 riduzione significativa delle ipoglicemie totali e notturne, a parità di controllo glicemico raggiunto, riduzione ancora più evidente nella fase di mantenimento
- Nel tipo 1 riduzione significativa solo delle ipoglicemie notturne
- Nel tipo 1 e nel tipo 2 insulin-naïve riduzione significativa della glicemia a digiuno e dei dosaggi insulinici

# Real Life

**195 pazienti**

99 soggetti con Diabete Tipo 1

73 soggetti con Diabete Tipo 2 in BB

23 soggetti con Diabete Tipo 2 in BOT

**Follow up medio 3,1 mesi**



Humanitas Clinical & Research Center  
Dott. C. Berra  
Dott. F. Reggiani

# Obiettivo dello studio

Confermare, nella pratica clinica reale, le evidenze presenti in letteratura, valutando l'impatto del trattamento con insulina degludec sul compenso metabolico e in particolare sulle glicemie medie del digiuno, del pre-cena e della fase post-prandiale, sulla variabilità glicemica e sull'incidenza di ipoglicemie totali, notturne e severe nei soggetti con diabete di tipo 1 e 2.

# Casistica e metodi

Sono stati raccolti in 195 pazienti dati clinici relativi a:

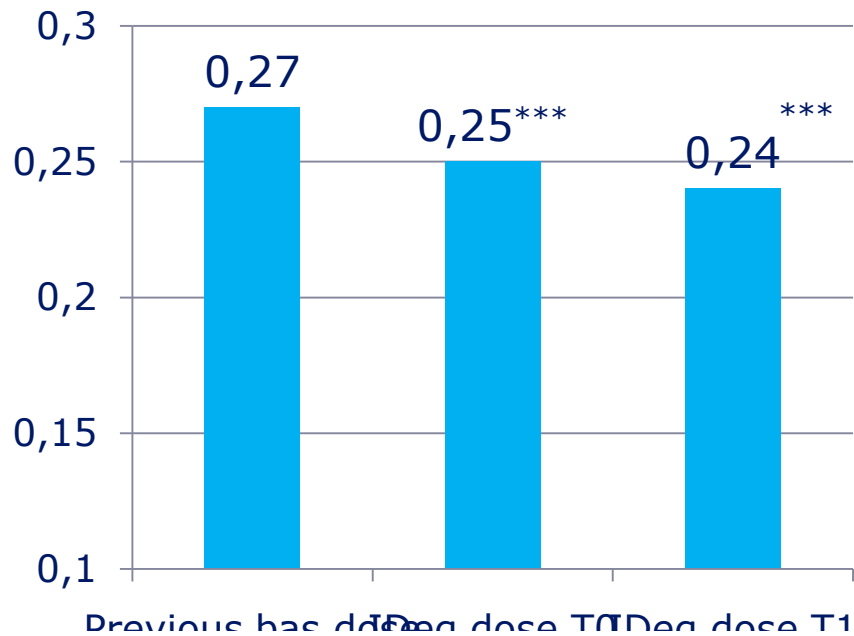
- età e sesso
- durata di malattia
- durata della terapia insulinica
- presenza di IRC e pregressi MACE
- dosaggi degli analoghi basali e rapidi
- numero di somministrazioni di insulina
- compenso metabolico (HbA1c e glicemie medie a digiuno, pre-cena e postprandiali ottenute dal download dei glucometri)
- deviazione standard totale e del digiuno
- indici di Kovatchev (HBGI e LBGI)
- numero di ipoglicemie totali, notturne e severe nei 30 giorni antecedenti l'avvio di degludec e nei 30 giorni precedenti la visita di follow-up.

# Caratteristiche al baseline

	<b>T1</b>	<b>T2 BB</b>	<b>T2 BOT</b>
<b>N</b>	<b>99</b>	<b>73</b>	<b>23</b>
Sex M/F % (n)	51.5/48.5% (51/48)	50.7/49.3% (37/36)	60.8/39.2% (14/9)
Age (years)	53.0±16.8	67.5±11.2	68.6±16.8
DD (years)	20.8±15.4	19.1±9.1	14.7±8.4
Insulin duration (years)	19.6±15.9	8.2±6.6	5.7±4.6
HbA1c %	8.2±1.3	8.8±1.6	8.9±1.7
FPG (mg/dl)	204.1±55.3	202.2±56.6	187.5±80.7
PDPG (mg/dl)	200.6±51.2	223.7±69.2	191.2±52.0
PPG(mg/dl)	188.4±50.8	219.6±65.8	207.4±73.4
Weight (Kg)	71.6±13.7	80.9±20.1	85.3±19.9
BMI (Kg/m <sup>2</sup> )	25.5±4.2	30.2±7.1	30.4±6.6
IRC (Yes/Not)%	11/89	28/72	39/61
MACE(Yes/Not)%	13/87	33/67	52/48

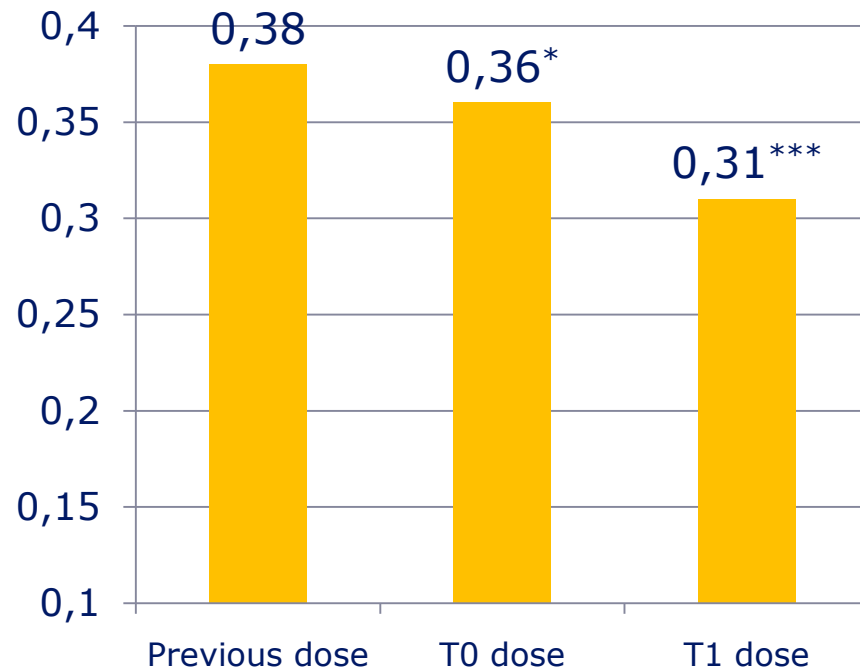
# Dosaggi nel Tipo 1

## Dose insulina basale U/Kg



\*\*\*p<0.001 vs dose basale precedente

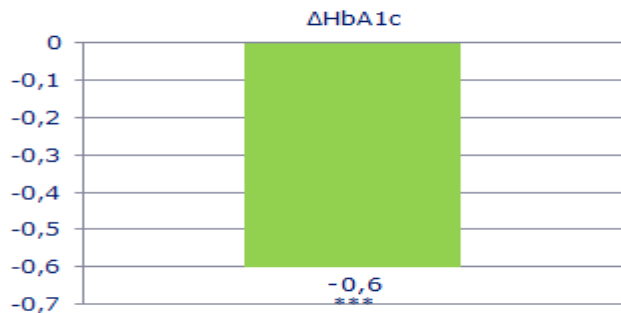
## Dose analogo rapido U/Kg



\*p<0.05 vs dose precedente

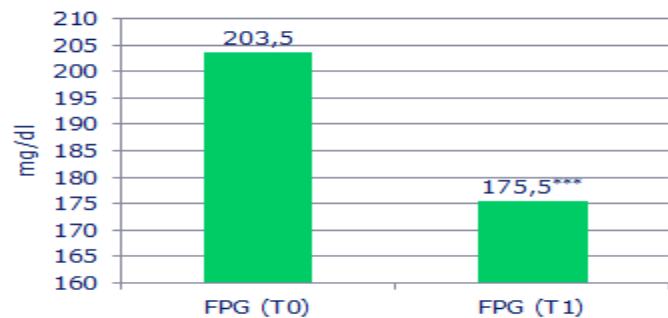
\*\*\*p<0.001 vs T0

### Delta HbA1c Type 1



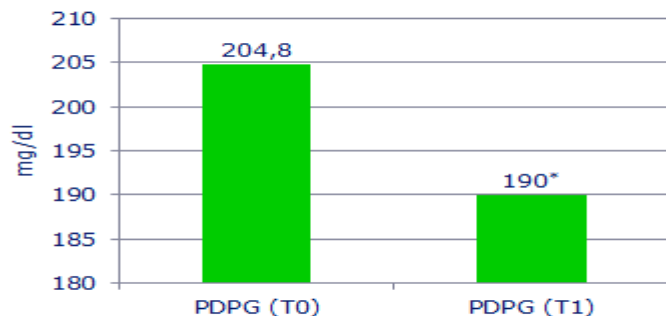
\*\*\* $p < 0,001$  vs T0  
T0-T1: 3,2 months

### FPG Type 1



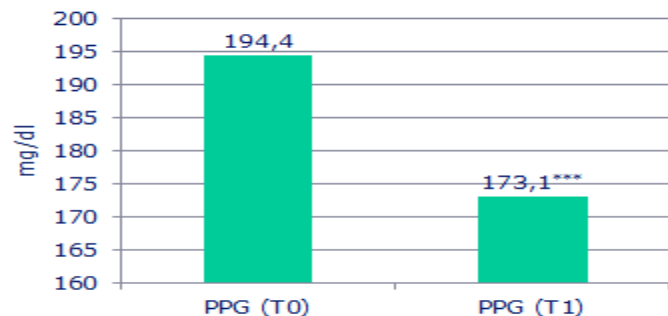
$\Delta$ FPG = -28,1 mg/dl (\*\*\*)  
T0-T1: 3,2 months

### PDPG Type 1



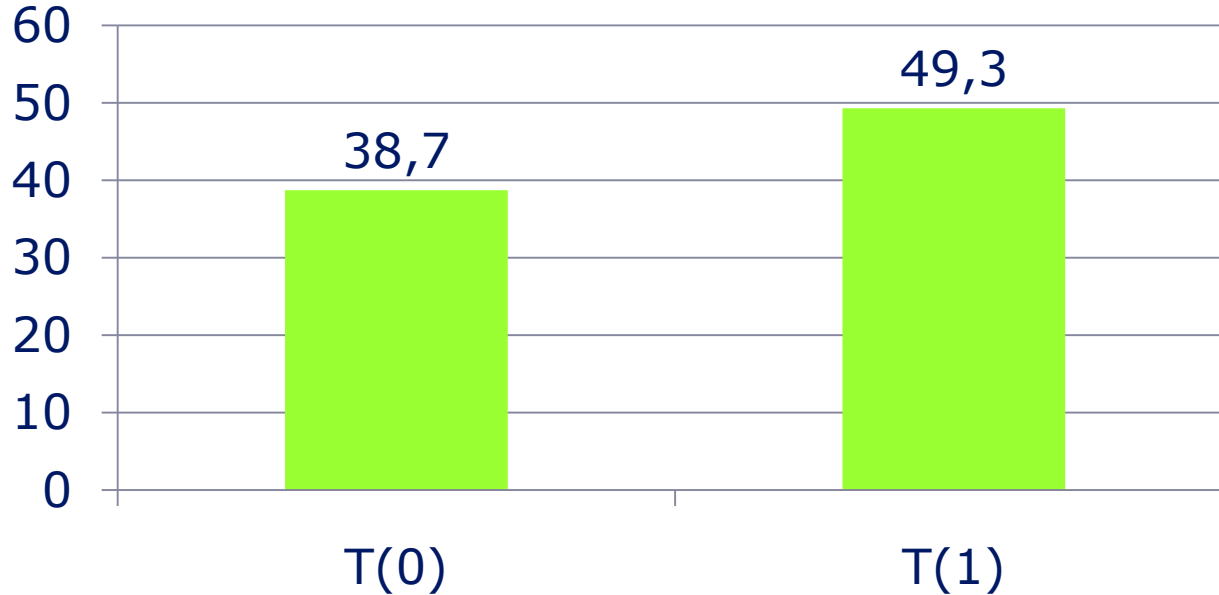
$\Delta$ PDPG = -14,8 mg/dl (\* $p = 0,02$  vs T0)  
T0-T1: 3,2 months

### PPG Type 1



$\Delta$ PPG = -21,3 mg/dl (\*\*\*)  
T0-T1: 3,2 months

# Percentuale di glicemie a target 70-160



N=19

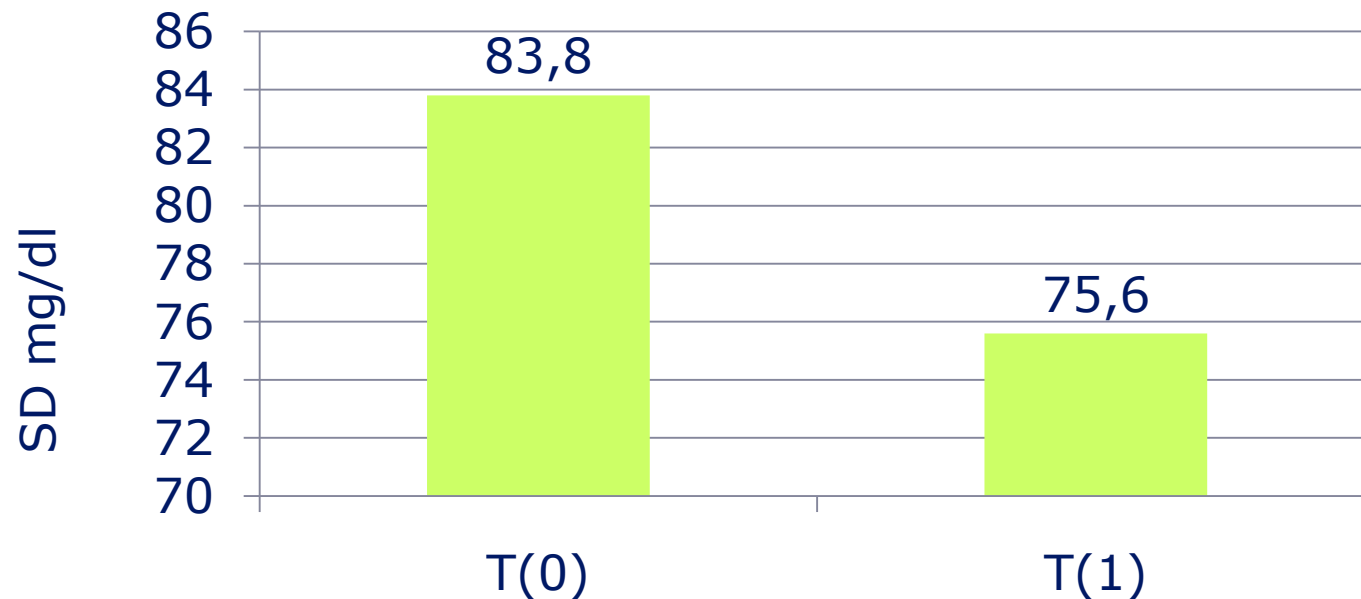
Daily glycemic values to target (T0): 38,7±11,7%

Daily glycemic values to target (T1): 49,3±13,7%

**Δ: +10,6% p<0.001**



# Deviazione standard totale nel tipo 1



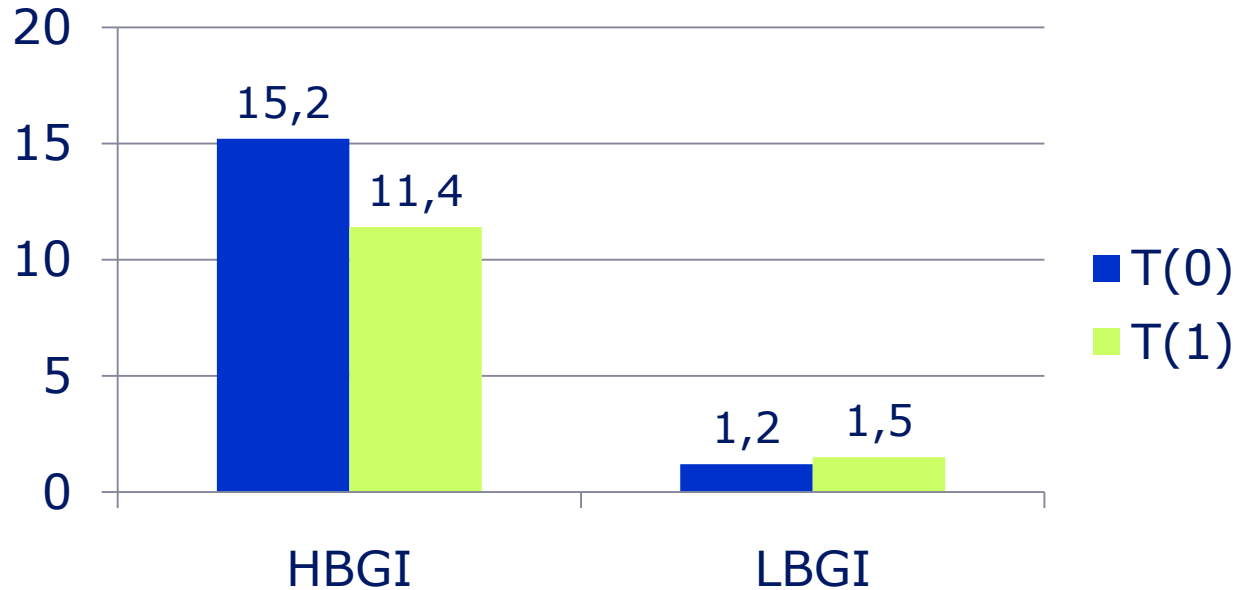
N=48

Total glycemic SD(T0): 83,8±21,1mg/dl

Total glycemic SD(T1): 75,6±23,4mg/dl

**$\Delta$ SDTot=-8,2±16,2mg/dl (p<0,001)**

# HBGI e LBGI nel Tipo 1

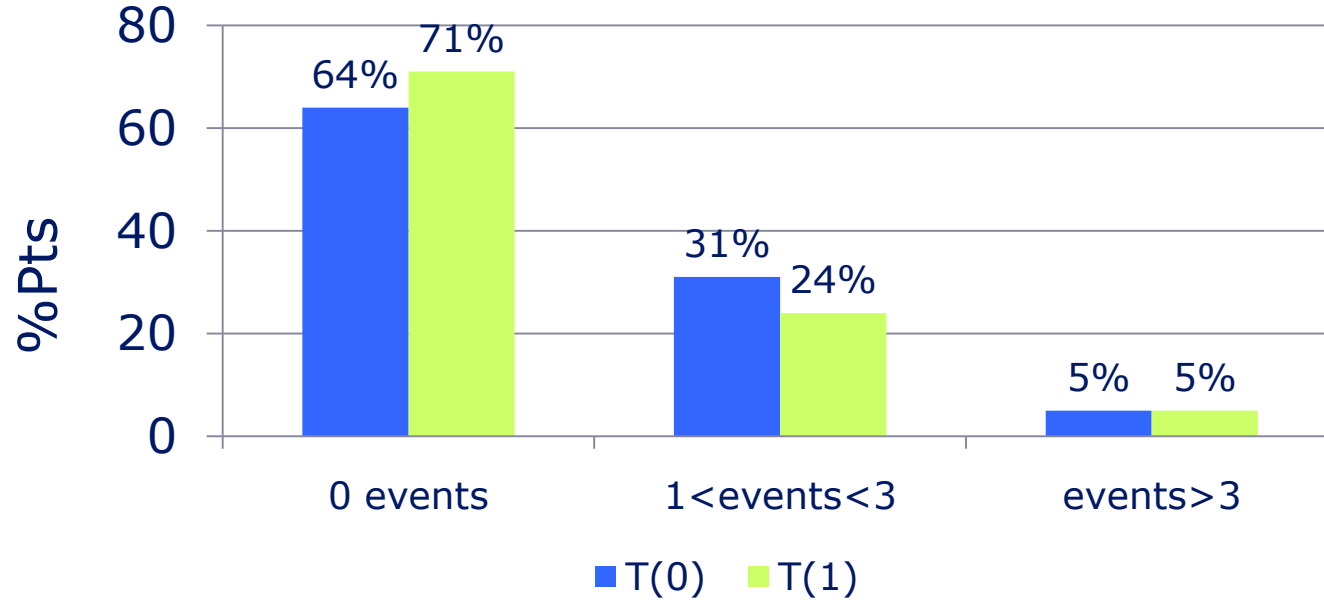


N=45

HBGI: high blood glucose index  $\Delta\text{HBGI} = -3,8 \pm 5,3$  ( $p < 0,001$ )

LBGI: low blood glucose index  $\Delta\text{LBGI} = 0,3 \pm 0,8$  ( $p = 0,01$ )

# Ipoglicemie notturne nel Tipo 1

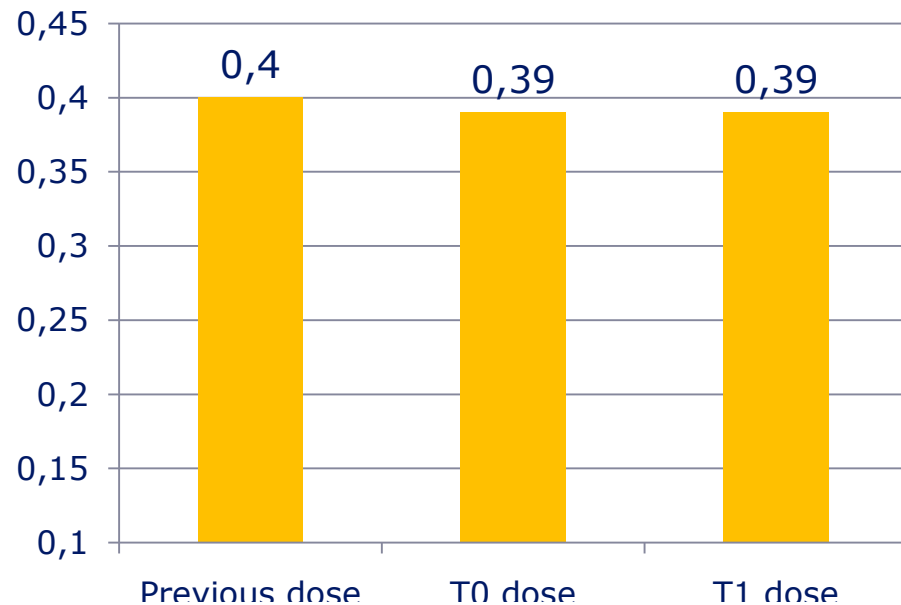


N=62

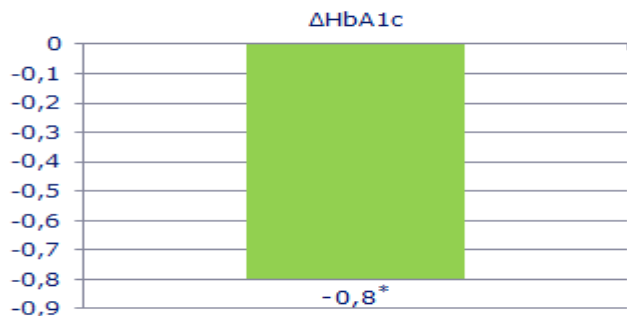
T(0): eventi ipoglicemici notturni nei 30 giorni prima dell'avvio di Ideg

T(1): eventi ipoglicemici notturni nei 30 giorni prima del primo follow up

## Dose insulina basale e rapida U/Kg nel diabete tipo 2 in BB

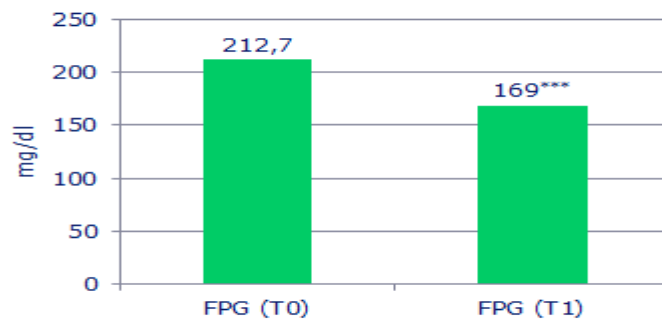


### Delta HbA1c Type 2 BB



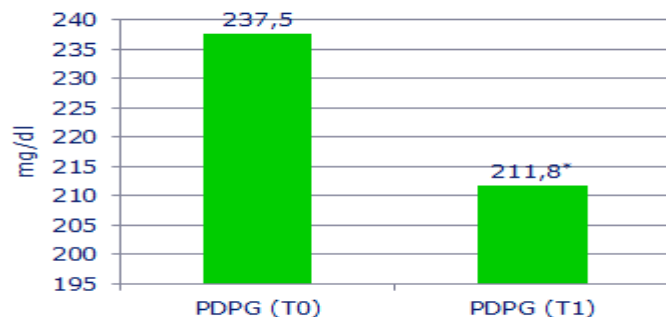
**\*p=0.01 vs T0**  
T0-T1: 3,0 months

### FPG Type 2 BB



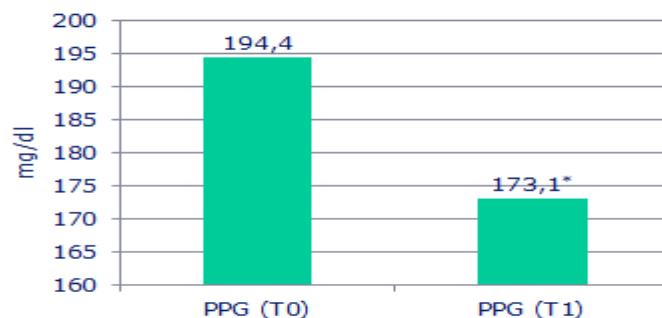
**ΔFPG=-43,7mg/dl (\*\*\*p<0,001 vs T0)**  
T0-T1: 3,0 months

### PDPG Type 2 BB



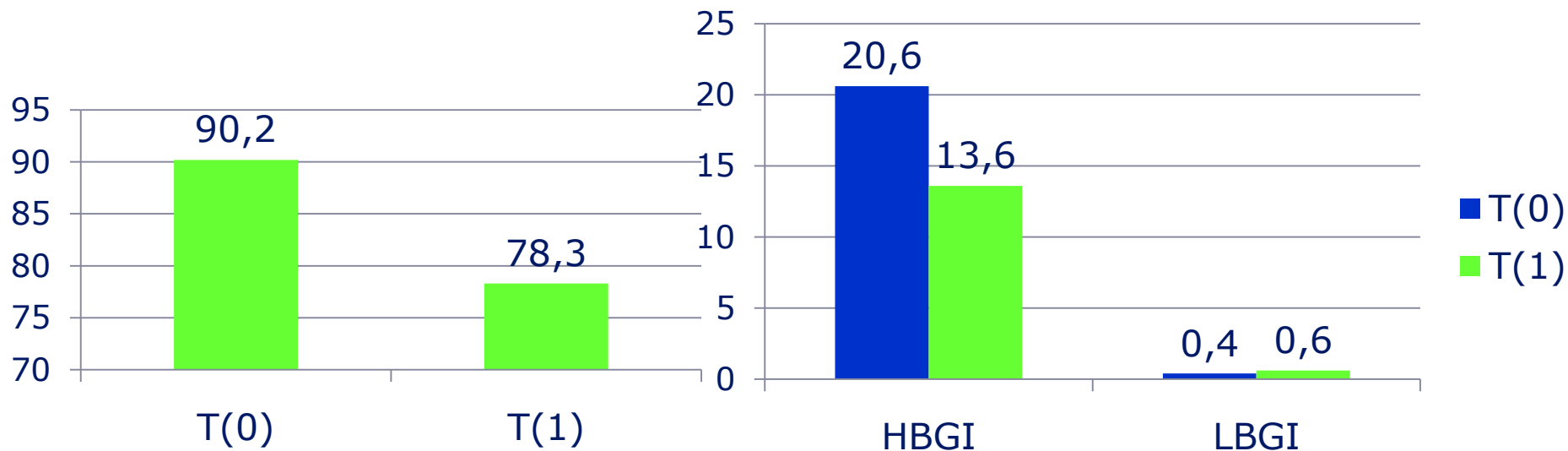
**ΔPDPG=-25,6 mg/dl (\*p=0,01 vs T0)**  
T0-T1: 3,0 months

### PPG Type 2 BB



**ΔPPG=-28,7 mg/dl (\*p=0,01 vs T0)**  
T0-T1: 3,0 months

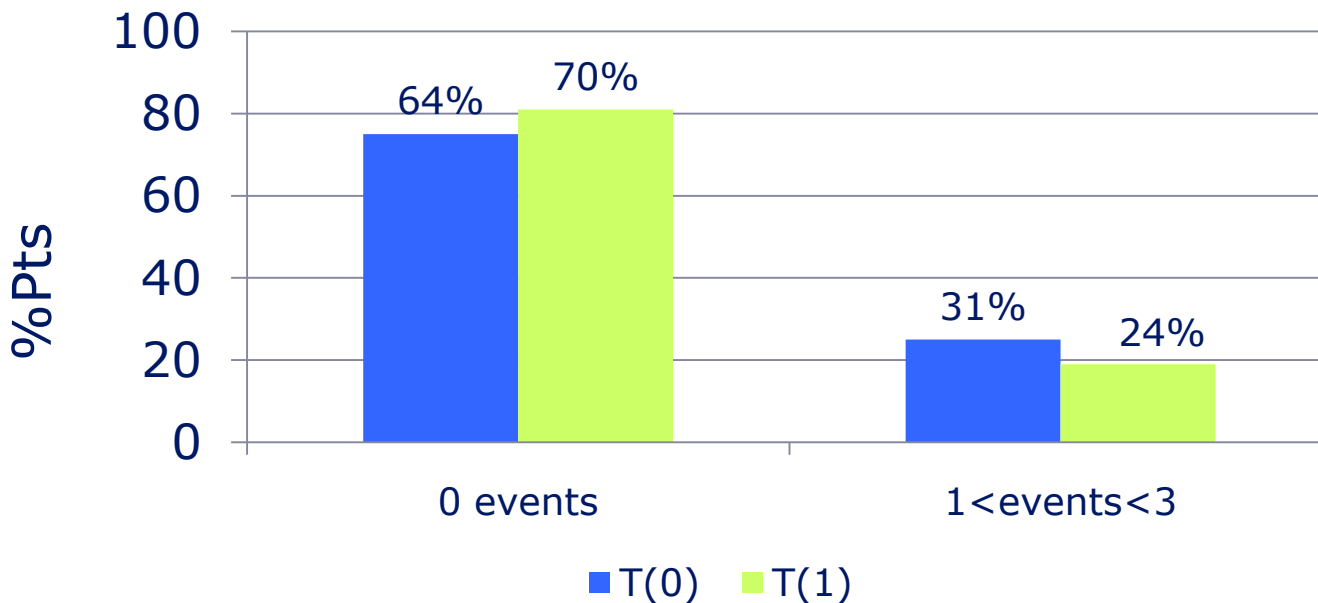
## Deviazione standard totale e Indici di Kovatchev nel tipo 2 BB



$\Delta\text{SDTot} = -11,9 \text{ mg/dl}$  ( $p = 0,01$ )

$\Delta\text{HBGI} = -6,6$  ( $p = 0,01$ )  
 $\Delta\text{LBGI} = 0,2$  ( $p = 0,21\text{ns}$ )

# Ipoglicemie notturne nel Tipo 2 in Basal-Bolus

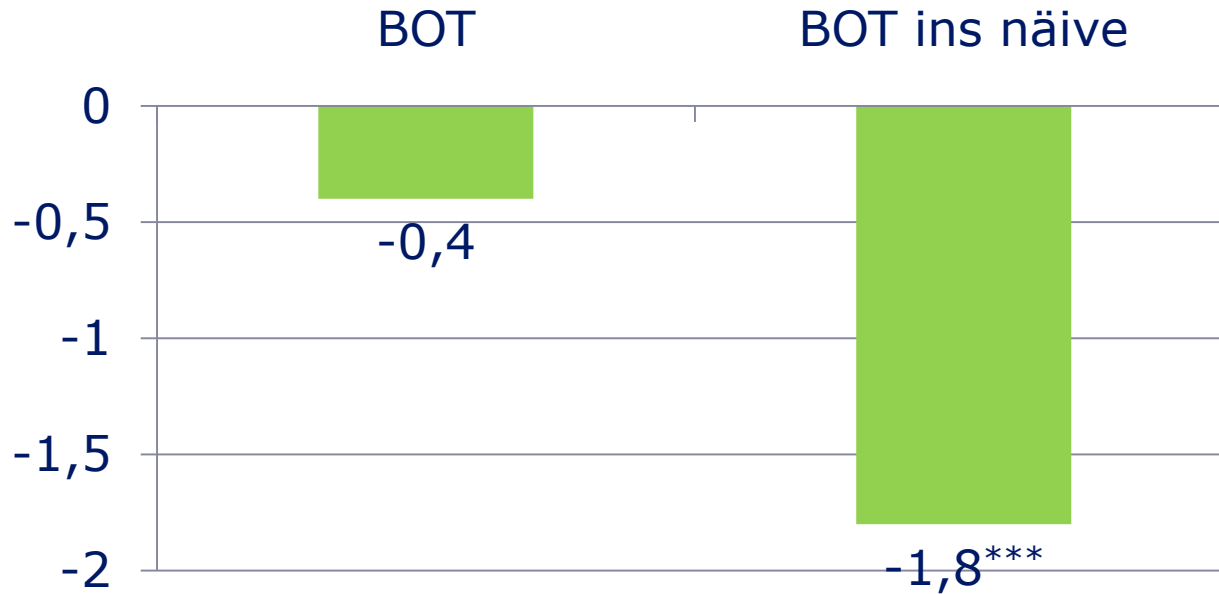


N=28

T(0): eventi ipoglicemici notturni nei 30 giorni prima dell'avvio di Ideg

T(1): eventi ipoglicemici notturni nei 30 giorni prima del primo follow up

# Delta HbA1c Tipo 2 BOT



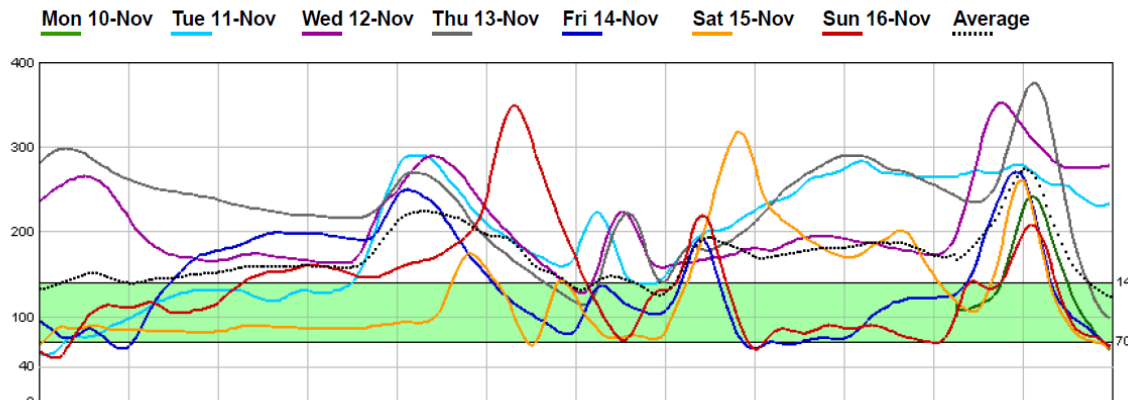
**\*\*\*p<0.001 vs T0**

T0-T1: 3,4 months



# Monitoraggio glicemico in continuo retrospettivo

Sensor Data (mg/dL)



Andrea, 38 anni, tipo 1

HbA1c **8.3%** nov 2014

Tp. Glargine 11U

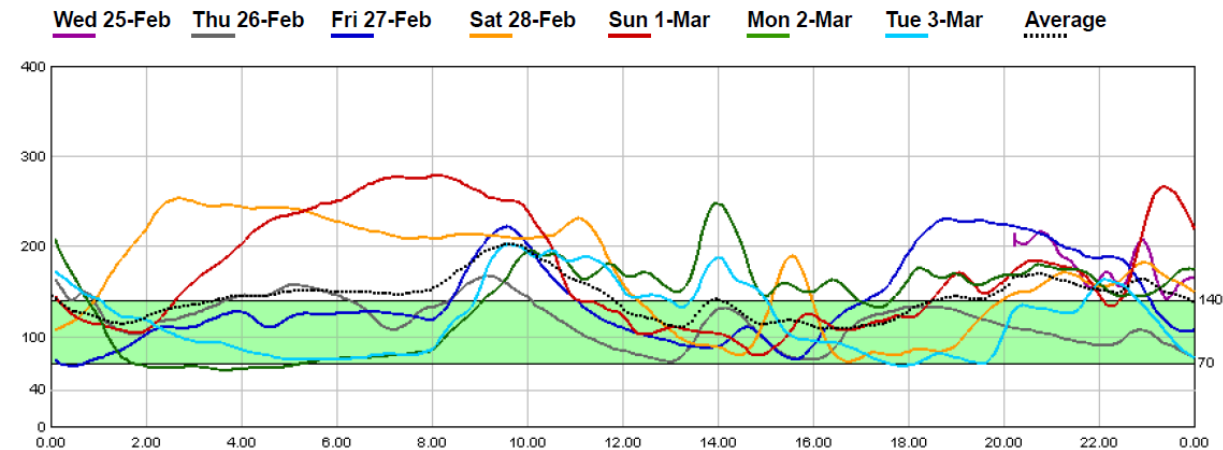
Aspart 5+16+14 U

Glic.dig.media 161 DS 62 DS Tot. 77

Glic pre-cena 189

Glic.postprandiali 150

Sensor Data (mg/dL)



HbA1c **6.8%** apr 2014

Tp. Degludec 11U

Aspart 5+13+12

Glic.dig.media 128 DS 37

DS Tot. 53

Glic pre-cena 161

Glic.postprandiali 125

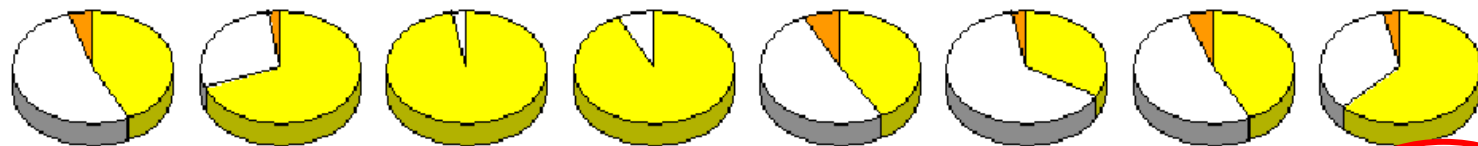
## Excursion Summary (mg/dL/day)

	Mon 10-Nov	Tue 11-Nov	Wed 12-Nov	Thu 13-Nov	Fri 14-Nov	Sat 15-Nov	Sun 16-Nov	Average / Total
# Excursions	2	2	1	2	6	6	5	24
# High Excursions	1	2	1	2	3	4	3	16
# Low Excursions	1	0	0	0	3	2	2	8
AUC Above Limit	24,8	63,5	68,8	91,7	23,5	20,5	20,9	47,6
AUC Below Limit	0,3	0,3	0,0	0,0	0,3	0,1	0,6	0,2

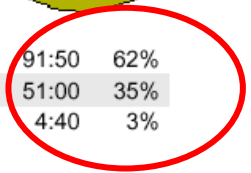
## Excursion Summary (mg/dL/day)

	Wed 25-Feb	Thu 26-Feb	Fri 27-Feb	Sat 28-Feb	Sun 1-Mar	Mon 2-Mar	Tue 3-Mar	Average / Total
# Excursions	1	2	3	3	2	3	4	18
# High Excursions	1	2	2	3	2	2	3	15
# Low Excursions	0	0	1	0	0	1	1	3
AUC Above Limit	39,0	2,5	19,9	42,0	42,6	18,5	9,0	22,8
AUC Below Limit	0,0	0,0	0,0	0,0	0,0	0,6	0,0	0,1

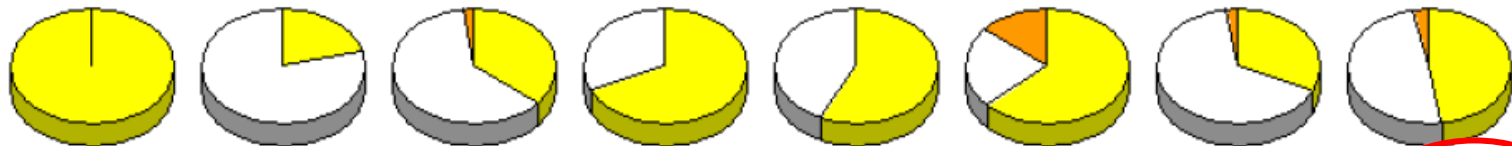
## Duration Distribution (hh:mm)



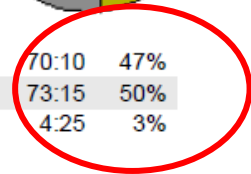
<b>Above 140</b>	1:30	43%	16:30	69%	23:20	97%	22:15	93%	9:55	41%	8:05	34%	10:15	43%	91:50	62%
<b>Within (70 - 140)</b>	1:50	52%	6:55	29%	0:40	3%	1:45	7%	12:15	51%	15:15	63%	12:20	51%	51:00	35%
<b>Below 70</b>	0:10	5%	0:35	2%	0:00	0%	0:00	0%	1:50	8%	0:40	3%	1:25	6%	4:40	3%



## Duration Distribution (hh:mm)



<b>Above 140</b>	3:50	100%	5:00	21%	8:35	36%	16:15	68%	13:40	57%	15:05	63%	7:45	32%	70:10	47%
<b>Within (70 - 140)</b>	0:00	0%	19:00	79%	14:55	62%	7:45	32%	10:20	43%	5:30	23%	15:45	66%	73:15	50%
<b>Below 70</b>	0:00	0%	0:00	0%	0:30	2%	0:00	0%	0:00	0%	3:25	14%	0:30	2%	4:25	3%



# Conclusioni

Nella realtà clinica l'insulina degludec conferma le evidenze che emergono dai trial clinici randomizzati. Sia nel diabete di tipo 1 sia nel tipo 2 il passaggio a insulina degludec comporta:

- ✓ un miglioramento del compenso glicemico, con riduzioni significative dell'HbA1c
- ✓ riduzioni significative delle glicemie capillari in tutte le fasce orarie, sia a digiuno e nel pre-cena sia in fase post-prandiale
- ✓ una riduzione significativa della variabilità glicemica (deviazione standard e HBGI)
- ✓ una tendenza alla riduzione delle ipoglicemie notturne

a testimonianza di una più efficace e stabile basalizzazione.

# Conclusioni (2)

- ✓ I miglioramenti del compenso metabolico nel diabete di tipo 1 si associano ad una riduzione sia dei dosaggi di degludec rispetto all'analogo basale precedente (-11%) sia soprattutto ad una riduzione del fabbisogno di analogo rapido (-18%), con necessità di retitolazione del suo dosaggio, in particolare a colazione e pranzo, per evitare ipoglicemie postprandiali.
- ✓ Questi opportuni accorgimenti nella fase di passaggio da altri analoghi basali, legati alla diversa e più efficace «basalizzazione», sono necessari per ottenere le massime potenzialità di degludec, permettendo così di raggiungere obiettivi glicemici più ambiziosi in sicurezza.

**Grazie per l'attenzione!!**