



**VI CONVEGNO NAZIONALE**  
CENTRO STUDI E RICERCHE - FONDAZIONE AMD  
NAPOLI, 18-20 OTTOBRE 2012



CENTRO CONGRESSI  
STAZIONE MARITTIMA



# Il binomio CHO counting e autocontrollo glicemico domiciliare: è applicato?

Daniela Bruttomesso



## ORIGINAL ARTICLE

**Many patients with Type 1 diabetes estimate their prandial insulin need inappropriately**

Aila J. AHOLA,<sup>1,2,3</sup> Sari MÄKIMATTILA,<sup>1</sup> Markku SARAHEIMO,<sup>1,2</sup> Vera MIKKILÄ,<sup>3</sup> Carol FORSBLOM,<sup>1,2</sup> Riitta FREESE<sup>3</sup> and Per-Henrik GROOP<sup>1,2,4</sup> on behalf of the FinnDIANE Study Group

<sup>1</sup>Folkhälsan Institute of Genetics, Folkhälsan Research Center, Biomedicum Helsinki, <sup>2</sup>Division of Nephrology, Department of Medicine, Helsinki University Central Hospital, <sup>3</sup>Division of Nutrition, Department of Applied Chemistry and Microbiology, University of Helsinki, Helsinki, Finland; <sup>4</sup>The Baker IDI Heart and Diabetes Institute, Melbourne, Victoria, Australia

- Hypoglycemia (<4.0 mmol/ L), normoglycemia (4.0–7.9 mmol/ L), and hyperglycemia (>8.0 mmol/L) were observed after 23%, 36%, and 41% of meals, respectively. The three postprandial glycemia groups did not differ with respect to the meal composition or the timing of the postprandial blood glucose measurement.

**64%**

# Calcolo della dose di insulina preprandiale

## Calcolo della dose di insulina preprandiale

$$\frac{\text{Gr di CHO}}{\text{I:CHO}} + \frac{\text{Glicemia attuale- glicemia target}}{\text{Fattore di correzione}}$$

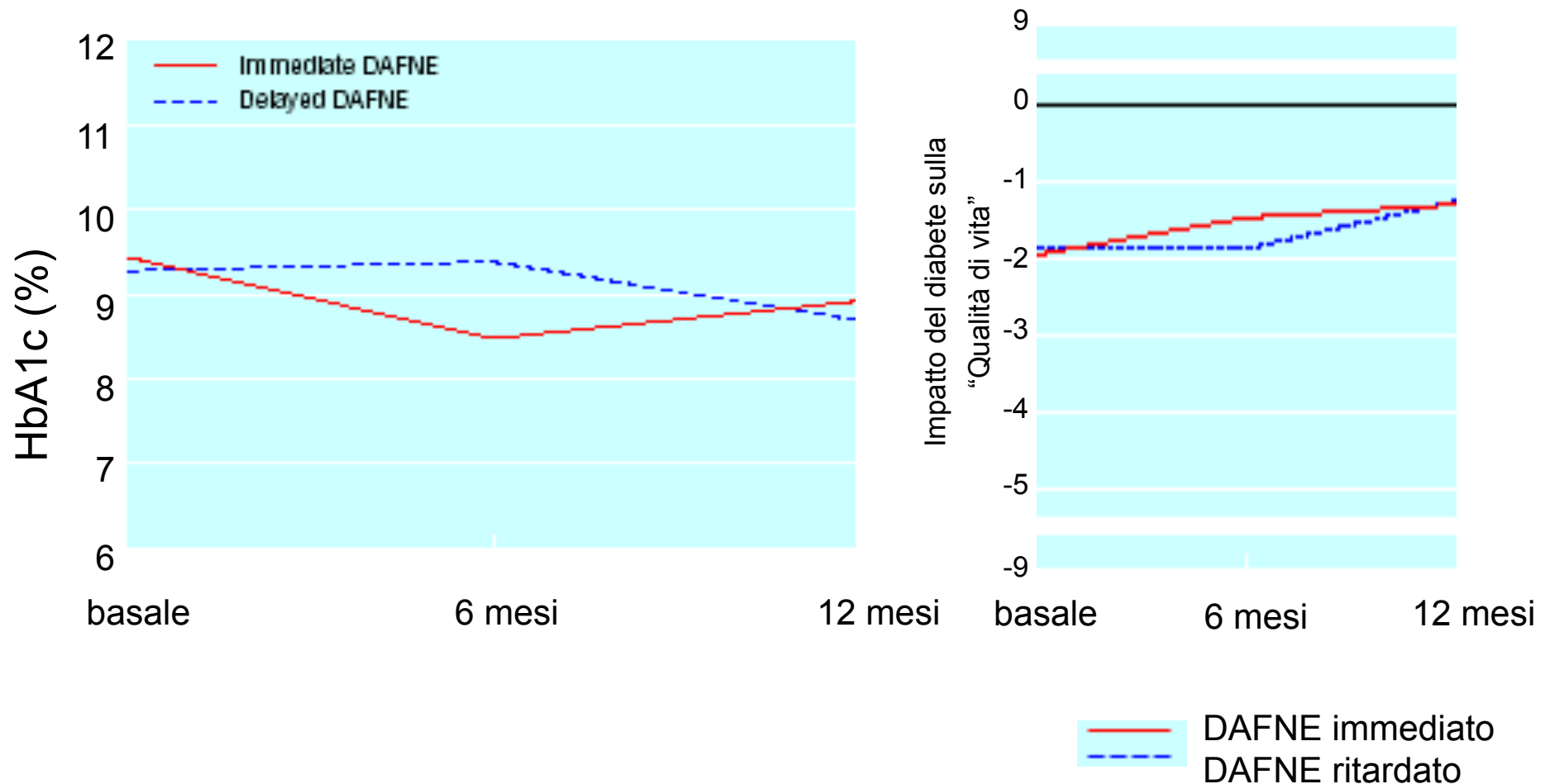
– Insulina residua



## The role of diet behaviors in achieving improved glycemic control in intensively treated patients in the Diabetes Control and Complications trial

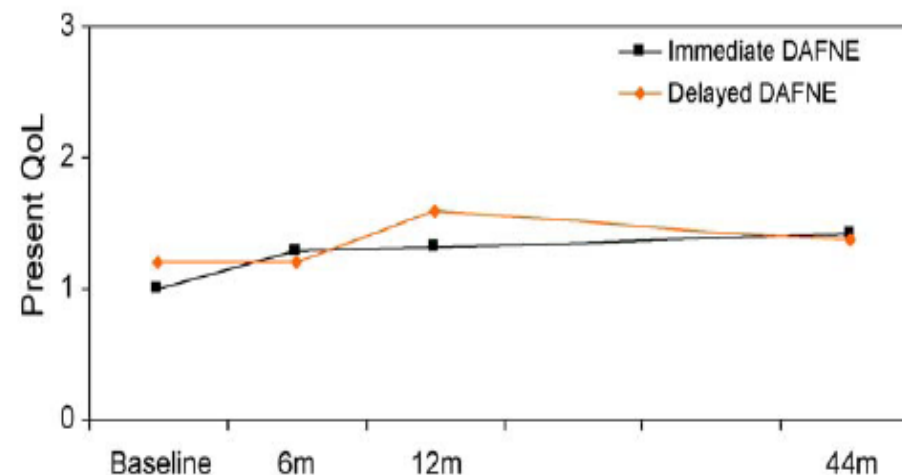
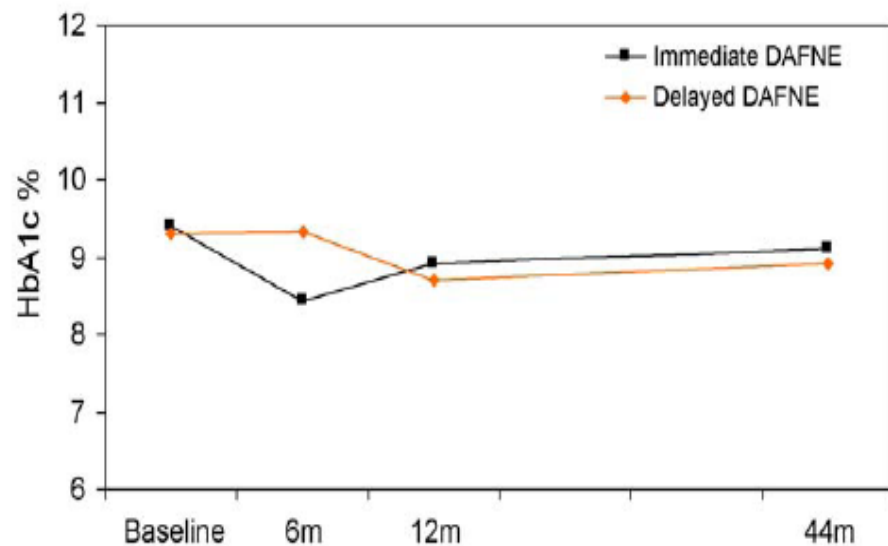
	n	Mean $\pm$ SD HbA <sub>1c</sub>	First quartile	Median	Third quartile
Never	33	7.53 $\pm$ 1.57	6.41	6.91	8.36
< 50% of the time	117	7.11 $\pm$ 1.11	6.47	6.87	7.46
~ 50% of the time	90	7.40 $\pm$ 0.94	6.76	7.37	7.81
>50% of the time	112	7.25 $\pm$ 0.87	6.63	7.12	7.72
Almost always	261	6.97 $\pm$ 0.83	6.38	6.85	7.47
Did not respond	8	7.79 $\pm$ 1.84	6.61	7.08	9.07

# Training in flexible, intensive insulin management to enable dietary freedom in people with type 1 diabetes: dose adjustment for normal eating (DAFNE) randomised controlled trial



DAFNE Study Group. BMJ 2002; 325:746

# Long-term biomedical and psychosocial outcomes following DAFNE (Dose Adjustment For Normal Eating) structured education to promote intensive insulin therapy in adults with sub-optimally controlled Type 1 diabetes<sup>☆</sup>





# L'autocontrollo nel DMT1

▶ L'autocontrollo quotidiano (almeno 3-4 controlli/die) è indispensabile per la persona con diabete tipo 1 in terapia insulinica intensiva. (**Livello della prova II, Forza della raccomandazione A**)

▶ I pazienti trattati con analoghi ad azione rapida dell'insulina o con microinfusori devono modificare i boli di insulina preprandiali sulla base dei carboidrati contenuti nei pasti. (**Livello della prova I, Forza della raccomandazione A**)



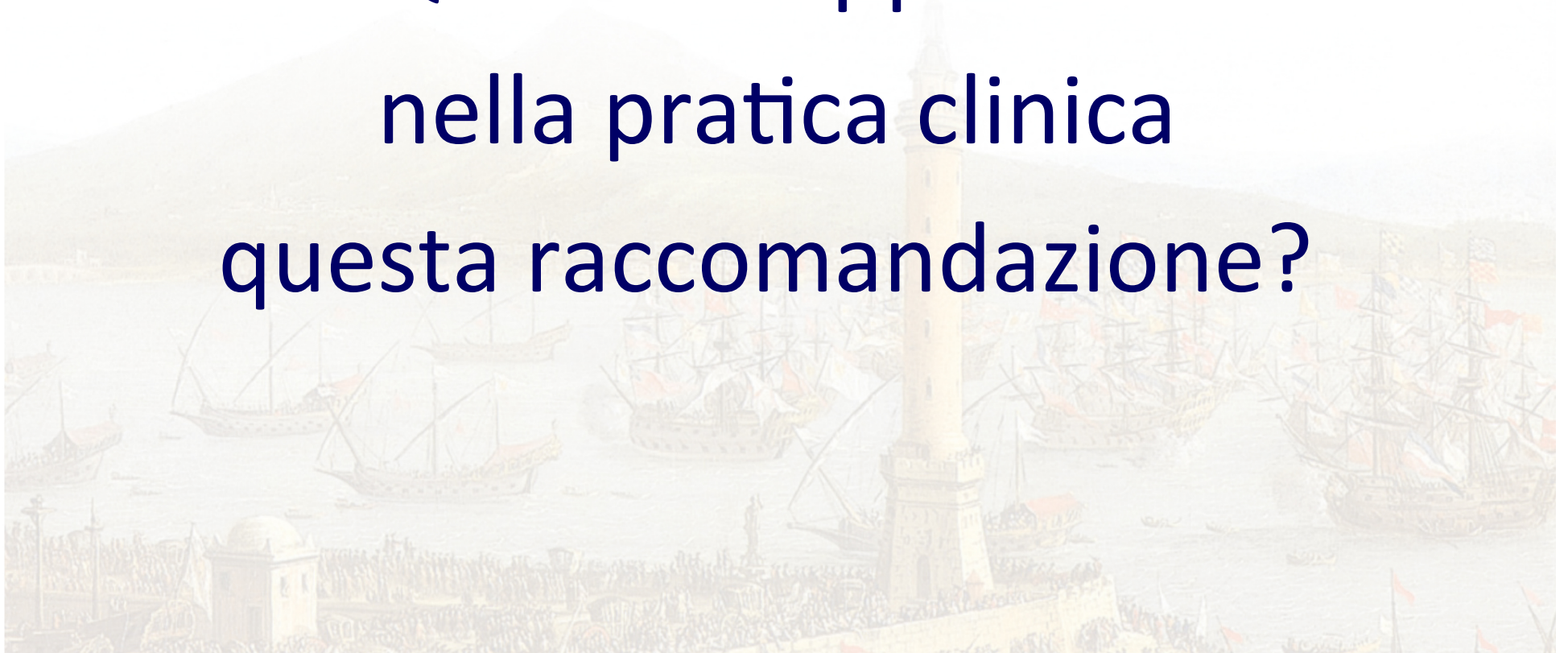
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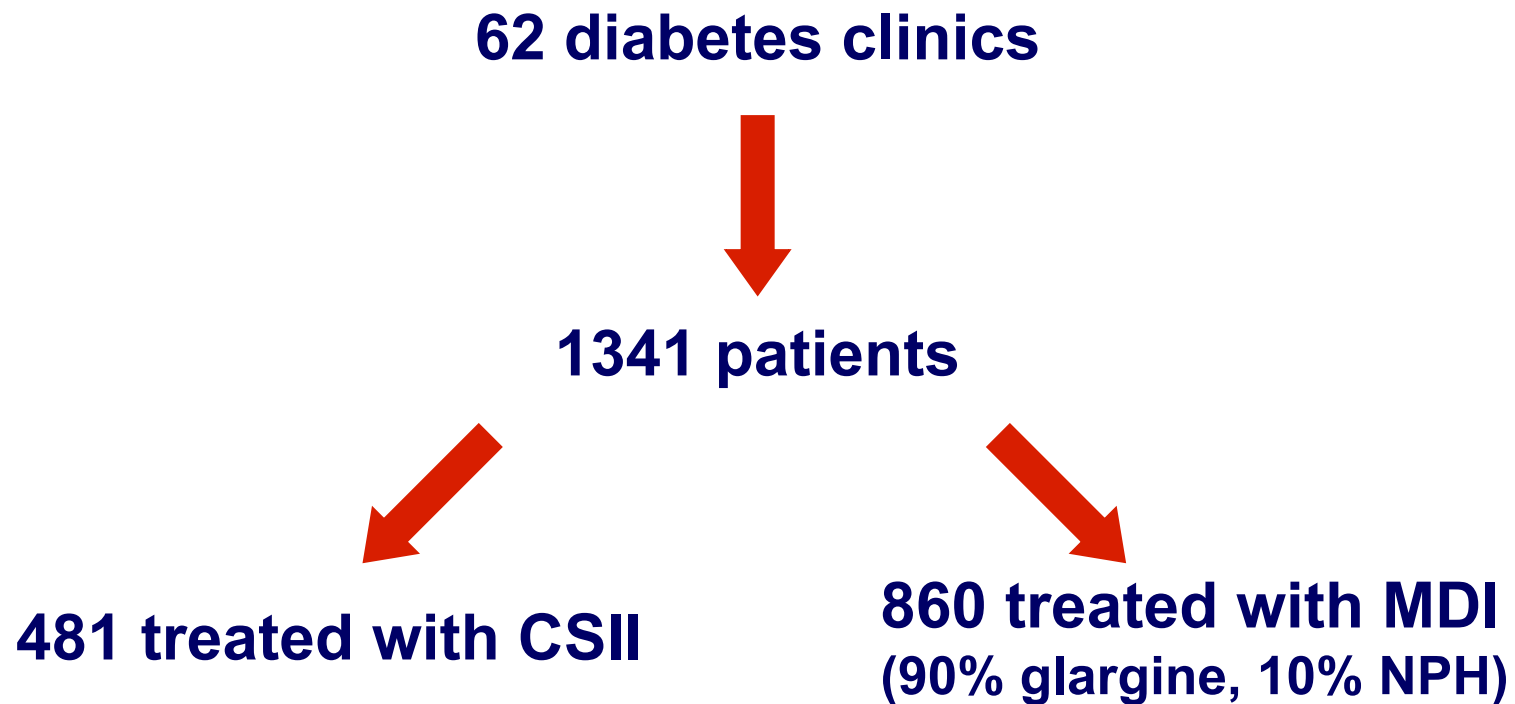


Quanto è applicata  
nella pratica clinica  
questa raccomandazione?





**Quality of life and treatment satisfaction in adults with Type 1 diabetes: a comparison between continuous subcutaneous insulin infusion and multiple daily injections**



# Quality of life and treatment satisfaction in adults with Type 1 diabetes: a comparison between continuous subcutaneous insulin infusion and multiple daily injections

	CSII (N=481)	MDI (N=860)	p*		CSII (N=481)	MDI (N=860)	p*
<b>Gender</b>			<b>&lt;0.0001</b>	<b>BMI (kg/m<sup>2</sup>)</b>	24.4±3.5	24.1±5.3	0.031
Males	206 (42.8)	467 (54.3)		<b>Diabetes duration (yrs)</b>	18.4±10.2	14.9±9.8	<b>&lt;0.0001</b>
Females	275 (57.2)	393(45.7)		<b>HbA1<sub>c</sub> (%)</b>	7.6±1.3	7.7±1.3	0.35
<b>Age (yrs)</b>	35.1±10.9	34.9±12.4	0.4	<b>Eye Comp.</b>	153(31.9)	188(21.8)	<b>&lt;0.0001</b>
<b>School education</b>			0.07	<b>Renal Comp.</b>	54(11.3)	52(6.0)	<b>0.0007</b>
≤5 yrs	6(1.3)	22(2.6)		<b>Cardiovascular Comp.</b>	16(3.3)	29(3.4)	0.9
6-8 yrs	113(23.5)	231(26.7)					
9-13 yrs	263(54.7)	470(54.4)					
>13 yrs	99(20.6)	141(16.3)	0.5				
<b>Occupation</b>							
Em							
Ret							
Un							
<b>Mar</b>							
Sin							
Ma							
Div							

	CSII	MDI	p*
<b>Carbohydrate counting</b>	<b>56.3%</b>	<b>40.3%</b>	<b>p&lt;0.0001</b>



# Evaluation of the personality characteristics of type 1 patients in CSII therapy

	<b>CHO Counting</b> n (%)
<b>CSII</b> (185 pazienti)	<b>128 (69%)</b>
<b>MDI</b> (176 pazienti)	<b>61 (35%)</b>

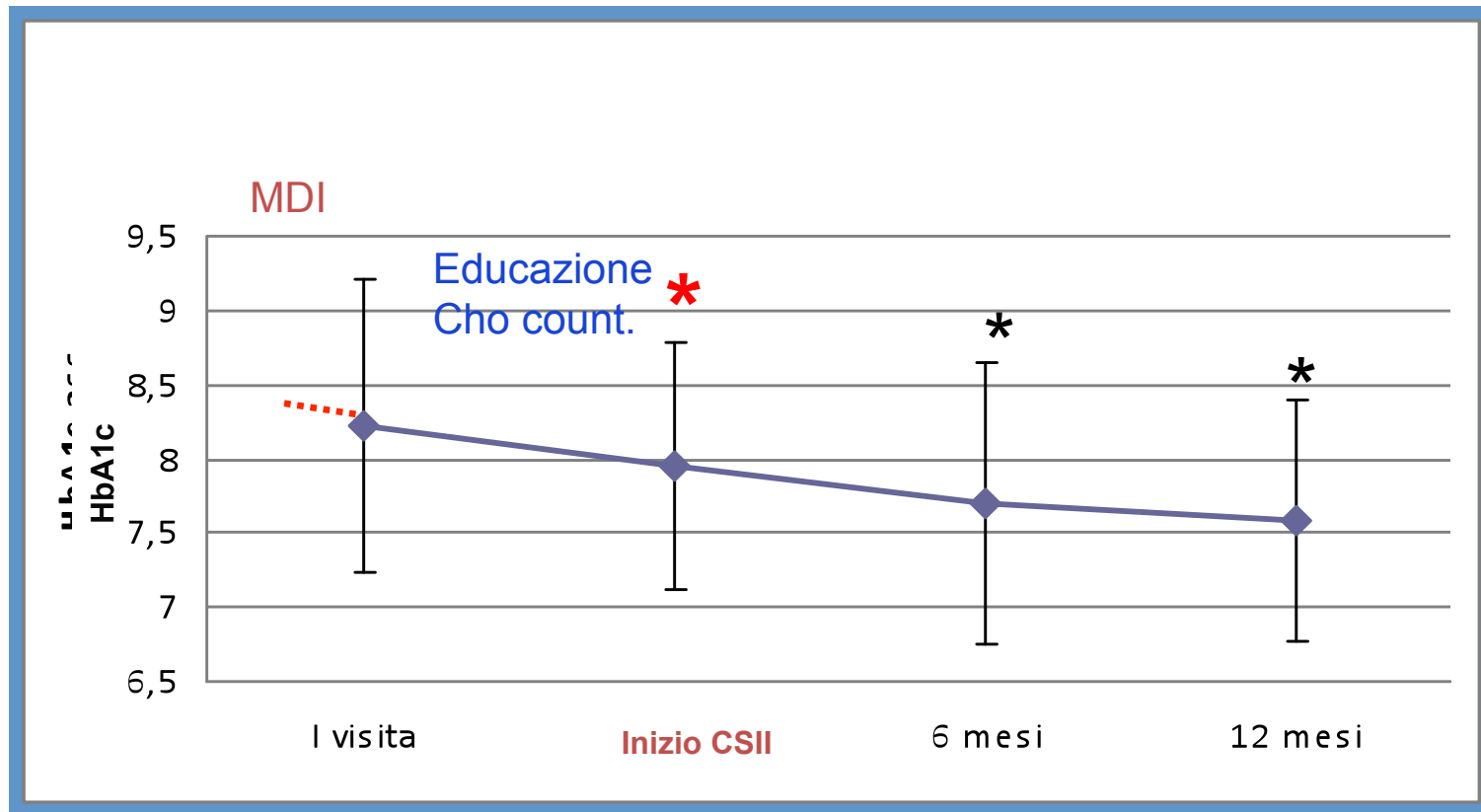


## Pazienti candidati alla CSII nella Regione Veneto (aprile 2008-luglio 2012)

	<b>No CHO Counting (%)</b>	<b>Si CHO counting (%)</b>
<b>280 DMT1 (MDI)</b>	<b>79%</b>	<b>21%</b>

Dati personali

# Controllo glicemico nei pazienti passati da MDI-Glargine a CSII



Bruttomesso, dati personali

**Perché il binomio  
“CHO counting e  
autocontrollo glicemico domiciliare”  
non viene applicato?**

**È un problema legato  
all' autocontrollo?**

# Self-Monitoring of Blood Glucose

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Valutati 44181 soggetti con diabete:

–60% dei tipo 1

–87% tipo 2

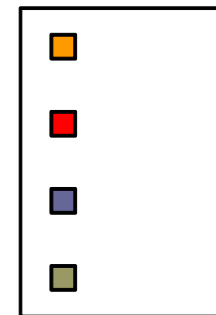
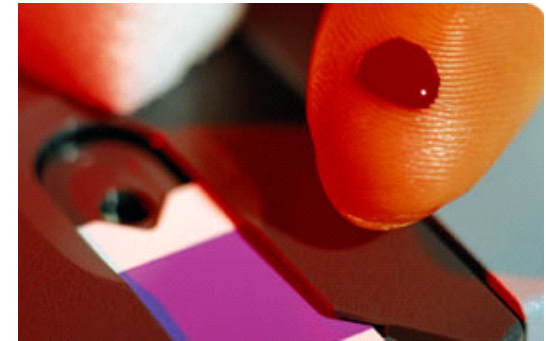
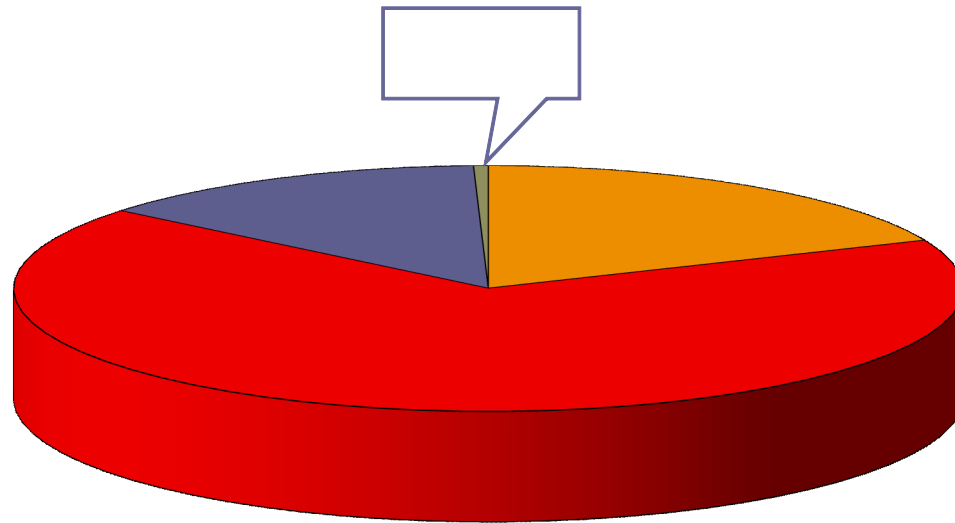
testano la glicemia meno di quanto è  
raccomandato



We have to ask our patients to intensify SMBG, but....

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SMBG Freque

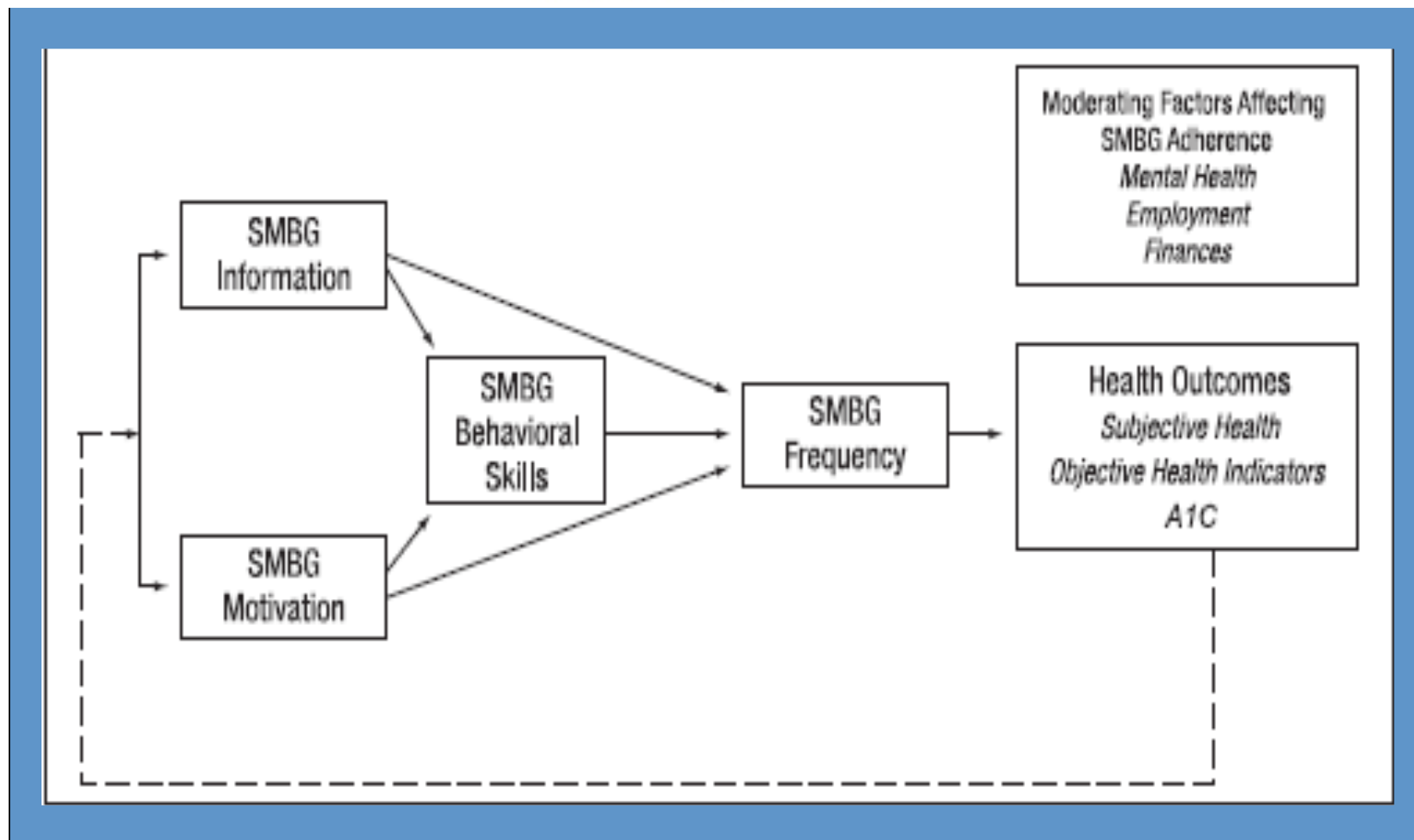


**Understanding Self-Monitoring of Blood Glucose Among Individuals With Type 1 and Type 2 Diabetes :  
An Information –Motivation–Behavioral Skills Analysis**

William A. Fisher, Taylor Kohut, Holly Schachner and Patricia Stenger

*The Diabetes Educator* 2011 37: 85

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- **Indagine Online**
- **208 DM1A , 218 DM2**



**Molti sono risultati:**

- ▣ **non informati,**
- ▣ **non motivati**
- ▣ **non capaci**

# Understanding Self-Monitoring of Blood Glucose Among Individuals With Type 1 and Type 2 Diabetes : An Information –Motivation–Behavioral Skills Analysis

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## % di DM1 non informati

	Percentage Uninformed, Unmotivated, or Unskilled	
	Type 1	Type 2
<b>SMBG information</b>		
1. My body tells me without testing if my blood sugar is low or high. ✓	76.0	73.9
2. I should test my blood sugar after meals. ✓	45.7	52.8
3. Meal planning is more important than blood sugar testing. ✓	44.7	68.3
4. When my blood sugar is low I need to eat protein.	44.7	63.3
5. It is my body—not testing, diet, or exercise—that really affects my blood sugar levels.	38.5	47.2
6. If my blood sugar is high, I could increase my exercise.	38.5	30.7
7. I do not believe that keeping a record of blood sugar levels is that important.	29.3	33.0
8. My doctor does not need to know my daily blood sugars because he or she has my A1C value. ✓	26.4	31.7
9. Activity is more important than blood sugar testing.	24.0	53.2
10. If I often have low blood sugar, I should test more frequently.	22.6	42.2
11. I know how to look for patterns in my blood sugar readings.	20.7	39.9
12. If I often have high blood sugars, I should test more frequently.	19.7	28.4
13. I know when to contact my health care provider if my blood sugar is out of target.	16.3	21.6

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## % di DM1 non motivati, non capaci

### SMBG MOTIVATION

L'autocontrollo frequente:

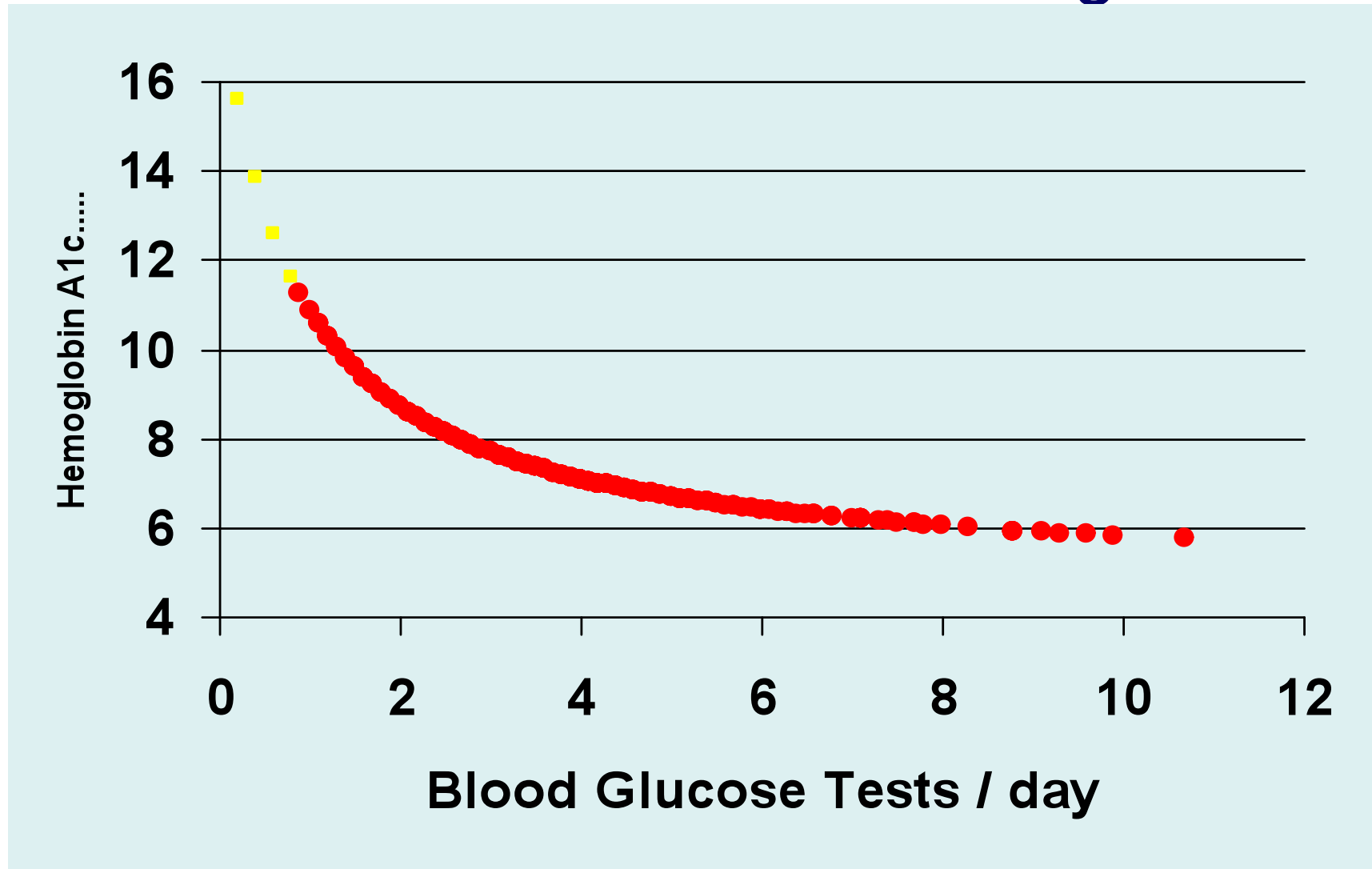
- Ricorda la malattia (45%)
- E' doloroso (34%)
- E' spiacevole (28%), crea ansietà (27%) e frustrazione (25%), richiede molto impegno(24%)
- .....

### SMBG Behavioral skills

Risulta molto difficile:

- Fare il test senza che altri vedano (28%)
- Testare senza provocare dolore (21%)
- Ricordare di fare il test (17%)
- Avere il glucometro quando serve (19%)....

# Improvement in HbA1c with Increased BG Testing



**Manca forse la  
“abilità di capire e usare  
i numeri nella vita  
quotidiana”?**

**“Numeracy”**

## **Il paziente con diabete di tipo 1 in terapia intensiva **deve sapere:****

- 1) contare
- 2) fare calcoli matematici di base
- 3) usare frazioni, decimali, percentuali
- 4) capire tabelle, grafici e misure
- 5) decidere quando usare queste abilità



## Poor numeracy skills are associated with glycaemic control in Type 1 diabetes

S. Marden<sup>1</sup>, P. W. Thomas<sup>2</sup>, Z. A. Sheppard<sup>2</sup>, J. Knott<sup>1</sup>, J. Lueddeke<sup>3</sup> and D. Kerr<sup>1</sup>

**112 DMT1,  
43,8 ± anni, 47% maschi,  
Durata di diabete 22±13.2 anni**

**Valutata abilità di :**

**“Numeracy”** (40 questions) and **“literacy”** (25 questions)”

**“Literacy”** = abilità di leggere e scrivere

**“Numeracy”** = abilità di capire e usare i numeri nella vita quotidiana

# Poor numeracy skills are associated with glycaemic control in Type 1 diabetes

S. Marden<sup>1</sup>, P. W. Thomas<sup>2</sup>, Z. A. Sheppard<sup>2</sup>, J. Knott<sup>1</sup>, J. Lueddeke<sup>3</sup> and D. Kerr<sup>1</sup>

## Abstract

**Aims** To assess the numeracy and literacy skills of individuals with Type 1 diabetes and determine if there is a relationship with achieved glycaemic control independent of their duration of diabetes, diabetes education, demographic and socio-economic

**Su 112 pazienti:**

**75% aveva abilità di “literacy” sotto livello 2\***

**47% aveva abilità di “numeracy” sotto livello 2\***

**La valutazione della “numeracy” identificava difficoltà nel**

- *usare decimali,*
- *riconoscere e comprendere le frazioni*
- *usare le percentuali*
- *selezionare importanti informazioni da tabelle*
- *convertire unità di misura e confrontare dati*

\*Livello 2= conoscenze reative ai primi 3 anni di scuola media superiore

**Conclusions** Low numeracy skills were adversely associated with diabetes control. Assessment of numeracy skills may be relevant to the structure of diabetes education programmes.



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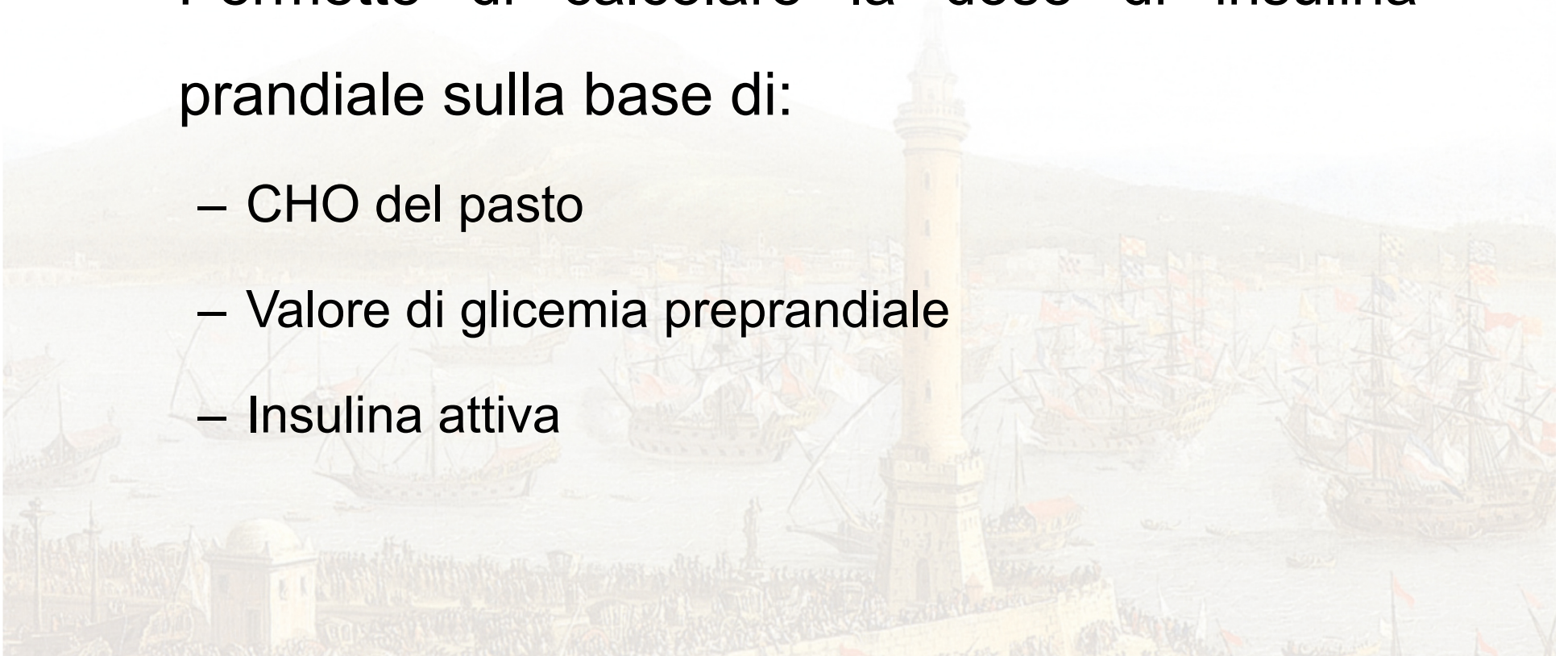
# La tecnologia può aiutare?





## Il “calcolatore di bolo” nasce come parte integrante del microinfusore

- Permette di calcolare la dose di insulina prandiale sulla base di:
  - CHO del pasto
  - Valore di glicemia preprandiale
  - Insulina attiva



# Assistenza al calcolo del Bolo

Target glic= 100 m/dl, I/CHO= 1:15, FC= 30

MiniMed  
ENTER FOOD  
**45** grams

MiniMed  
Meter BG  
**160** mg/dL

ESTIMATE DETAILS

Est total:	4.0U	✓
Food Intake:	45gr	
(Meter) BG:	160	
Food:	3.0U	✓
Correction:	2.0U	✓
Active Ins:	1.0U	✓

ACT to Proceed  
ESC to back up



## Original Article: Treatment

# Benefits of a bolus calculator in pre- and postprandial glycaemic control and meal flexibility of paediatric patients using continuous subcutaneous insulin infusion (CSII)

B. Shashaj, E. Busetto\* and N. Sulli

- ✓ Utilizzo del calcolatore automatico del bolo
  - **più efficace nel controllare la glicemia pre and postprandiale con un numero minore di boli correttivi**
  - Fabbisogno insulinico ai pasti invariato
  - Senza restrizione del contenuto di CHO
  
- ✓ L'utilizzo del calcolatore del bolo è stato giudicato **facile e soddisfacente**

Bolus calculator improves long-term metabolic control and reduces glucose variability in pump-treated patients with Type 1 diabetes

- 30 DMT1 , CSII
- Uso del calcolatore di bolo per 1 anno
- HbA1c -0,2% (p<0.007)
- Ridotta la variabilità glicemica diurna

**....e per la Terapia Insulinica Multiiniettiva?**



# Segni particolari.....



.....bilancia.....  
e...calcolatrice...!

Mese di:

2062102010

13 teste

Diario  
Accu-Check

Boli				Glicemie					Note					
Colazione	Pranzo	Cena	Conciliato	Digiuno	2 ore dopo colazione	Prima di pranzo	2 ore dopo pranzo	Metà pomeriggio	Prima di cena	2 ore dopo cena	Prima di conciliato	Notta ore 3	Notta ore 4	(attività fisica, dieta, malattie, etc)
4	9	12	18+12	1	98	169			245	57	160			
4	10	9	18+6	2	46	64	118	67		47	89			
4	12	12	16+7	3	50		189	38		82				
3	10	10	17+11	4	50		150		189	45	180			
6	8	9	18+12	5	ipo	200	69		111	39	200			concorrente
4	8	10	18	6	72		193		85	57				concorrente
4	10	10	20+16	7	63		149		200	180	101			
4	10	10	23+6	8	51		100		211	108	139			
4	10	10	21+16	9	109		197		58	59	50			
5	9	10	26	10	40		70		190	155				
5	9	10	24	11	169		59		139	142	69			
3	7	12	26	12	56		81		230	135	159			
4	9	12	26	13	58		49		98	44				
4	8	11	26	14	149		89		180	115	64			
4	9	11	23	15	42		101	56	190	138	89			

Mese di:

89

Boli

Glicemie

Colazione	Pranzo	Cena	Correzione	Oligo	2 ore dopo colazione	Prima di pranzo	2 ore dopo pranzo	Matt. punteggiato
8	9,5	9	16	16	154	138		120
7	10	7	16+14	17	135	80		70
5	7	10	15	18	115	98		189
2 1/2	10	24	16	19	<del>100</del>	216		126
2	10	12 1/2	15	20	70	256		176
2 1/2	7 1/2	10 1/2	17	21	110	186		106
4	9	10	17	22	183	139		154
4	9	7	10+3	23	185	159		164
3 1/2	7	7		24	150	149		149
1 1/2	6	6		25	89	71	89	106
1	6	5 1/2		26	77	105	101	101
1	6	6		27	93	89	112	153
0,6	6	5 1/2		28	69	158	124	157
0,8	7	6		29	89	97	114	133
1,2	6	7		30	130	100	183	113
				31				

Diario

Accu-Chek

Note

Prima di colazione	2 ore dopo colazione	Prima di pranzo	Notte ore 2	Notte ore ...
126	70	270		
122	70			
260	160			
149	133			
139	164			
106	90			
154	152			
164	248			
149	118	ore 1/2 99		
51	102	ore 3 89		
20		150 ore 3		
120	55	99		
105	51	119	265	
124	120			
149	110		179	

no fastidioso (frutta secca, pasta, maionese, vegg)

(+4) +3

+1 1/2

+3

+2 1/2 prima

+2 OK pranzo

+4

+3 anche 3 1/2 ore

+3

inizio microinf

inizio terapia a calcolata

+2

+0,5

# Glucometri con calcolatore automatico di bolo



## Performance of a Glucose Meter with a Built-In Automated Bolus Calculator versus Manual Bolus Calculation in Insulin-Using Subjects

Allen Sussman, M.D.,<sup>1</sup> Elizabeth J. Taylor, M.S., C.D.E.,<sup>2</sup> Mona Patel, B.S.,<sup>3</sup> Jeanne Ward, B.S.,<sup>3</sup>  
Shridhara Alva, Ph.D.,<sup>3</sup> Andrew Lawrence, B.Sc.,<sup>3</sup> and Ronald Ng, Ph.D.<sup>3</sup>

### Abstract

**205 DMT1, MDI**  
**Calcolo del bolo pandiale**  
**in presenza di **normo** o **iperglicemia****

- ***Manualmente***
- ***Con calcolatore di bolo***

Insulin-using patients made errors in more than half of the manually calculated insulin doses. Use of the automated bolus calculator in the FreeStyle InsuLinx meter minimized errors in dose determination. The patients also expressed confidence and preference for using the meter. This may increase adherence and help optimize the use of mealtime insulin.

## Performance of a Glucose Meter with a Built-In Automated Bolus Calculator versus Manual Bolus Calculation in Insulin-Using Subjects

Allen Sussman, M.D.,<sup>1</sup> Elizabeth J. Taylor, M.S., C.D.E.,<sup>2</sup> Mona Patel, B.S.,<sup>3</sup> Jeanne Ward, B.S.,<sup>3</sup>  
Shridhara Alva, Ph.D.,<sup>3</sup> Andrew Lawrence, B.Sc.,<sup>3</sup> and Ronald Ng, Ph.D.<sup>3</sup>

### Abstract

#### *Background:*

Patients consider multiple parameters in adjusting prandial insulin doses for optimal glycemic control. Difficulties in calculations can lead to incorrect doses or induce patients to administer fixed doses, rely on empirical estimates, or skip boluses.

- Su 409 dosi di insulina calcolate manualmente ben il 63% erano sbagliate.
- L'uso del calcolatore di boli, invece, ha ridotto al minimo tali errori (6%).

## Use of an Automated Bolus Calculator Reduces Fear of Hypoglycemia and Improves Confidence in Dosage Accuracy in Patients with Type 1 Diabetes Mellitus Treated with Multiple Daily Insulin Injections

**508 DMT1**

**Calcolatore di bolo per 4-12 settimane**

**Rispetto al calcolo manuale il calcolatore di bolo :**

- è più facile da usare
- aumenta la fiducia nell'accuratezza del calcolo della dose
- riduce la paura dell'ipoglicemia

# **Use of an Automated Bolus Calculator in MDI-Treated Type 1 Diabetes**

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The BolusCal Study, a randomized controlled pilot study

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**Valutare :**

**1) effetto di Flexible Intensive Insulin Therapy (FIT) + Automated Bolus Calculator (ABC)**

**2) fattibilità di educazione strutturata in 3 ore**



# **Use of an Automated Bolus Calculator in MDI-Treated Type 1 Diabetes**

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The BolusCal Study, a randomized controlled pilot study

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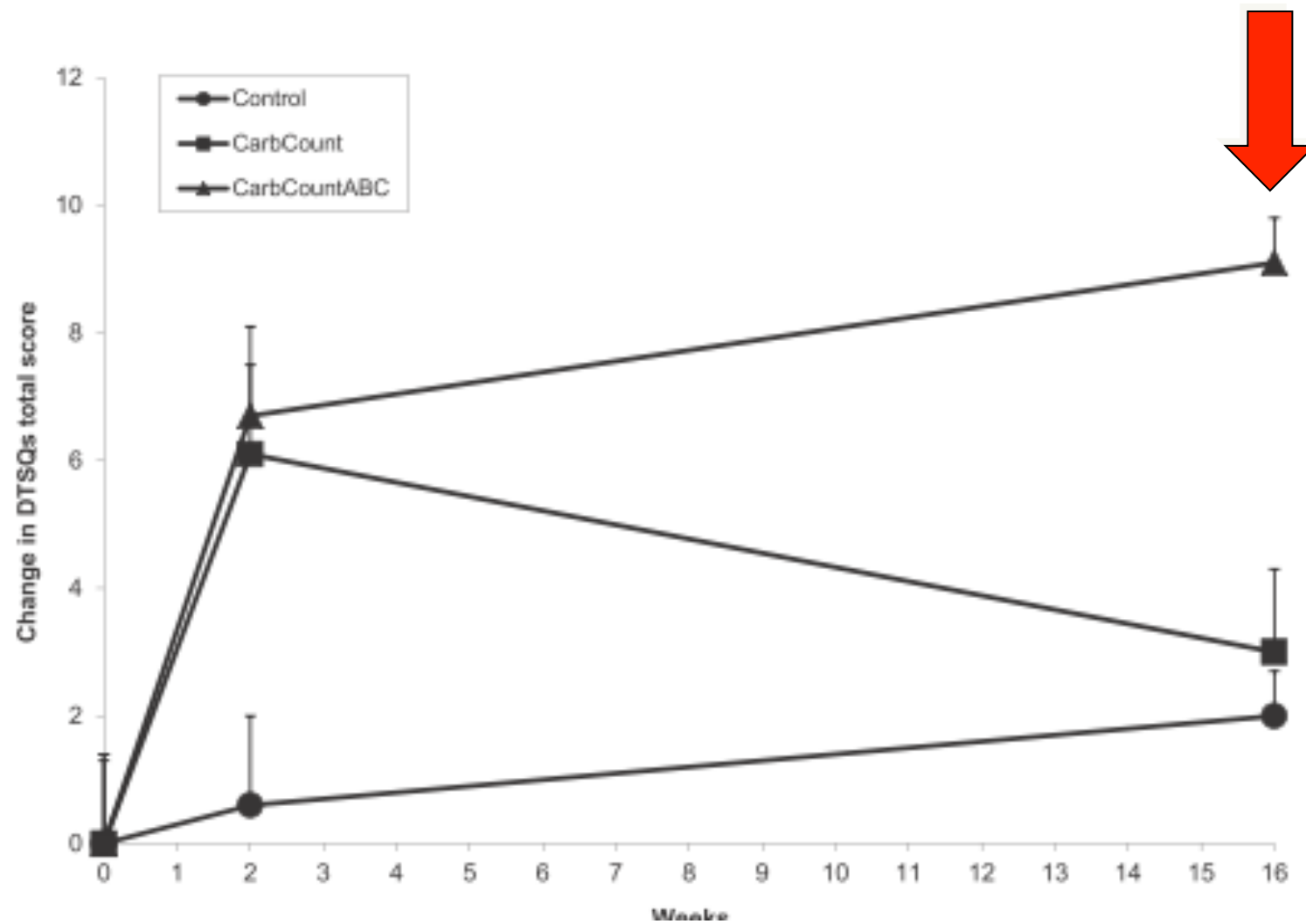
**51 DMT1, Hba1c 8-10.5%, MDI**

**RCT, aperto, 16 settimane, 3 bracci paralleli**

- 1) Controllo (solo educazione a FIIT)**
- 2) CARB Count (educazione a FIIT + CHO counting)**
- 3) Carb Count ABC (come gruppo 2+ Bolus calculator)**

	n	Control	CarbCount	CarbCountABC	Between-group difference P*
<b>HbA<sub>1c</sub></b>					
Baseline	51	0.1 ± 0.7	0.2 ± 0.6	0.8 ± 0.7	0.088
16 weeks	51	<b>-0.1%</b>	<b>-0.8%</b>	<b>-0.7%</b>	0.029
Within-group difference†	51	-0.1	-0.8	-0.7	0.175
<b>HFS</b>					
Baseline	2	-0.1	-0.6	-0.8	0.819
16 weeks	2	-0.1	-0.6	-0.8	0.964
Within-group difference†	49	-1.92 (-10.0 to 6.2)	-5.2 (-9.8 to -0.6)‡	-3.4 (-7.2 to 0.3)	0.674
<b>PAID</b>					
Baseline	46	30.5 ± 19.9	30.8 ± 17.6	33.4 ± 21.1	0.896
16 weeks	51	27.2 ± 18.8	28.0 ± 19.2	25.6 ± 15.3	0.898
Within-group difference†	46	-3.3 (-21.0 to 14.4)	-5.8 (-12.0 to 0.5)	-6.9 (-13.5 to -0.4)‡	0.842
<b>ADDQoL</b>					
Total baseline	51	-2.0 ± 1.7	-2.0 ± 1.7	-2.1 ± 1.7	0.954
Total 16 weeks	51	-1.4 ± 0.9	-1.8 ± 1.6	-1.8 ± 1.6	0.853
Within-group difference†	51	0.6 (-0.8 to 1.9)	0.2 (-0.1 to 0.5)	0.4 (0.0-0.7)‡	0.673
Present QoL baseline	51	1.8 ± 0.9	1.0 ± 1.1	1.0 ± 1.0	0.182
Present QoL 16 weeks	51	1.8 ± 0.9	0.9 ± 1.4	1.3 ± 1.2	0.257
Within-group difference†	51	0.0 (-0.8 to 0.8)	-0.1 (-0.6 to 0.4)	0.3 (-0.2 to 0.9)	0.483
<b>DTSQs</b>					
Total baseline	50	26.5 ± 6.4	23.4 ± 6.0	22.4 ± 6.4	0.283
Total 16 weeks	51	28.5 ± 5.1	26.4 ± 6.0	31.5 ± 3.3	0.009
Within-group difference†	51	2.0 (-0.5 to 4.5)	3.0 (0.8-5.3)‡	9.1 (6.0-12.2)§	0.001
Hyperglycemia baseline	50	4.1 ± 1.6	4.0 ± 1.7	3.6 ± 1.2	0.535
Hyperglycemia 16 weeks	51	3.4 ± 1.8	3.4 ± 1.4	2.7 ± 1.3	0.197
Within-group difference†	51	-0.3 (-1.9 to 1.4)	-0.6 (-1.1 to -0.2)‡	-0.9 (-1.7 to -0.1)‡	0.581
Hypoglycemia baseline	51	2.4 ± 1.3	2.3 ± 1.4	2.5 ± 1.0	0.905
Hypoglycemia 16 weeks	51	1.8 ± 1.4	2.2 ± 1.1	1.6 ± 1.2	0.197
Within-group difference†	51	-0.6 (-2.1 to 0.9)	-0.1 (-0.8 to 0.7)	-0.9 (-1.4 to -0.3)‡	0.228
<b>DTSQc</b>					
Total 16 weeks	50	9.8 ± 6.5	9.5 ± 4.9	14.6 ± 3.1	0.002
Hyperglycemia	50	1.1 ± 0.8	-0.1 ± 1.5	-0.4 ± 1.8	0.009
Hypoglycemia	50	0.1 ± 1.0	-0.4 ± 1.1	0.0 ± 1.4	0.489

# Maggiore soddisfazione nel trattamento



# Diabetes Interactive Diary: A New Telemedicine System Enabling Flexible Diet and Insulin Therapy While Improving Quality of Life

An open-label, international, multicenter, randomized study



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**OBJECTIVE** — Widespread use of carbohydrate counting is limited by its complex education. In this study we compared a Diabetes Interactive Diary (DID) with standard carbohydrate counting in terms of

## 130 DMT1

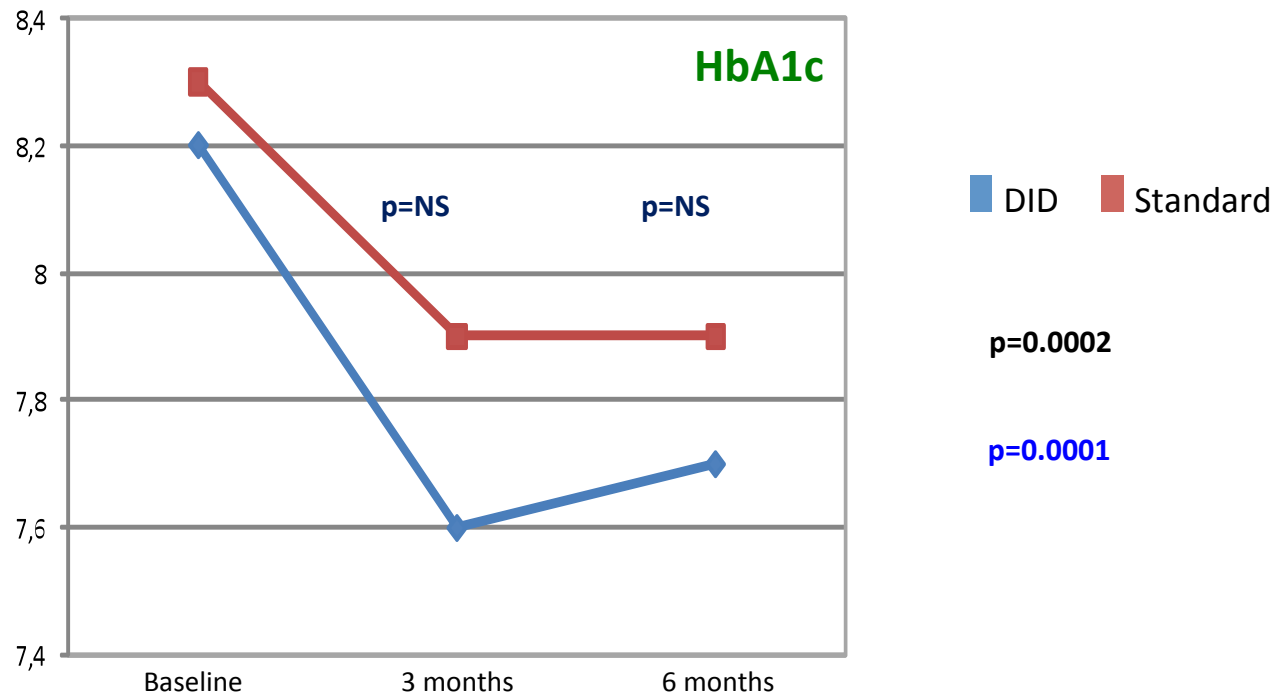
### DID vs educaz. tradizionale alla CHOcounting

- Controllo metabolico
- Tempo per educare

group B from  $8.4 \pm 0.7$  to  $7.9 \pm 1.1\%$ ;  $P = 0.68$ ). Nonsignificant differences in favor of group A were documented for fasting blood glucose and body weight. No severe hypoglycemic episode occurred. WHO-DTSQ scores increased significantly more in group A (from  $26.7 \pm 4.4$  to  $30.3 \pm 4.5$ ) than in group B (from  $27.5 \pm 4.8$  to  $28.6 \pm 5.1$ ) ( $P = 0.04$ ). Role Physical, General Health, Vitality, and Role Emotional SF-36 scores improved significantly more in group A than in group B.

**CONCLUSIONS** — DID is at least as effective as traditional carbohydrate counting education, allowing dietary freedom for a larger proportion of type 1 diabetic patients. DID is safe, requires less time for education, and is associated with lower weight gain. DID significantly improved treatment satisfaction and several quality-of-life dimensions.

# Risultati: nessuna differenza tra i gruppi



# **Diabetes Interactive Diary: A New Telemedicine System Enabling Flexible Diet and Insulin Therapy While Improving Quality of Life**

An open-label, international, multicenter, randomized study

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## **Conclusioni**

- Il DID è risultato efficace, quanto il metodo tradizionale di educazione al conteggio dei carboidrati, permettendo una **maggiore libertà nell'alimentazione** nei soggetti con Diabete tipo 1.
- Rispetto al metodo tradizionale ha richiesto **meno tempo per l'educazione e non ha aumentato il rischio di episodi ipoglicemici**.
- Il DID, inoltre, ha fatto registrare una **soddisfazione significativamente maggiore per il trattamento e la qualità della vita**



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NAPOLI, 18-20 OTTOBRE 2012



CENTRO CONGRESSI  
STAZIONE MARITTIMA



# La tecnologia può essere utile... ...ma...



## **Commentary on “Performance of a Glucose Meter with a Built-In Automated Bolus Calculator versus Manual Bolus Calculation in Insulin-Using Subjects”**

Paolo Rossetti, M.D., Ph.D.,<sup>1</sup> Josep Vehí, Ph.D.,<sup>2</sup> Ana Revert, M.S.,<sup>1</sup> Remei Calm, Ph.D.,<sup>2</sup>  
and Jorge Bondia, Ph.D.<sup>1</sup>

**Al fine di ottenere benefici dalla tecnologia sono necessari programmi educativi volti ad aumentare l'empowerment dei pazienti e la conoscenza degli operatori**



# The Current Status of Bolus Calculator Decision-Support Software

David C. Klonoff, M.D., FACP

- Effetto di grassi e proteine della dieta
- Insulina residua
- Scarsa compliance riduce i benefici



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# Grazie per la vostra attenzione!

Daniela Bruttomesso

