MET

12° Corso di Metodologia in Educazione Terapeutica

Il Counseling Motivazionale in Diabetologia

29, 30 settembre 1 ottobre 2011

Con il patrocinio di AMD

In collaborazio

Ruolo educativo dell'automonitoraggio glicemico

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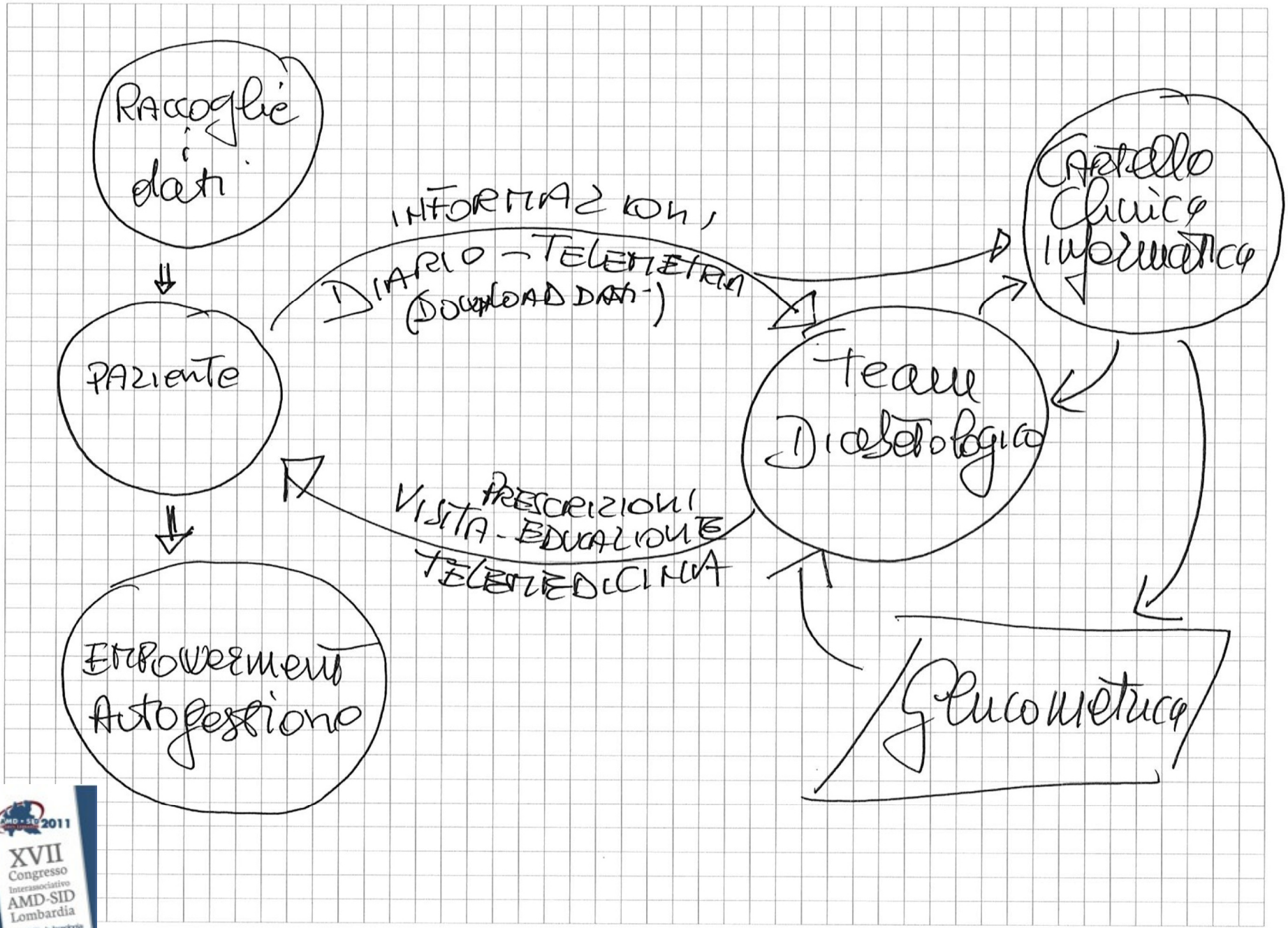
Unità di Endocrinologia, Diabetologia e Metabolismo

Conflitti: Novo Nordisk, Eli Lilly, Movi SpA

Obiettivo

Il progetto di formazione intende proporre un percorso di approfondimento sulle abilità del Counseling Sanitario Motivazionale, applicato specialmente a momenti di speciale stress come la terapia insulinica, utilizzando prevalentemente modalità pratico-esperienziali, con simulazioni di colloquio e role-play.

15001192



traccia

- Tema con angolature diverse quello del ruolo educativo dell'automonitoraggio. Potremmo leggere:
- L'automonitoraggio glicemico ha una valore educativo
- L'educazione terapeutica stimola e supporta la persona nella pratica dell'automonitoraggio

- Self-monitoring of blood glucose (SMBG) in type 2 diabetes has increasingly been shown to display beneficial effects on glycemic control. SMBG is not only associated with a reduction of hemoglobin A1c but has also been demonstrated to increase patients' awareness of the disease

Schnell, O., Alawi, H., Battelino, T., Ceriello, A., Diem, P., Felton, A., Grzeszczak, W., Harno, K., Kempler, P., Satman, I., Vergès, B., Sep. 2011. Addressing schemes of Self-Monitoring of blood glucose in type 2 diabetes: A european perspective and expert recommendation. Diabetes Technology & Therapeutics 13 (9), 959-965. URL http://dx.doi.org/10.1089/dia.2011.0028

Ruolo educativo dell'autocontorllo Percorso educativo all'autocontrollo

- Autocontrollo accompagna il paziente in un percorso di presa di coscienza della condizione di diabetico
  - Vi sono barriere della persona all'autocontrollo
  - Percorso educativo all'autocontrollo
  - Quali i vantaggi per la gestione del rapporto con la "malattia" e la sua "conduzione"

Le “barriere”: Invasiveness as a Barrier to Self-Monitoringof Blood Glucose in Diabetes

						MISS	
	Never	*Seldom*	*Occasionally*	*Often*	*Repeatedly*	*Mean (SD)*	*Range*
Frustration with not getting enough blood on the strip	0	1	2	3	4	0.84 (1.1)	0–4
Having to “milk” the fingertip for blood	0	1	2	3	4	0.81 (1.1)	0–4
Not having any alcohol or cotton swabs with me	0	1	2	3	4	0.49 (1.0)	0–4
My fingers being sore when I do something after I check my blood sugar, such as typing, dialing the phone, or playing the guitar	0	1	2	3	4	0.67 (1.1)	0–4
Having to prick myself several times to get enough blood	0	1	2	3	4	0.68 (1.0)	0–4
Feeling like a “pin cushion”	0	1	2	3	4	0.48 1.(0)	0–4
Fear of pricking myself	0	1	2	3	4	0.38 (0.9)	0–4

Subjects were told “This survey reflects your own thoughts and feelings—there are no right or wrong answers. People skip blood sugar checks for many reasons. Think of yourself in each situation below. Then rate how frequently you skip a blood sugar check for that reason. How often do you *skip* checking your blood sugar level because of. . . .”

Diabetes technology & therapeutics 2005 7(4): 612

Le “barriere”: Invasiveness as a Barrier to Self-Monitoringof Blood Glucose in Diabetes

- **Conclusions:** Invasiveness is a common and serious barrier to SMBG. These findings suggest
- that people with diabetes would perform SMBG more frequently and have improved quality of life with non-invasive SMBG

Diabetes technology & therapeutics 2005 7(4): 612

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
DOI: 10.1177/0145721710391479

- To evaluate self-monitoring of blood glucose (SMBG) information deficits, motivational obstacles, and behavioral skills limitations in individuals with type 1 and type 2 diabetes, and to assess the relationship of these deficits with SMBG frequency.

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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- With respect to SMBG information, approximately 75% of respondents with type 1 and type 2 diabetes did not disagree with the statement that “My body tells me without testing if my blood sugar is low or high.”

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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- More than one quarter of respondents with type 1 and type 2 diabetes did not disagree with the statement that “My doctor does not need to know my daily blood sugars because he or she has my A1C value.”

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The Diabetes Educator 2011 37: 85
DOI: 10.1177/0145721710391479

- Half of those with type 1 and type 2 diabetes failed to agree that “I should test my blood sugar after meals,”
- 21% of those with type 1 diabetes and 40% of those with type 2 diabetes did not agree that “I know how to look for patterns in my blood sugar readings.”

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
DOI: 10.1177/0145721710391479

- **A substantial proportion of participants scored as SMBG uninformed, unmotivated, and unskilled on specific assessment items**. SMBG information, motivation, and behavioral skills deficits were significantly correlated with SMBG frequency, such that **individuals with type 1 or type 2 diabetes, who were less informed, less motivated, and less behaviorally skilled, reported lower frequency of SMBG.**

The Impact of Blood Glucose Self- Monitoring on Metabolic Control and Quality of Life in Type 2 Diabetic Patients

Table 3—*QoL scores according to the frequency of SMBG*

	Frequency of SMBG				
QoL domain	≥1/day	≥1/week	<1/week	Never	*P**
n	471	899	414	1,071	
Diabetes-related stress	51.6 ± 20.5	47.7 ± 19.9	49.5 ± 19.0	44.1 ± 19.2	0.0001
Diabetes health distress	44.1 ± 26.0	37.9 ± 25.8	37.1 ± 25.6	28.5 ± 24.5	0.0001
Diabetes-related worries	60.6 ± 24.6	53.7 ± 27.1	50.2 ± 28.2	48.5 ± 28.6	0.0001
Depressive symptoms (CES-D)	23.3 ± 10.7	20.9 ± 10.8	21.6 ± 10.4	19.9 ± 10.4	0.0001

Data are means ± SEM unless otherwise indicated. *Kruskall-Wallis one-way analysis of variance.

***Diabetes Care* 24:1870–1877, 2001**

The Impact of Blood Glucose Self- Monitoring on Metabolic Control and Quality of Life in Type 2 Diabetic Patients

it seems prudent to recommend SMBG practice to those type 2 diabetic patients who are able to use the information for their day-by-day glycemic control to adjust insulin doses.
We do not have evidence to support the extension in the use of this practice to the majority of type 2 diabetic patients. To further elucidate these aspects, future research should care- fully investigate the joint role of SMBG and education on life-style changes.

***Diabetes Care* 24:1870–1877, 2001**

Self-monitoring of blood glucose—Psychological aspects relevant to changes in HbA_{1c} in type 2 diabetic patients treated with diet or diet plus oral antidiabetic medication

Marcus Siebolds [a,*], Oliver Gaedeke [b], Ulrich Schwedes [c]

on behalf of the SMBG Study Group

Brief counseling algorithm (physician–patient session at weeks 0, 4, 12 and 20; standardized questions)

Increase of *self-perception* by keeping an eating/well-being diary and monitoring blood glucose

Promotion of *self-reflection*

- Experience with SMBG: What worked well? What did not work well?
- Greatest problem when using SMBG?
- Most important factor to facilitate SMBG?
- Information required about this factor?

Enhancement of *self-regulation*

- Ideas how to use SMBG results and diary entries to improve metabolic control
- Patient's assessment of probability of achieving set goals (%)

M. Siebolds et al. / Patient Education and Counseling 62 (2006) 104–110 M.

Self-monitoring of blood glucose—Psychological aspects relevant to changes in HbA_{1c} in type 2 diabetic patients treated with diet or diet plus oral antidiabetic medication

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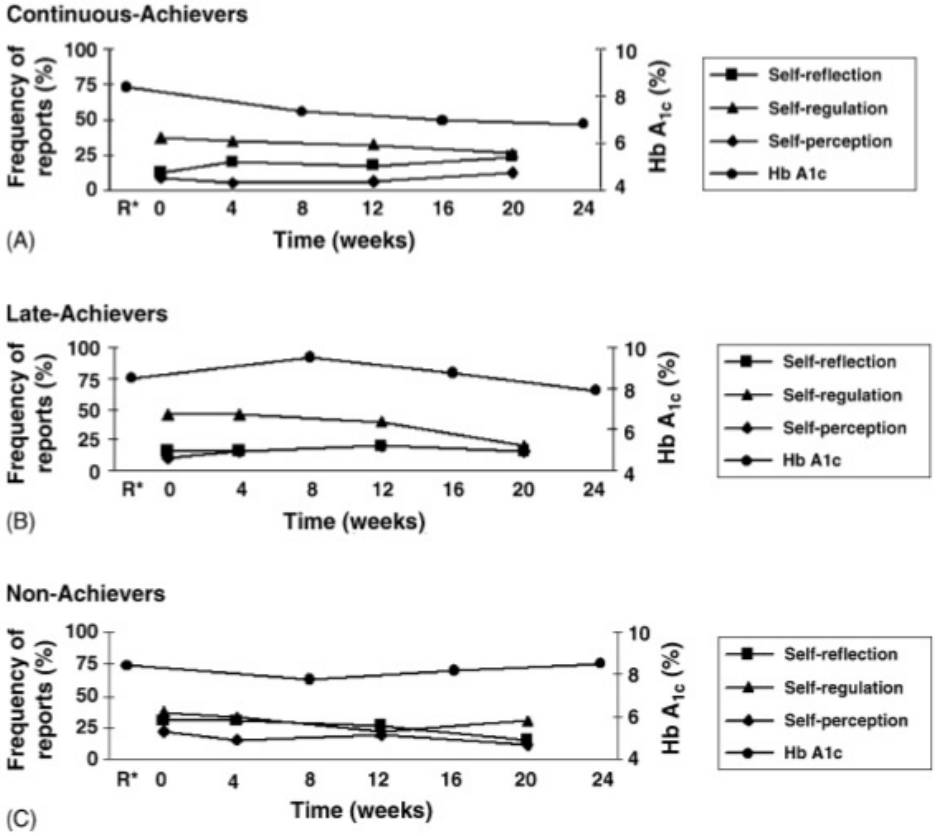

M. Siebolds et al. / Patient Education and Counseling 62 (2006) 104–110 M.

Percorso educativo all’autocontrollo

Dialogo 1

Dialogo 1

- Medico: Ha portato il Diario o il Glucometro ?
- Paziente: No…… dimenticato a casa

Dialogo 2

- Medico: Ha portato il Diario ?
- Paziente: Si come mi avete insegnato

La motivazione: Evaluation of a simple policy for pre- and post-prandial blood glucose self-monitoring in people with type 2 diabetes not on insulin

- 273 type 2 diabetic patients not on insulin with HbA1c >7% attending our Diabetes Clinic and already using SMBG were randomized as follows:
- Group A: **one BG profile/month with fasting and post-prandial values**
- Group B: **one BG profile every 2 weeks with pre- and post-prandial values**.

Diabetes Res Clin Pract. 2010 Feb;87(2):246-51

La motivazione

- SMBG was carried out as recommended by 73% of Group A and 44% of Group B patients.
- In compliant patients, HbA1c and BG were unchanged in Group A whereas in Group B fasting, pre-prandial and two out of three post-prandial BG values were reduced and HbA1c decreased from 8.09 0.84% to 7.60 0.73% ($p < 0.001$).
- The influence on BG control was similar for the two policies when compliance was not considered.
- Conclusions: <u>The more intensive SMBG policy considered is associated with improvements in glycaemic control in compliant subjects</u>

Diabetes Res Clin Pract. 2010 Feb;87(2):246-51

Dialogo 1

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Dialogo 2

- Medico: Ha portato il Diario ?
- Paziente: Si come mi avete insegnato

BGAT

- Blood glucose awareness training (BGAT) is a psychoeducational programmatic intervention designed to improve the accuracy of patients' detection and in- terpretation of relevant BG symptoms and other cues.

Diabetes Care, Vol. 24, No. 4. (1 April 2001), pp. 637-642.

BGAT

Table 2—*Comparison of mean scores for primary dependent variables across baseline and follow-up periods*

Variable	Baseline	6-month follow-up	12-month follow-up	Time *P* levels	Contrast 1* *P* levels	Contrast 2† *P* levels
Improved recognition of BG levels‡						
% Detection low BG	34 ± 29	44 ± 30	44 ± 27	$F = 3.5$ $P < 0.005$	$t = 2.4$ $P = 0.002$	$t = 0.5$ NS
% Detection high BG	51 ± 24	55 ± 26	53 ± 27	$F = 3.1$ $P < 0.001$	$t = 1.7$ $P < 0.05$	$t = 0.9$ NS
Accurate estimates	38 ± 11	45 ± 15	46 ± 15	$F = 13.6$ $P < 0.001$	$t = 4.3$ $P < 0.001$	$t = 0.6$ NS
Reduced extreme BG fluctuations§						
BG risk index	13.9 ± 4.4	13.3 ± 6.0	13.0 ± 5.2	$F = 2.1$ $P = 0.002$	$t = 3.7$ $P = 0.001$	$t = 0.01$ NS
HbA_{1c}	10.2 ± 2.0	10.2 ± 2.0	10.2 ± 1.9	$F = 0.1$ NS	$t = 0.0$ NS	$t = 0.5$ NS
Improved judgment‖						
% Decision to raise low BG	50 ± 27	59 ± 34	58 ± 30	$F = 3.6$ $P < 0.005$	$t = 2.6$ $P = 0.01$	$t = 2.2$ $P < 0.5$
% Decision to lower high BG	53 ± 26	54 ± 30	60 ± 28	$F = 5.2$ $P < 0.001$	$t = 3.3$ $P < 0.001$	$t = 2.2$ $P < 0.05$
% Decision not to drive when low	48 ± 33	50 ± 36	51 ± 31	$F = 2.0$ $P < 0.01$	$t = 2.7$ $P < 0.005$	$t = 0.3$ NS

Diabetes Care, Vol. 24, No. 4. (1 April 2001), pp. 637-642.

GIORNO	DATA	TNE2010 ROADBOOK
MART	5.10.10	

FASE	ORA KM	GLICEMIA	INSULINA BASALE	INSULINA BOLO	CHO	MELLITO APPUNTI
SVEGLIA	7.00	78	ST	2,2	15	
	9.09	52	0,2			miele + biscotti
START	10.50	201	0,2			inizio trekking
WALKING	12.32	179	0,2	[illegible]	[illegible]	STOP for Apple
	15.37	232	0,2	1,5		
	17.15	114	0,2			
DINNER	19.34	181	0,2	5,5	75	CAMBIO SET
13.40	LUNCH TIME		0,2	1,1	65	
	21.32	39	→			
	22.34	182	NP			
	0.09	130	—			

PENSIE

Piccola Ipo mattutina m
alle perché ho ridotto
saremmo rimessi sub
passato più di un'ora
A cena ho mangiato un c
patate cotte al vapore + po
OPZIONI IPO: ① il basm
SOLGO → ② devo ca
rapporto
③ modificar

DESCR. TAPPA (DA-A, KM/TEMPO, D+)	METEO
AEREO POKHARA → JOMONSON 150m D+ → GATBENI 13km 6h	MADO CHE VENTO!!

LUOGO	TREKKING NOTES
POKHARA	
JOMONSON	volo in un bimotore senza depressurizzazione
GATBENI	

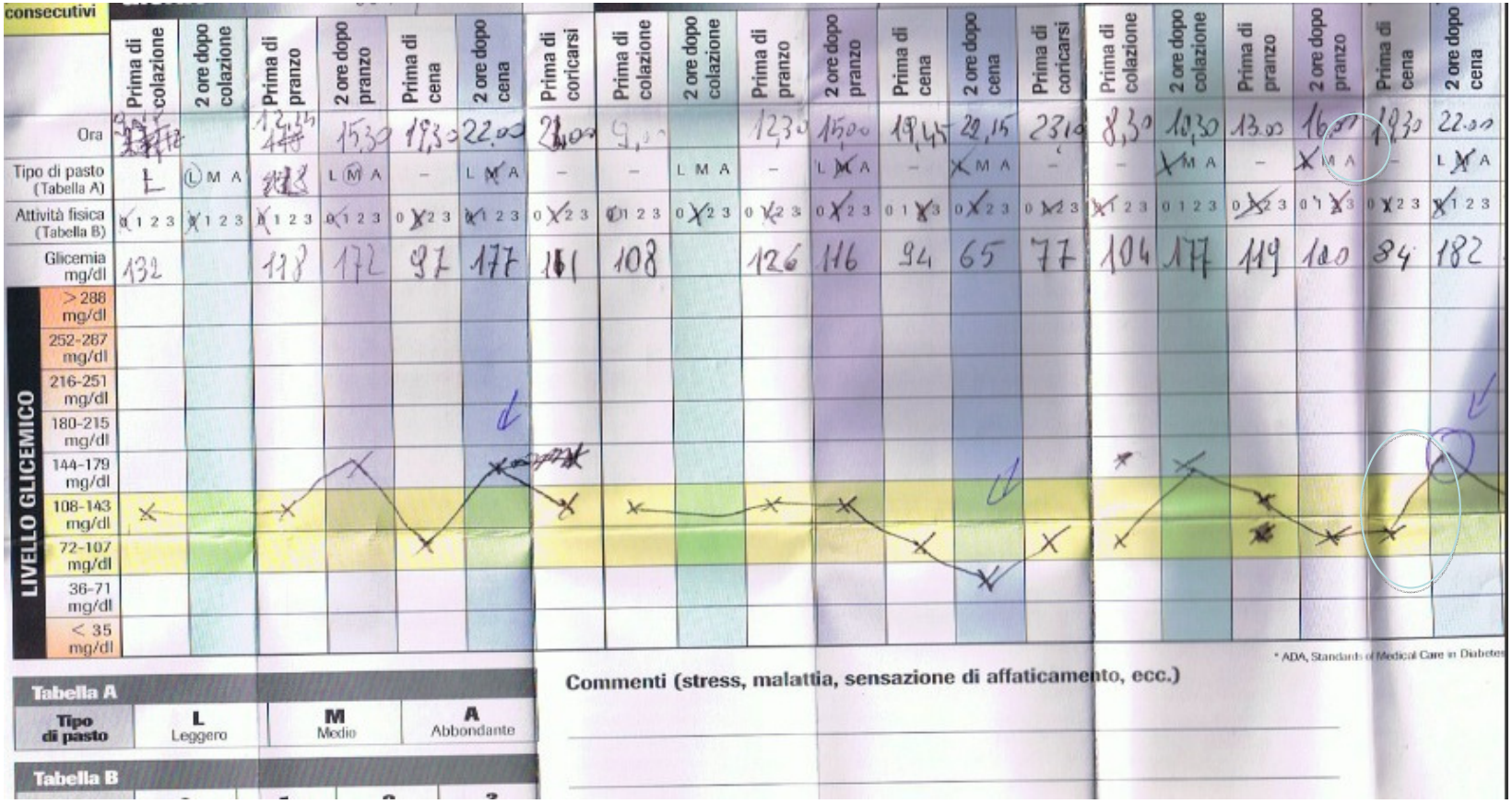
PENSIERI & PAROLE

Piccola Ipo mattutina ma il resto OK, dopo pranzo alle perché ho ridotto il bolo pensando che ci saremmo rimessi subito in viaggio, invece è passato più di un'ora.
A cena ho mangiato un cucchiaio grande di riso + 80g patate cotte al vapore + popcorn + zuppa + vegetali
OPZIONI IPO: ① il basmati ha meno CHO
SOLGO → ② devo cambiare la sensibilità ins e il rapporto CHO/INS
③ modificare basale

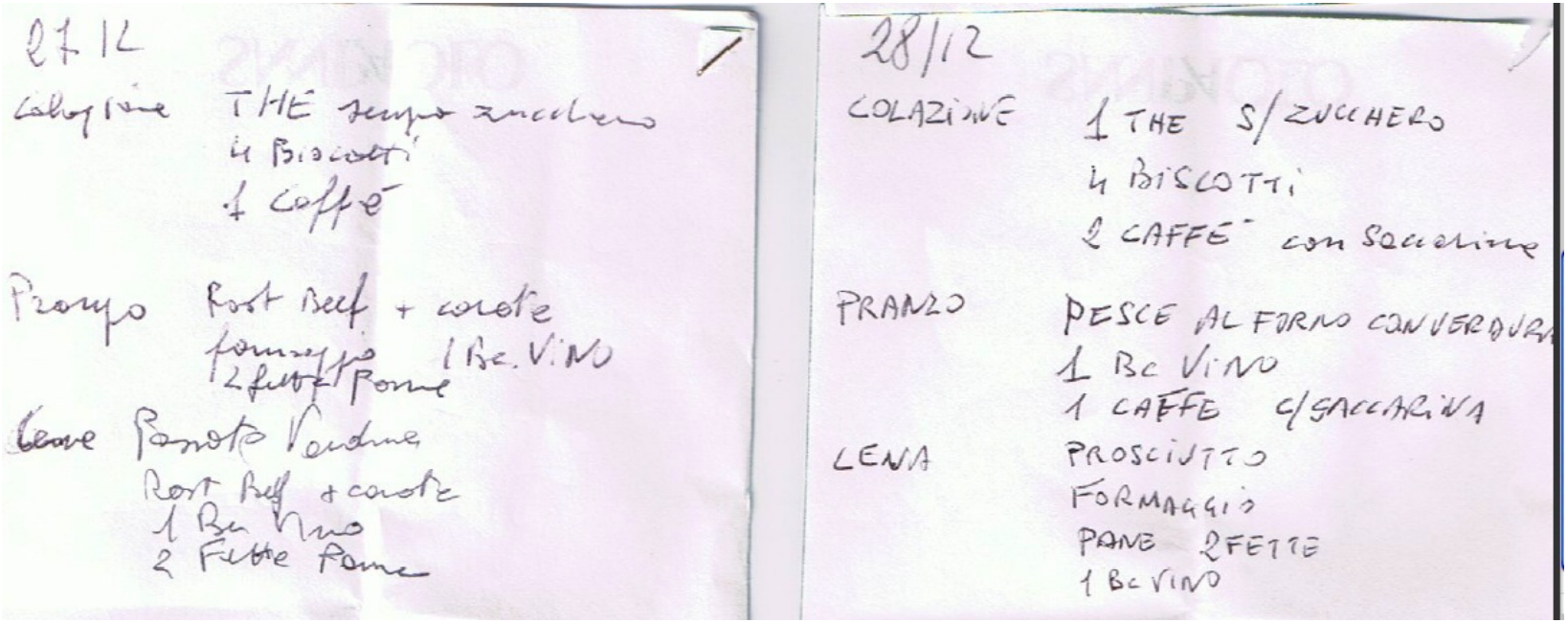
DAFNE (Dose Adjustment for Normal Eating): structured education in insulin replacement therapy for type 1 diabetes

- The UK DTTP (DAFNE) approach was evaluated in a formal randomised controlled trial. Reported benefits in a cohort of 169 patients with poorly controlled type 1 diabetes included a fall of 1% in HbA1c without increased hypoglycaemia or mean weight gain. Quality of life was also improved.

BMJ 2002, Diabetologia 2002


consecutivi
Prima di colazione
2 ore dopo colazione
Prima di pranzo
2 ore dopo pranzo
Prima di cena
2 ore dopo cena
Prima di coricarsi
Ora
Tipo di pasto (Tabella A)
Attività fisica (Tabella B)
Glicemia mg/dl
LIVELLO GLICEMICO
> 288 mg/dl
252-287 mg/dl
216-251 mg/dl
180-215 mg/dl
144-179 mg/dl
108-143 mg/dl
72-107 mg/dl
36-71 mg/dl
< 35 mg/dl
Tabella A
Tipo di pasto
L Leggero
M Medio
A Abbondante
Tabella B
Commenti (stress, malattia, sensazione di affaticamento, ecc.)
* ADA, Standards of Medical Care in Diabetes

Le giornate di dicembre



27.12

Colazione THÉ senza zucchero
4 Biscotti
1 caffè

Pranzo Rost Beef + carote
formaggio 1 Bc. VINO
2 fette Pane

Cena Pasta Verdure
Rost Beef + carote
1 Bc Vino
2 Fette Pane

28/12

COLAZIONE 1 THE S/ZUCCHERO
4 BISCOTTI
2 CAFFE' con Saccarina

PRANZO PESCE AL FORNO CONVERDURA
1 Bc VINO
1 CAFFE C/SACCARINA

CENA PROSCIUTTO
FORMAGGIO
PANE 2 FETTE
1 Bc VINO

per 3 giorni consecutivi

	Giorno 1 Data 11/1/2011							Giorno 2 Data 12/1/							Giorno 3 Data 13/1						
	Prima di colazione	2 ore dopo colazione	Prima di pranzo	2 ore dopo pranzo	Prima di cena	2 ore dopo cena	Prima di coricarsi	Prima di colazione	2 ore dopo colazione	Prima di pranzo	2 ore dopo pranzo	Prima di cena	2 ore dopo cena	Prima di coricarsi	Prima di colazione	2 ore dopo colazione	Prima di pranzo	2 ore dopo pranzo	Prima di cena	2 ore dopo cena
Ora	8,30	10,30	13,45	15,15	19,40	22,10	23,00	8,20	10,30	12,30	15,30	19,30	21,45	23,45	8,30					
Tipo di pasto (Tabella A)	–	~~X~~ M A	–	~~X~~ M A	–	L ~~M~~ A	–	–	~~X~~ M A	–	L ~~M~~ A	–	~~X~~ M A	–	–	L M A	–	L M A	–	L M A
Attività fisica (Tabella B)	~~X~~ 1 2 3	0 1 2 3	0 ~~X~~ 2 3	0 1 ~~X~~ 3	0 1 ~~X~~ 3	0 1 ~~X~~ 3	0 1 ~~X~~ 3	~~X~~ 1 2 3	~~X~~ 1 2 3	0 ~~X~~ 2 3	0 1 ~~X~~ 3	0 1 ~~X~~ 3	0 1 ~~X~~ 3	~~X~~ 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0
Glicemia mg/dl	112	182	143	172	108	116	92	98	162	141	133	95	89	~~77~~	100						

LIVELLO GLICEMICO

> 288 mg/dl
252-287 mg/dl
216-251 mg/dl
180-215 mg/dl
144-179 mg/dl
108-143 mg/dl
72-107 mg/dl
36-71 mg/dl
< 35 mg/dl

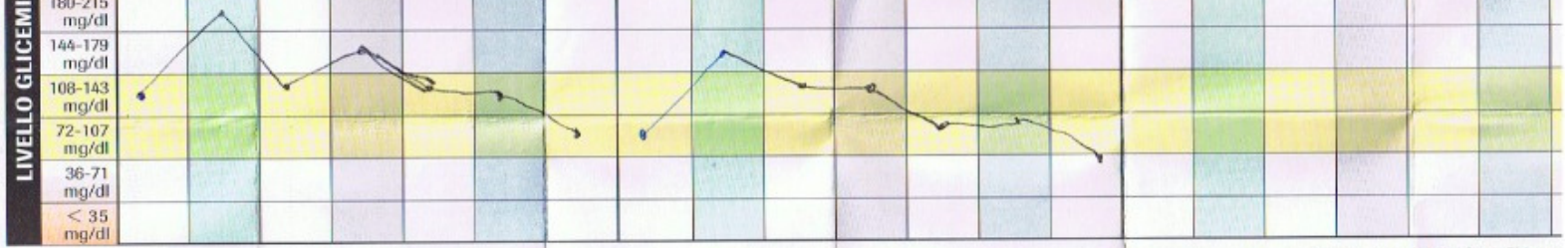


Tabella A

Tipo di pasto	L Leggero	M Medio	A Abbondante

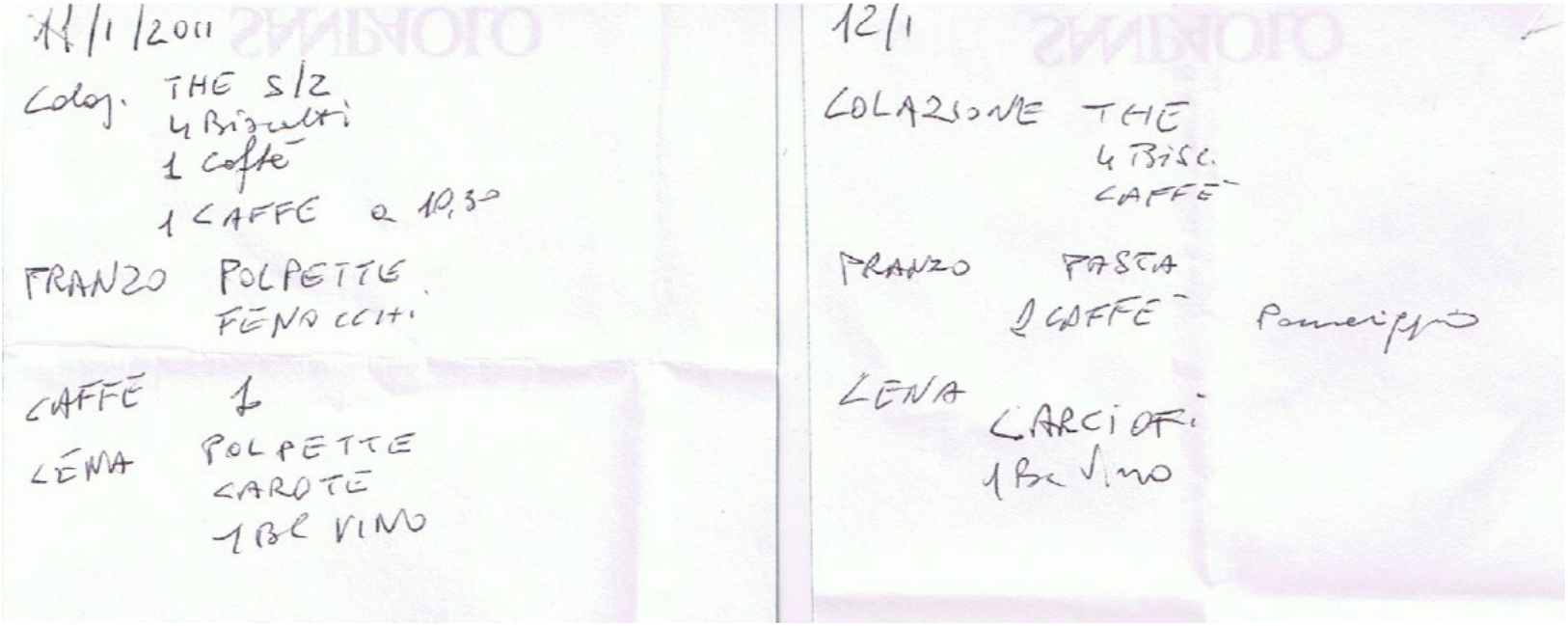
Tabella B

Attività	0	1	2	3

Commenti (stress, malattia, sensazione di affaticamento, ecc.)

* ADA, Standards of Medical Care in Diabetes.

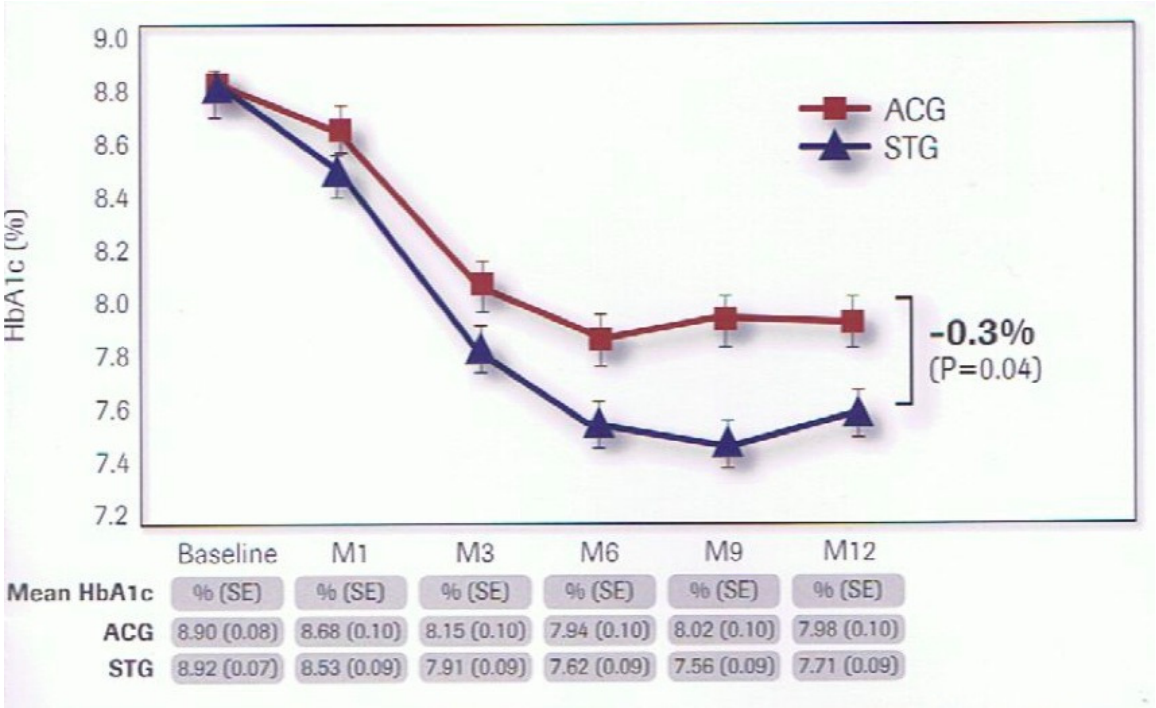
Le giornate di Gennaio



Structured Testing Program (STeP) Study

- 552 DMT2 non insulin-treated poorly controlled (HbA1c >=7.5%)
- Structured testing protocol (STG): 7-point glocose profiles over 3 consecutive days on a quartely basis with **an easy-to-use paper tool**
- Active control (ACG), standardized istruction in smbg, pattern recognition and interpretation
- All STG and ACG subjects **received free blood glucose meters and test strips**

Structured Testing Program (STeP) Study



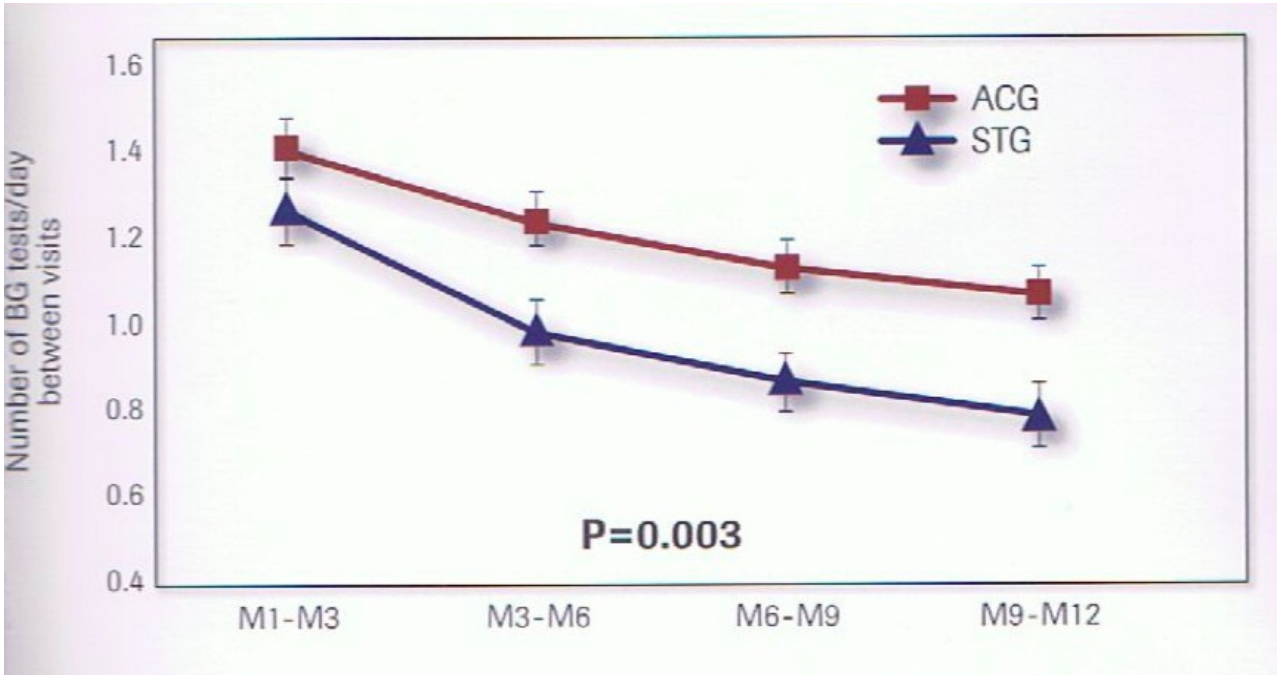
Mean HbA1c	Baseline % (SE)	M1 % (SE)	M3 % (SE)	M6 % (SE)	M9 % (SE)	M12 % (SE)
ACG	8.90 (0.08)	8.68 (0.10)	8.15 (0.10)	7.94 (0.10)	8.02 (0.10)	7.98 (0.10)
STG	8.92 (0.07)	8.53 (0.09)	7.91 (0.09)	7.62 (0.09)	7.56 (0.09)	7.71 (0.09)

Intent-to-treat analysis:
Adjusted mean HbA1c over 12 months in patients with non-insulin treated type 2 diabetes according to randomization group

STG patients achieved a significantly greater HbA1c improvement at 12 months compared with ACG patients (P=0.04).

Fischer EASD 2010

Structured Testing Program (STeP) Study



Extrapolating over time, this equate to a 25% Difference in annual test strips consumption

Intent-to-treat analysis: SMBG frequency (test strips/day) during study period

Although meter upload over time showed reductions in SMBG frequency in both ACG and STG patients, the mean number of daily blood glucose tests was significantly lower for the STG than for the ACG at months 6 (P=0.007), 9 (P=0.001), and 12 (P<.0004).

Fischer EASD 2010

Structured Testing Program (STeP) Study

- ‘‘low tech,’’ intensive, and episodic monitoring approach (i.e., seven-point blood glucose profiles over three consecutive days, completed once each quarter, immediately before each physician visit) can significantly reduce HbA1c and alleviate distress, especially in patients who were markedly stressed or depressed at baseline.

Fischer EASD 2010

- **ROSES: role of self-monitoring of blood glucose and intensive education in patients with Type 2 diabetes not receiving insulin. A pilot randomized clinical trial**
- M. Franciosi, G. Lucisano, F. Pellegrini, A. Cantarello*, A. Consoli†, L. Cucco†, R. Ghidelli‡, G. Sartore*, L. Sciangula‡ and A. Nicolucci, on behalf of the ROSES Study Group

Diabet Med. 2011 Feb 23. doi: 10.1111/j.1464-5491.2011.03268.x. [Epub ahead of print]

Roses

- INTERVENTION: Patients assigned to intervention received specific education addressing how to perform self-monitoring of blood glucose, how to modify diet and level of physical activity according to blood glucose levels and the actions to undertake in case of abnormal values (hypoglycaemia, markedly elevated glucose levels).

Roses

- The control group received standard counselling with focus on diet and lifestyle, and follow-up visits were scheduled every 3 months.

Roses

- **Endpoints**
- The primary efficacy measurement was the change in HbA1c values after 6 months in the self-monitoring-based disease management strategy group vs. the control group.
- Secondary efficacy measurements were percentage of patients reaching the target HbA1c (i.e. < 7.0%; < 53 mmol/mol), percentage of patients requiriing therapy modifications, changes in body weight, lipid profile and blood pressure values.

ROSES

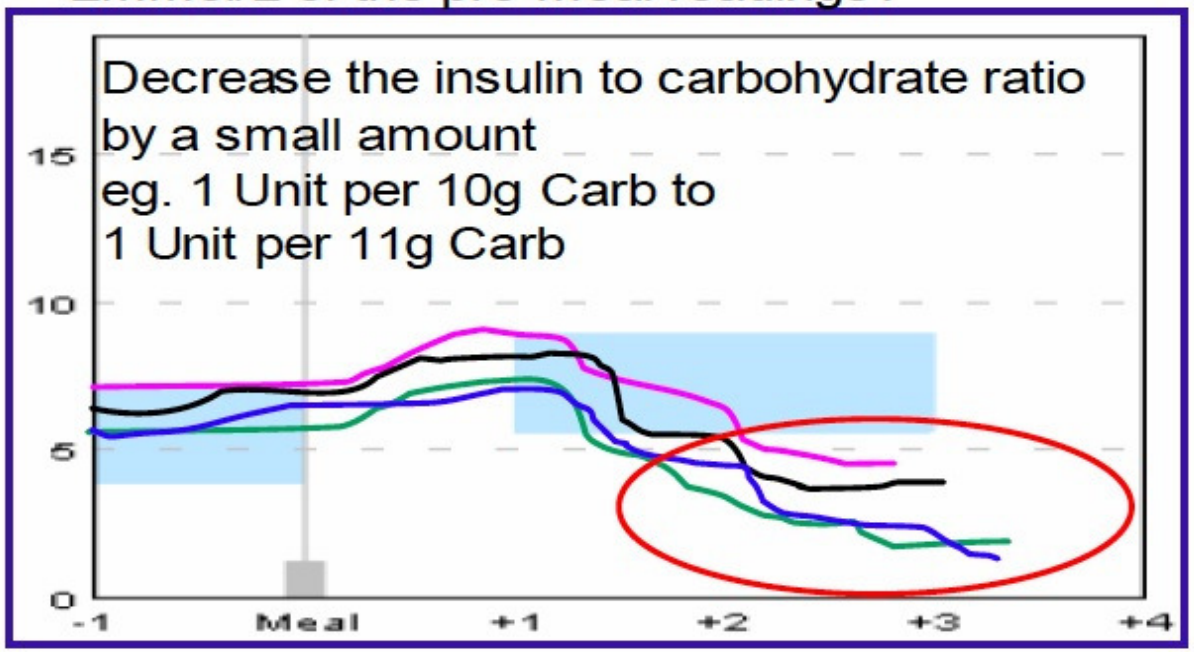
Number of patients (SMBG = 46; usual care = 16)	Baseline (mean ± SE)	After 6 months (mean ± SE)	Absolute mean difference (95% CI)	*P*
HbA_{1c} (%)			–0.5 (–0.9 to –0.0)	0.04
Self-monitoring	8.0 ± 0.1	6.7 ± 0.1		
Usual care	7.9 ± 0.2	7.2 ± 0.2		
HbA_{1c} (mmol/mol)			–5 (–8 to 0)	0.04
Self-monitoring	63 ± 1	50 ± 1		
Usual care	62 ± 2	55 ± 2		
Weight (kg)			–3.99(–7.26 to –0.73)	0.02
Self-monitoring	88.4 ± 2.4	83.9 ± 2.4		
Usual care	88.0 ± 4.2	87.5 ± 4.1		
BMI			–1.4 (–2.6 to –0.21)	0.03
Self-monitoring	31.8 ± 0.7	30.2 ± 0.7		
Usual care	30.2 ± 1.1	30.1 ± 1.2		

ROSES

- In conclusion, this pilot study shows that a self-monitoring disease management strategy, primarily led by diabetes nurses and allowing a timely and efficient use of self-monitoring readings, is able to improve metabolic control, primarily through lifestyle modifications leading to weight loss.

Post-Prandiale: indicazioni al paziente

Are the post meal readings on an average less than 2mmol/L of the pre-meal readings?



Alicia J. Jenkins et al. Diabetes Care 2010

CGM aspetti educativi

TABLE 5. CGM TEACHING EVENTS

Number of teaching events on CGM graphs per day[a]	n (%) on day wearing CGM device			
	1	*2*	*3*	*4*
Exercise				
0	18 (66.7)	8 (29.6)	9 (33.3)	14 (51.9)
1	7 (25.9)	13 (48.1)	13 (48.1)	12 (44.4)
2	2 (7.4)	4 (14.8)	4 (14.8)	1 (3.7)
3		1 (3.7)	1 (3.7)	
4		1 (3.7)		
Diet				
0	10 (37)	2 (7.4)	5 (18.5)	8 (29.6)
1	15 (55.6)	6 (22.2)	6 (22.2)	12 (44.4)
2	1 (3.7)	14 (51.9)	10 (37)	6 (22.2)
3	1 (3.7)	5 (18.5)	6 (22.2)	
4				1 (3.7)

[a]A dietary-teaching event was defined as a glucose excursion (a peak change in glucose level of > 20 mg/dL) in response to a meal and/or two meals with glucose excursions of differing magnitudes (in mg/dL). An exercise-teaching event was defined as (1) a decline in glucose levels following a bout of self-reported exercise or an exercise event marked on the CGM graph or (2) increases in glucose levels following sedentary behavior.

Allen, N. A., Fain, J. A., Braun, B., Chipkin, S. R., Mar. 2009. Continuous glucose monitoring in non-insulin-using individuals with type 2 diabetes: acceptability, feasibility, and teaching opportunities. Diabetes technology & therapeutics 11 (3), 151-158.
URL http://dx.doi.org/10.1089/dia.2008.0053

CGM aspetti educativi

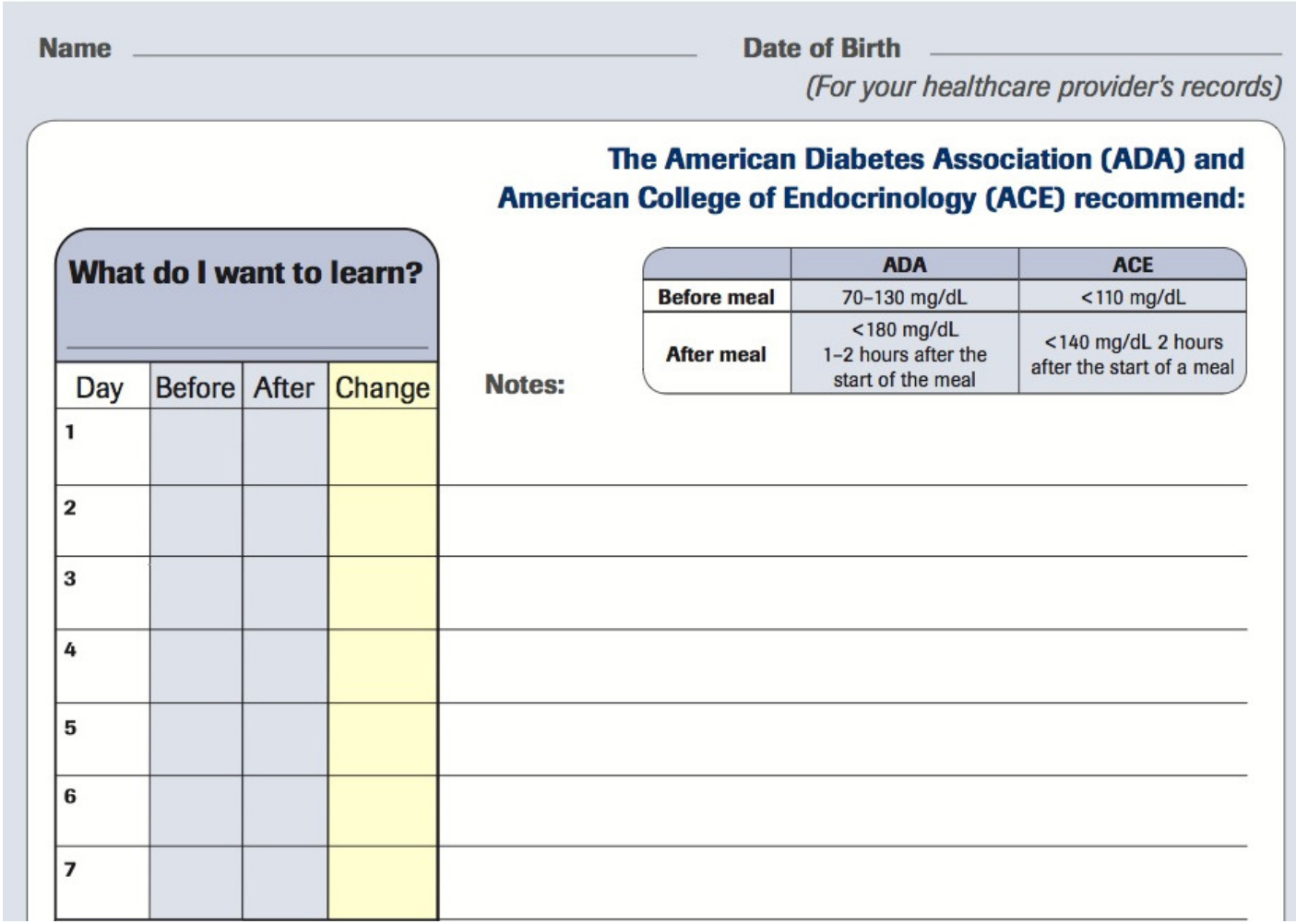
TABLE 3. ACCURACY OF PARTICIPANT-ENTERED EVENTS ON THE CGM DEVICE

Number of missed events identified on CGM tracings[a]	n (%) on day wearing CGM device			
	1	*2*	*3*	*4*
Meals				
0	15 (57.7)	7 (25.9)	9 (33.3)	11 (42.3)
1	6 (23.1)	6 (22.2)	5 (18.5)	8 (30.8)
≥2	5 (19.2)	14 (51.8)	13 (48.1)	7 (26.8)
Exercise				
0	22 (81.5)	16 (59.3)	14 (51.9)	18 (69.2)
1	4 (14.8)	9 (33.3)	10 (37)	8 (30.8)
2	1 (3.7)	2 (7.4)	3 (11.1)	
Medications				
0	18 (67.7)	15 (57.7)	12 (46.2)	14 (56)
1	8 (29.6)	5 (19.2)	7 (26.9)	8 (32)
≥2	1 (3.7)	6 (23)	7 (26.9)	3 (12)

[a]Missed meal entries were identified by a rise in glucose levels without an event marked on the CGM graph and were recognized as a meal by participants as a meal on the paper log or during review of CGM data. Missed exercise entries were identified by a decrease in glucose level without an event marker following increased activity measured by activity monitors or acknowledged by participants during a review. Missed medication entries were identified by reviewing CGM graphs for medication entries and comparing to participants' medication list.

Allen, N. A., Fain, J. A., Braun, B., Chipkin, S. R., Mar. 2009. Continuous glucose monitoring in non-insulin-using individuals with type 2 diabetes: acceptability, feasibility, and teaching opportunities. Diabetes technology & therapeutics 11 (3), 151-158.
URL http://dx.doi.org/10.1089/dia.2008.0053

Testing in Pairs



Name _____ Date of Birth _____

(For your healthcare provider's records)

The American Diabetes Association (ADA) and American College of Endocrinology (ACE) recommend:

	ADA	ACE
Before meal	70–130 mg/dL	<110 mg/dL
After meal	<180 mg/dL 1–2 hours after the start of the meal	<140 mg/dL 2 hours after the start of a meal

What do I want to learn?

Day	Before	After	Change
1			
2			
3			
4			
5			
6			
7			

Notes:

Schwedes, U., Siebolds, M., Mertes, G., SMBG Study Group, Nov. 2002. Meal-related structured self-monitoring of blood glucose: effect on diabetes control in non-insulin-treated type 2 diabetic patients. Diabetes care 25 (11), 1928-1932.
URL http://view.ncbi.nlm.nih.gov/pubmed/12401734

Quali i vantaggi per la gestione del rapporto con la “malattia” e la sua “conduzione”

- Nel diabete in terapia insulinica l’autocontrollo è strumento di gestione della terapia
- Per tutti i diabetici l’autocontrollo può “educare” ad una miglior gestione e valorizzare l’intervento sullo “stile di Vita”

Self-monitoring of blood glucose—Psychological aspects relevant to changes in HbA_{1c} in type 2 diabetic patients treated with diet or diet plus oral antidiabetic medication

Marcus Siebolds [a,*], Oliver Gaedeke [b], Ulrich Schwedes [c]

on behalf of the SMBG Study Group

Brief counseling algorithm (physician–patient session at weeks 0, 4, 12 and 20; standardized questions)

Increase of *self-perception* by keeping an eating/well-being diary and monitoring blood glucose

Promotion of *self-reflection*

- Experience with SMBG: What worked well? What did not work well?
- Greatest problem when using SMBG?
- Most important factor to facilitate SMBG?
- Information required about this factor?

Enhancement of *self-regulation*

- Ideas how to use SMBG results and diary entries to improve metabolic control
- Patient's assessment of probability of achieving set goals (%)

M. Siebolds et al. / Patient Education and Counseling 62 (2006) 104–110 M.

Self-monitoring of blood glucose—Psychological aspects relevant to changes in HbA_{1c} in type 2 diabetic patients treated with diet or diet plus oral antidiabetic medication

Marcus Siebolds [a,*], Oliver Gaedeke [b], Ulrich Schwedes [c]

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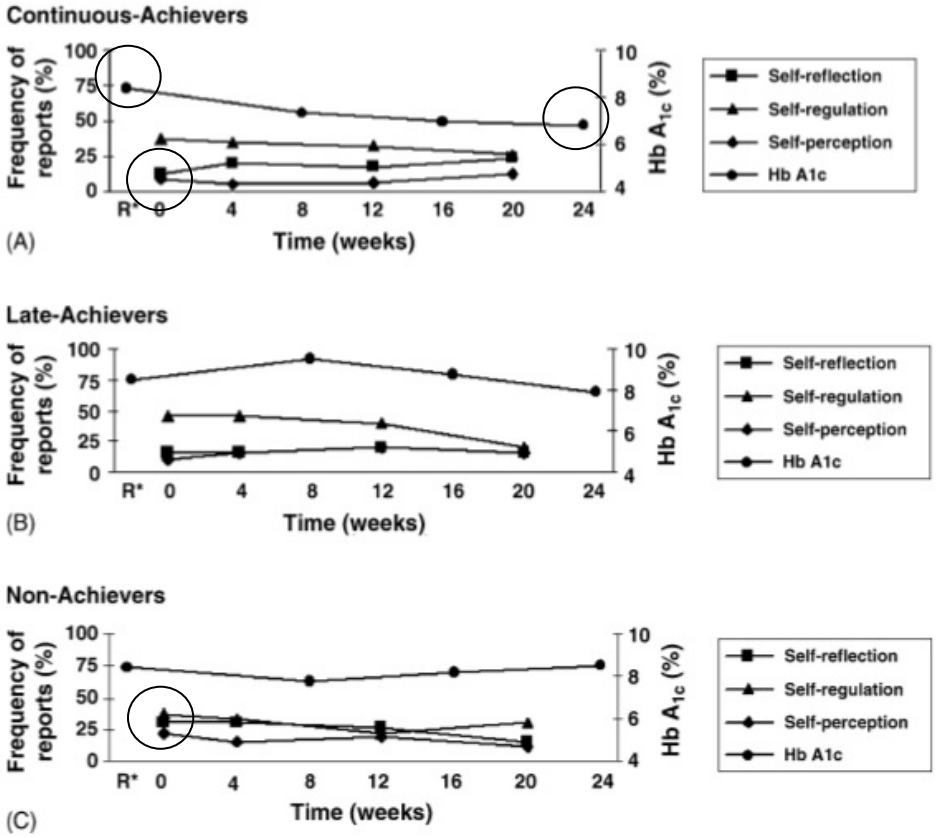


M. Siebolds et al. / Patient Education and Counseling 62 (2006) 104–110 M.

Il glucometro: Componenti per il successo dell'autocontrollo

- Motivazione
- Indicazioni semplici e chiare fornite attraverso un efficace educazione
- Accuratezza
- **Glucometri che con immediatezza fornisco dati necessari alla decisione terapeutica per una analisi efficace**

Beyond Hemoglobin A_{1c}—Need for Additional Markers of Risk for Diabetic Microvascular Complicationslrl B. Hirsch, MD; Michael Brownlee, MD *JAMA. 2010;303(22):2291-2292*

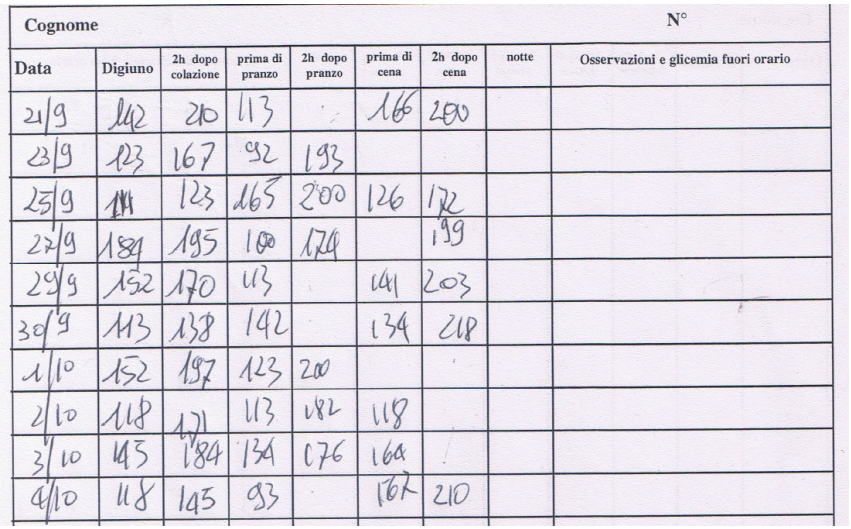
- "**Glucometrics**" (the complete descriptive analysis of all aspects of glycemia) for assessing variability with continuous glucose monitoring and home blood glucose monitoring are rapidly evolving, along with software programs that can download and analyze these data.

Glucometro e funzione di supporto alla decisione terapeutica

- Fornire con semplicita indicatori glicemici:
  - Media della glicemia
  - Indicatori di variabilità glicemica, rischio iperglicemico ed ipoglicemico (DS, HBGI, LBGI)
- Permettere di registrare Facilmente altre informazioni associate al dato glicemico:
  - Momento : GLICEMIA PRE-PRANDIALE E POST-PRANDIALE
  - Attività fisica, ……
- Superamento di alcune criticità
  - Limitando al massimo le procedure per visualizzare i dati
  - Permettendo la visualizzazione dei dati sullo strumento direttamente

Lettura analitica ed interpretazione del dato

Diario cartaceo



Cognome							N°	
Data	Digiuno	2h dopo colazione	prima di pranzo	2h dopo pranzo	prima di cena	2h dopo cena	notte	Osservazioni e glicemia fuori orario
21/9	142	210	113		166	200		
23/9	123	167	92	193				
25/9	111	123	165	200	126	172		
27/9	189	195	100	174		199		
29/9	152	170	113		141	203		
30/9	113	138	142		134	218		
1/10	152	197	123	200				
2/10	118	171	113	182	118			
3/10	143	184	134	176	164			
4/10	118	145	93		162	210		

Download dei dati

- Postazione PC
- Software e hardware per lo scarico dei dati
- Personale e tempo da dedicare
- Quanto è visibile alla visita dovrebbe essere il più possibile riproducibile dal paziente nella quotidianità

Glucometro facile da usare.
Non deve essere programmato.
Ampio display retroilluminato.

Tecnologia brevettata Dynamic Electrochemistry®.

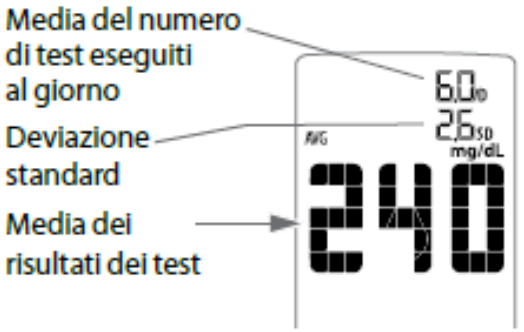
Valori di glicemia etichettati come pre o postprandiali per l'individuazione dei pattern.
Feedback positivo.

Servizi integrati:
Servizio di assistenza 24/7 per le penne e i glucometri S-A.

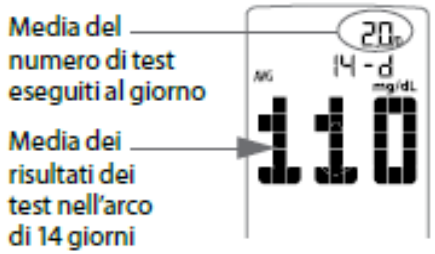
Mini-USB per il trasferimento dei dati al PC.

Archiviazione dati BGstar

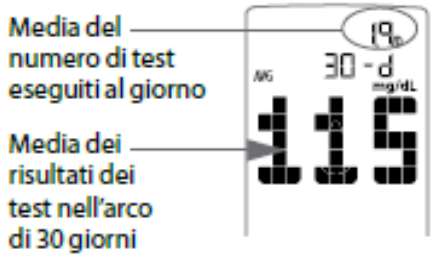
- In particolare è possibile visualizzare:



■ Le **statistiche nell'arco di 14 giorni**: La funzione Statistiche consente di confrontare le medie dei risultati del test, le deviazioni standard tra i risultati dei test e la media del numero di test effettuati ogni giorno per i 14 giorni precedenti.



■ Le **medie nell'arco di 14, 30 e 90 giorni**: Queste medie permettono di verificare la variazione dei livelli glicemici alle diverse ore del giorno.

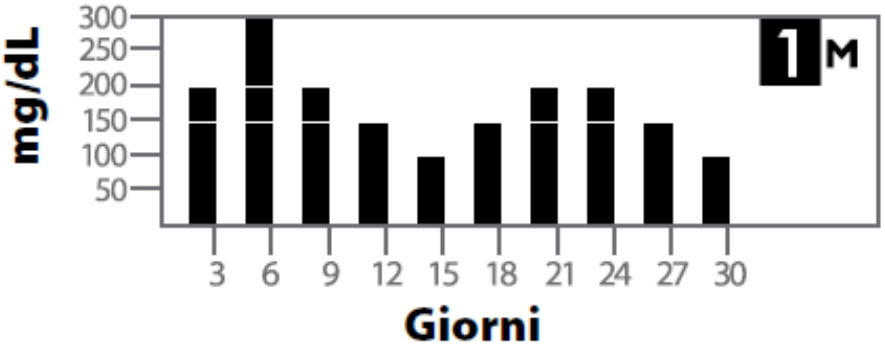


Archiviazione dati BGstar

- Le **medie prima e dopo i pasti e il rilevamento della variabilita glicemica:** Lo strumento BGStar™ suddivide le letture in categorie in base all'esecuzione del test prima o dopo i pasti. Queste medie permettono di verificare la variazione dei livelli glicemici alle diverse ore del giorno.

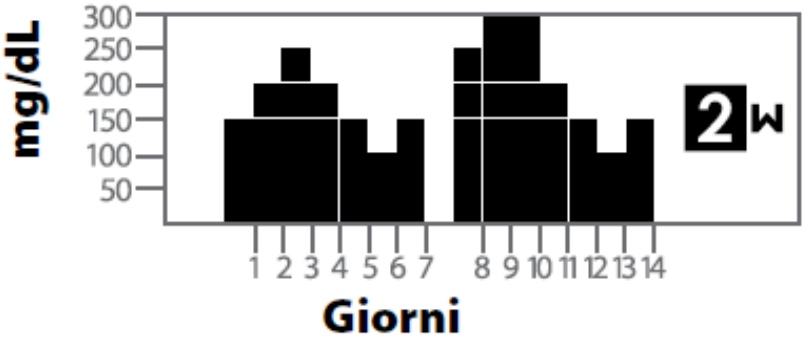
Archiviazione dati BGstar

Grafico di andamento nell'arco di 1 mese:

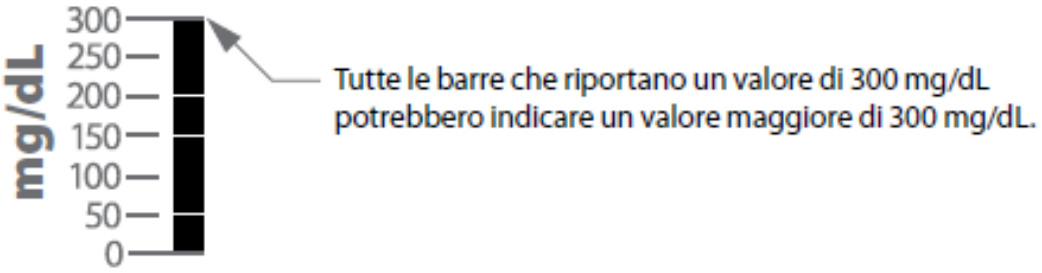


Ogni barra rappresenta la media dei risultati di un test nell'arco di 3 giorni. Ogni unità verticale rappresenta circa 50 mg/dL. ***Il risultato più recente viene visualizzato nella parte destra della schermata.***

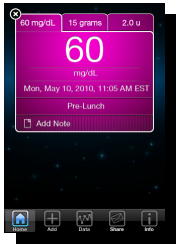
Grafico di andamento nell'arco di 2 settimane:

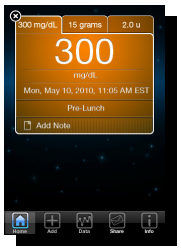


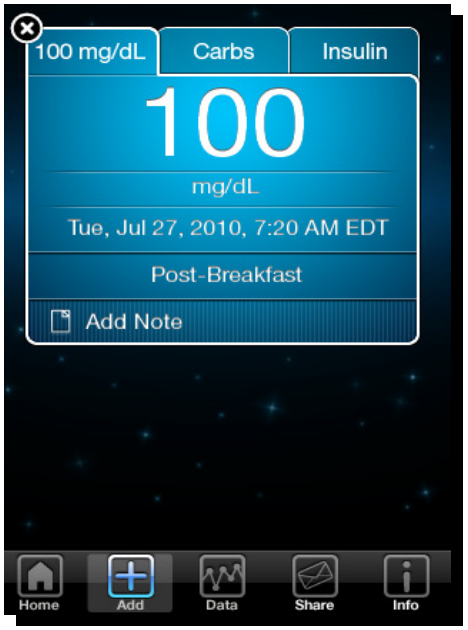
Ogni barra rappresenta la media dei risultati di un test nell'arco di 1 giorno. Ogni unità verticale rappresenta circa 50 mg/dL. ***Il risultato più recente viene visualizzato nella parte destra della schermata.***



Applicazione Diabetes Manager

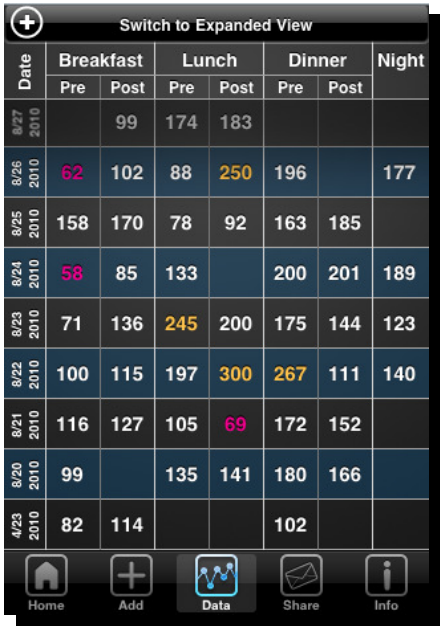






Glicemia, assunzione di carboidrati, dose di insulina.

Codice colore per identificare ipo e iperglicemie.



Archivio dei risultati.

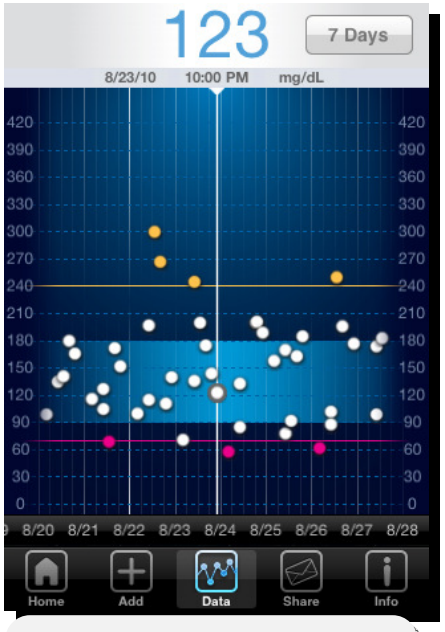


Grafico di tendenza: visualizzazione dei pattern.

Journal of Diabetes Science and Technology
Volume 5, Issue 2, March 2011

EDITORIAL

Self-Monitoring of Blood Glucose and Type 2 Diabetes: New Tricks for the Old Dog?

David Kerr, M.D.

Table 1.
Potential Value of Self-Monitoring of Glucose Levels in Diabetes Care

Patient	• Assess effectiveness of prevailing lifestyle and therapies • Assess impact of changes in lifestyle factors • Guidance on changing timing and frequency of therapies • Self-titration of medication dose • Early warning system (e.g., detection of hypoglycemia)
Health care provider	• Assess the impact of diet and exercise • Assess effectiveness of lifestyle and therapies • Recommend changes to therapies • Assess impact of therapy change • Intensify therapy • Confirmation of suspected hypoglycemia


"Non esiste rapporto con il paziente che non abbia una effetto sulla motivazione e sulla visione della condizione di malattia da parte del paziente" GG, oggi
"A parità di tutti gli altri fattori, un diabetico che conosce di più la propria malattia, vive più a lungo" Elliott P.Joslin,1947