Διαχείριση Σακχαρώδη Διαβήτη- Ειδικές περιπτώσεις

Ο ρόλος της τηλεϊατρικής

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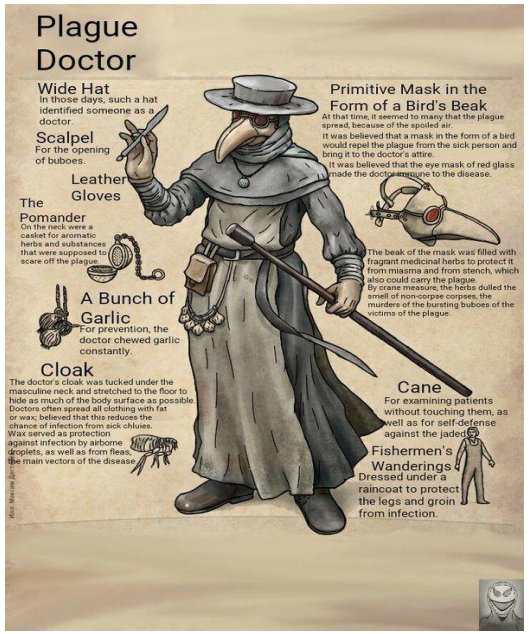
Τμήμα Ενδοκρινολογίας, Μεταβολισμού και Σακχαρώδη Διαβήτη

Ορισμός Τηλεϊατρικής από τον ΠΟΥ

Η Τηλεϊατρική είναι η **παροχή υπηρεσιών υγείας**, από όλους τους επαγγελματίες υγείας, εκεί όπου η **απόσταση είναι ένας κριτικός παράγοντας**, με τη χρήση της **πληροφορικής** και της **τεχνολογίας των τηλεπικοινωνιών**

– για την ανταλλαγή πολύτιμων πληροφοριών για τη διάγνωση, θεραπεία και πρόληψη της νόσου
– για την έρευνα και την αξιολόγηση
– τη συνεχιζόμενη εκπαίδευση αυτών που παρέχουν τις υπηρεσίες υγείας

και όλα αυτά **με σκοπό την προαγωγή της υγείας των ατόμων και των κοινοτήτων**



Ιστορία της τηλεϊατρικής

- **1666 μ.Χ. (Μεσαίωνας):** Ιατρός εξέτασε ασθενή με πανούκλα βρισκόμενος στην αντίπερα όχθη ενός ποταμού
- **Αρχές 19ου αιώνα:** Αποστολή μιας περιγραφής συμπτωμάτων από τους ασθενείς και απάντηση του ιατρού με διάγνωση, οδηγίες και φαρμακευτική συνταγή
- **Τέλη του 19ου αιώνα:** Στις ΗΠΑ αναπτύχθηκε ειδικός εξοπλισμός για τη μετάδοση ακτινογραφίας μέσω τηλεγράφου
- **1960:** Σημαντική ώθηση από τη NASA στην ανάπτυξη συστημάτων μετάδοσης βιοσημάτων από τα διαστημόπλοιά της.
- **1970:** Η τηλεϊατρική εφαρμόζεται δοκιμαστικά σε ασθενοφόρα

Ιστορία της τηλεϊατρικής (2)

- **1971:** Χρησιμοποιείται στην Αλάσκα η υπηρεσία «δορυφορική συμβουλευτική» για τη βελτίωση της παροχής ιατρικής φροντίδας στις αγροτικές περιοχές της Πολιτείας.
- **1972-1975:** Αναπτύσσεται από τη NASA πρόγραμμα τηλεϊατρικής για παροχή υπηρεσιών υγείας στους απομονωμένους κατοίκους της Αριζόνα. Χρησιμοποιείται φορτηγάκι εξοπλισμένο με ηλεκτροκαρδιογράφο και ακτινολογικό μηχάνημα που είναι στελεχωμένο με δύο νοσηλευτές.
- **Δεκαετίες '80 και '90:** Κορυφαία πανεπιστήμια ιδρύουν ειδικά κέντρα για υπηρεσίες τηλεϊατρικής.
- **Δεκαετία '90 έως σήμερα:** Η Ε.Ε. προκηρύσσει σειρά προγραμμάτων για την ανάπτυξη της τηλεϊατρικής.

Όροι και ορισμοί

e- Health

- Όρος ομπρέλα
- Περιγράφει όλες τις εφαρμογές της ιατρικής πληροφορικής και τηλεματικής

Telehealth

- Χρήση τεχνολογιών πληροφορικής και τηλεπικοινωνιών για την μεταφορά πληροφοριών (κλινικές- νοσηλευτικά ιδρύματα)
- Διοικητικές και εκπαιδευτικές υπηρεσίες
- Αναφέρεται σε ασθενείς αλλά και σε υγιείς (προαγωγή υγείας)

Telecare

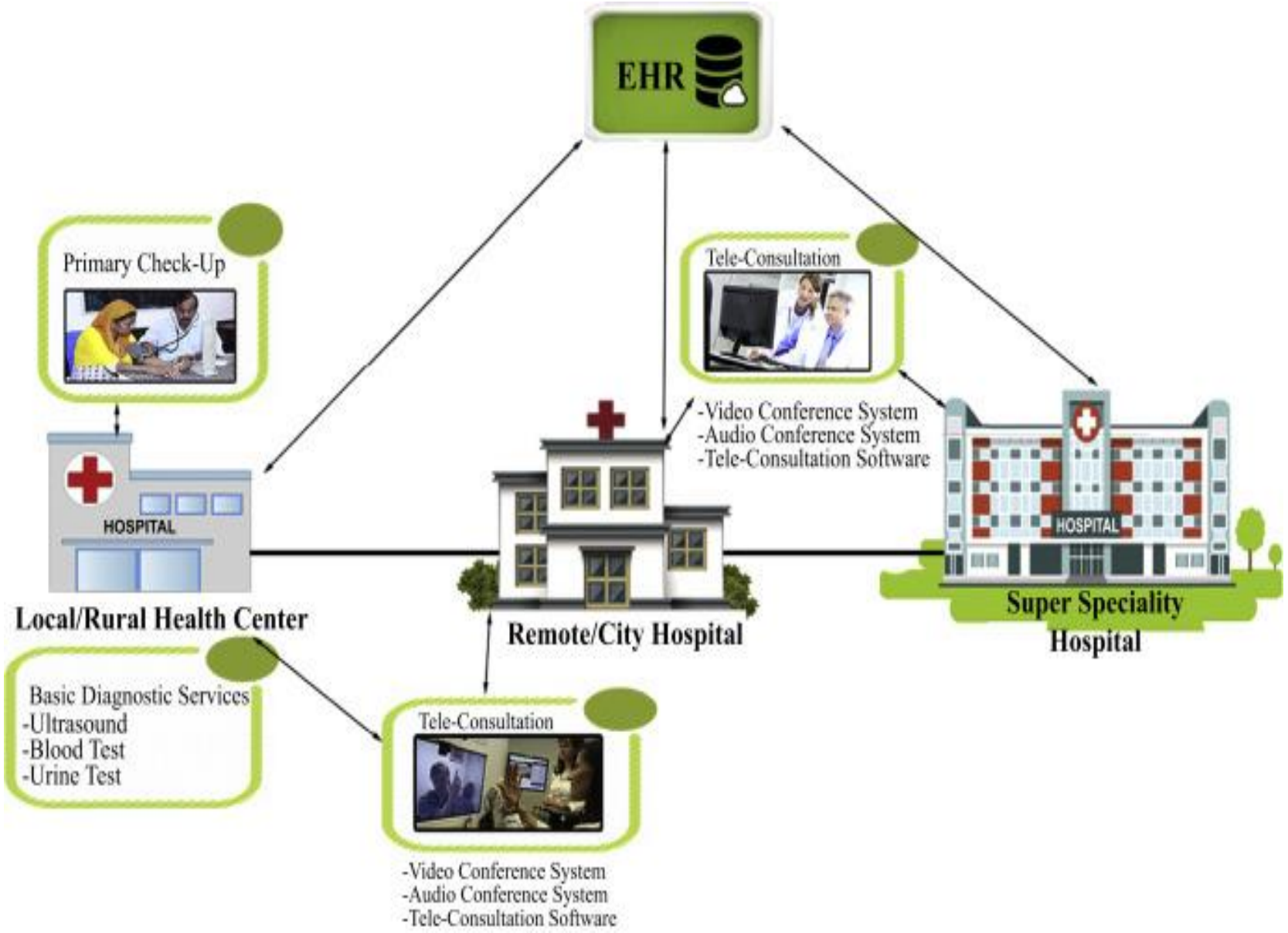
- Συνήθως χρησιμοποιούνται τηλεματικές εφαρμογές σε ασθενείς που βρίσκονται στα σπίτια τους ή σε ιδρύματα με μία ήδη διαγνωσμένη πάθηση
- Χρόνιοι πάσχοντες ή μεγάλης ηλικίας με περιορισμένη δυνατότητα μετακίνησης
- Περιλαμβάνει νοσηλευτικές υπηρεσίες
- Δεν περιλαμβάνει επείγοντα περιστατικά

❖ **Τηλεϊατρική πραγματικού χρόνου:** Απαιτεί την ταυτόχρονη παρουσία και των δύο πλευρών καθώς και την μεταξύ τους επικοινωνία

- PC
- Communications link
- Video conferencing system

❖ **Τηλεϊατρική αποθήκευσης και προώθησης:** Περιλαμβάνει τη λήψη ιατρικών δεδομένων και τη μετάδοσή τους σε μία βολική στιγμή για επεξεργασία.

Δίκτυο Τηλεϊατρικής



Αποτελείται από:

- ✓ **Ένα ή περισσότερα Κέντρα Συντονισμού Τηλεϊατρικής**
  - ✓ Λήψη και υποστήριξη επειγόντων περιστατικών
  - ✓ Στελέχωση από ιατρονοσηλευτικό προσωπικό διαφόρων ειδικοτήτων
- ✓ **Φορητά Τερματικά Τηλεϊατρικής**
  - ✓ Παρακολούθηση και καταγραφή βιοσημάτων των ασθενών
  - ✓ Πολυμεσική επικοινωνία με τα Κέντρα Συντονισμού
  - ✓ Τηλεϊατρικής (αποστολή εικόνας και ήχου)
- ✓ **Διαχειριστικό Κέντρο Συντονισμού**

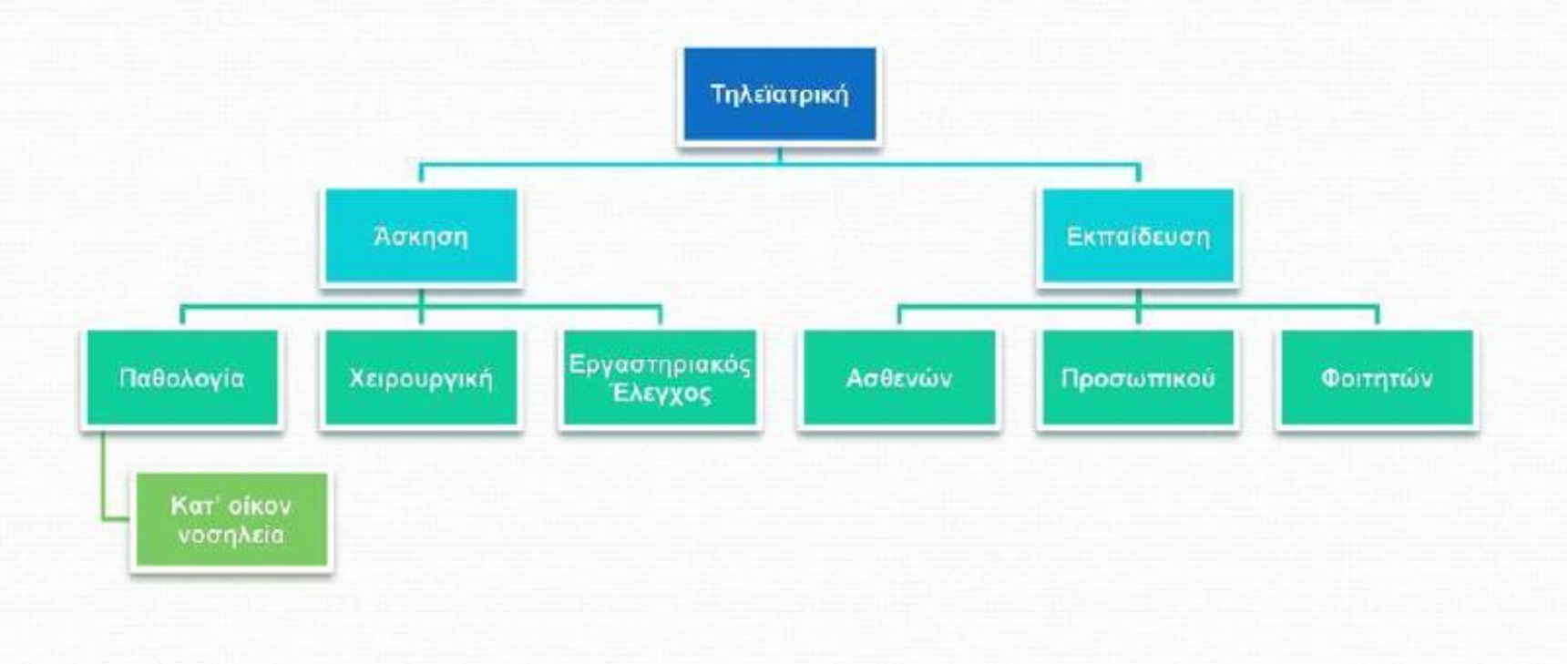
Τηλεϊατρική-οφέλη

Ασθενών

- **Ισότητα στο δικαίωμα πρόσβασης στις υπηρεσίες για όλους**
- Δυνατότητα εγκυρότερων διαγνώσεων
- **Αναβαθμισμένες υπηρεσίες σε απομακρυσμένες περιοχές**
- Βελτίωση του χρόνου αντίδρασης στα επείγοντα περιστατικά
- **Αποφυγή άσκοπων διακομιδών, επισκέψεων**
- Διάχυση ιατρικής πληροφορίας
- Ευφυής διαχείριση ιατρικών πόρων

Ιατρικού και Νοσηλευτικού προσωπικού

- **Διευκόλυνση συνεχιζόμενης εκπαίδευσης**
- Εκσυχρονισμός
- Βελτίωση χρόνου αντίδρασης
- Αποφυγή άσκοπων διακομιδών και μείωση χρόνου νοσηλείας
- **Αξιοποίηση υφιστάμενου ιατροτεχνικού εξοπλισμού**



Τηλεϊατρική-εκπαίδευση

- Ιατρικό, Νοσηλευτικό και παραϊατρικό προσωπικό
- Φοιτητές
- Ασθενείς και άτομα άμεσου περιβάλλοντος

Τηλεϊατρική - εφαρμογές

1. Αντιμετώπιση επειγόντων περιστατικών
2. Παρακολούθηση καρδιοπαθών
3. Παρακολούθηση διαβητικών
4. Παρακολούθηση της κύησης
5. Εφαρμογές οφθαλμολογίας
6. Εφαρμογές παιδιατρικής
7. Υποστήριξη ατόμων τρίτης ηλικίας
8. Νοσηλευτική κατ'οίκον φροντίδας

- Τηλε-ακτινολογία (Tele-radiology)
- Τηλε-δερματολογία (Tele-dermatology)
- Τηλε-ενδοσκοπία (Tele-endoscopy)
- Τηλε-παθολογοανατομία (Tele-pathology)
- Τηλε-καρδιολογία (Tele-cardiology)
- Τηλε-ψυχιατρική (Tele-psychiatry)
- Τηλε-χειρουργική (Tele-surgery)
- Τηλε-φροντίδα (Tele-care)
- Τηλε-εκπαίδευση (Tele-education)

Telemonitoring in diabetes: evolution of concepts and technologies, with a focus on results of the more recent studies

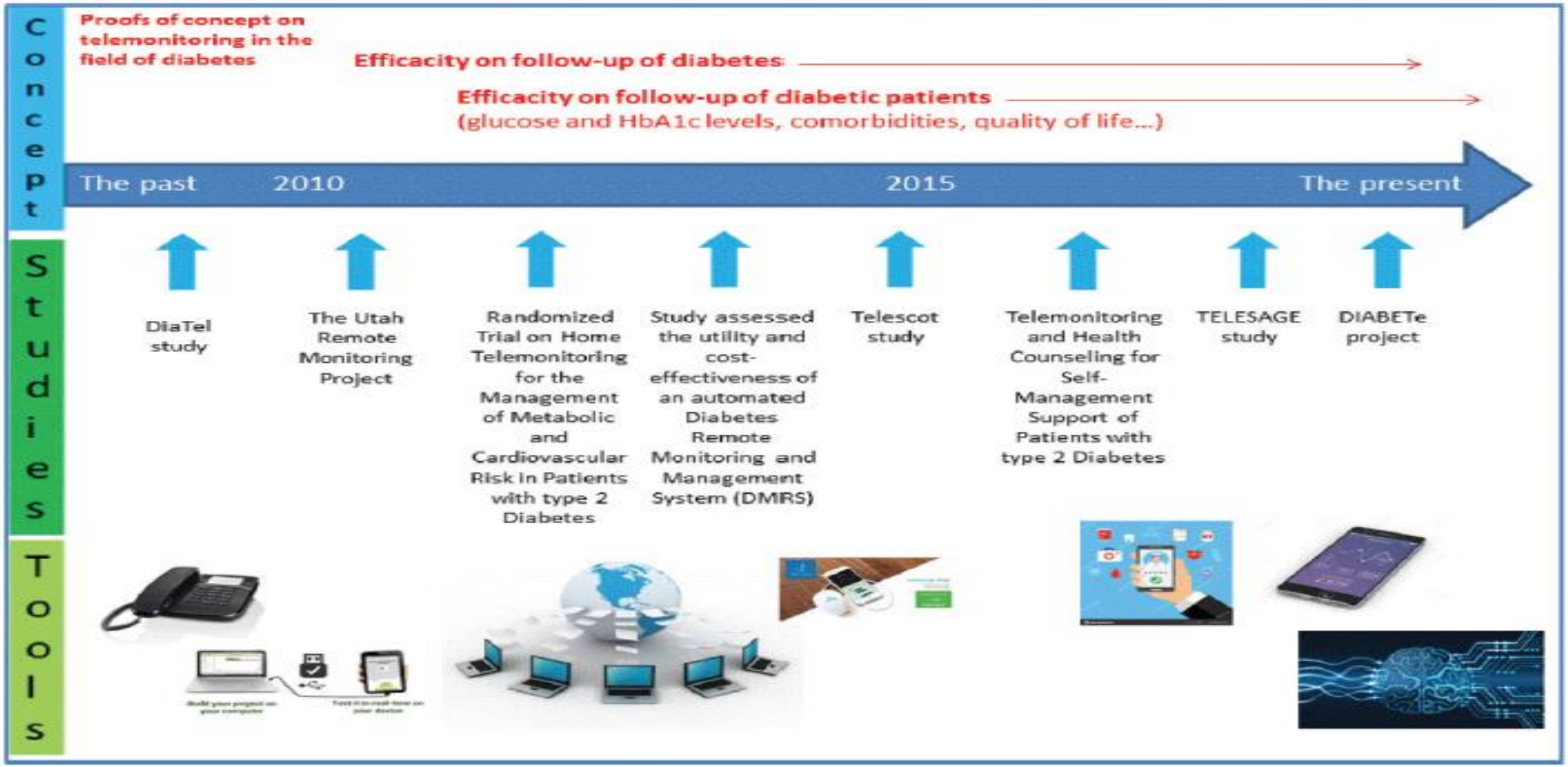


Figure 1: Telemonitoring in diabetes: evolution of concepts and technologies, with a focus on results of the more recent studies.

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Telemonitoring in diabetes: evolution of concepts and technologies, with a focus on results of the more recent studies

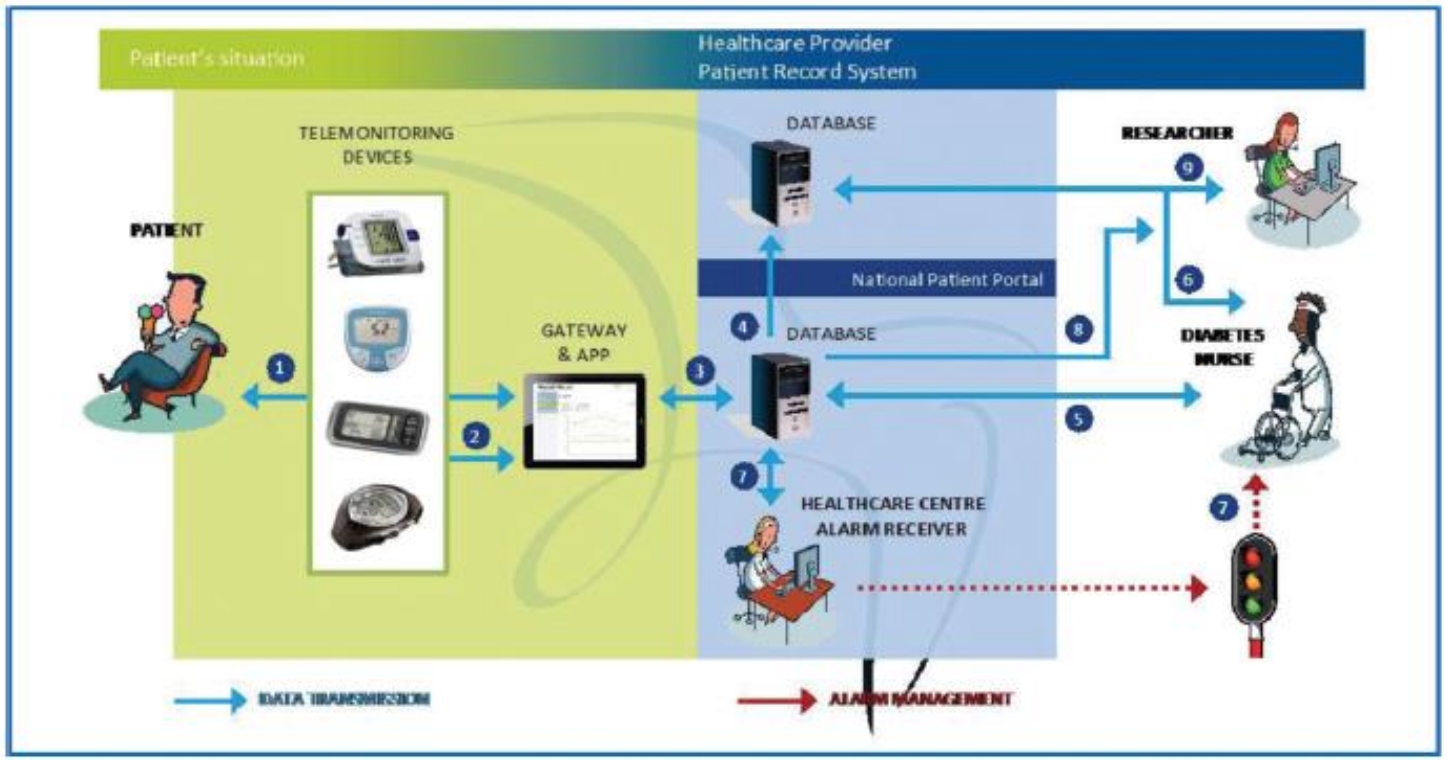

Figure 2: Telemonitoring devices and information flow during the field trial (*adapted from* [33]).

Table 2: Results of the telemonitoring studies conducted in the field of diabetes during the period from 2010 to 2015.

Name of the study	Results
The Utah Remote Monitoring Project (n=109) [29]	Principal criteria: – Mean HbA_{1c} had decreased from 9.73% at baseline to 7.81% at the end of the program (p<0.0001) – Systolic blood pressure (BP) had decreased from 130.7 mmHg at baseline to 122.9 mmHg at the end (p=0.0001) Secondary criteria: – Low-density lipoprotein content had decreased from 103.9 mg/dl at baseline to 93.7 mg/dl at the end (p=0.0263) – Knowledge of diabetes and arterial hypertension have increased significantly (p<0.001 for both) – Patient engagement and medication adherence also have improved, but not significantly – Per questionnaires at study end, patients felt the telemonitoring program had been useful
Randomized Trial on Home Telemonitoring for the Management of Metabolic and Cardiovascular Risk in Patients with type 2 Diabetes (n=302) [30]	Principal criteria: – Mean HbA_{1c} difference of 0.33±0.1 (p=0.001) have been observed between the telemonitoring compared and the control group. The proportion of patients reaching the target of HbA_{1c} (HbA_{1c} <7.0%) had been higher in the telemonitoring group than in the control group after 6 months: 33.0% vs. 18.7% (p=0.009) and 12 months: 28.1% vs. 18.5% (p=0.07) – No difference had been registered for body weight, BP, and lipid profile Secondary criteria: – For quality of life (evaluated with the 36-item Short Form health survey), significant differences in favor of the telemonitoring group, as for physical functioning (p=0.01) and mental health (p=0.005) – On an economic level, a lower number of specialist visits was reported in the telemedicine group: incidence rate ratio of 0.72 (95% confidence interval, 0.51–1.01; p=0.06)
Study assessed the utility and cost-effectiveness of an automated Diabetes Remote Monitoring and Management System (DMRS) (n=98) [31]	Principal criteria: – No significant difference for mean HbA_{1c} between the DRMS and control groups at 3 months: 7.60% vs. 8.10% and at 6 months: 8.10% vs. 7.90% (p=ns) Secondary criteria: – Changes from baseline to 6 months have been not statistically significant for self-reported medication adherence – Changes of diabetes-specific quality of life have been not significant registered, except for the Daily Quality of Life-Social/Vocational Concerns subscale score (p=0.04)
Telescot Diabetes Pragmatic Multicenter Randomized Controlled Trial (n=321) [32]	Principal criteria: – The Mean (SD) HbA_{1c} at follow-up was 7.92% in the intervention group vs. 8.36% in the usual care group]. For primary analysis, adjusted mean HbA_{1c} was 0.51% lower (95% CI 0.22% to 0.81%, (principal criterion) (p=0.0007) Secondary criteria: – Adjusted mean ambulatory systolic BP has been 3.06 mmHg lower (95% CI 0.56–5.56 mmHg, p=0.017) and mean ambulatory diastolic BP has been 2.17 mmHg lower (95% CI 0.62–3.72, p=0.006) among people in the intervention group when compared with usual care after adjustment – No significant differences were identified between groups in terms of: weight, treatment pattern, adherence to medication or quality of life – The number of telephone calls was greater between nurses and patients in the intervention compared with control group: rate ratio of 7.50 (95% CI 4.45–12.65, p<0.0001) but no other significant differences between groups in use of health services were identified between groups

DOI: 10.25122/jml-2019-0006

Telemonitoring in diabetes: evolution of concepts and technologies, with a focus on results of the more recent studies

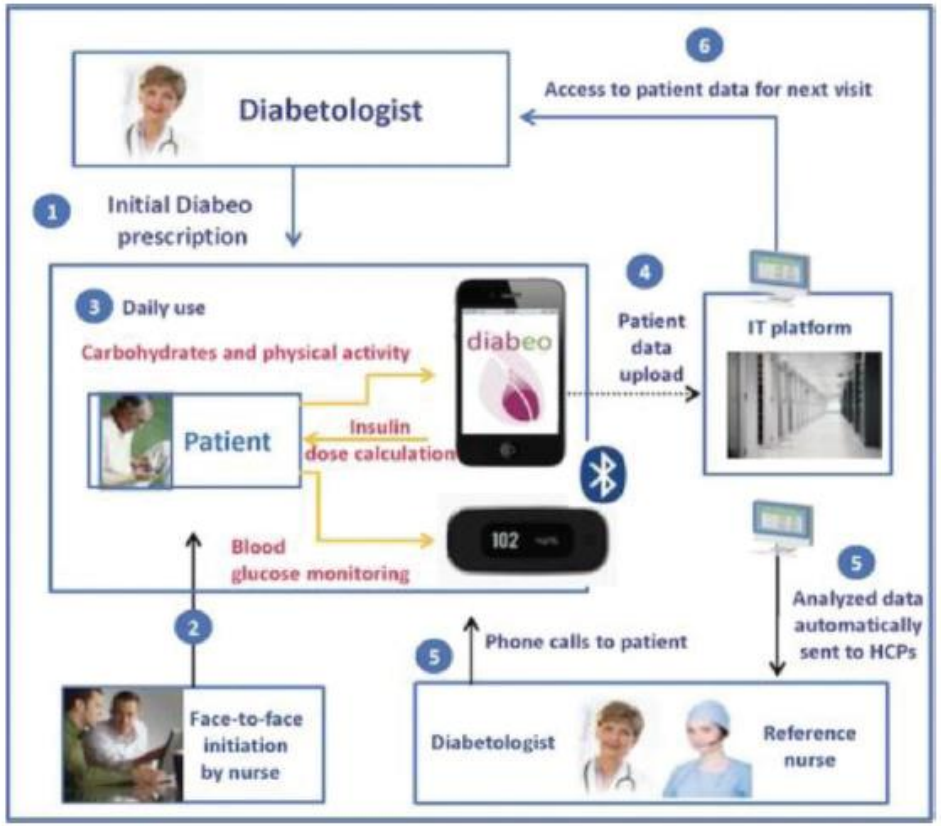

Figure 3: TELESAGE process for diabetic patients assigned to arm 3: (i) Self-measured plasma glucose levels before and after meals (6 measurements) + 1 optional in the night; (ii) carbohydrate counts; and (iii) planned physical activity. HCP: healthcare practitioner (*adapted from* [34]).

Figure 5: Telemedicine project: DIABETe. A: DIABETe is based on a smart system comprising an inference engine and a medical ontology for personalized synchronous or asynchronous analysis of data specific to each patient and, if necessary, the sending of an artificial intelligence-generated alert (MyPrediTM. B: The platform comprises connected non-intrusive medical sensors, a touchscreen tablet connected by Wi-Fi, and a router or 3G/4G, rendering it possible to interact with the patient and provide education on treatment, diet, and lifestyle. C: The system involves a server that hosts the patient's data and a secure internet portal to which the patient can be connected to hospital- and non-hospital-based healthcare professionals.

Telemonitoring in diabetes: evolution of concepts and technologies, with a focus on results of the more recent studies

Table 3: Results of the main recent studies on telemonitoring diabetic patients.

	The Utah Remote Monitoring Project [29]	Randomized Trial on Home Telemonitoring for the Management of Metabolic and Cardiovascular Risk in Patients with type 2 Diabetes [30]	Study assessed the utility and cost-effectiveness of an automated Diabetes Remote Monitoring and Management System (DMRS) [31]	Telescot Diabetes Pragmatic Multicenter Randomized Controlled Trial [32]	Telemonitoring and Health Counseling for Self-Management Support study [33]	TELESAGE [34, 35]	DIABETe [39, 40]
Impact on blood-glucose and/or HbA_{1c} levels	+	+	-	+	-	+	•
Impact on arterial hypertension, weight, dyslipidemia and/or other comorbidities	+	•	-	+	-	•	+
Impact on quality of life		+	+	-	-	•	+
Impact on appropriation of the disease by patients and/or greater adherence to therapeutic and hygiene-dietary measures	+	•	-	-	•	•	•
Grade classified	Moderate	Moderate	Moderate	High	Moderate	High	High

"+": positive impact; "-": no positive impact; "•": not studied.

To date, relatively few projects and trials in diabetic patients have been run within the "telemedicine 2.0" setting, particularly using AI, ICT and the Web 2.0, as for the studies TELESAGE and DIABETe [34, 35, 39, 40].

Further investigations are needed on efficacy and cost-effectiveness over longer periods of time, and larger samples of diabetic patients.

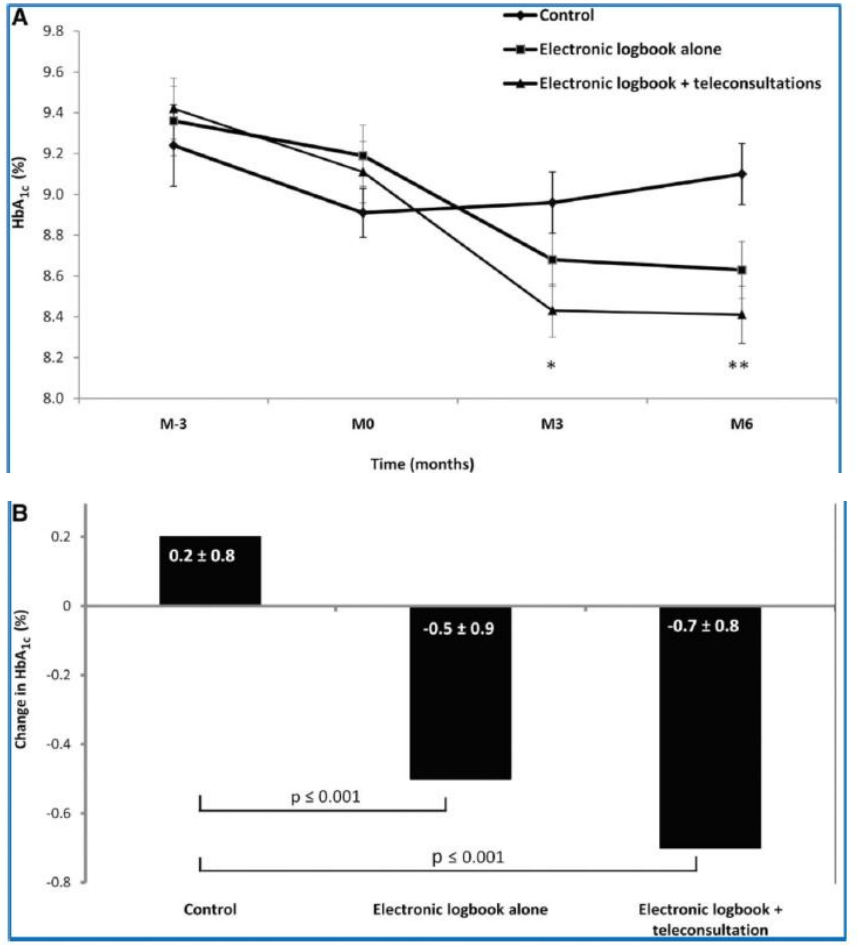

Figure 4: Efficacy of the software Diabeo™, licensed by Sanofi Laboratory. A: HbA_{1c} values (means±SE), from 3 months before baseline to month 6. *p=0.0103, **p=0.0019 compared with control group. B: Change in HbA_{1c} values (means±SE) from baseline to month 6 (adapted from [34, 35]).

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Retinal Telemedicine

Ru-ik Chee[1], **Dana Darwish**[1], **Alvaro Fernandez-Vega**, **Samir Patel**[2], **Karyn Jonas**[1], **Susan Ostmo**[3], **J. Peter Campbell**[3], **Michael F. Chiang**[3], and **RV Paul Chan**[1]

[1]Department of Ophthalmology and Visual Sciences, Illinois Eye and Ear Infirmary, University of Illinois at Chicago

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A growing body of evidence has shown that retinal telemedicine systems are reliable and cost-effective. Further developments in computational techniques have led to the development of automated image analysis systems and application of deep learning artificial intelligence algorithms, which further increase the speed and efficiency of telemedicine systems. Telemedical retinal image systems have additionally been shown to be of educational value.

Importantly, telemedicine-based techniques have the potential to significantly reduce but not eliminate the necessity of on-site examinations, especially in individuals who require treatment, or are at high risk for disease progression. In such cases, retinal telemedicine should be utilized as a useful adjunct and not a complete replacement for physical clinical examinations. To maximize the potential benefits, retinal telemedicine programs should be carefully and appropriately integrated into current clinical systems.

An Automated Grading System for Detection of Vision-Threatening Referable Diabetic Retinopathy on the Basis of Color Fundus Photographs

Zhixi Li,[1] Stuart Keel,[2] Chi Liu,[3] Yifan He,[3] Wei Meng,[3] Jane Scheetz,[2] Pei Ying Lee,[2] Jonathan Shaw,[4] Daniel Ting,[5] Tien Yin Wong,[5] Hugh Taylor,[6] Robert Chang,[7] and Mingguang He[1,2]

Diabetes Care 2018;41:2509–2516 | https://doi.org/10.2337/dc18-0147

In summary, this AI-based DLA shows robust performance in the detection of vision-threatening referable DR (severe DR or worse, DME, or both) in retinal images from a multiethnic sample. This technology offers great potential to increase the efficiency and accessibility of DR screening programs, particularly in developing countries such as China, Indonesia, and India, and in minority and underserved populations (e.g., Indigenous Australians). Before clinical use, further work is required to investigate where this technology “fits” within the clinical system. For example, whether this software can be successfully incorporated at the point of care to allow non–eye-trained professionals to conduct DR screening or into telemedicine-based screening programs warrants investigation. In addition, public health projects assessing the impact (i.e., adherence to referral, new DR detection rates), end user acceptance (clinician and patient), and cost-effectiveness of these DLAs would be beneficial

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Diagnostic Accuracy of a Device for the Automated Detection of Diabetic Retinopathy in a Primary Care Setting

Frank D. Verbraak,[1] Michael D. Abramoff,[2,3,4] Gonny C.F. Bausch,[5] Caroline Klaver,[6,7,8] Giel Nijpels,[9] Reinier O. Schlingemann,[10] and Amber A. van der Heijden[9]

Diabetes Care 2019;42:651–656 | https://doi.org/10.2337/dc18-0148

In summary, the device had high diagnostic accuracy for the detection of vtDR and a more modest but still adequate accuracy in detection of mtmDR in a primary care setting using an independent reference standard. The diagnostic accuracy of the device therefore allows safe use in a primary care setting

Diabetes Care Volume 38, September 2015 1723

A Randomized Controlled Trial Comparing Telemedical and Standard Outpatient Monitoring of Diabetic Foot Ulcers

Benjamin S.B. Rasmussen,[1] Johnny Froekjaer,[2] Mads R. Bjerregaard,[1] Jens Lauritsen,[2] Joergen Hangaard,[4] Claus W. Henriksen,[5] Ulrich Halekoh,[3] and Knud B. Yderstraede[1]

Diabetes Care 2015;38:1723–1729 | DOI: 10.2337/dc15-0332

To the best of our knowledge, this study is the largest clinical trial involving telemedIcal monitoring of diabetic foot ulcers. Furthermore, it is the first to evaluate tele Medical monitoring of patients with diabetic foot ulcers in a randomized clinical controlled setting. The findings of no significant difference regarding amputation and healing seem promising; however, for tele medical monitoring, a higher mortality throws into question the role of telemedicine in monitoring diabetic foot ulcers. Further studies are needed to investigate the effects of telemedicine on mortality and other clinical outcomes and to identify patient subgroups that may have poorer outcome from telemedical monitoring.

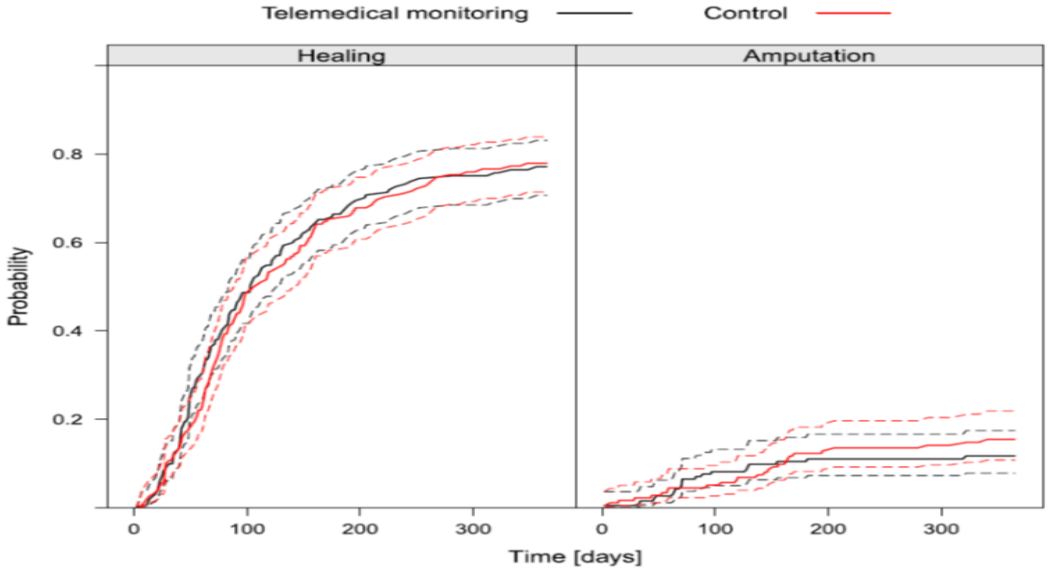


Figure 3—Cumulative probability of healing and amputation as a function of time. Dashed lines represent 95% CIs.

The Effect of Telemedicine Follow-up Care on Diabetes-Related Foot Ulcers: A Cluster-Randomized Controlled Noninferiority Trial

Hilde Smith-Strøm,[1,2] Jannicke Igland,[1,2] Truls Østbye,[2,3] Grethe S. Tell,[2] Marie F. Hausken,[4] Marit Graue,[1,2] Svein Skeie,[5] John G. Cooper,[4] and Marjolein M. Iversen[1,2,4]

Diabetes Care 2018;41:96–103 | https://doi.org/10.2337/dc17-1025

This TM trial took place in a novel setting, and the findings of no differences regard Ing time to healing, death, and patient satisfaction as well as significant fewer amputations in the TM group suggest that use of TM technology can be an al ternative and supplement to usual care. Owing to the low proportion of patients with severe ulcers in the current sample, the conclusions are most relevant for pa tients with more superficial ulcers. The findings suggest that TM is particularly useful for patients who live far from an outpatient clinic. Thus, use of TM can re duce the burden that long travel distance entails but maintain high-quality wound care.

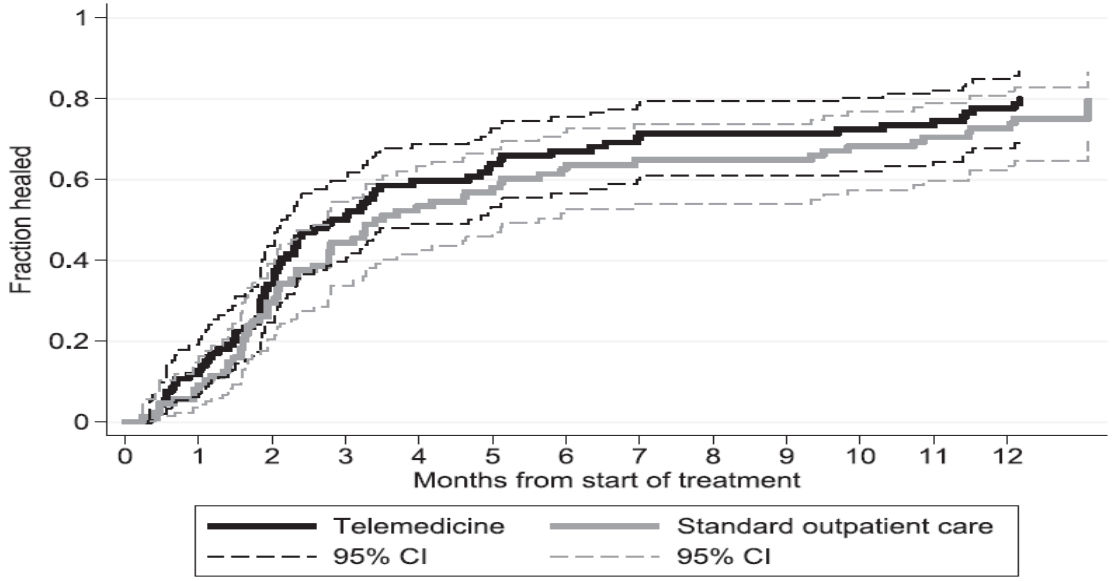


Figure 2—Cumulative incidence curve: healing time from start of treatment in specialist health care.

RESEARCH ARTICLE Open Access

Effectiveness of telemedicine for pregnant women with gestational diabetes mellitus: an updated meta-analysis of 32 randomized controlled trials with trial sequential analysis

Table 3 Subgroup analyses of studies using different types of TM tools

Outcome	TM tools	No. of trials	Pooled effect			Heterogeneity	
			Effect size	95% CI	P	I^2	P
Change in HbA1c	Health app or device	4	MD = -0.75	(− 1.25, − 0.25)	< 0.01	95	0.01
	WeChat	6	MD = -0.84	(−1.46, − 0.22)	< 0.01	95	< 0.01
Change in FBG	Health app or device	6	MD = -0.05	(−0.23, 0.12)	0.54	16	0.31
	Web-based system	5	MD = -0.48	(− 0.95, − 0.00)	0.05	91	< 0.01
	WeChat	9	MD = -0.85	(−1.35, −0.35)	< 0.01	96	< 0.01
Change in 2hBG	Health app or device	5	MD = -0.50	(−0.97, − 0.03)	0.04	38	0.17
	WeChat	8	MD = -1.26	(−2.63, 0.11)	0.07	98	< 0.01
Caesarean section	Health app or device	6	RR = 0.76	(0.60, 0.97)	0.03	33	0.19
	Web-based system	3	RR = 1.19	(0.69, 2.06)	0.54	67	0.05
	WeChat	10	RR = 0.82	(0.60, 0.96)	0.02	56	0.02
PIH or preeclampsia	Health app or device	3	RR = 0.76	(0.28, 2.09)	0.60	35	0.22
	Web-based system	3	RR = 0.50	(0.40, 0.62)	< 0.01	70	0.04
	WeChat	6	RR = 0.39	(0.26, 0.61)	< 0.01	0	0.93
Premature rupture of membranes	Web-based system	3	RR = 0.56	(0.44, 0.71)	< 0.01	21	0.28
	WeChat	3	RR = 0.80	(0.53, 1.19)	0.27	0	0.51
Macrosomia	Health app or device	4	RR = 1.16	(0.65, 2.06)	0.62	27	0.25
	Web-based system	3	RR = 0.61	(0.07, 5.58)	0.66	81	< 0.01
	WeChat	11	RR = 0.44	(0.32, 0.59)	< 0.01	4	0.40
Admission to the NICU	Health app or device	3	RR = 0.74	(0.44, 1.24)	0.25	14	0.32
	Web-based system	3	RR = 1.33	(0.69, 2.59)	0.40	46	0.16
Neonatal hypoglycaemia	Health app or device	4	RR = 1.25	(0.81, 1.92)	0.31	0	0.78
	WeChat	6	RR = 0.40	(0.28, 0.59)	< 0.01	0	0.86
Preterm birth	Health app or device	3	RR = 0.40	(0.17, 0.96)	0.04	0	0.75
	Web-based system	3	RR = 0.22	(0.15, 0.32)	< 0.01	84	< 0.01
	WeChat	7	RR = 0.32	(0.21, 0.48)	< 0.01	0	0.66
Neonatal asphyxia	WeChat	4	RR = 0.17	(0.08, 0.33)	< 0.01	0	0.88
Polyhydramnios	WeChat	5	RR = 0.17	(0.08, 0.35)	< 0.01	0	0.99

GDM Gestational diabetes mellitus, *HbA1c* glycated haemoglobin, *2hBG* 2-h postprandial blood glucose, *FBG* fasting blood glucose, *PIH* pregnancy-induced hypertension, *NICU* neonatal intensive care unit, *RR* relative risk, *CI* confidence interval, *MD* mean difference, *TM* telemedicine

Xie *et al. BMC Pregnancy and Childbirth* (2020) 20:198
https://doi.org/10.1186/s12884-020-02892-1

Brief Report

Managing gestational diabetes mellitus using a smartphone application with artificial intelligence (SineDie) during the COVID-19 pandemic: Much more than just telemedicine

Lara Albert [a,*], *Ismael Capel* [a], *Gema García-Sáez* [b,c], *Pablo Martín-Redondo* [b], *M. Elena Hernando* [b,c], *Mercedes Riola* [a]

Table 1 – Summary of Sinedie app data received from GDM women.

Start date	Id	Number of days using the app[a]	Total BG uploaded (BG/day)	Glucose levels[b] FBG / 1hBG		App therapy change proposals		
				First 3 days	Last 3 days	Diet changes	Start insulin therapy	Adjust insulin
31/03	1	43.3	168 (3.9)	84 / 115	87 / 103	1	-	-
06/04	2	3.5	23 (6.5)	103 / 125	-	-	-	-
08/04	3	36.6	147 (4.0)	82 / 119	73 / 104	-	1	-
08/04	4	36.6	146 (4.0)	94 / 123	96 / 120	-	1	4
08/04	5	12.0	52 (4.3)	85 / 130	92 / 134	-	1	-
08/04	6	37.1	164 (4.4)	84 / 129	84 / 112	-	1	2
08/04	7	36.0	144 (4.0)	89 / 132	91 / 131	-	1	6
08/04	8	37.0	151 (4.1)	93 / 136	96 / 141	-	1	6
09/04	9	22.2	89 (4.0)	83 / 126	92 / 120	-	-	-
16/04	10	29.0	115 (4.0)	87 / 132	93 / 118	1	1	-
22/04	11	22.6	91 (4.0)	85 / 127	93 / 126	2	1	-
28/04	12	16.5	36 (2.2)	83 / 115	78 / 117	-	-	-
28/04	13	16.5	71 (4.3)	97 / 124	95 / 138	-	1	1
29/04	14	15.4	71 (4.6)	92 / 128	89 / 122	-	1	-
29/04	15	4.6	17 (3.7)	96 / 122	-	-	1	-
29/04	16	15.5	55 (3.6)	86 / 123	89 / 120	1	-	-
06/05	17	8.6	36 (4.2)	71 / 128	71 / 111	-	-	-
06/05	18	8.6	37 (4.3)	91 / 122	86 / 124	-	1	-
12/05	19	2.5	12 (4.7)	82 / 96	-	-	-	-
12/05	20	2.1	10 (4.8)	64 / 104	-	-	-	-

BG, blood glucose measurement; FBG, fasting blood glucose; 1hBG, 1-h postprandial blood glucose

[a] From 31 March to 14 May 2020

[b] Mean glucose levels (mg/dL) during the first 3 full days vs. last 3 full days. If there is not enough data, the field is blank.

During the follow-up, the system generated diet adjustments in 20% of the patients, 12 patients initiated insulin treatment and 41.7% of them required therapy adjustment afterwards (Table 1). 45.2% of insulin proposals generated by the system were accepted, 29.0% postponed and 25.8% rejected.

A Randomized Controlled Trial to Evaluate the Effects of a Smartphone Application–Based Lifestyle Coaching Program on Gestational Weight Gain, Glycemic Control, and Maternal and Neonatal Outcomes in Women With Gestational Diabetes Mellitus: The SMART-GDM Study

Tong Wei Yew,[1,2] Claudia Chi,[3] Shiao-Yng Chan,[3,4] Rob M. van Dam,[5] Clare Whitton,[5] Chang Siang Lim,[5] Pin Sym Foong,[5] Winni Fransisca,[5] Chieu Leng Teoh,[6] Jeannie Chen,[6] Su Tin Ho-Lim,[6] Su Lin Lim,[7] Kai Wen Ong,[7] Peck-Hoon Ong,[8] Bee Choo Tai,[5] and E Shyong Tai[4,5,9]

Diabetes Care 2021;44:456–463 | https://doi.org/10.2337/dc20-1216

Diabetes Care Volume 44, February 2021

In conclusion, we developed a smartphone app-based lifestyle coaching program that integrates with SMBG and a Bluetooth weighing scale designed to prevent EGWG and optimize glycemic control in women with GDM. When added to usual care, the use of the app lowered maternal blood glucose and was associated with fewer neonatal complications but did not reduce EGWG. Further studies are required to better understand which components of the app gave rise to these findings and to determine whether it can replace some components of usual care.

Table 3—Delivery and neonatal outcomes by experimental group

	Total (n = 333)	Intervention (n = 168)	Control (n = 165)	P value
Delivery outcomes				
Mode of delivery				0.769
Normal vaginal	201 (60.4)	104 (61.9)	97 (58.8)	
Assisted vaginal*	16 (4.8)	7 (4.2)	9 (5.5)	
CS	116 (34.8)	57 (33.9)	59 (35.8)	
Elective	56 (16.8)	30 (17.9)	26 (15.8)	
Emergency	60 (18.0)	27 (16.1)	33 (20.0)	
Preterm	24 (7.2)	14 (8.3)	10 (6.1)	0.526
Apgar score <7 at 1 min	10 (3.0)	6 (3.6)	4 (2.4)	0.750
Apgar score <7 at 5 min	1 (0.3)	0 (0.0)	1 (0.6)	0.494
Birth weight (g)	3,060.1 ± 452.5	3,055.5 ± 414.9	3,064.8 ± 489.0	0.853
Macrosomia >4 kg	2 (0.6)	0 (0)	2 (1.2)	0.245
Neonatal outcomes				
Composite neonatal complications†	152 (45.8)	64 (38.1)	88 (53.7)	0.006
Birth trauma	13 (3.9)	7 (4.2)	6 (3.6)	1.000
Neonatal hypoglycemia	61 (18.3)	24 (14.3)	37 (22.4)	0.065
Hyperbilirubinemia	60 (18.0)	27 (16.1)	33 (20.0)	0.355
Respiratory distress	53 (15.9)	24 (14.3)	29 (17.6)	0.455
NICU admission	33 (9.9)	12 (7.1)	21 (12.7)	0.100
Perinatal death	1 (0.3)	0 (0.0)	1 (0.6)	0.495

Data are n (%) or mean ± SD. *Five vacuum and two forceps delivery in the intervention group and six vacuum and three forceps delivery in the control group. †Not prespecified.

Apps and the Woman With Gestational Diabetes Mellitus

Jincy Immanuel and David Simmons

Diabetes Care 2021;44:313–315 | https://doi.org/10.2337/dci20-0068

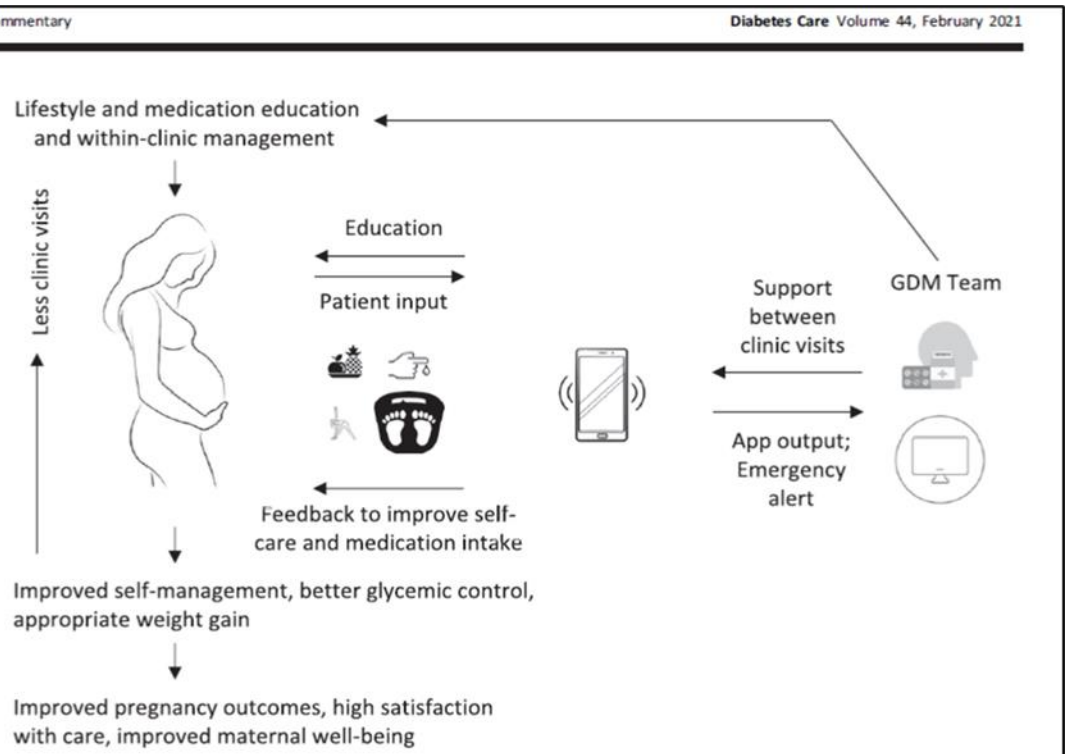


Figure 1—Implications of using smartphone-based apps for GDM management.

Incorporating such an app in different models of care could improve triaging and reduce the number of women requiring step-up to more specialist care (8). At a time when the numbers of women with GDM are high and increasing, any tool that can both increase satisfaction and reduce demand could be of substantial benefit to both health services and the women.

ARTIFICIAL INTELLIGENCE-CLOSING THE LOOP

J Med Internet Res. 2018 May; 20(5): e10775.
Published online 2018 May 30. doi: 10.2196/10775: 10.2196/10775
PMCID: PMC6000484
PMID: 29848472

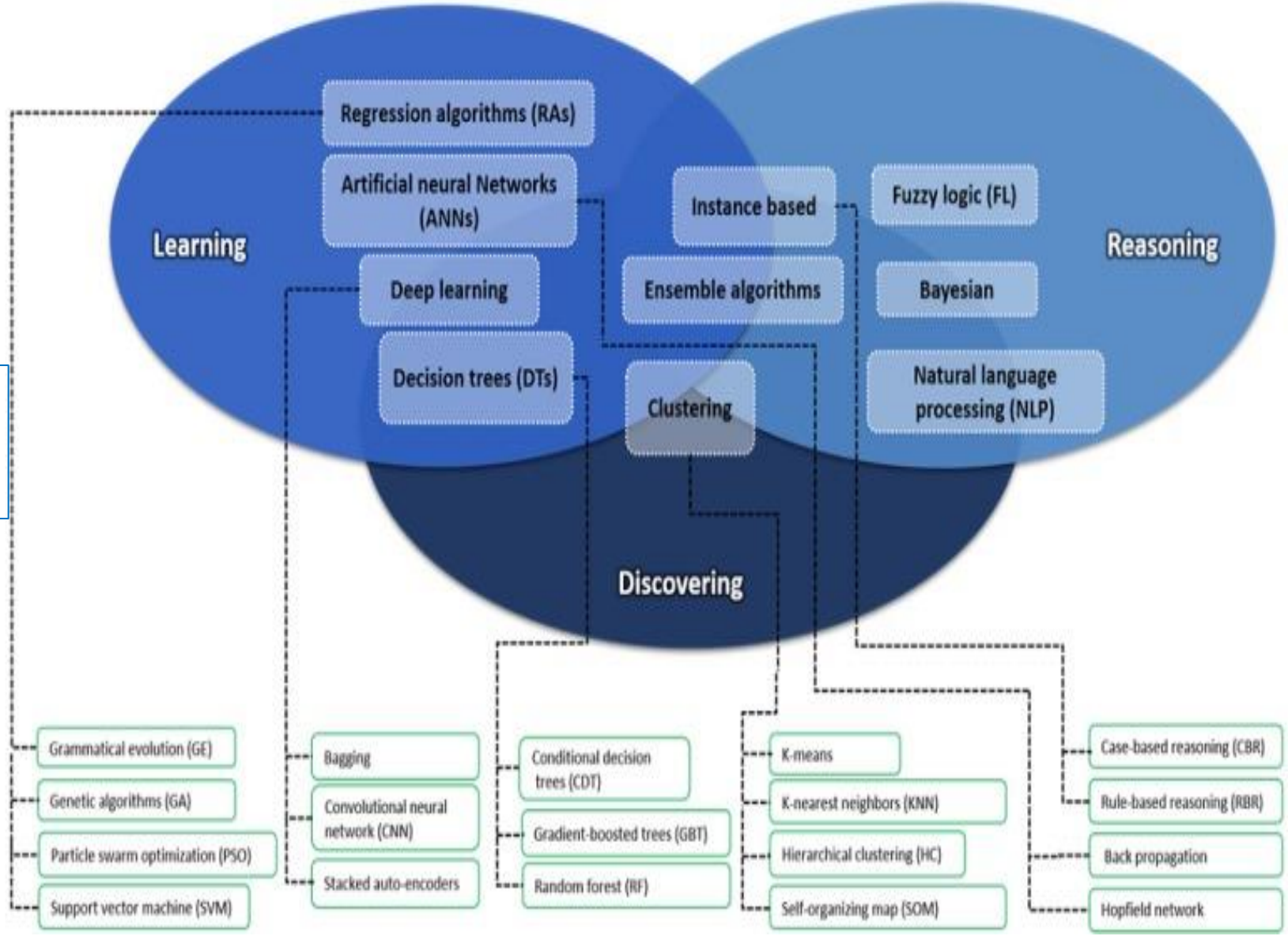
Artificial Intelligence for Diabetes Management and Decision Support: Literature Review

Monitoring Editor: Gunther Eysenbach

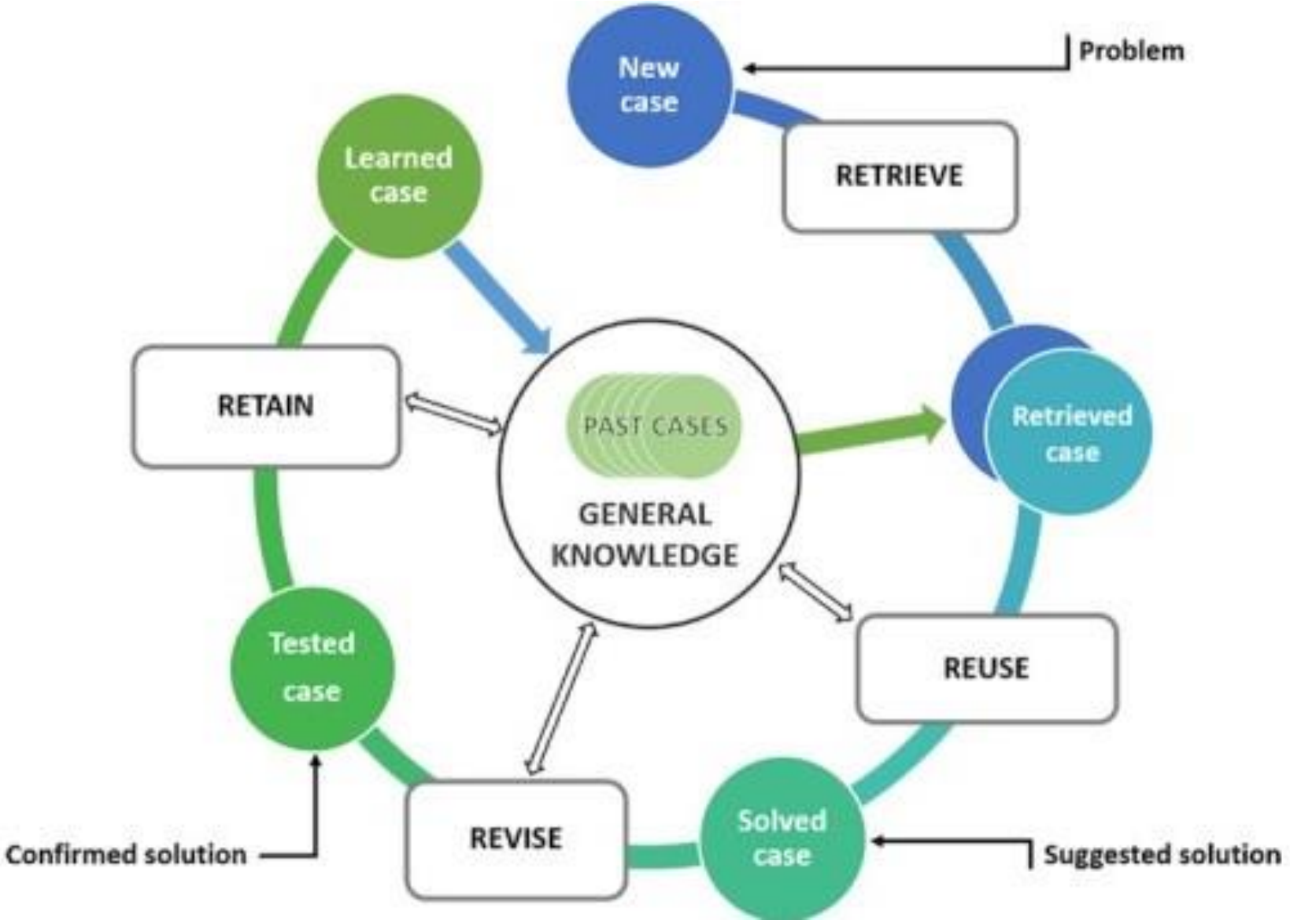
Reviewed by Clare Martin, Antonio Martinez-Millana, Andrew Stranieri, Klerisson Paixao, Maurice Mulvenna, and Francisco Nuñez-Benjumea

Ivan Contreras, PhD[1] and Josep Vehi, PhD[1,2]
Josep Vehi, Modeling, Identification and Control Laboratory, Institut d'Informatica i Aplicacions, Universitat de Girona, Campus Montilivi. Edifici P4, Girona, 17003, Spain, Phone: 34

Learning from knowledge
Exploration and discovery of knowledge
Reasoning from knowledge



J Med Internet Res. 2018 May; 20(5): e10775.
Published online 2018 May 30. doi: 10.2196/10775: 10.2196/10775



Εξατομίκευση θεραπείας

J Med Internet Res. 2018 May; 20(5): e10775.
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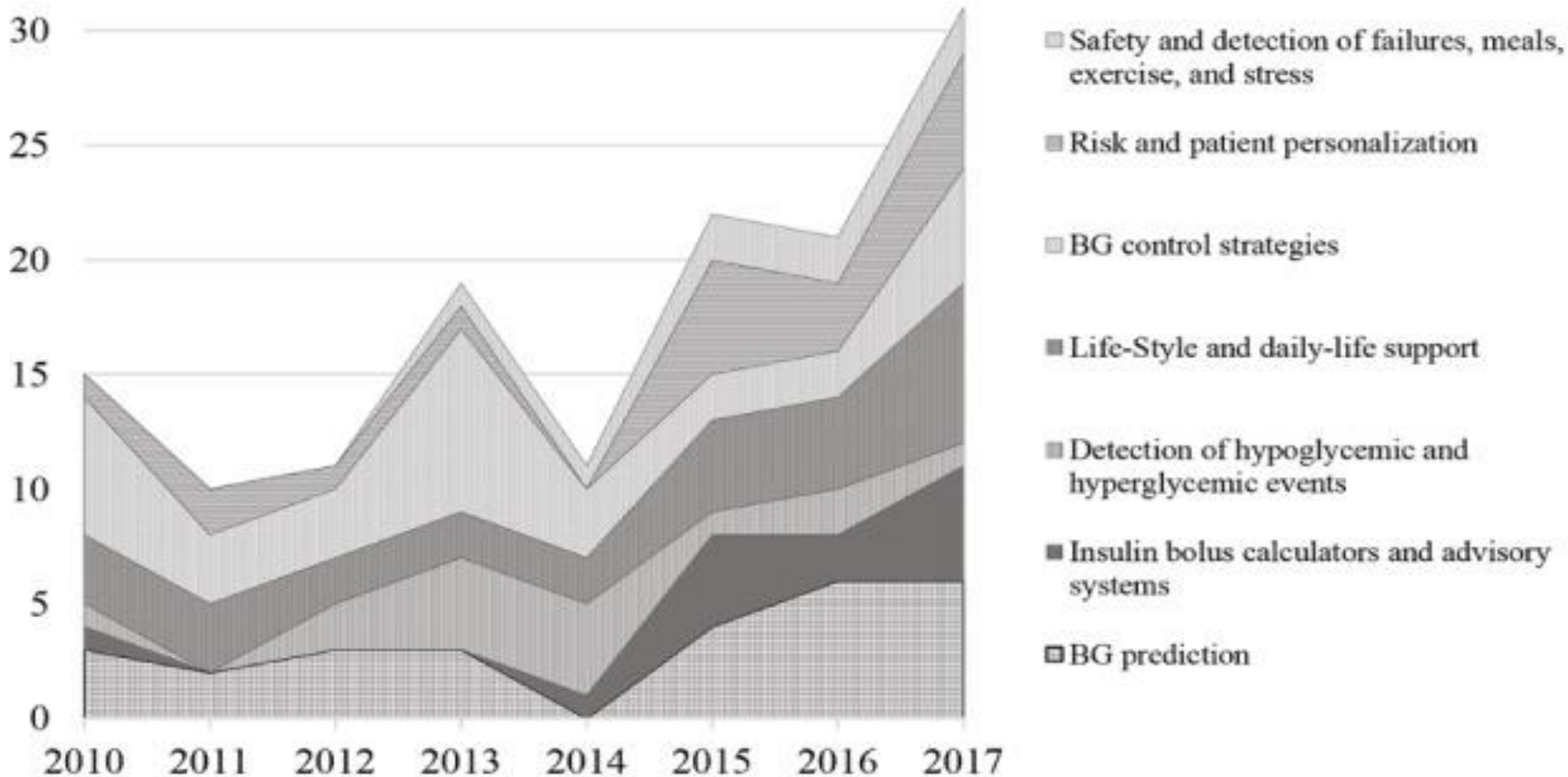
Josep Vehi, Modeling, Identification and Control Laboratory, Institut d'Informatica i Aplicacions, Universitat de Girona, Campus Montilivi. Edifici P4, Girona, 17003, Spain, Phone: 34



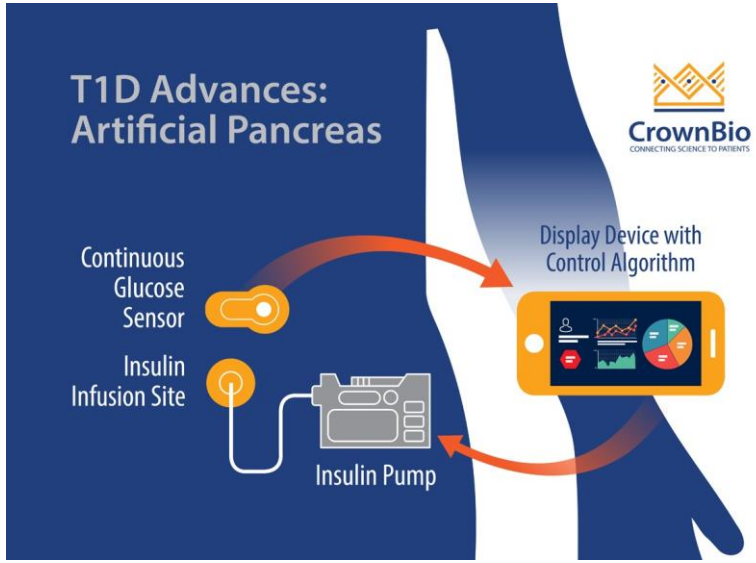
Dexcom G5® 	Receiver or Dexcom phone app	1.5 x 0.9 x 0.5 in; 0.4 oz. with sensor	2-hour warm up; calibration required every 12 hours.	Yes	7 days	Yes	Yes	≥2 years and older	9%	Clarity®
Dexcom G6® 	Receiver or Dexcom phone app (Apple and Android devices) or integrated with t:slim X2™ pump	4.02 x 2.44 x 0.46 in; 3.3 oz.	2-hour warm up; no calibration required.	Yes	10 days	Yes	Yes	≥2 years and older	9%	Clarity®
Medtronic Guardian™ Sensor 3 	Integrated with Medtronic MiniMed 670G insulin pumps	1.4 x 1.12 x 0.37 in; 0.19 oz. without sensor	2-hour warm up; calibration required every 12 hours.	No	7 days	Yes	No	≥7 years and older	9.1% (8.7% with 3-4 calibrations a day	Carelink™
Medtronic Guardian™ Connect 	Guardian™ Connect smart phone app (Apple devices only)	1.41 x 1.13 x 0.38 in; 0.04 oz.	2-hour warm up; calibration required every 12 hours.	No	7 days	Yes	Yes	≥14 years and older	9.1% (8.7% with 3-4 calibrations a day	Sugar.IQ™

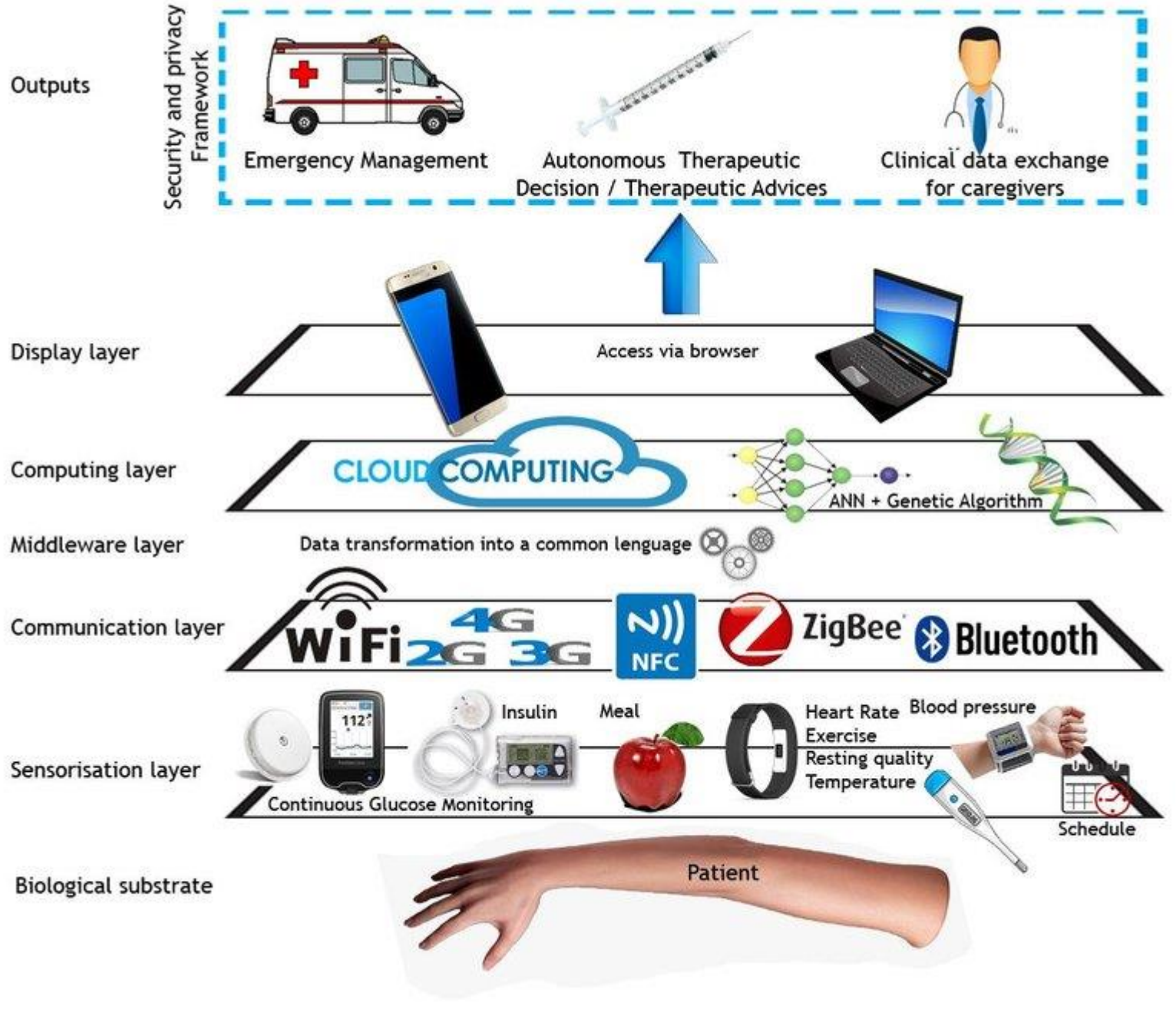
CGM Technology is Expanding

CGM System[a]	Key Features[a]	Data Download Software
Freestyle Libre	• 14-day wear • Factory calibrated	LibreView
Dexcom G6	• 10-day wear • Factory calibrated	Clarity
Guardian Connect	• 7-day wear • Requires twice-daily calibration	CareLink
Eversense	• Implantable • ≤ 90-day wear	

The AGP: standardized report[b]

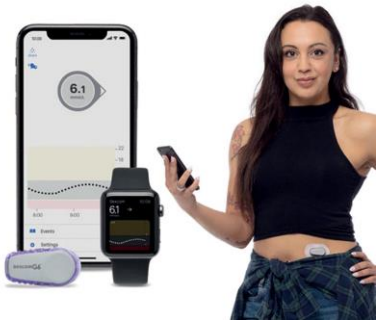
a. Kruger DF, et al. *Diabetes Educ*. 2018. [Epub ahead of print]
b. Bergenstal RM, et al. *J Diabetes Sci Technol*. 2013;7:562-578.


T1D Advances:
Artificial Pancreas
CrownBio
CONNECTING SCIENCE TO PATIENTS
Continuous Glucose Sensor
Insulin Infusion Site
Display Device with Control Algorithm
Insulin Pump


Outputs
Security and privacy Framework
Emergency Management
Autonomous Therapeutic Decision / Therapeutic Advices
Clinical data exchange for caregivers
Display layer
Access via browser
Computing layer
CLOUD COMPUTING
ANN + Genetic Algorithm
Middleware layer
Data transformation into a common lenguage
Communication layer
WiFi
4G
2G
3G
NFC
ZigBee
Bluetooth
Sensorisation layer
Insulin
Meal
Heart Rate
Exercise
Resting quality
Temperature
Blood pressure
Schedule
Continuous Glucose Monitoring
Biological substrate
Patient
Enrichment feedback

Time in Range for Multiple Technologies in Type 1 Diabetes: A Systematic Review and Network Meta-analysis

1. Anthony Pease[1,2],
2. Clement Lo[1,2],
3. Arul Earnest[1],
4. Velislava Kiriakova[2],
5. Danny Liew[1,3] and
6. Sophia Zoungas[1,2,3]



Abstract

BACKGROUND Time in range is a key glycemic metric, and comparisons of management technologies for this outcome are critical to guide device selection.

PURPOSE We conducted a systematic review and network meta-analysis to compare and rank technologies for time in glycemic ranges.

DATA SOURCES We searched Evidenced-Based Medicine Reviews, CINAHL, Embase, MEDLINE, MEDLINE In-Process & Other Non-Indexed Citations, PROSPERO, PsycInfo, PubMed, and Web of Science until 24 April 2019.

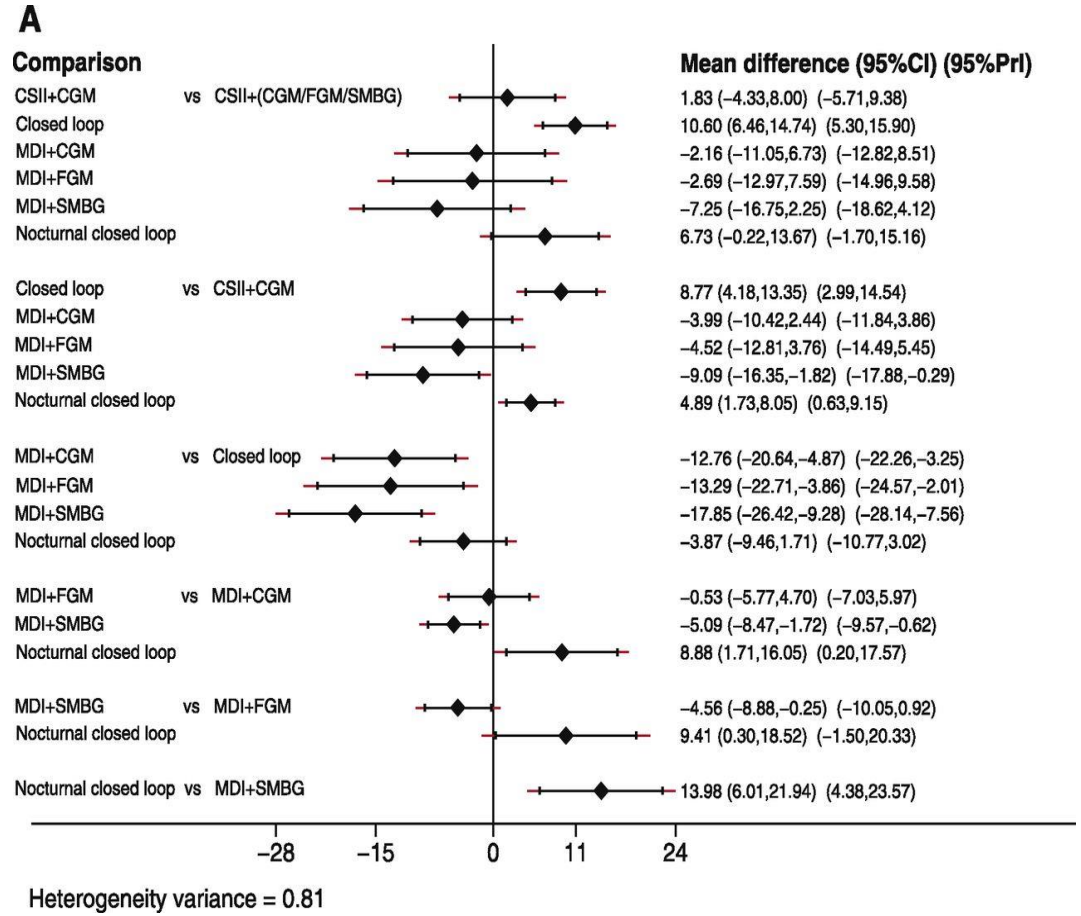
STUDY SELECTION We included randomized controlled trials ≥2 weeks' duration comparing technologies for management of type 1 diabetes in adults (≥18 years of age), excluding pregnant women.

DATA EXTRACTION Data were extracted using a predefined template. Outcomes were percent time with sensor glucose levels 3.9–10.0 mmol/L (70–180 mg/dL), >10.0 mmol/L (180 mg/dL), and <3.9 mmol/L (70 mg/dL).

DATA SYNTHESIS We identified 16,772 publications, of which 14 eligible studies compared eight technologies comprising 1,043 participants. Closed-loop systems led to greater percent time in range than any other management strategy, and mean percent time in range was 17.85 (95% predictive interval 7.56–28.14) longer than with usual care of multiple daily injections with capillary glucose testing. Closed-loop systems ranked best for percent time in range or above range with use of Surface Under the Cumulative RAnking curve (SUCRA) (98.5% and 93.5%, respectively). Closed-loop systems also ranked highly for time below range (SUCRA 62.2%).

LIMITATIONS Overall risk of bias ratings were moderate for all outcomes. Certainty of evidence was very low.

CONCLUSIONS In the first integrated comparison of multiple management strategies considering time in range, we found that the efficacy of closed-loop systems appeared better than all other approaches.



20;43:1967-1975

Diabetes Care 2020 Aug; 43(8): 1967-1975.https://doi.org/10.2337/dc19-1785

COVID-19 LOCKDOWN
ΜΑΡΤΙΟΣ 2020-ΦΕΒΡΟΥΑΡΙΟΣ 2021

Τμήμα Ενδοκρινολογίας, Σακχαρώδη Διαβήτη και Μεταβολισμού
EUROMEDICA-Γενική Κλινική Θεσσαλονίκης

- Εκπαίδευση – ομάδες εκπαίδευσης με Σύλλογο Διαβητικών Ν. Θεσσαλονίκης, <<Αγ. Δημήτριος>>, μέσω Skype, Απρίλιος - Ιούνιος 2020, 2 συνεδρίες 15 ατόμων ανά 15ημερο
- Εκπαίδευση για τοποθέτηση Αντλιών Ινσουλίνης απομακρυσμένα μέσω Skype – 3 τοποθετήσεις αντλιών
- Τοποθέτηση αντλιών και απομακρυσμένη παρακολούθηση σε 12 ασθενείς (5 γυναίκες σε εγκυμοσύνη)
- Παρακολούθηση ασθενών με καταγραφέα/ flash
- Τοποθέτηση υβριδικού τεχνητού παγκρέατος- Medronic 780G

Άνδρας, 24 ετ
ΣΔ1, MDI
Αθλητής
Καλή διαχείρηση ΣΔ
Δεν <συμπαθεί> αντλίες, καταγραφείς
Αντιμετωπίζει μεγάλη διακύμανση κατά και μετά την άσκηση

ΗΜΕΡΟΜΗΝΙΑ ΓΕΝΝΗΣΗΣ: [redacted]

MRN: [redacted]

ΣΥΣΚΕΥΗ: FreeStyle LibreLink

ΔΙΑΒΗΤΟΛΟΓΙΚΟ ΚΕΝΤΡΟ EUROME…

ΤΗΛΕΦΩΝΟ: 2315544505

ΔΗΜΙΟΥΡΓΗΘΗΚΕ: 13/02/2021

Αναφορά AGP

31 Ιανουαρίου 2021 - 13 Φεβρουαρίου 2021 (14 Ημέρες)

LibreView

ΣΤΑΤΙΣΤΙΚΑ ΚΑΙ ΣΤΟΧΟΙ ΓΛΥΚΟΖΗΣ

31 Ιανουαρίου 2021 - 13 Φεβρουαρίου 2021	14 Ημέρες
% Χρόνου με τον αισθητήρα ενεργό	95%

Εύρη και Στόχοι για	Διαβήτης τύπου 1 ή τύπου 2
Εύρη γλυκόζης	**Στόχοι** % μετρήσεων (Ώρα/Ημέρα)
Εύρος στόχου 70-180 mg/dL	Μεγαλύτερη από 70% (16ω 48λεπτά)
Κάτω από 70 mg/dL	Λιγότερη από 4% (58λεπτά)
Κάτω από 54 mg/dL	Λιγότερη από 1% (14λεπτά)
Πάνω από 180 mg/dL	Λιγότερη από 25% (6ω)
Πάνω από 250 mg/dL	Λιγότερη από 5% (1ω 12λεπτά)

Κάθε αύξηση 5% του χρόνου εντός εύρους στόχου (70-180 mg/dL) είναι κλινικά επωφελής.

Μέσος όρος γλυκόζης	**138** mg/dL
Δείκτης διαχείρισης γλυκόζης (GMI)	**6,6% ή 48 mmol/mol**
Μεταβλητότητα της γλυκόζης	**29,6%**

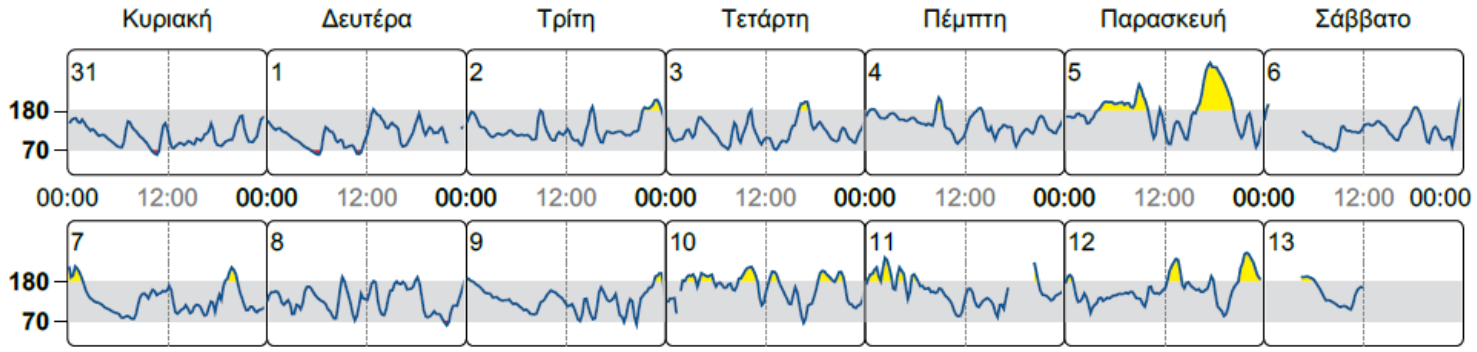
Καθορίζεται ως ποσοστό συντελεστή μεταβλητότητας (%CV), στόχος ≤36%

ΧΡΟΝΟΣ ΕΝΤΟΣ ΕΥΡΟΥΣ ΣΤΟΧΩΝ

Πολύ υψηλή	>250 mg/dL	1% (14λεπτά)
Υψηλή	181 - 250 mg/dL	14% (3ω 22λεπτά)
Εύρος στόχου	70 - 180 mg/dL	83% (19ω 55λεπτά)
Χαμηλή	54 - 69 mg/dL	2% (29λεπτά)
Πολύ χαμηλή	<54 mg/dL	0% (0λεπτά)

ΗΜΕΡΗΣΙΑ ΠΡΟΦΙΛ ΓΛΥΚΟΖΗΣ

Κάθε ημερήσιο προφίλ αντιπροσωπεύει μια περίοδο από μεσάνυχτα έως μεσάνυχτα, με την ημερομηνία να εμφανίζεται στην επάνω αριστερή γωνία.



Πηγή: Battelino, Tadej, et al. "Clinical Targets for Continuous Glucose Monitoring Data Interpretation: Recommendations From the International Consensus on Time in Range." Diabetes Care, American Diabetes Association, 7 June 2019, https://doi.org/10.2337/dci19-0028.

tt

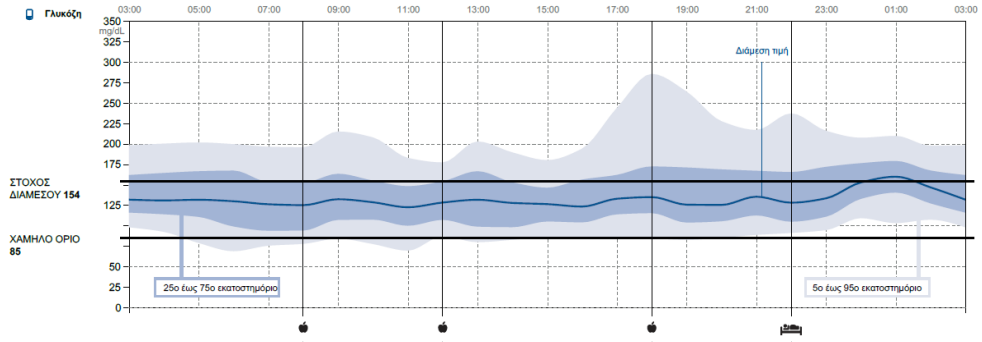
ΣΕΛΙΔΑ: 1 / 1
ΔΗΜΙΟΥΡΓΗΘΗΚΕ: 13/02/2021

Ανάλυση προφίλ διακύμανσης γλυκόζης

31 Ιανουαρίου 2021 - 13 Φεβρουαρίου 2021 (14 Ημέρες)

LibreView

GMI **6,6** % **48** mmol/mol



Πιθανότητα **ΧΑΜΗΛΗΣ ΓΛΥΚΟΖΗΣ**	●	●	●	●	OK
ΔΙΑΜΕΣΗ ΤΙΜΗ ΓΛΥΚΟΖΗΣ Συγκριτικά με τον στόχο	OK	OK	OK	OK	OK
ΜΕΤΑΒΛΗΤΟΤΗΤΑ ΤΙΜΩΝ ΚΑΤΩ ΑΠΟ ΤΗ ΔΙΑΜΕΣΗ ΤΙΜΗ Μέσο έως 10ο εκατοστημόριο	●	●	●	●	●

Ρυθμίσεις ΡΥΘΜΙΣΗ ΑΝΟΧΗΣ ΧΑΜΗΛΗΣ ΓΛΥΚΟΖΗΣ: Μεσαία ΣΤΟΧΟΣ ΔΙΑΜΕΣΟΥ: **154** mg/dL

Λεζάντα OK ΧΑΜΗΛΗ ● ΜΕΤΡΙΑ ● ΥΨΗΛΗ ΓΕΥΜΑ ΥΠΝΟΣ

ΔΙΑΒΗΤΟΛΟΓΙΚΟ ΚΕΝΤΡΟ EURO...
ΤΗΛΕΦΩΝΟ: 2315544505
MRN:
ΠΗΓΕΣ: FreeStyle LibreLink

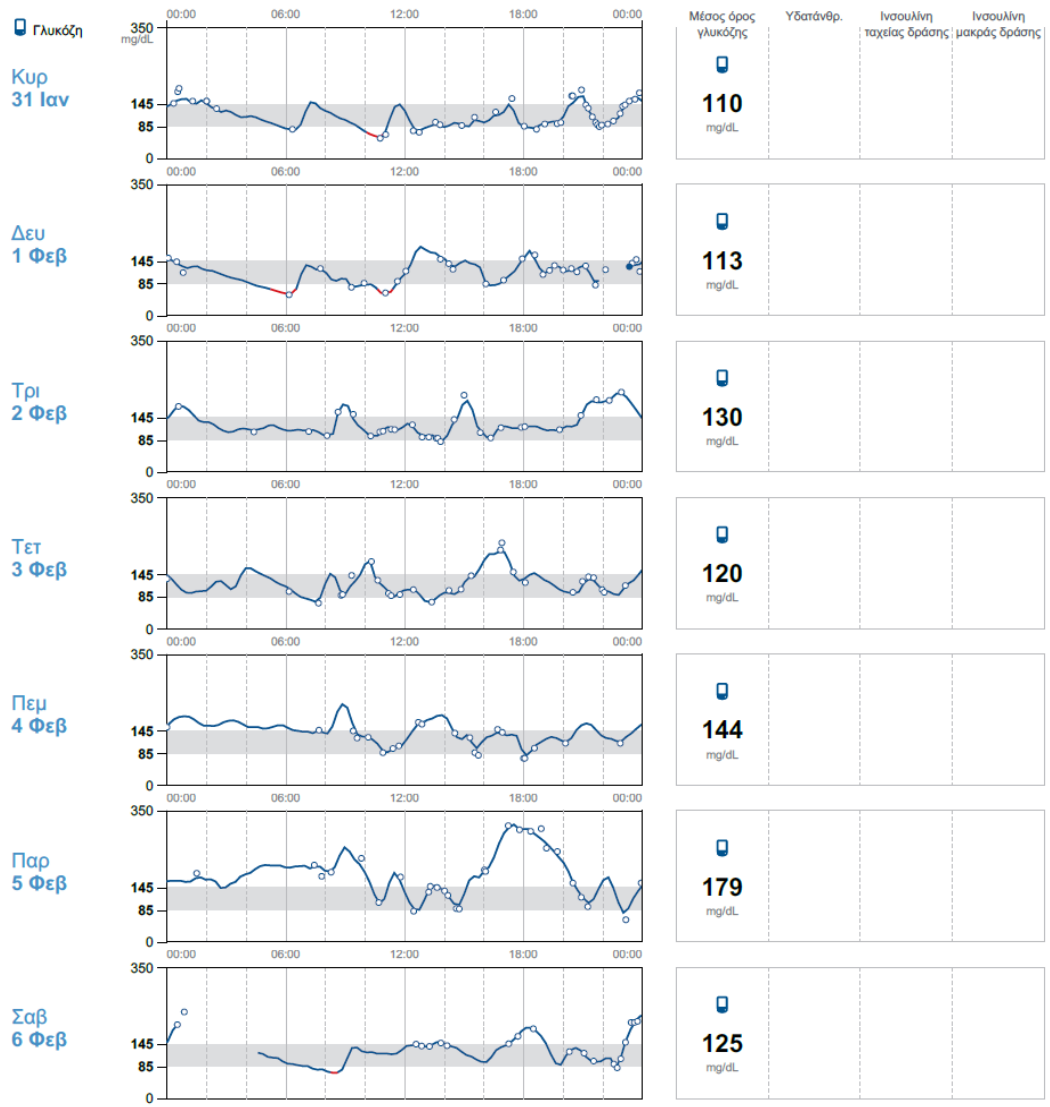
Thanasis Tasho
ΗΜΕΡΟΜΗΝΙΑ ΓΕΝΝΗΣΗΣ: 21/09/1970

Thanasis Tasho
ΗΜΕΡΟΜΗΝΙΑ ΓΕΝΝΗΣΗΣ: 21/09/1970
MRN:
ΠΗΓΕΣ: FreeStyle LibreLink
ΔΙΑΒΗΤΟΛΟΓΙΚΟ ΚΕΝΤΡΟ EUROME...
ΤΗΛΕΦΩΝΟ: 2315544505
ΣΕΛΙΔΑ: 1 / 2
ΔΗΜΙΟΥΡΓΗΘΗΚΕ: 13/02/2021

Εβδομαδιαία σύνοψη

31 Ιανουαρίου 2021 - 13 Φεβρουαρίου 2021 (14 Ημέρες)

LibreView



Λεζάντα ○ Σαρώσεις/Προβολές ● Νέος αισθητήρας Αλλαγή ώρας

tt

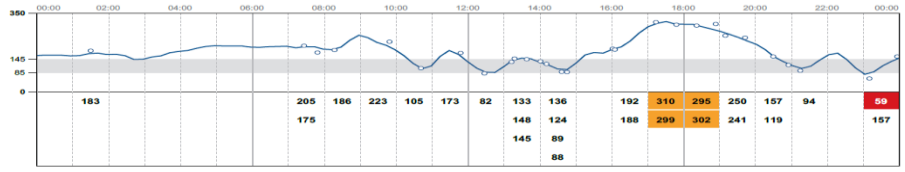
Ημερήσια καταγραφή

31 Ιανουαρίου 2021 - 13 Φεβρουαρίου 2021 (14 Ημέρες)

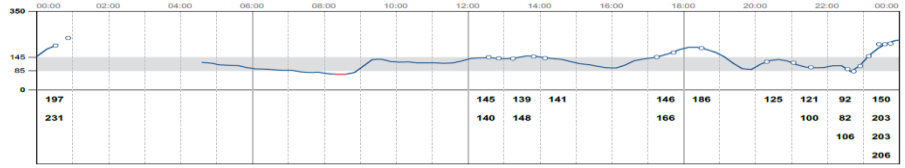
LibreView

ΔΙΑΒΗΤΟΛΟΓΙΚΟ ΚΕΝΤΡΟ EUROM...
ΤΗΛΕΦΩΝΟ: 2315544505
MRN:
ΠΗΓΕΣ: FreeStyle LibreLink
Thanasis Tasho
ΗΜΕΡΟΜΗΝΙΑ ΓΕΝΝΗΣΗΣ: 21/09/1970

ΠΑΡ 5 Φεβ



ΣΑΒ 6 Φεβ



Λεζάντα: Υψηλή γλυκόζη (>250) · Χαμηλή γλυκόζη (<70) · Σαρώσεις/Προβολές · Καταγεγραμ. · Μέγιστη τιμή μετά το γεύμα · Νέος αισθητήρας · Αλλαγή ώρας
17,0u-2,0+0,0 **15,0u** Γεύμα + Διόρθωση + Αλλαγή χρήστη = Σύνολο · * Μέτρηση με ταινία

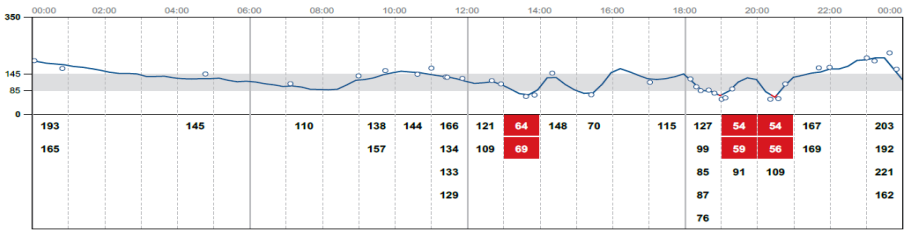
Ημερήσια καταγραφή

31 Ιανουαρίου 2021 - 13 Φεβρουαρίου 2021 (14 Ημέρες)

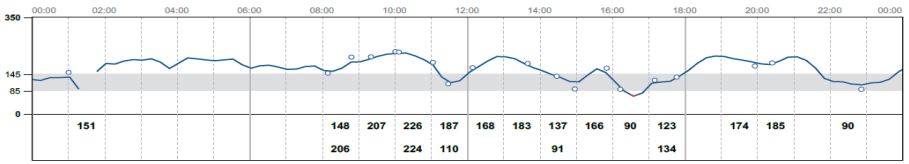
LibreView

ΔΙΑΒΗΤΟΛΟΓΙΚΟ ΚΕΝΤΡΟ EUROM...
ΤΗΛΕΦΩΝΟ: 2315544505
MRN:
ΠΗΓΕΣ: FreeStyle LibreLink
Thanasis Tasho
ΗΜΕΡΟΜΗΝΙΑ ΓΕΝΝΗΣΗΣ: 21/09/1970

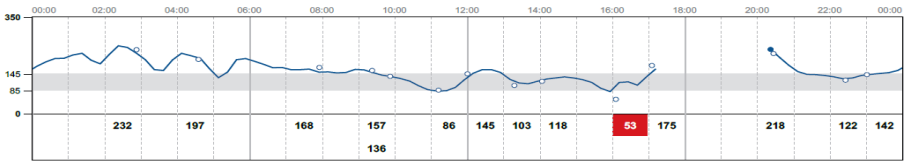
ΤΡΙ 9 Φεβ



ΤΕΤ 10 Φεβ



ΠΕΜ 11 Φεβ



Λεζάντα: Υψηλή γλυκόζη (>250) · Χαμηλή γλυκόζη (<70) · Σαρώσεις/Προβολές · Καταγεγραμ. · Μέγιστη τιμή μετά το γεύμα · Νέος αισθητήρας · Αλλαγή ώρας
17,0u-2,0+0,0 **15,0u** Γεύμα + Διόρθωση + Αλλαγή χρήστη = Σύνολο · * Μέτρηση με ταινία

Στιγμιότυπο

31 Ιανουαρίου 2021 - 13 Φεβρουαρίου 2021 (14 Ημέρες)

LibreView

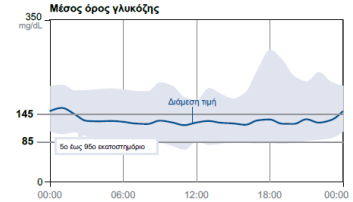
ΔΙΑΒΗΤΟΛΟΓΙΚΟ ΚΕΝΤΡΟ EUR...
ΤΗΛΕΦΩΝΟ: 2315544505
MRN:
ΠΗΓΕΣ: FreeStyle LibreLink
Thanasis Tasho
ΗΜΕΡΟΜΗΝΙΑ ΓΕΝΝΗΣΗΣ: 21/09/1970

Γλυκόζη

GMI **6,6** % **48** mmol/mol

ΜΕΣΟΣ ΟΡΟΣ ΓΛΥΚΟΖΗΣ	**138**	mg/dL
% άνω του στόχου	**39**	%
% εντός στόχου	**54**	%
% κάτω του στόχου	**7**	%

Μέσος όρος γλυκόζης



ΣΥΜΒΑΝΤΑ ΧΑΜΗΛΗΣ ΓΛΥΚΟΖΗΣ	**5**	
Μέση διάρκεια	**58**	Λεπτά

Συμβάντα χαμηλής γλυκόζης

Χρήση αισθητήρα

% ΧΡΟΝΟΥ ΜΕ ΤΟΝ ΑΙΣΘΗΤΗΡΑ ΕΝΕΡΓΟ	**95**	%
Μέσος όρος σαρώσεων/προβολών	**27 / ημέρα**	

% Χρόνου με τον αισθητήρα ενεργό

Υδατάνθρ.

ΗΜΕΡΗΣΙΑ ΠΟΣΟΤΗΤΑ ΥΔΑΤΑΝΘΡΑΚΩΝ	γραμ./ημέρα

ΙΝΣΟΥΛΙΝΗ

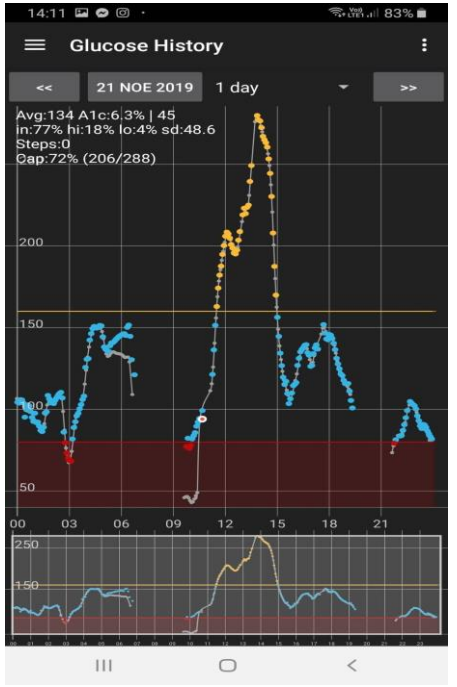
ΙΝΣΟΥΛΙΝΗ ΥΠΕΡΤΑΧΕΙΑΣ ΔΡΑΣΗΣ	μονάδες/ημέρα
Γεύμα	
Διόρθωση	
Αλλαγή χρήστη	
Χειροκίνητα	
ΙΝΣΟΥΛΙΝΗ ΠΑΡΑΤΕΤΑΜΕΝΗ Σ ΔΡΑΣΗΣ	μονάδες/ημέρα
Συνολική ημερήσια ινσουλίνη	μονάδες/ημέρα

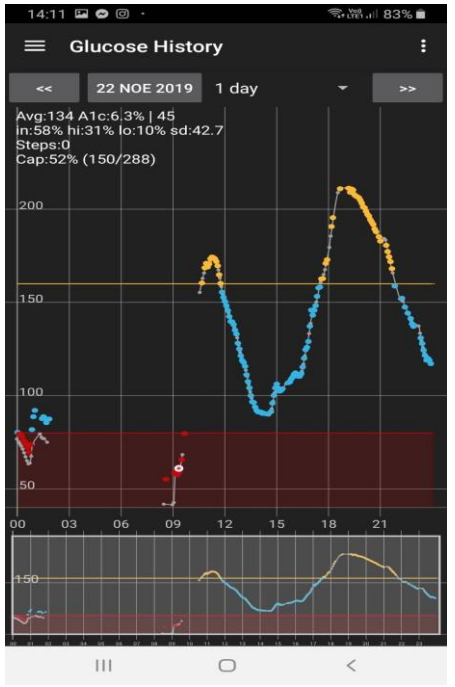
Σχόλια

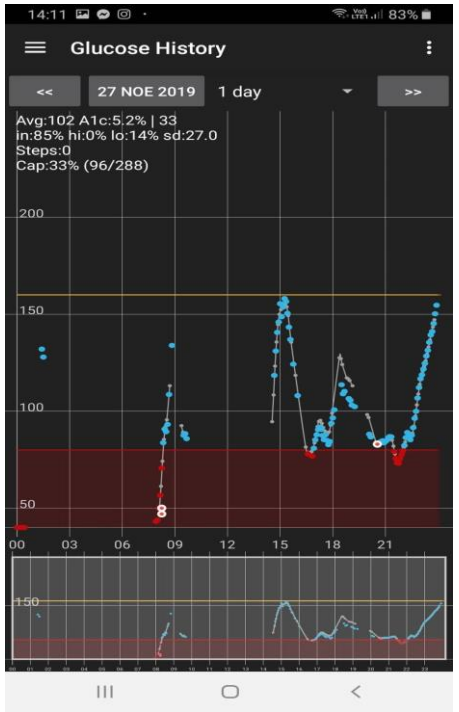
- Βρέθηκαν κενά στα δεδομένα ινσουλίνης. 14 ημέρες σε αυτή την περίοδο αναφοράς δεν έχουν καταγεγραμμένα δεδομένα ινσουλίνης.
- Βρέθηκαν κενά στα δεδομένα γευμάτων. 14 ημέρες σε αυτή την περίοδο αναφοράς δεν έχουν καταγεγραμμένα δεδομένα γευμάτων.

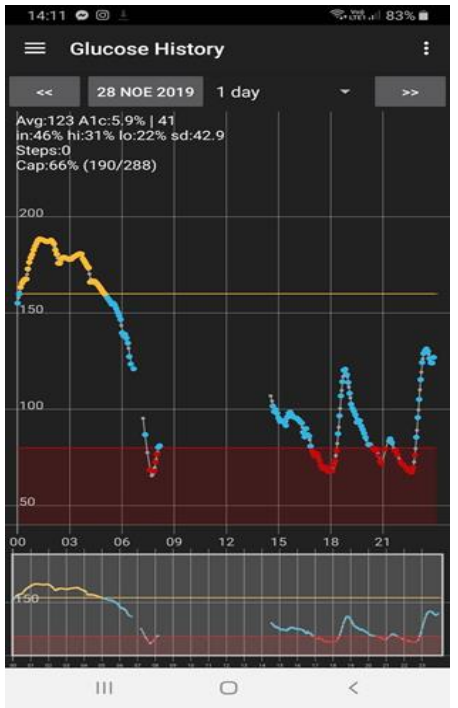
Ασθενής:
<<.....έμαθα καλύτερα τον διαβήτη μου και πως λειτουργεί ο οργανισμός μου...>>
<<...μαθαίνω να υπολογίζω τις μονάδες ινσουλίνης καλύτερα παρακολουθώντας την καμπύλη μου....>>
<<....γυμνάζομαι με μεγαλύτερη σιγουριά και ασφάλεια...>>
<<... το βράδυ σκανάρω και βλέπω το σάκχαρο μου....δεν ξυπνάω για τσίμπημα...>>
<<...έχω καλύτερη ποιότητα επικοινωνίας με τον γιατρό μου και αισθάνομαι ασφάλεια...>>

tt









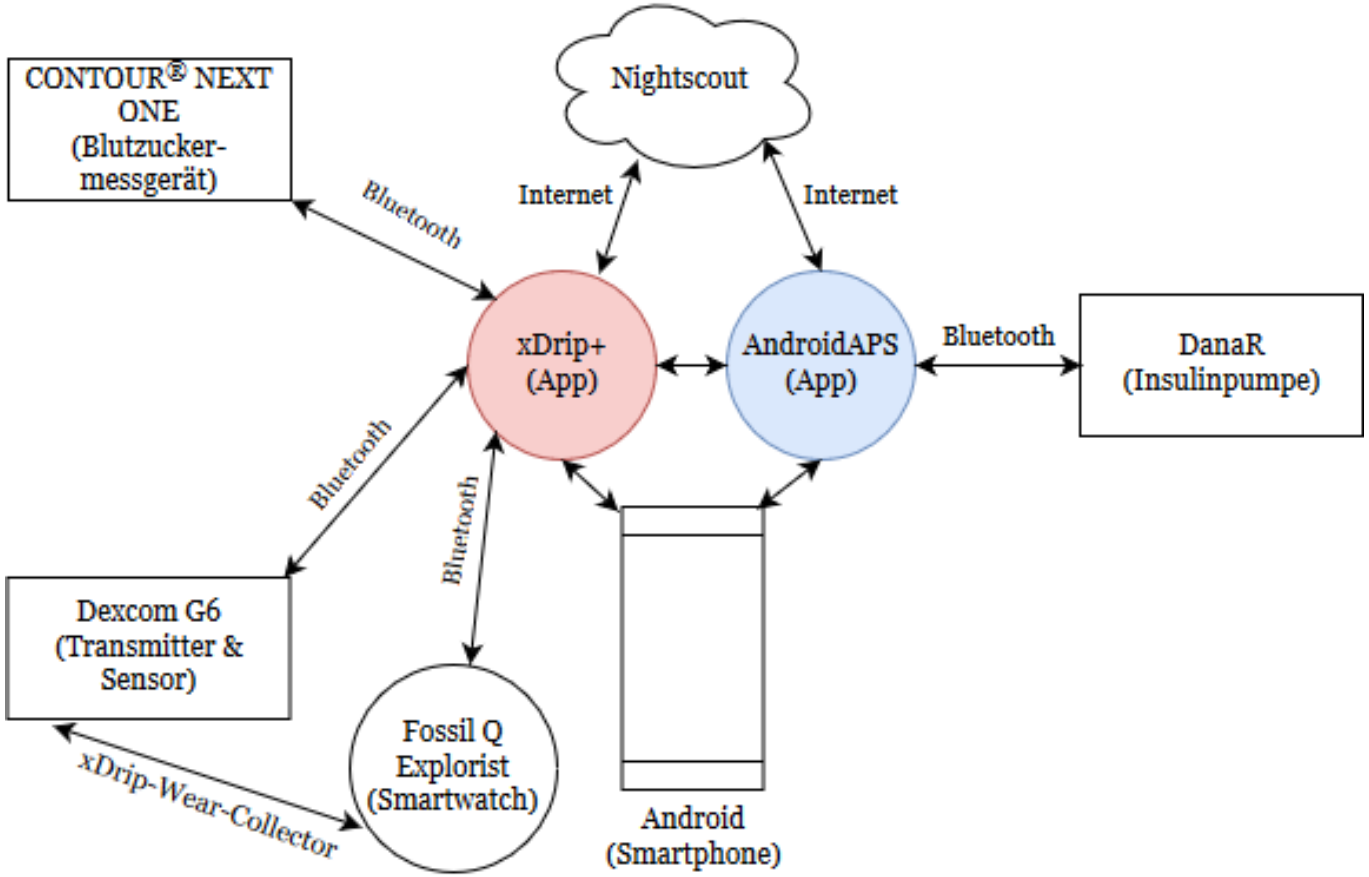
Ασθενής 19 ετ, θήλυ
ΣΔ1 από 11 ετών, ζει σε επαρχιακή πόλη
Εφηβεία με συχνά ταξίδια στο εξωτερικό να επισκεφθεί τους γονείς της
Φοιτήτρια
Nightscout

ek

NIGHTSCOUT
#WeAreNotWaiting

- Το Nightscout (CGM in the Cloud) είναι μια δωρεάν πλατφόρμα, που επιτρέπει την πρόσβαση σε πραγματικό χρόνο σε δεδομένα CGM μέσω προσωπικής ιστοσελίδας, ή μέσω SmartWatch , ή εφαρμογών και gadget που διατίθενται για smartphones.

- Αναπτύχθηκε από την ανάγκη γονέων παιδιών με διαβήτη τύπου 1 και συνέχισε να αναπτύσσεται και να υποστηρίζεται από εθελοντές και ενήλικες με διαβήτη τύπου 1.



Nightscout reporting

From: 28/6/2018 To: 25/9/2018 Today Last 2 days Last 3 days Last week Last 2 weeks Last month Last 3 months

Notes contain:

Event Type:

Mo Tu We Th Fr Sa Su

Target bg range bottom: 80 top: 160

Order: oldest on top newest on top

Show

Weekly Success

Period	Low	In Range	High	Standard Deviation	Low Quartile	Average	Upper Quartile
18/9/2018 - 25/9/2018	35%	65%	0%	25	68.5	88.8	107.5
21/8/2018 - 28/8/2018	5%	66%	30%	42	118	146.0	173.5
14/8/2018 - 21/8/2018	6%	59%	35%	50	106	145.3	175
31/7/2018 - 7/8/2018	13%	61%	26%	45	97	129.0	163
24/7/2018 - 31/7/2018	21%	66%	13%	40	87	116.7	146
17/7/2018 - 24/7/2018	13%	66%	21%	45	90	126.3	151
10/7/2018 - 17/7/2018	9%	71%	20%	52	97	131.8	151
3/7/2018 - 10/7/2018	13%	71%	16%	44	89	121.0	146

Patient:
SN06900459

Overview Report

Generation time:
04/11/2020 17:57

4 days | Wed Nov 4, 2020 – Sat Nov 7, 2020

Glucose statistics and Targets

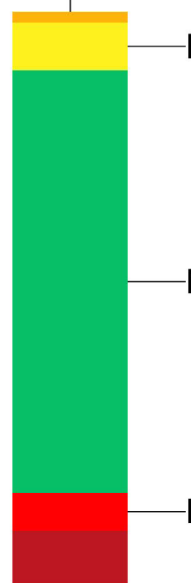
4 Nov 2020 – 7 Nov 2020	2.5 days
% Time CGM Active	94.9 %

Glucose Ranges	**Targets[% of Readings (Time/Day)]**
Target Range 70–180 mg/dL	Greater than 70%(16h 48min)
Blow 70 mg/dL	Less than 4%(58min)
Blow 54 mg/dL	Less than 1%(14min)
Above 250 mg/dL	Less than 5%(1h 12min)

Each 5% increase in time in range (70–180 mg/dL) is clinically beneficial

AVG Glucose	116 mg/dL
Glucose Management Indicator (GMI)	N/A
Glucose Variability	43.7 %
Defined as percent coefficient of variation(%CV) target 36%	
Standard Deviation(CGM)	50 mg/dL
Low glucose event	7

Time in Ranges



Very High	1.9% (0h 27min)
High	8.3% (2h 0min)
Normal	73.7% (17h 41min)
Low	6.6% (1h 35min)
Very Low	9.5% (2h 17min)

ek

αναφορά ασθενή

στοιχεία χρήστη

Αναγνωριστικό πομπού:	SN06900459	χρόνος έναρξης:	04/11/2020 17:57:38

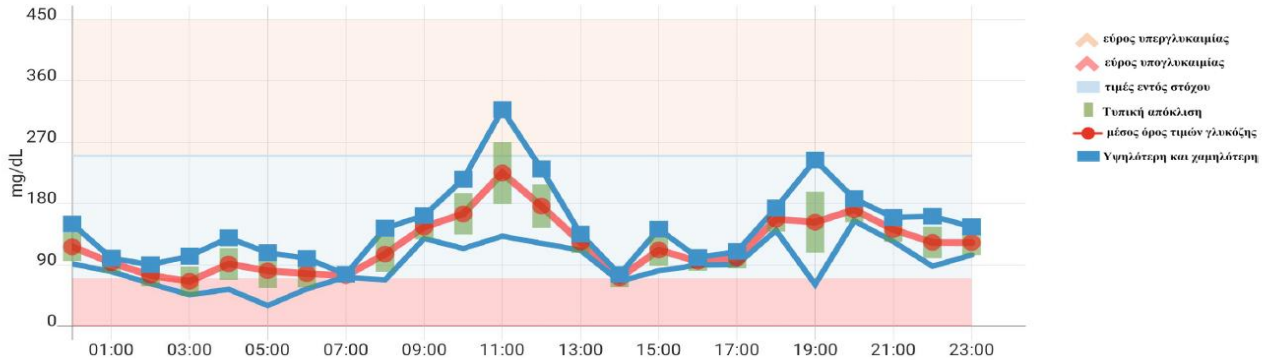
εμφάνιση αποτελεσμάτων

Παρακολούθηση του έργου	εμφάνιση αποτελεσμάτων	μονάδα μέτρησης γλυκόζης
παρακολούθηση περιόδου	04/11/2020 17:57:38~07/11/2020 08:58:00	/
αριθμός σημείων	1138	/
Μ.Ο. Γλυκόζη	115.65	mg/dL
τυπική απόκλιση	50.5	mg/dL
μέγιστο	360	mg/dL
ελάχιστο	30	mg/dL
Μ.Ο τιμών 1 ώρα π/γ	----	mg/dL
Μ.Ο. τιμών 3 ώρ μ/γ	----	mg/dL
εύρος μεγίστου/ελαχίστου	330.04	mg/dL
HbA1c	5.4	%
χρονική αναλογία σε υπεργλυκαιμία	1.9	%
χρονική αναλογία σε υπογλυκαιμία	16.1	%
χρόνος εντός στόχου	82.0	%
κατώφλι τιμής γλυκ	70 ~ 250	mg/dL

συνοπτικό γράφημα διακύμανσης γλυκόζης

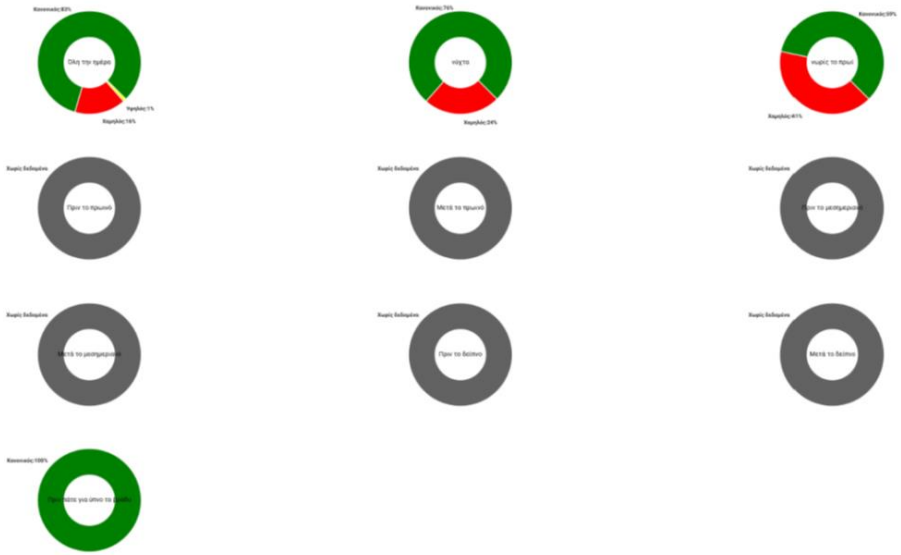
24ωρη

ωριαία τάση

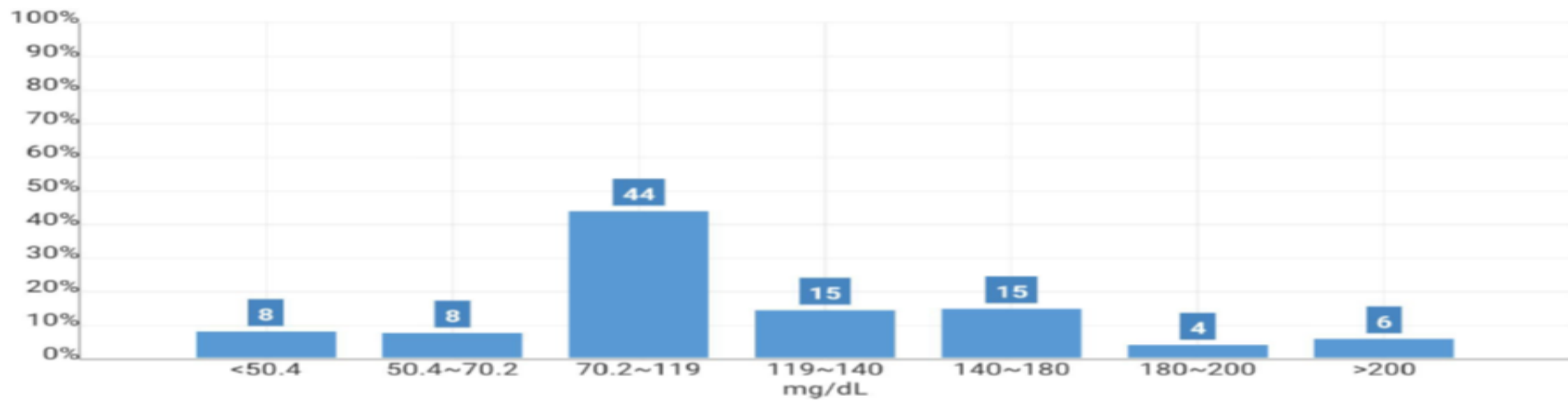


ek

κατανομή



Το πεδίο εφαρμογής της διανομής της γλυκόζης



ek

37 ετ, θήλυ
ΣΔ1 από ηλικία 12 ετ
Αντλία ινσουλίνης 2015
1η εγκυμοσύνη με αντλία 2016
Επιθυμεί 2η εγκυμοσύνη

Η Σελίδα δεν βρέθηκε | Οδηγός εγκατάστασης 76 -21 203 +12 6 hours ago 6 hours ago

elsapar.herokuapp.com/report

Nightscout reporting

Day to day | Daily Stats | Distribution | Hourly stats | Percentile Chart | Weekly success | Calibrations | Treatments | Profiles

From: 28/6/2018 To: 25/9/2018 Today Last 2 days Last 3 days Last week Last 2 weeks Last month Last 3 months

Notes contain:

Event Type:

Mo Tu We Th Fr Sa Su

Target bg range bottom: 85 top: 135

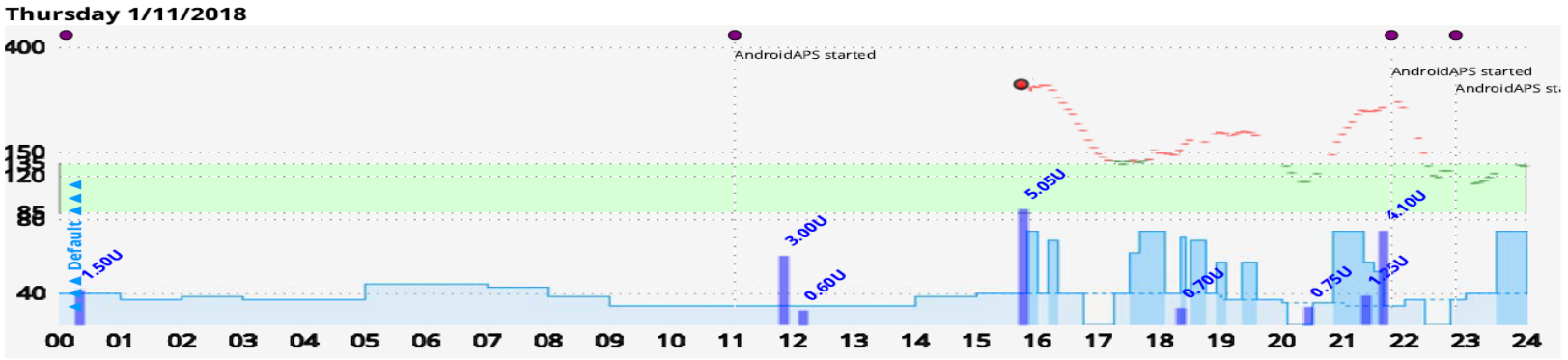
Order: oldest on top newest on top

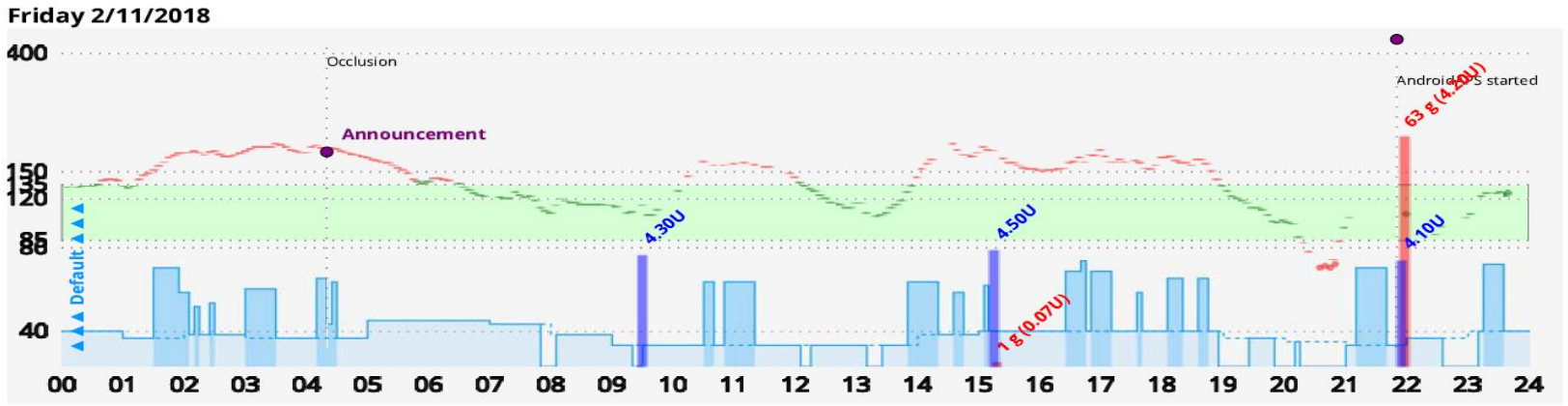
Show

Weekly Success

Period	Low	In Range	High	Standard Deviation	Low Quartile	Average	Upper Quartile
18/9/2018 - 25/9/2018	8%	42%	50%	50	112	142.8	166
11/9/2018 - 18/9/2018	13%	44%	43%	41	106	131.0	157
4/9/2018 - 11/9/2018	2%	35%	62%	47	121	154.7	172
28/8/2018 - 4/9/2018	0%	69%	31%	25	103	123.8	142
21/8/2018 - 28/8/2018	8%	54%	38%	46	102	134.4	157
14/8/2018 - 21/8/2018	7%	45%	47%	46	107	140.1	169
7/8/2018 - 14/8/2018	15%	39%	47%	50	107	141.7	182
17/7/2018 - 24/7/2018	2%	69%	29%	27	108	126.6	139
10/7/2018 - 17/7/2018	2%	56%	43%	32	110	135.4	158

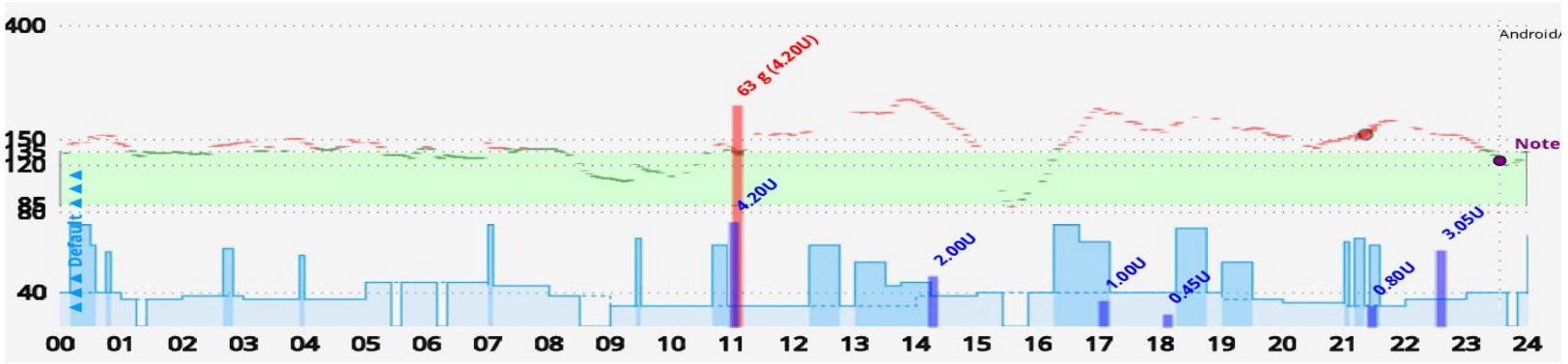
ENG 16:33 25/9/2018





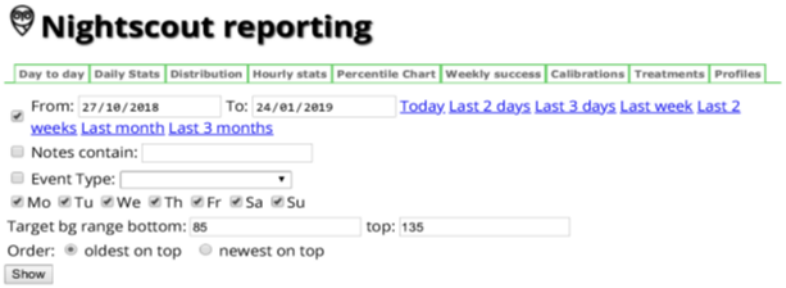
Saturday 3/11/2018

2η εγκυμοσύνη με αντλία ινσουλίνης και καταγραφέα (Dexcom)



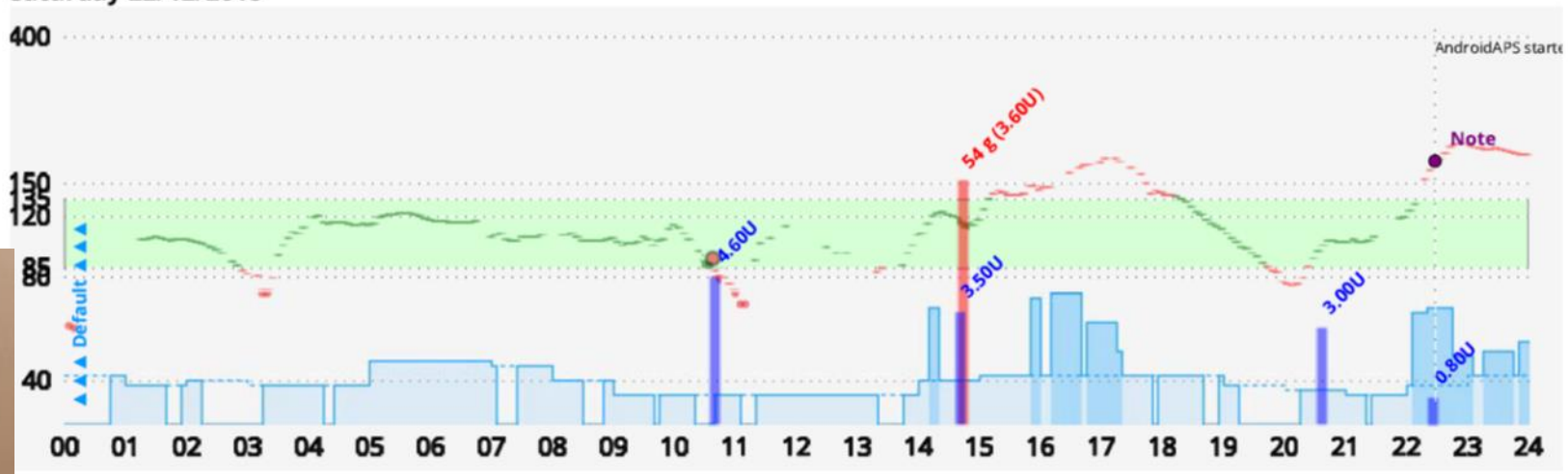
Sunday 4/11/2018

ep

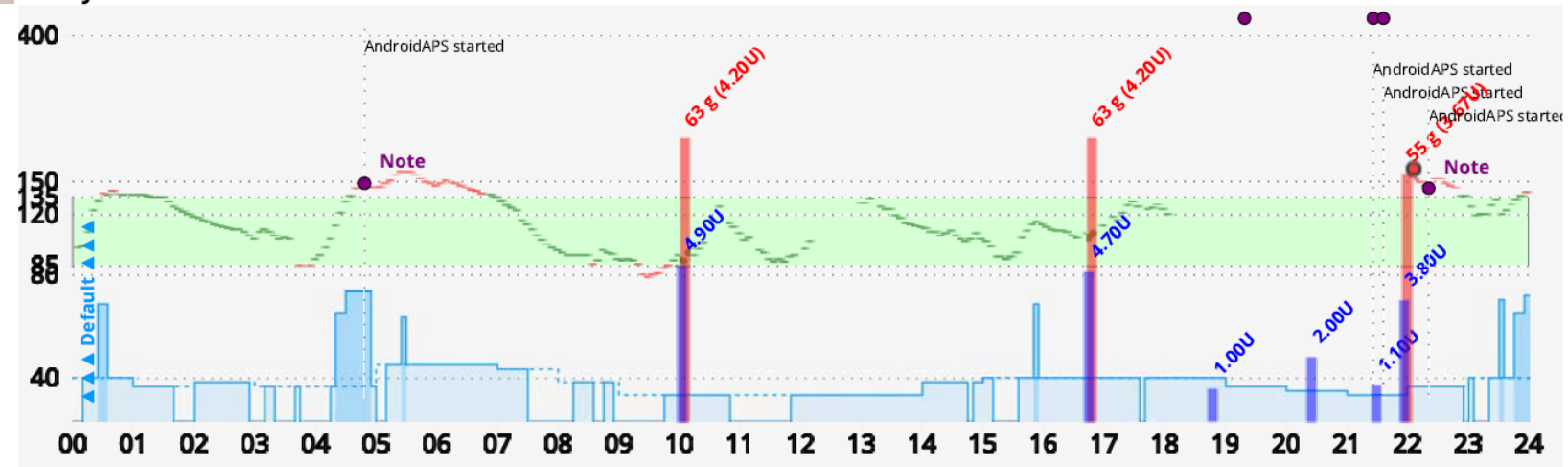


2η εγκυμοσύνη με αντλία ινσουλίνης και καταγραφέα (Dexcom)

Saturday 22/12/2018

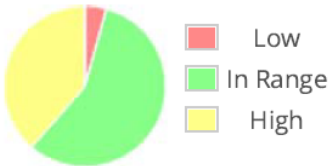
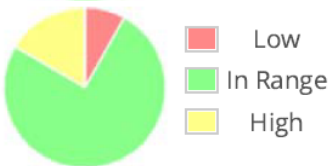
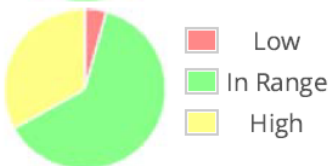


Friday 4/1/2019

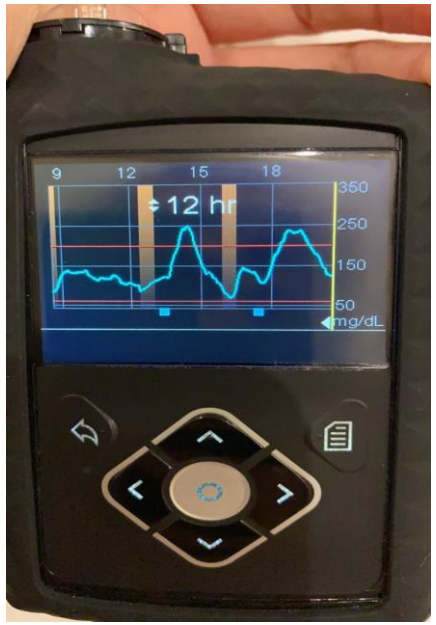


ep

Daily stats report

	Date	Low	Normal	High	Readings	Min	Max	Average	StDev	25%	Median	75%
	Saturday 8/12/2018	0%	73%	27%	254	85	232	125.1	33.3	103.0	110.5	142.0
	Sunday 9/12/2018	4%	57%	39%	254	72	249	135.4	44.0	103.0	120.0	168.0
	Monday 10/12/2018	8%	75%	17%	236	66	195	115.6	24.2	101.5	114.0	122.0
	Tuesday 11/12/2018	4%	63%	33%	254	71	263	127.4	33.8	102.0	121.0	141.0

ep



Γυναίκα 34 ετ, ΣΔ1 από ηλικία 12 ετών
1η εγκυμοσύνη
HbA1c 6,2%

Ik

ATTD Advanced Technologies & Treatments for Diabetes
THE 12TH INTERNATIONAL CONFERENCE ON
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RESULTS OF USING HYBRID CLOSED LOOP SYSTEM ON TYPE 1 DIABETES-THE GREEK EXPERIENCE

Mouslech Z., Somali M., Papa K.

Department of Endocrinology, Metabolism and Diabetes, Euromedica General Clinic, Thessaloniki

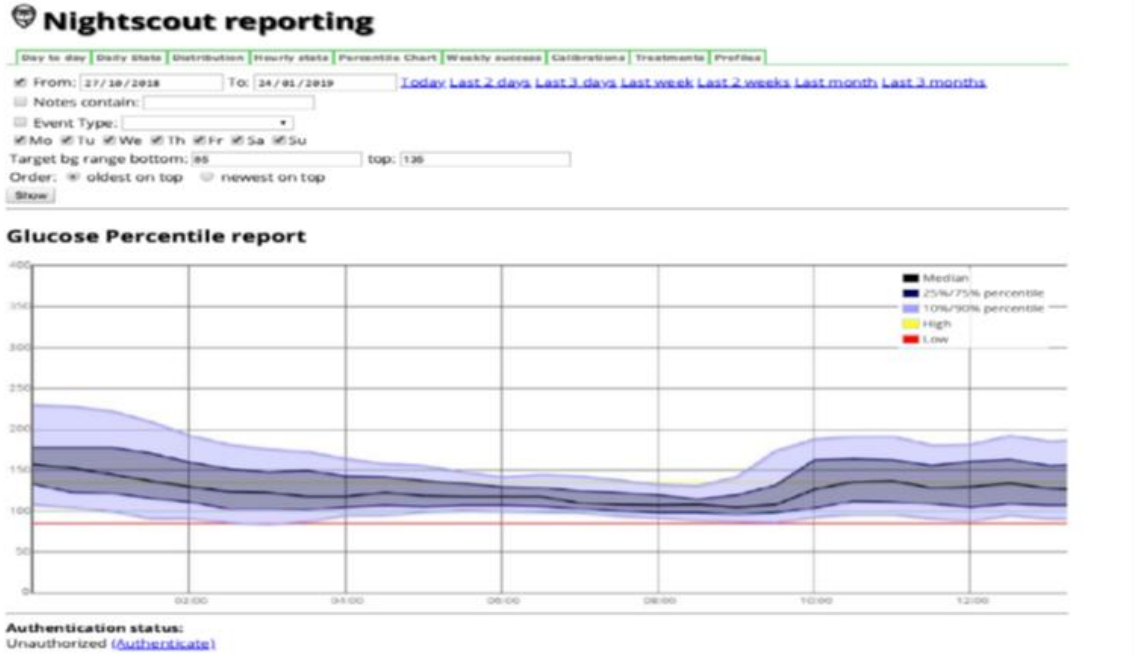
Objective to investigate the differences on glycated hemoglobin (HbA1c) and hypoglycemic episodes among patients with Type 1 Diabetes (T1D), before and after the inception of hybrid closed loop (HCL) system.

Methods The sample consisted of 11 participants (4 male and 7 female) with T1D, who initiated the HCL system composed by Dana R insulin pump, Dexcom G5 continuous glucose monitoring (CGM), two smartphone applications, xDrip and OpenAPS for android, combined with Nightscout (a web based, real-time, data management system). The data were recorded before and 3 months after closing the loop. The mean HbA_{1c} of the sample was 7,9mg/dl.

Participants	Male-Female (n)	Age (years)	HbA1c (average)
11	4-7	39,6	7,9mg/dl

Results The results reveal differences before and 3 months after closing the loop on HbA1c and hypoglycemic episodes. More specifically the average HbA1c of the sample was 7,9mg/dl which downgraded to 6,9mg/dl after 3 months. A reduction on hypoglycemic episodes was also recorded. The mean hypoglycemic episodes of the sample was 5,4(n) before HCL which was reduced to 1,5(n) the first week and to 0,8(n) 3 months after using the HCL system.

HbA_{1c} _ after 3 months (average)	Hypoglycemic episodes week_0 (n)	Hypoglycemic episodes week_1 (n)	Hypoglycemic episodes week_1 after 3 months (n)
6,9mg/dl	5,4	1,5	0,8



RESULTS OF USING HYBRID CLOSED LOOP SYSTEM ON TYPE 1 DIABETES-THE GREEK EXPERIENCE

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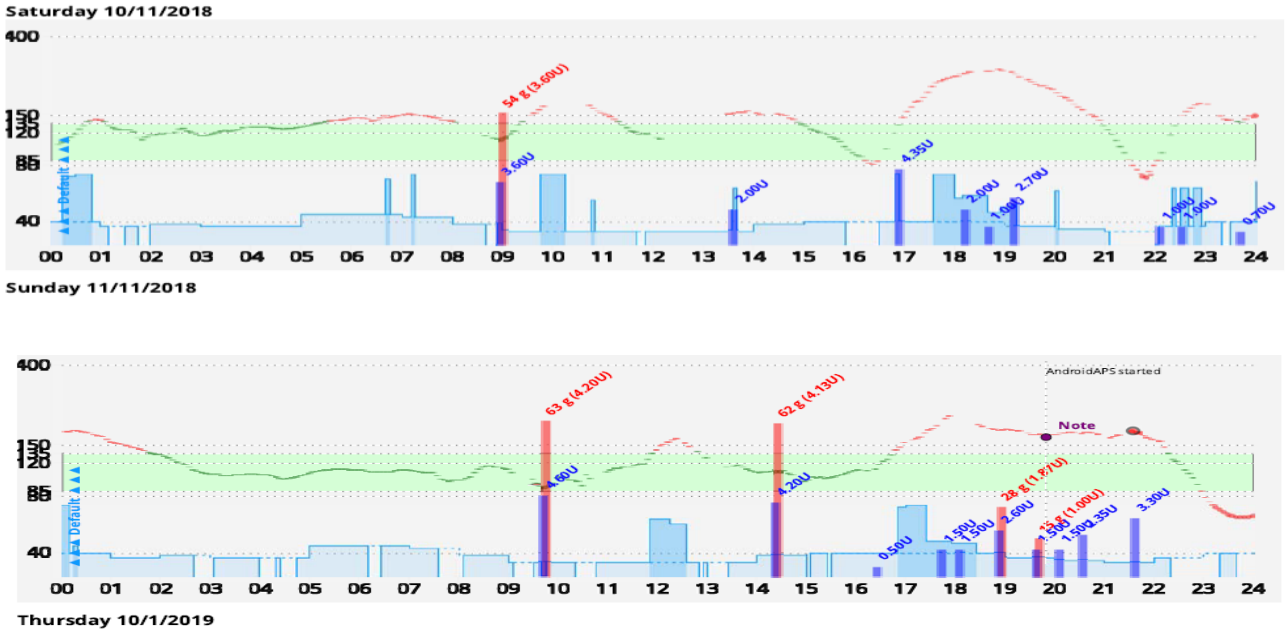
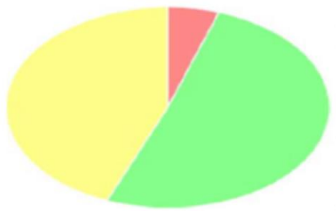


Glucose distribution (90 days total)



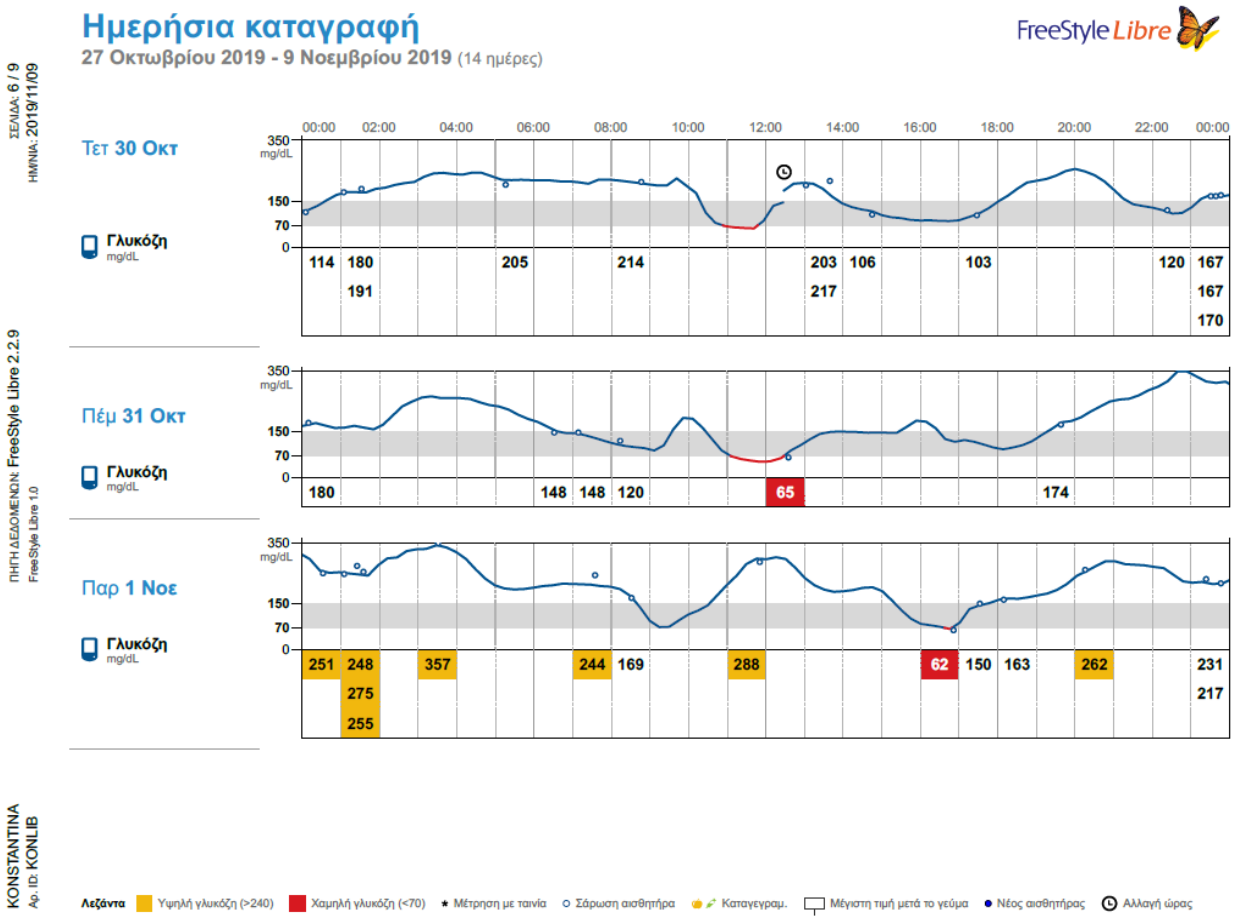
Range	% of Readings	# of Readings	Average	Median	Standard Deviation	A1c estimation*
Low (<85):	4.6%	980	73.7	76.0	9.6	
Normal:	55.7%	9776	111.1	111.0	12.8	
High (>=135):	39.7%	8412	171.1	162.0	32.9	
Overall:		21174	135.6	128.0	40.3	6.4% DCCT | 46 IFCC

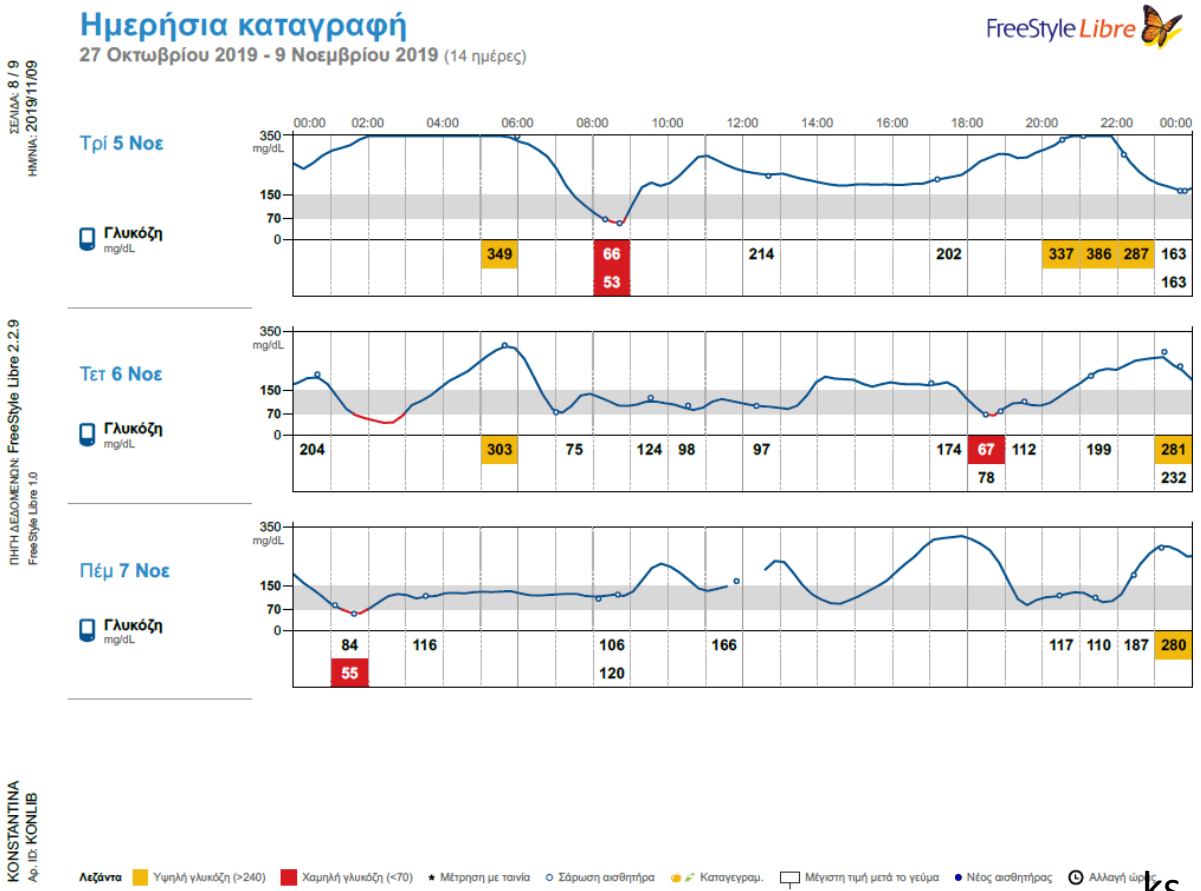
Mean Total Daily Change	Time in fluctuation (>5 mg/dl/5m)	Time in rapid fluctuation (>10 mg/dl/5m)
805.87 mg/dl	17.0%	4.0%
Mean Hourly Change	**GVI**	**PGS**
33.58 mg/dl	1.28	77.12

Conclusions Although this is only a small sample, the first results seem to be very hopeful for optimizing the management of TD1 by reducing the hypoglycemic episodes and the HbA1c levels. More studies are needed using bigger samples in order to have more clear results on the outcomes of using HCL.

gts

Φοιτήτρια ιατρικής 24 ετ
ΣΔ1, MDI
Άστατα γεύματα, πιεστικό καθημερινό πρόγραμμα
Συχνές υπογλυκαιμίες, σχεδόν καθημερινά





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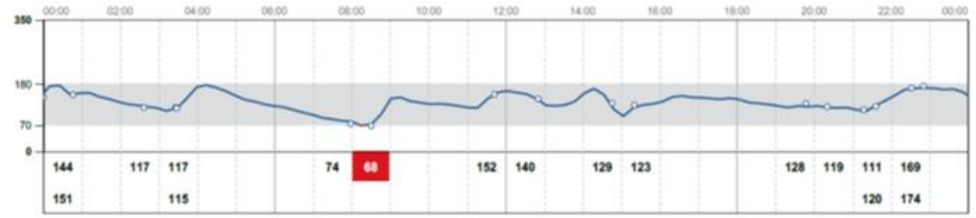
ΣΕΛΙΔΑ: 1 / 4
ΔΗΜΙΟΥΡΓΗΘΗΚΕ: 12/11/2020

Ημερήσια καταγραφή

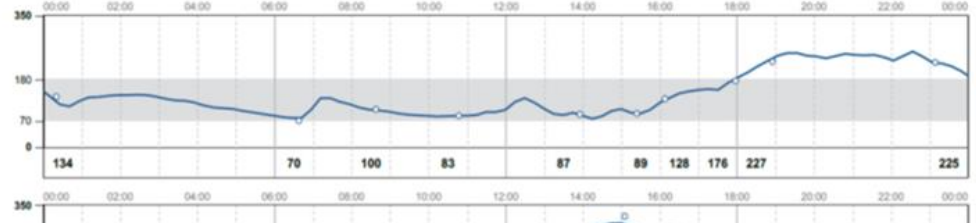
30 Οκτωβρίου 2020 - 12 Νοεμβρίου 2020 (14 Ημέρες)

LibreView

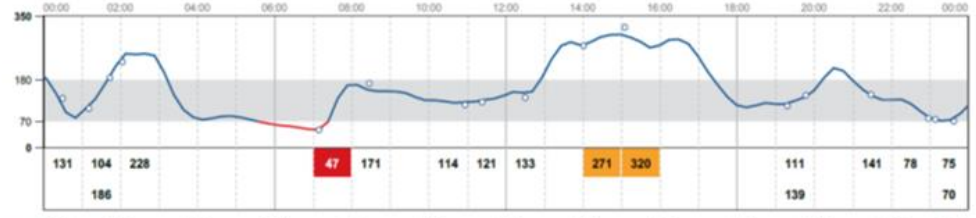
ΠΑΡ 30 Οκτ



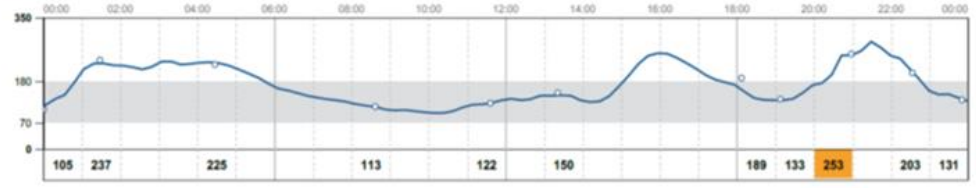
ΣΑΒ 31 Οκτ



ΚΥΡ 1 Νοε



ΔΕΥ 2 Νοε



Λεζάντα: Υψηλή γλυκόζη (>250) · Χαμηλή γλυκόζη (<70) · Σαρώσεις/Προβολές · Καταγραφ. · Μέγιστη τιμή μετά το γεύμα · Νέος αισθητήρας · Αλλαγή ώρας
17,0u 2,0+15,0 15,0u Γεύμα + Διόρθωση + Αλλαγή χρήστη + Σύνολο · Μέτρηση με ταινία

ΠΗΓΗ: FreeStyle Libre

Κωνσταντίνα Δ. Σαμαρά
ΗΜΕΡΟΜΗΝΙΑ ΓΕΝΝΗΣΗΣ: 04/03/1997

ΗΜΕΡΟΜΗΝΙΑ ΓΕΝΝΗΣΗΣ: 04/03/1997
MRN: _____
ΣΥΣΚΕΥΗ: FreeStyle Libre

ΣΕΛΙΔΑ: 1 / 1
ΔΗΜΙΟΥΡΓΗΘΗΚΕ: 12/11/2020

Αναφορά AGP

30 Οκτωβρίου 2020 - 12 Νοεμβρίου 2020 (14 Ημέρες)

LibreView

ΣΤΑΤΙΣΤΙΚΑ ΚΑΙ ΣΤΟΧΟΙ ΓΛΥΚΟΖΗΣ

30 Οκτωβρίου 2020 - 12 Νοεμβρίου 2020	**14 Ημέρες**
% Χρόνου με τον αισθητήρα ενεργό	**41%**

Εύρη και Στόχοι για	Διαβήτης τύπου 1 ή τύπου 2
Εύρη γλυκόζης	**Στόχοι** % μετρήσεων (Ώρα/Ημέρα)
Εύρος στόχου 70-180 mg/dL	Μεγαλύτερη από 70% (16ω 48λεπτά)
Κάτω από 70 mg/dL	Λιγότερη από 4% (58λεπτά)
Κάτω από 54 mg/dL	Λιγότερη από 1% (14λεπτά)
Πάνω από 180 mg/dL	Λιγότερη από 25% (6ω)
Πάνω από 250 mg/dL	Λιγότερη από 5% (1ω 12λεπτά)
Κάθε αύξηση 5% του χρόνου εντός εύρους στόχου (70-180 mg/dL) είναι κλινικά επωφελής.	

Μέσος όρος γλυκόζης	**146** mg/dL
Δείκτης διαχείρισης γλυκόζης (GMI)	**6,8% ή 51 mmol/mol**
Μεταβλητότητα της γλυκόζης	**38,3%**

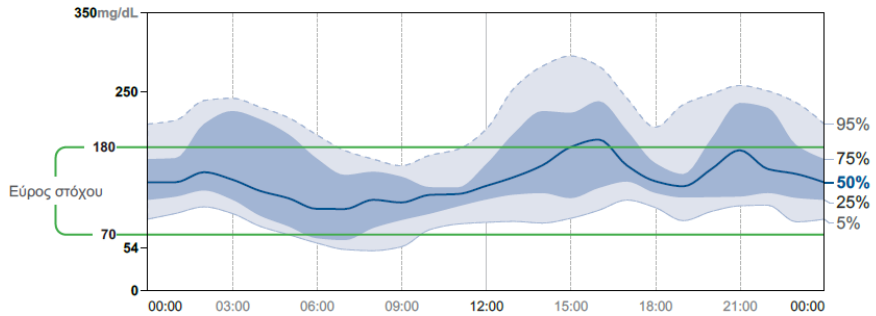
Καθορίζεται ως ποσοστό συντελεστή μεταβλητότητας (%CV), στόχος ≤36%

ΧΡΟΝΟΣ ΕΝΤΟΣ ΕΥΡΟΥΣ ΣΤΟΧΩΝ

Πολύ υψηλή	>250 mg/dL	**4%** (58λεπτά)
Υψηλή	181 - 250 mg/dL	**20%** (4ω 48λεπτά)
Εύρος στόχου	70 - 180 mg/dL	**71%** (17ω 2λεπτά)
Χαμηλή	54 - 69 mg/dL	**3%** (43λεπτά)
Πολύ χαμηλή	<54 mg/dL	**2%** (29λεπτά)

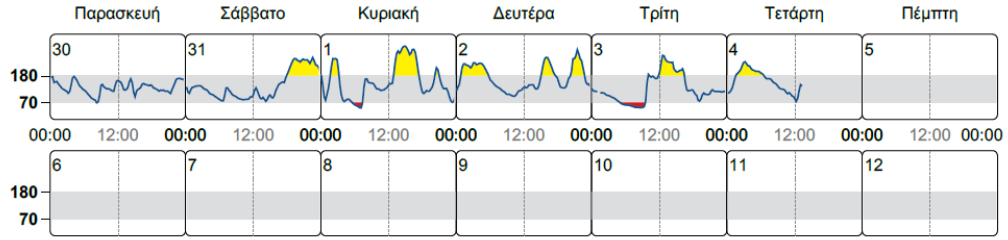
ΠΡΟΦΙΛ ΔΙΑΚΥΜΑΝΣΗΣ ΓΛΥΚΟΖΗΣ (AGP)

Η AGP είναι μια σύνοψη των τιμών γλυκόζης από την περίοδο αναφοράς, με μέση τιμή (50%) και άλλα εκατοστημόρια να εμφανίζονται σαν να λάμβαναν χώρα σε μία μόνο ημέρα.



ΗΜΕΡΗΣΙΑ ΠΡΟΦΙΛ ΓΛΥΚΟΖΗΣ

Κάθε ημερήσιο προφίλ αντιπροσωπεύει μια περίοδο από μεσάνυχτα έως μεσάνυχτα, με την ημερομηνία να εμφανίζεται στην επάνω αριστερή γωνία.



Πηγή: Battelino, Tadej, et al. "Clinical Targets for Continuous Glucose Monitoring Data Interpretation: Recommendations From the International Consensus on Time in Range." Diabetes Care, American Diabetes Association, 7 June 2019, https://doi.org/10.2337/dci19-0028.

ks

Μετά την τοποθέτηση καταγραφέα και μετά από εκπαίδευση στην διαχείρηση του διαβήτη με τις περισσότερες συνεδρίες μέσω skype λόγω lockdown (Μάρτιος-Απρίλιο 2020), τοποθετήθηκε αντλία ινσουλίνης με καταγραφέα (Νοέμβριος 2020)

αναφορά ασθενή

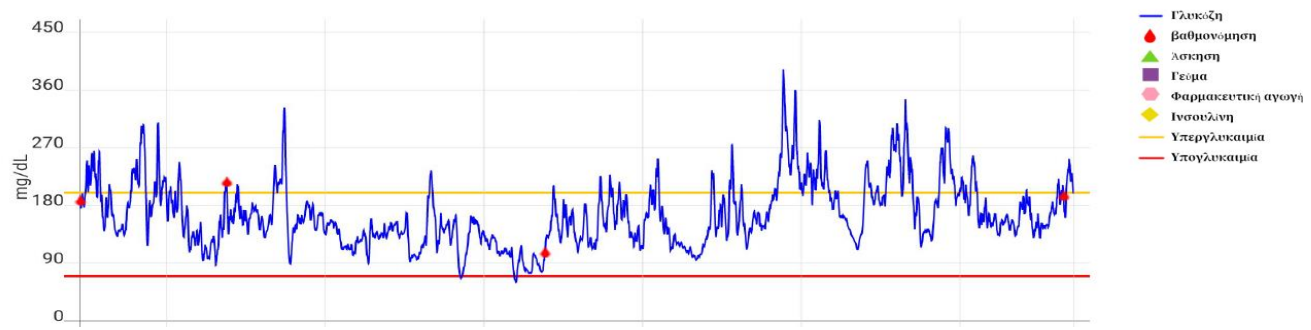
στοιχεία χρήστη

Αναγνωριστικό πομπού: SN06181198 χρόνος έναρξης: 17/12/2020 17:13:46

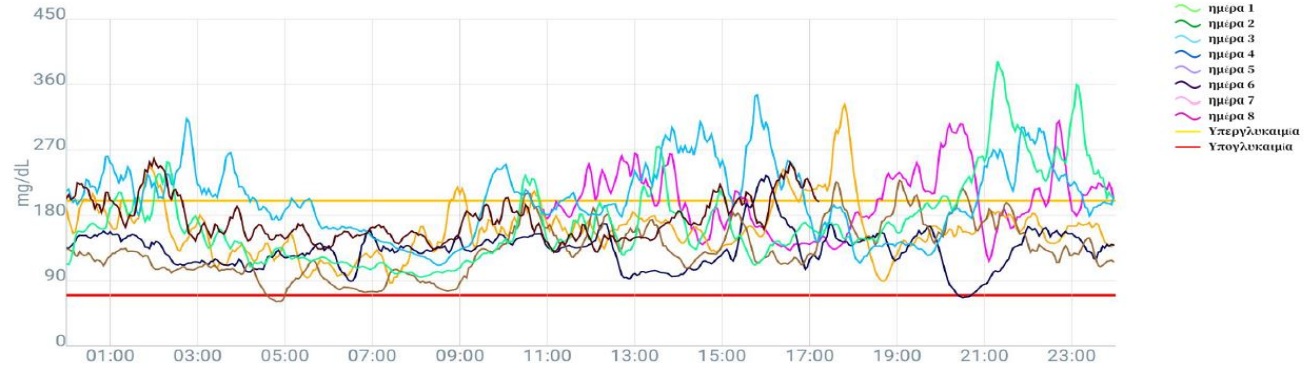
εμφάνιση αποτελεσμάτων

Παρακολούθηση του έργου	εμφάνιση αποτελεσμάτων	μονάδα μέτρησης γλυκόζης
παρακολούθηση περιόδου	17/12/2020 17:13:46~24/12/2020 18:52:50	/
αριθμός σημείων	3007	/
Μ.Ο. Γλυκόζη	165.16	mg/dL
τυπική απόκλιση	49.07	mg/dL
μέγιστο	392	mg/dL
ελάχιστο	61	mg/dL
Μ.Ο τιμών 1 ώρα π/γ	----	mg/dL
Μ.Ο. τιμών 3 ώρ μ/γ	----	mg/dL
εύρος μεγίστου/ελαχίστου	330.86	mg/dL
HbA1c	6.8	%
χρονική αναλογία σε υπεργλυκαιμία	21.8	%
χρονική αναλογία σε υπογλυκαιμία	0.5	%
χρόνος εντός στόχου	77.7	%
κατώφλι τιμής γλυκ	70 ~ 200	mg/dL

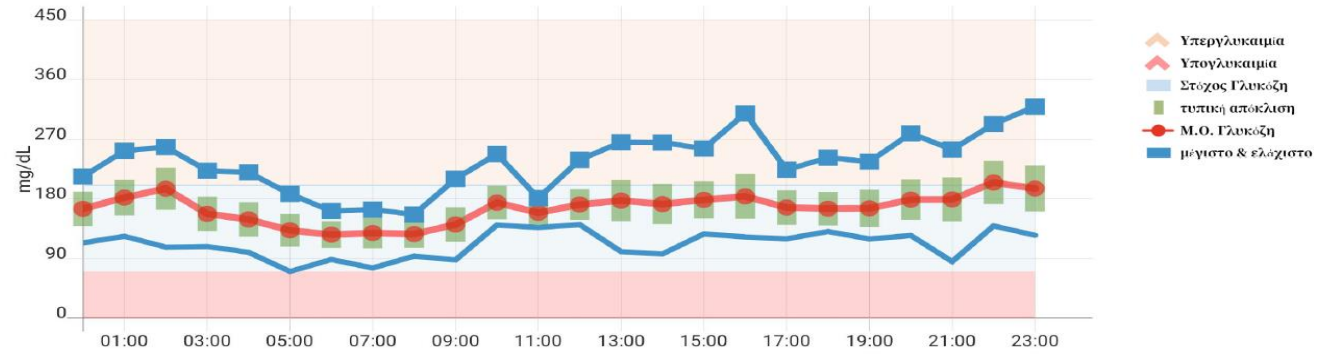
συνοπτικό γράφημα διακύμανσης γλυκόζης



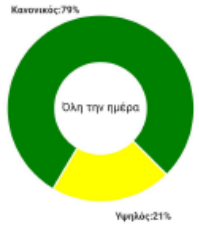
24ωρη



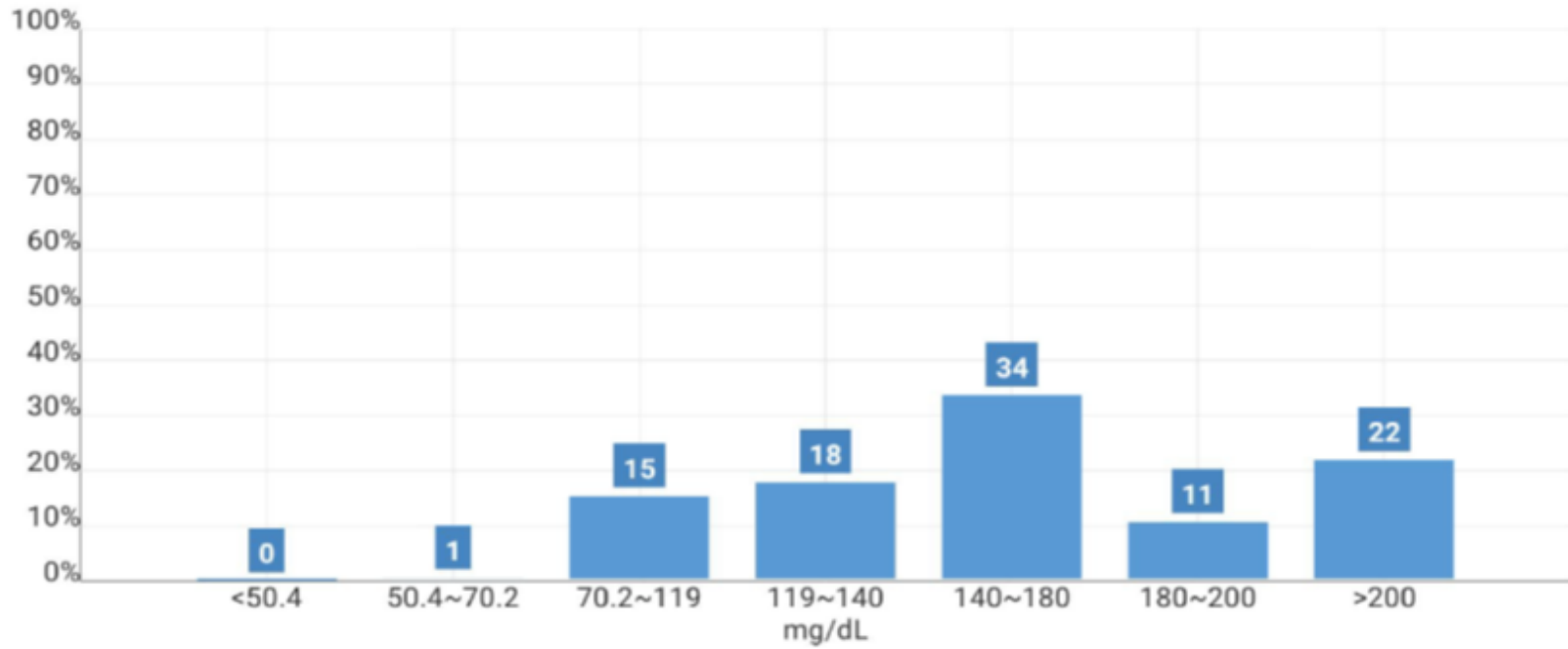
ωριαία τάση



κατανομή



Το πεδίο εφαρμογής της διανομής της γλυκόζης



ks

Άνδρας 63 ετών, 132 kg

Επιχειρηματίας με άστατο ωράριο και γεύματα

ΣΔ2 από 10ετίας, HbA1c 10%, υπό μετφορμίνη, SU και iSGLT-2

Γάγγραινα Fournier-σηψαιμία

Διακοπή της SU και iSGLT-2, έναρξη MDI

Τοποθέτηση LIBRE μετά το εξιτήριο , για παρακολούθηση εκ του μακρόθεν

ΣΕΛΙΔΑ: 3 / 4
ΔΗΜΙΟΥΡΓΗΘΗΚΕ: 20/02/2021

Μηνιαία σύνοψη

Οκτώβριος 2020

LibreView

ΔΙΑΒΗΤΟΛΟΓΙΚΟ ΚΕΝΤΡΟ EURO...
ΤΗΛΕΦΩΝΟ: 2315544505

MRN:
ΠΗΓΕΣ: FreeStyle LibreLink

Μέσος όρος γλυκόζης
Σαρώσεις/Προβολές
Συμβάντα χαμηλής γλυκόζης

Δευτέρα	Τρίτη	Τετάρτη	Πέμπτη	Παρασκευή	Σάββατο	Κυριακή
			1 179 mg/dL 3	2 169 mg/dL 6	3 212 mg/dL 2	4 228 mg/dL 4
5 193 mg/dL 1	6 195 mg/dL 4	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22 169 mg/dL 2	23 216 mg/dL 3	24 223 mg/dL 2	25 194 mg/dL 1
26 Υψηλή 251 mg/dL 2	27 Υψηλή 254 mg/dL 4	28 235 mg/dL 7	29 Υψηλή 261 mg/dL 4	30 212 mg/dL 4	31 Υψηλή 258 mg/dL 4	

ΗΜΕΡΟΜΗΝΙΑ ΓΕΝΝΗΣΗΣ: 26/06/1957
MRN:
ΣΥΣΚΕΥΗ: FreeStyle LibreLink
ΔΙΑΒΗΤΟΛΟΓΙΚΟ ΚΕΝΤΡΟ EUROME...
ΤΗΛΕΦΩΝΟ: 2315544505
ΣΕΛΙΔΑ: 1 / 1
ΔΗΜΙΟΥΡΓΗΘΗΚΕ: 26/02/2021

Αναφορά AGP

9 Οκτωβρίου 2020 - 5 Νοεμβρίου 2020 (28 Ημέρες)

LibreView

ΣΤΑΤΙΣΤΙΚΑ ΚΑΙ ΣΤΟΧΟΙ ΓΛΥΚΟΖΗΣ

9 Οκτωβρίου 2020 - 5 Νοεμβρίου 2020	28 Ημέρες
% Χρόνου με τον αισθητήρα ενεργό	38%

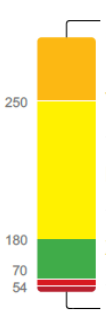
Εύρη και Στόχοι για	Διαβήτης τύπου 1 ή τύπου 2
Εύρη γλυκόζης	**Στόχοι** % μετρήσεων (Ώρα/Ημέρα)
Εύρος στόχου 70-180 mg/dL	Μεγαλύτερη από 70% (16ω 48λεπτά)
Κάτω από 70 mg/dL	Λιγότερη από 4% (58λεπτά)
Κάτω από 54 mg/dL	Λιγότερη από 1% (14λεπτά)
Πάνω από 180 mg/dL	Λιγότερη από 25% (6ω)
Πάνω από 250 mg/dL	Λιγότερη από 5% (1ω 12λεπτά)

Κάθε αύξηση 5% του χρόνου εντός εύρους στόχου (70-180 mg/dL) είναι κλινικά επωφελής.

Μέσος όρος γλυκόζης	**224** mg/dL
Δείκτης διαχείρισης γλυκόζης (GMI)	**8,7% ή 72 mmol/mol**
Μεταβλητότητα της γλυκόζης	**19,3%**

Καθορίζεται ως ποσοστό συντελεστή μεταβλητότητας (%CV), στόχος ≤36%

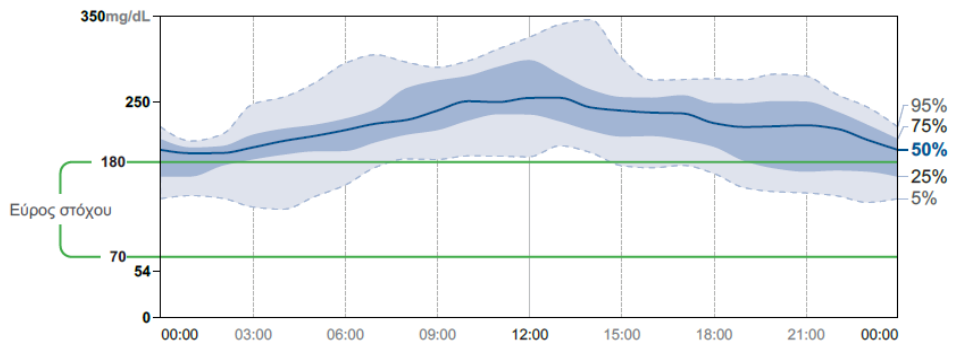
ΧΡΟΝΟΣ ΕΝΤΟΣ ΕΥΡΟΥΣ ΣΤΟΧΩΝ



Πολύ υψηλή	>250 mg/dL	26% (6ω 14λεπτά)
Υψηλή	181 - 250 mg/dL	59% (14ω 10λεπτά)
Εύρος στόχου	70 - 180 mg/dL	15% (3ω 36λεπτά)
Χαμηλή	54 - 69 mg/dL	0% (0λεπτά)
Πολύ χαμηλή	<54 mg/dL	0% (0λεπτά)

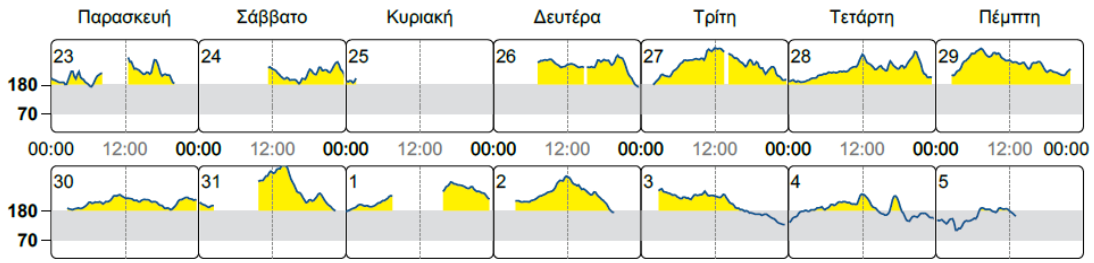
ΠΡΟΦΙΛ ΔΙΑΚΥΜΑΝΣΗΣ ΓΛΥΚΟΖΗΣ (AGP)

Η AGP είναι μια σύνοψη των τιμών γλυκόζης από την περίοδο αναφοράς, με μέση τιμή (50%) και άλλα εκατοστημόρια να εμφανίζονται σαν να λάμβαναν χώρα σε μία μόνο ημέρα.



ΗΜΕΡΗΣΙΑ ΠΡΟΦΙΛ ΓΛΥΚΟΖΗΣ Οι πιο πρόσφατες 14 ημέρες. Δείτε την εβδομαδιαία έκθεση περίληψης για περισσότερες ημέρες.

Κάθε ημερήσιο προφίλ αντιπροσωπεύει μια περίοδο από μεσάνυχτα έως μεσάνυχτα, με την ημερομηνία να εμφανίζεται στην επάνω αριστερή γωνία.



Ημερήσια καταγραφή

9 Οκτωβρίου 2020 - 5 Νοεμβρίου 2020 (28 Ημέρες)

LibreView

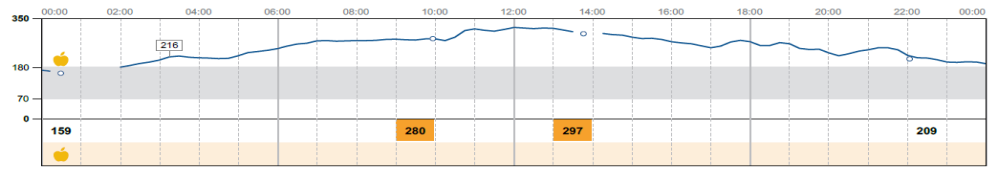
ΔΙΑΒΗΤΟΛΟΓΙΚΟ ΚΕΝΤΡΟ EUROM...
ΤΗΛΕΦΩΝΟ: 2315544505
MRN:
ΠΗΓΕΣ: FreeStyle LibreLink
ΗΜΕΡΟΜΗΝΙΑ ΓΕΝΝΗΣΗΣ: 26/06/1957

ΤΡΙ 27 Οκτ

Γλυκόζη mg/dL

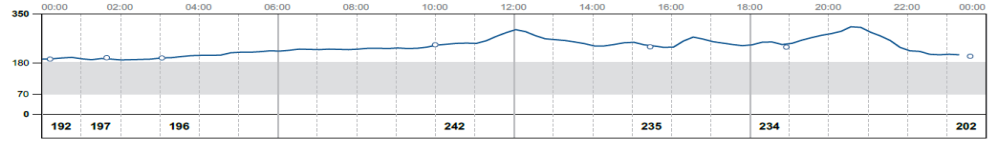
Υδατάνθρ. γραμ.

Σημειώσεις



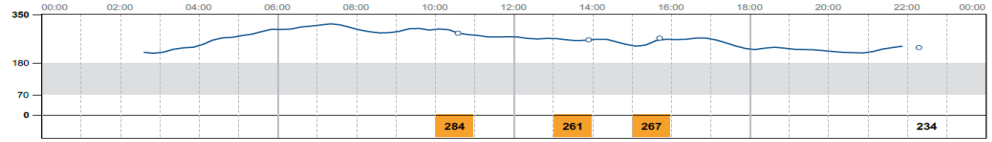
ΤΕΤ 28 Οκτ

Γλυκόζη mg/dL



ΠΕΜ 29 Οκτ

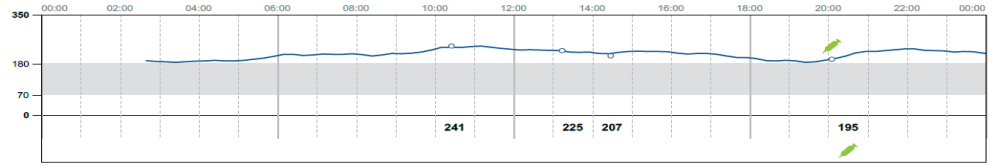
Γλυκόζη mg/dL



ΠΑΡ 30 Οκτ

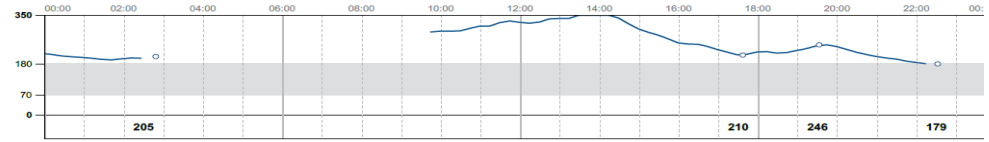
Γλυκόζη mg/dL

Ινσουλίνη ταχείας δράσης



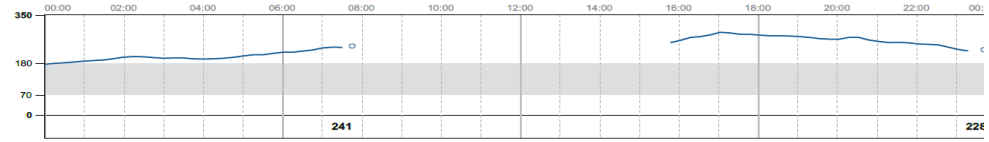
ΣΑΒ 31 Οκτ

Γλυκόζη mg/dL



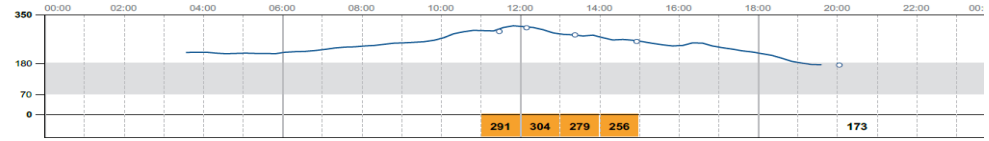
ΚΥΡ 1 Νοε

Γλυκόζη mg/dL



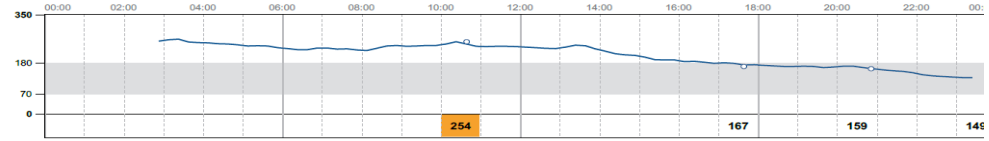
ΔΕΥ 2 Νοε

Γλυκόζη mg/dL



ΤΡΙ 3 Νοε

Γλυκόζη mg/dL



Λεζάντα: Υψηλή γλυκόζη (>250) · Χαμηλή γλυκόζη (<70) · Σαρώσεις/Προβολές · Καταγεγραμ. · Μέγιστη τιμή μετά το γεύμα · Νέος αισθητήρας · Αλλαγή ώρας
17,0u-2,0+0,0 **15,0u** Γεύμα + Διόρθωση + Αλλαγή χρήστη = Σύνολο · Μέτρηση με ταινία

Ημερήσια καταγραφή

9 Οκτωβρίου 2020 - 5 Νοεμβρίου 2020 (28 Ημέρες)

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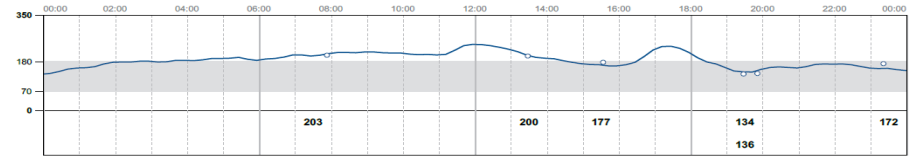
ΤΗΛΕΦΩΝΟ: 2315544505

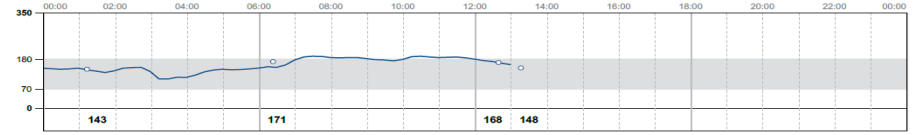
ΤΕΤ 4 Νοε

Γλυκόζη mg/dL



ΠΕΜ 5 Νοε

Γλυκόζη mg/dL



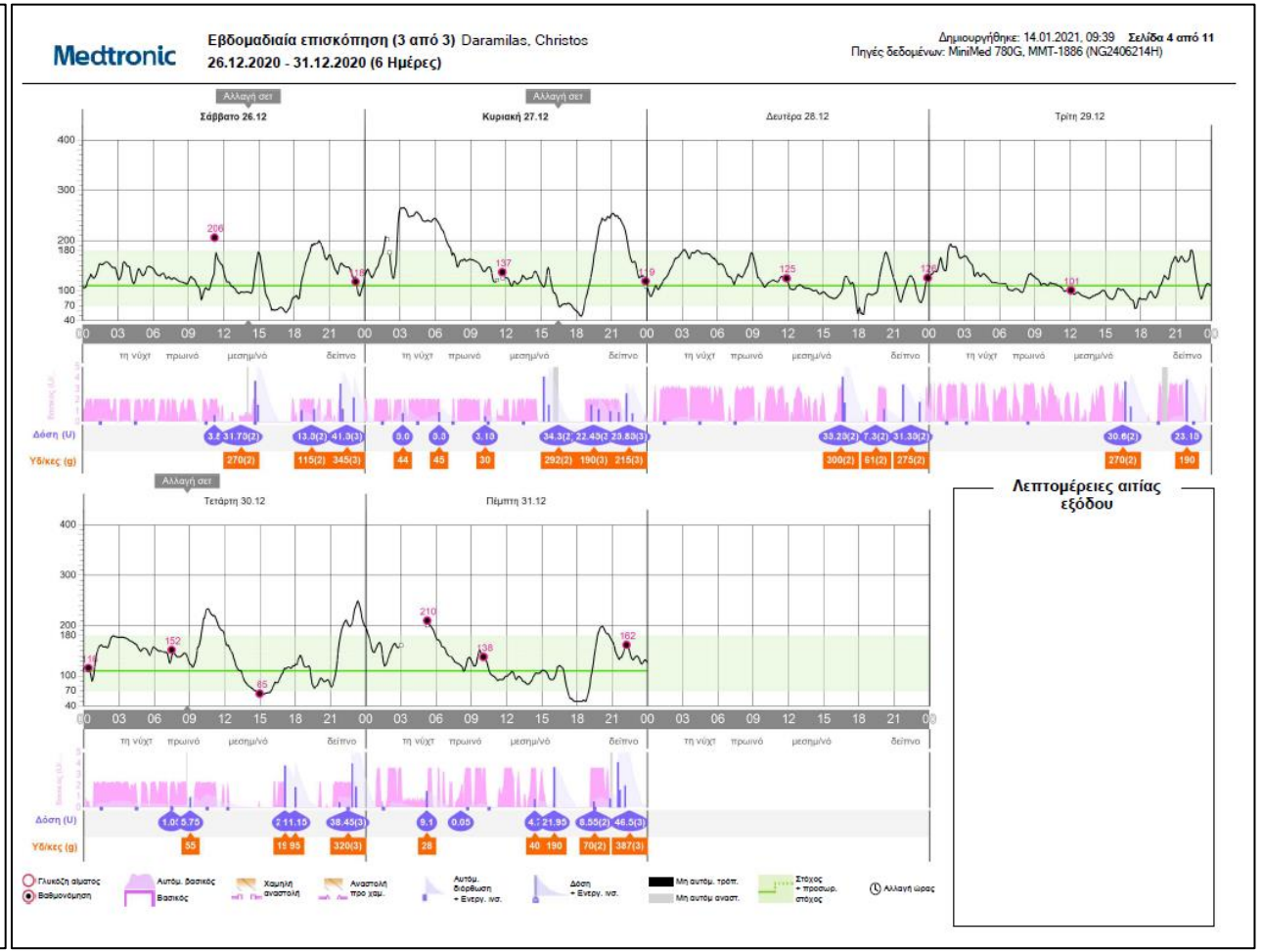
Φεβρουάριος 2021
Πλήρης αποκατάσταση γάγγραινας
Αγωγή MDI + GLP-1
Απώλεια βάρους -7kg
HbA1c 7,2%

HYBRID CLOSED LOOP

Άνδρας 35 ετ, ΣΔ1 από 20ετίας, HbA1c 6,1%

Αντλία από 2008

Πρώτη δοκιμαστική τοποθέτηση αντλίας MiniMed 780G- υβριδικό κλειστό σύστημα



chd

Εκπαίδευση- Ομάδες Σακχαρώδη Διαβήτη

Προσοχή!
Video Teleconferencing is NOT Telemedicine

Hormones (2018) 17:397–403
https://doi.org/10.1007/s42000-018-0054-0

ORIGINAL ARTICLE

Significant effect of group education in patients with diabetes type 1

Zadalla Mouslech[1] · Maria Somali[2] · Livadas Sarantis[3] · Daramilas Christos[2] · Chatzi Alexandra[4] · Papagianni Maria[4] · George Mastorakos[5] · Christos Savopoulos[1] · Apostolos I. Hatzitolios[1]

Received: 16 February 2018 / Accepted: 18 June 2018 / Published online: 15 August 2018

Abstract

Objective Type 1 diabetes mellitus (T1DM) constitutes a real challenge in everyday practice for both physicians and patients. Due to the complexity of the disease and its unpredictable nature, structured education and training programs are nowadays implemented that ensure active patient involvement and self-care behaviors to achieve adequate glycemic control, prevent diabetic complications, and improve the quality of life of patients. These programs provide patients with the necessary knowledge and skills to self-monitor and self-manage the disease and its associated metabolic conditions. The aim of the study was to evaluate the effect of a structured 12-month education program that motivated patients to follow a healthy Mediterranean diet and exercise regularly as well as to adjust carbohydrate intake and insulin dose according to their needs.

Design The education group (EG) was comprised of 62 patients (45 males) with type 1 DM, mean age 36 ± 4.2 years and BMI 24.2 ± 3.1 kg/m^2. An age- and BMI-matched control group (CG, $n = 25$, mean age 41 ± 6.4 years, BMI 25.7 ± 4.2 kg/m^2) was composed of patients referred but not enrolled in the project.

Results At the end of this program, HbA1C levels were significantly decreased (8.5 ± 2.1% vs. 7.08 ± 0.79%, $p < 0.0001$) as was also the incidence of hypoglycemic episodes ($p < 0.05$). Regarding daily glucose fluctuations, significant improvement ($p < 0.05$) was observed, as reflected in low, high, and daily median glucose values. On the other hand, the above parameters remained stable in the CG.

Conclusions These results strongly support the need for long-lasting structured education group courses for adult diabetic patients keen to change their habits in order to achieve self-management of the disease.

DIABETES RESEARCH AND CLINICAL PRACTICE 160 (2020) 108026

Contents available at ScienceDirect

Diabetes Research and Clinical Practice

journal homepage: www.elsevier.com/locate/diabres

International Diabetes Federation

Insulin pumps use in Greece: Efficacy and safety data from 140 patients with type 1 diabetes mellitus

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ARTICLE INFO

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Keywords:
Insulin pump therapy
Continuous subcutaneous insulin infusion
CSII
Multiple daily injection
MDI
Type 1 diabetes

ABSTRACT

Objective: The aim of this study was to investigate the efficacy and safety of continuous subcutaneous insulin infusion (CSII) regarding glycaemic control and quality of life in patients with type 1 diabetes mellitus (T1DM), who were previously treated with multiple daily injections (MDI).

Patients and methods: 140 patients with T1DM [mean age 33.7 ± 22.1 years; 54 males, 76 females, 10 children; duration of diabetes 19.1 ± 8.4 years; total daily insulin usage while on MDI (IU/kg/day) 57.86 ± 15.32; HbA1c at the beginning of CSII treatment 8.67 ± 1.54%] were included in the study. HbA1c, glucose levels, BMI, severe hypoglycemic and diabetic ketoacidosis (DKA) episodes were recorded and compared to the data prior to CSII introduction. The evaluation of the quality of life was assessed with a self-questionnaire adjusted from the SF-12 and diabetes quality of life (DQoL) questionnaires.

Results: HbA1c was reduced from 8.67 ± 1.54 to 6.85 ± 0.52% ($p < 0.001$). This reduction was independent of age, gender, body mass index (BMI) and diabetes duration. Daily insulin requirements were lower at the end of the follow-up (36.40 ± 12.20 IU/kg/day) compared with the needs during enrolment (57.86 ± 15.32 IU/kg/day) ($p < 0.001$). BMI presented no significant alterations. Ten (10) severe hypoglycemic episodes were recorded but the overall rate was decreased by 71.5% ($p < 0.001$). Only 3 cases of ketoacidosis were recorded. Quality of life parameters were remarkably improved.

Conclusions: This study provided evidence that CSII treatment was superior to MDI for patients with T1DM in Greece. CSII offered a safe, effective alternative to MDI, while improving glycaemic control, side-effects and quality of life.

Received: 15 June 2020 | Accepted: 1 August 2020
DOI: 10.1002/edm2.180

ORIGINAL RESEARCH ARTICLE

Endocrinology, Diabetes & Metabolism Open Access WILEY

Use and perception of telemedicine in people with type 1 diabetes during the COVID-19 pandemic—Results of a global survey

Sam N. Scott[1,2] | Federico Y. Fontana[2] | Thomas Züger[1,3] | Markus Laimer[1] | Christoph Stettler[1]

In conclusion, the COVID-19 pandemic poses unique challenges to diabetes care. The results from this real-time worldwide survey demonstrate that a large number of people living with type 1 diabetes have rapidly adopted telemedicine or plan to in the near Future and that this has generally been perceived positively.
Interestingly, age and level of education do not appear to influence peoples' perceptions of telemedicine so far, whereas poor glucose control Seems to negatively affect the perception on usefulness of telemedicine, particularly in males.
Beyond the pandemic, telemedicine may offer an alternative means to improve efficiency and cost effectiveness of care for people with diabetes.

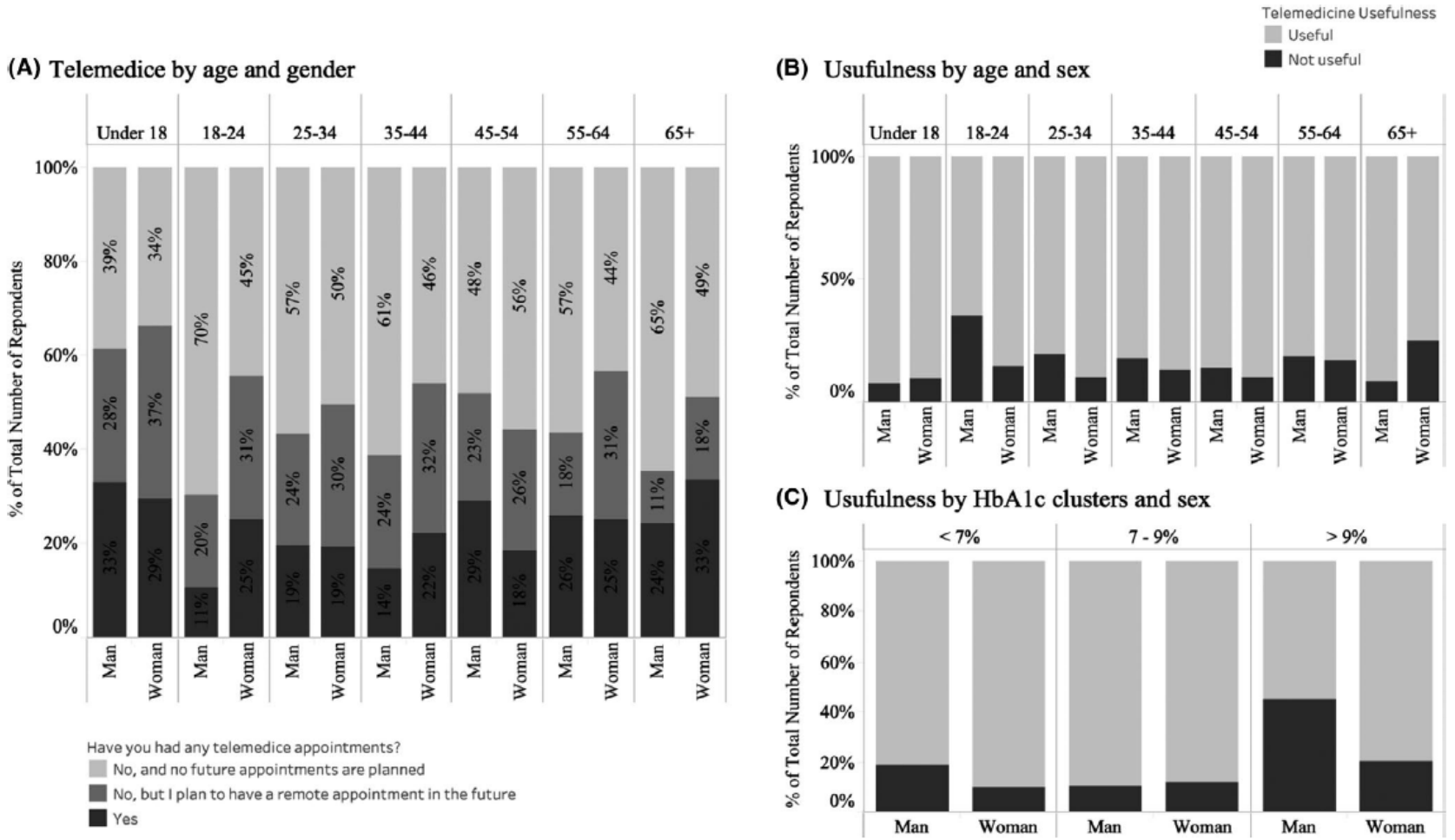

FIGURE 1 Use and perception of telemedicine by survey respondents. A, Proportion of responders stating that they have used or intend to use telemedicine. Perception of telemedicine according to age and sex (B) and according to HbA_{1c} and sex (C)

Κλινικές Μελέτες

e-Diary
i-phone, i-pad
e-ερωτηματολόγια
ΗΚΓ –upload
MRI-upload

Προσωπικά δεδομένα

ΠΕΡΙΟΡΙΣΜΟΙ

Μη φυσική επαφή
Είδος περιστατικών - Συνεργατικότητα
Τεχνικοί όροι-εξοπλισμός, δίκτυο, συμβατότητ
Κόστος εφαρμογής
Εξειδίκευση

ΠΡΟΒΛΗΜΑΤΙΣΜΟΙ

Ζητήματα ηθικής – δεοντολογίας
Ασφάλεια δεδομένων

Αποζημείωση – Ασφαλιστικές εταιρίες
Προσωπικά δεδομένα
Νομικές ευθύνες

- **Cost-effectiveness**
  - **Μείωση επισκέψεων στο νοσοκομείο???**
  - **Μείωση εισαγωγών???**
  - **Μείωση των επιπλοκών???**
  - **Ποιότητα ζωής???**

Θέματα που αναμένουν επίλυση

Cybersecurity Alerts

On June 27, the US Food and Drug Administration (FDA) issued a warning that some Medtronic MiniMed insulin pumps were being recalled because of cybersecurity vulnerabilities, which could allow someone other than the user to connect wirelessly to a nearby pump and change the settings, with potentially dangerous consequences.

In 2016, the Diabetes Technology Society produced a voluntary Standard for Wireless Diabetes Device Security (known DTSec, updated in 2019)

- **Κίνδυνοι**
  - **Σοβαρά περιστατικά**
  - **Παραπομπές**
  - **Επείγοντα**

- Δεοντολογικά
- Μετατόπιση από τον ειδικό στην πρωτοβάθμια φροντίδα
  - εξειδικευμένη ομάδα διαχείρισης
  - Κόστος εξοπλισμού και εκπαιδευμένου προσωπικού

- RCT μελέτες
- Σχέση γιατρού-ασθενή

frontiers in Public Health

POLICY BRIEF
published: 07 September 2020
doi: 10.3389/fpubh.2020.00410

Telemedicine as the New Outpatient Clinic Gone Digital: Position Paper From the Pandemic Health System REsilience PROGRAM (REPROGRAM) International Consortium (Part 2)

Sonu Bhaskar[1,2,3,4], Sian Bradley[1,5], Vijay Kumar Chattu[1,6,7], Anil Adisesh[1,6,7], Alma Nurtazina[1,8], Saltanat Kyrykbayeva[1,8], Sateesh Sakhamuri[1,9], Sebastian Moguilner[1,10], Shawna Pandya[1,11], Starr Schroeder[1,12], Maciej Banach[1,13,14,15] and Daniel Ray[1,16]*

[1] *Pandemic Health System REsilience PROGRAM (REPROGRAM) Consortium, REPROGRAM Telemedicine Sub-committee, Sydney, NSW, Australia,* [2] *Department of Neurology, Liverpool Hospital and South Western Sydney Local Health District, Sydney, NSW, Australia,* [3] *Neurovascular Imaging Laboratory & NSW Brain Clot Bank, Ingham Institute for Applied Medical Research, Sydney, NSW, Australia,* [4] *South Western Sydney Clinical School, The University of New South Wales, UNSW Medicine, Sydney, NSW, Australia,* [5] *The University of New South Wales (UNSW) Medicine Sydney, South West Sydney Clinical School, Sydney, NSW, Australia,* [6] *Department of Medicine, University of Toronto, Toronto, ON, Canada,* [7] *St. Michael's Hospital, Toronto, ON, Canada,* [8] *Department of Epidemiology and Biostatistics, Semey Medical University, Semey, Kazakhstan,* [9] *Department of Clinical Medical Sciences, The University of the West Indies, St. Augustine, Trinidad and Tobago,* [10] *Global Brain Health Institute, Trinity College Dublin, Dublin, Ireland,* [11] *Alberta Health Services and Project PoSSUM, University of Alberta, Edmonton, AB, Canada,* [12] *Penn Medicine Lancaster General Hospital and Project PoSSUM, Lancaster, PA, United States,* [13] *Polish Mother's Memorial Hospital Research Institute (PMMHRI), Łódz, Poland,* [14] *Cardiovascular Research Centre, University of Zielona Gora, Zielona Gora, Poland,* [15] *Department of Hypertension, Medical University of Lodz, Łódz, Poland,* [16] *Farr Institute of Health Informatics, University College London (UCL) & NHS Foundation Trust, Birmingham, United Kingdom*

TABLE 2 | Various factors in telemedicine implementation and corresponding recommendations from the consortium.

Factors	Recommendations
Physician licensing	Facilitation and harmonization of inter-state licensing. Specialty-specific considerations for telemedicine-based care.
Bandwidth and infrastructure	Mobile phone–based Internet to avail of telemedicine, mobile Wi-Fi routers. The concerted effort through a public–private partnership involving key corporate players to improve Internet penetration in these pockets. Need domain experts to ensure that technologies are appropriately deployed.
Reimbursement, cost, and availability	Medicare-for-all coverage. The government needs to provide funding to develop platforms with minimal expenditure.
Clinician uptake	Specialty-specific training for clinicians and user-centric technology design considerations for easy and improved access.
Physician leadership	Quality control, regular re-skilling of professionals involved, ensuring infrastructure is being monitored. Collaboration between various stakeholders, including providers and insurance payers.
Language barriers	Technologies such as mobile apps that can be easily incorporated into telemedicine workflow
Privacy	Blockchain-based platforms or applications could safeguard the privacy of physicians.
User training and technology deployment/access to hardware	Appropriate training addressing bias and nuances toward adopting telemedicine. Funding support and rapid deployment of telemedicine technologies across all providers Provision for delivery of "bundled" telemedicin services. Public and private partnerships can act as enablers. Performance evaluation, ongoing assessment of patient and provider experiences, and adapting to address gaps.
Liability	Developing clear-cut guidelines to mitigate communication and technology-specific risks and liability. This should be done in consultatic with providers, patients, and insurance/payers
Geographical limitations	Use of low-bandwidth applications. Change management and culture-specific support.
Under-resourced settings	Technology-based health promotion, leveragin mobile health applications for community outreach, healthcare buddies who liaise with the community to educate and inform about technology and use. The WHO needs to take the lead in ensuring penetration of telemedicin in under-resourced locations in collaboration with philanthropic partners.
Complex cases	Evidence-based guidelines and workflow recommendations. Various boards, associations, and bodies should formalize standard protocols that could clearly delineate *dos* and *don'ts* of clinical examination, diagnosis, and management using telemedicine technologies.
Patient–doctor relationship	Communication tool kit or handouts to improv user experience. Privacy and communication t patients that clinical data and consultations would remain confidential is critical.

Frontiers in Public Health | www.frontiersin.org

EUROMEDICA-Γενική Κλινική Θεσσαλονίκης

Τμήμα Ενδοκρινολογίας, Μεταβολισμού και Σακχαρώδη Διαβήτη

Ζαδάλλα Μούσλεχ, MD PhD
Μαρία Σώμαλη, MD PhD
Καραπαπάζογλου Αναστ. MD
Ταξιάρη Ευαγγελία Co-Ord
Τάσο Αθανάσιος,Νοσηλευτής

Ευχαριστώ για
την προσοχή σας