

Personalizing Health for people

@clausfn
@datafgood
@pchalliance
@opentelehealth









DREAMLINE

 **BOEING**



Skema for nænbehandling

ID: [redacted]
 Navn: Nielsen, Anton
 Cpr: [redacted] HIBA HIB



413

Mail
 Telefon
 Debutdato

20415430 / 61160974

Ambulantskema Børneafdelingen Hillerød

Type
 Disp
 Autoanti

type 1

Dato		Morgen		Middag		Efter-middag		Aften		Senge-tid		Total	HbA1c i %	Højde (cm) Vægt (kg)	BT i mmHg	SMBG (uge) CGMS	Korrektion kulhydrat /insulin	Ændrer i behandling MÅL for HbA1c	Alv. Hypo Indl. Keto	Infiltrater (mave, baller, lår)	TLF opkald
Sign		N	type	N	type	N	type	N	type	N	type										
14/4-13	Før	Basal	4	I									6,8	128,2	102/57				1 målt	9,5-1	lactose obs på gluten
	Bolus	2-3	R							2	I										
	Efter	Basal						0-2													
	Bolus																				
16/4-13	Før	Basal	5	I									7,5	129,8			8 mmol/l		0	stikker bæger	
	Bolus	6-7	R							1-1½	I										
	Efter	Basal																			
	Bolus																				
1/1-14	Før	Basal	5	I									58 mmol/l	22,6			40 g/l		0	1	
	Bolus	6-7	R							2	I										
SL	Efter	Basal						0-2					6,2	131,2							
	Bolus									0-1			7,8	23,1							
	Før	Basal																			
	Bolus																				
	Efter	Basal																			
	Bolus																				
	Før	Basal																			
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	Bolus																				
	Før	Basal																			
	Bolus																				
	Efter	Basal																			
	Bolus																				

Forkortelser: R=Rapid, I=Insulatard, M=Mixtard, Le=Levemir, La=Lantus, A=Actrapid, NM=Novomix, SMBG=blodsukker målinger pr. uge
 Alv. Hypo: antal hypoglykæmi tilfælde med bevidstløshed eller kræmper - husk at udfylde dato og tidspunkt på ba i journalen
 Indl. Keto: Indlæggelse med ketoacidose, hvor pH er < 7,30 eller bicarbonat under 15 - husk at udfylde bagsiden med dato og bicarbonat

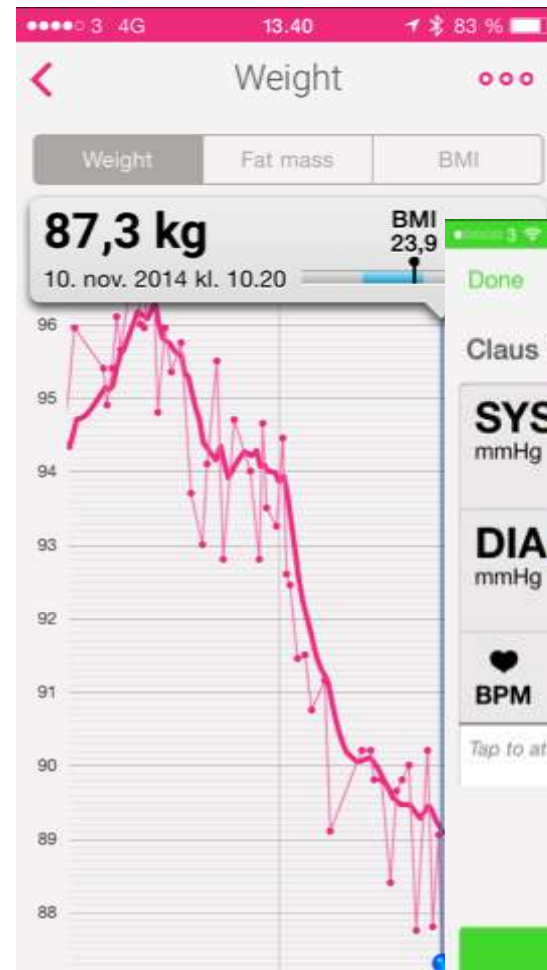
Cøliaki:
 Myxoedem
 Andet

Børneafdelingen

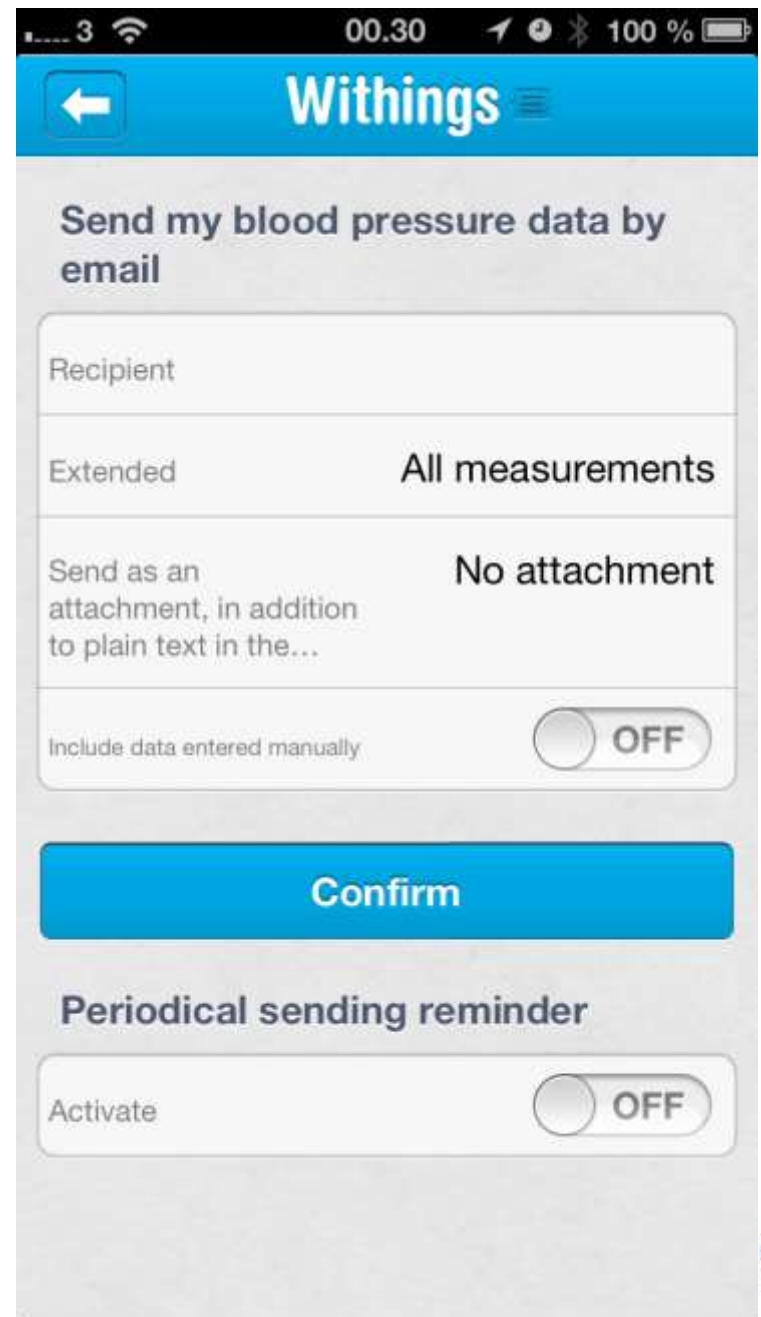
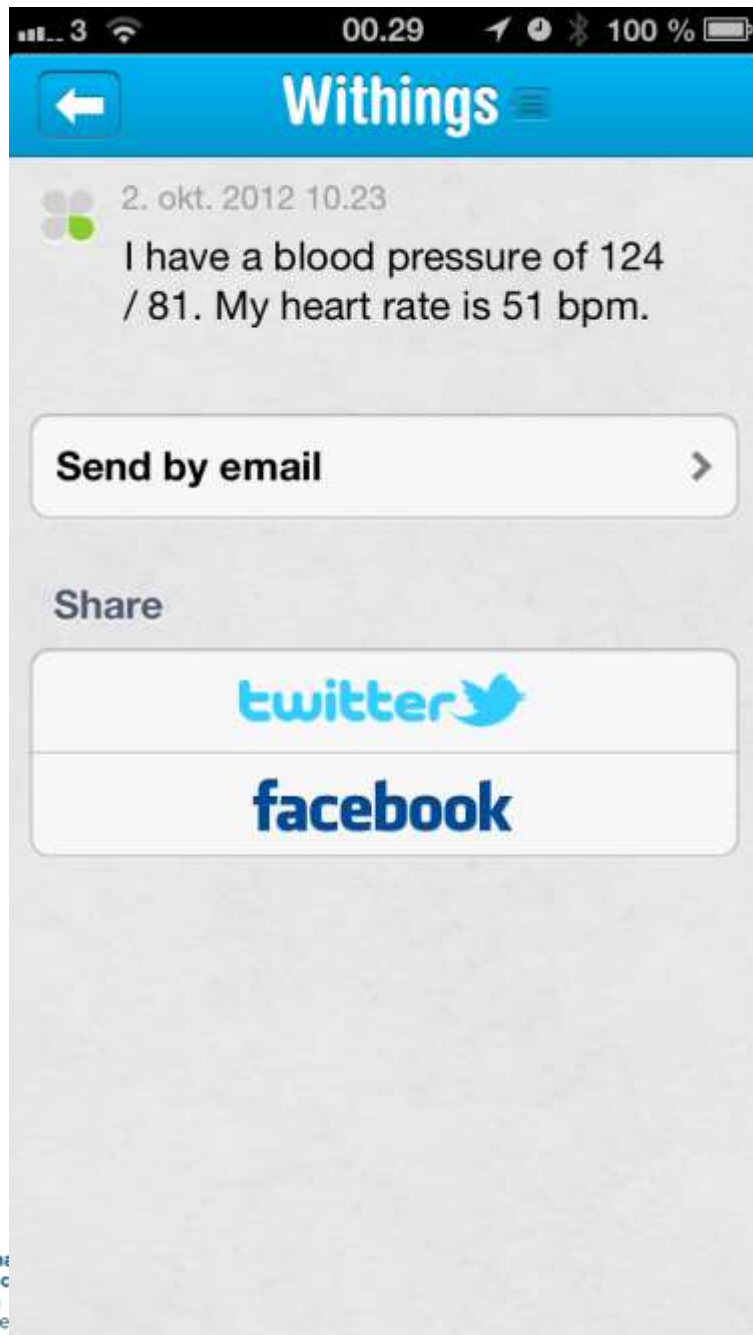




Quantified Self & Wearable's







Real men ...that don't use mhealth solutions!



Patient engagement is key!



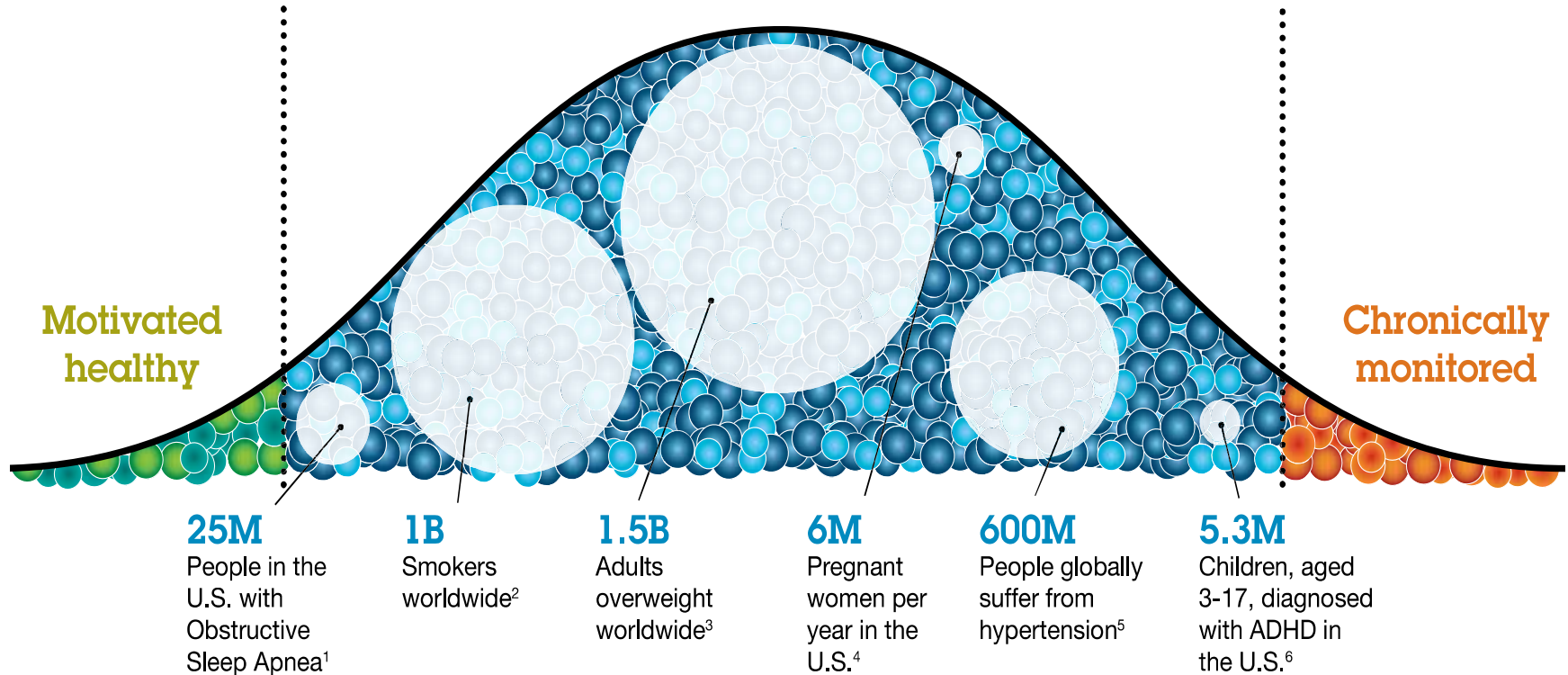


The next killer thing ?



The market potential

Information seekers



Note: Bubble size is illustrative and not to scale. The conditions included in this figure as examples represent only a subset of the overall size of the Information Seeker segment.

Source: 1 "SLEEP APNEA IN AMERICA: AN EXAMPLE," <http://www.stanford.edu/~dement/us.html> 2 "Tobacco: Fact sheet N°339," World Health Organization, February 2011, <http://www.who.int/mediacentre/factsheets/fs339/en/index.html> 3 "Obesity and overweight: Fact sheet N°311," World Health Organization, March 2011, <http://www.who.int/mediacentre/factsheets/fs311/en/index.html> 4 "Statistics," American Pregnancy Association, <http://www.americanpregnancy.org/main/statistics.html> 5 "Facts Related to Chronic Diseases," World Health Organization, <http://www.who.int/hpr/gs/fs.chronic.disease.shtml> 6 "FastStats: Attention Deficit Hyperactivity Disorder (ADHD)," Centers for Disease Control and Prevention, <http://www.cdc.gov/hs/faststats/adhd.htm>

Battleground



Source: IBM Institute for Business Value.

Figure 6: Consumer electronics companies and medical device makers have their respective strengths and weaknesses – but who will win?





**If the TV-market was they like healthcare,
the living room would have a lot of
devices!**



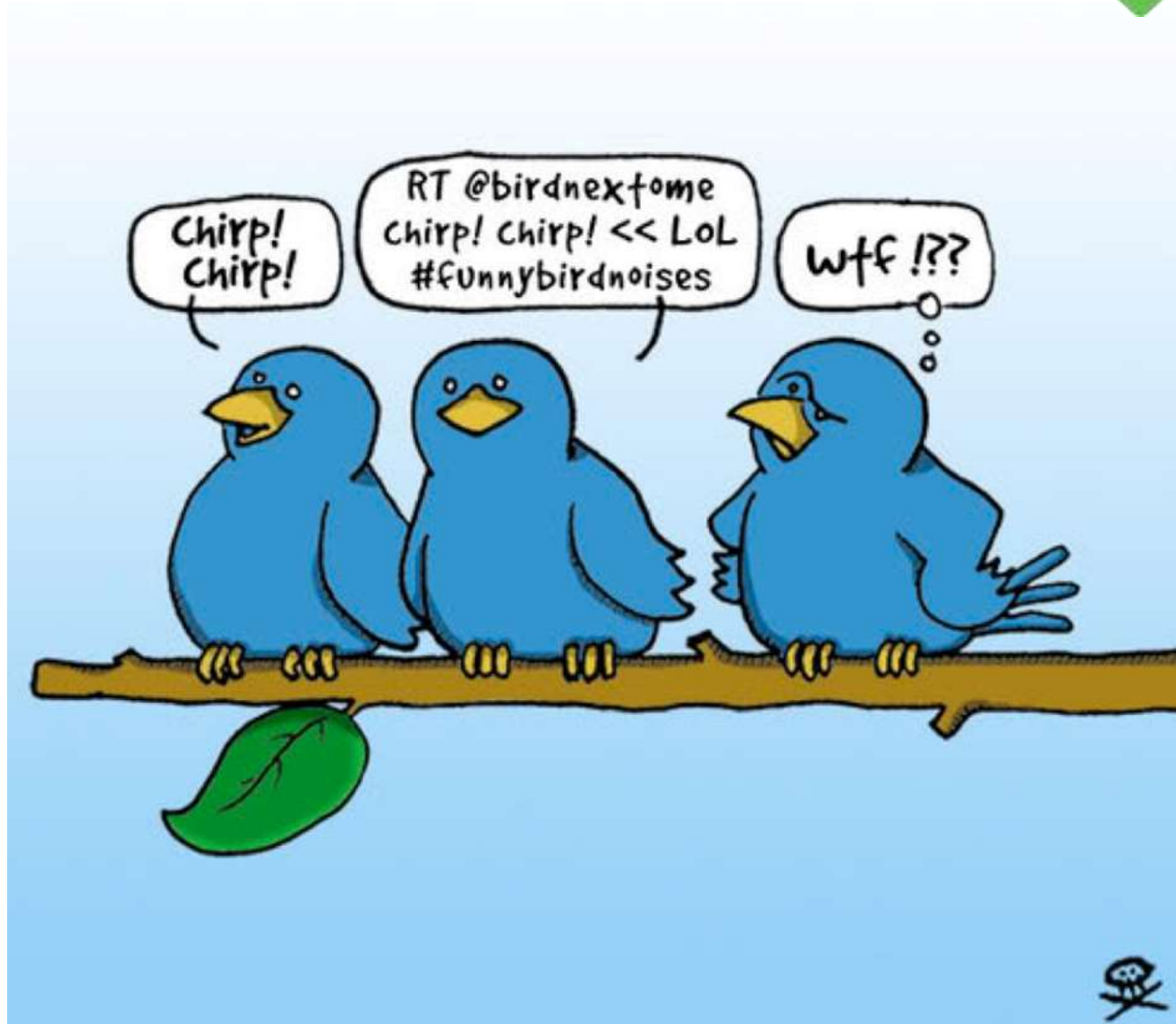
NETFLIX

HBO

Interoperability is hard to sell

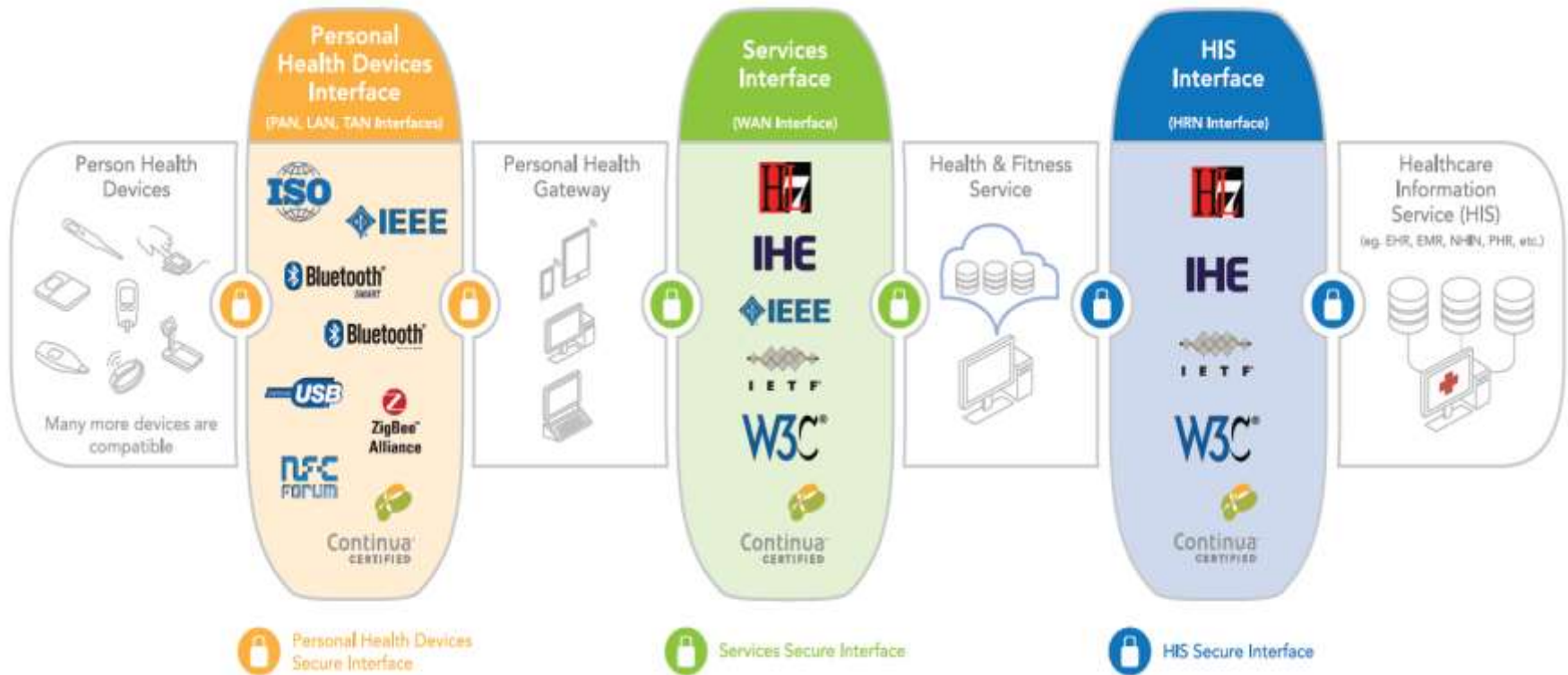


Personal
Connected
Health
Alliance



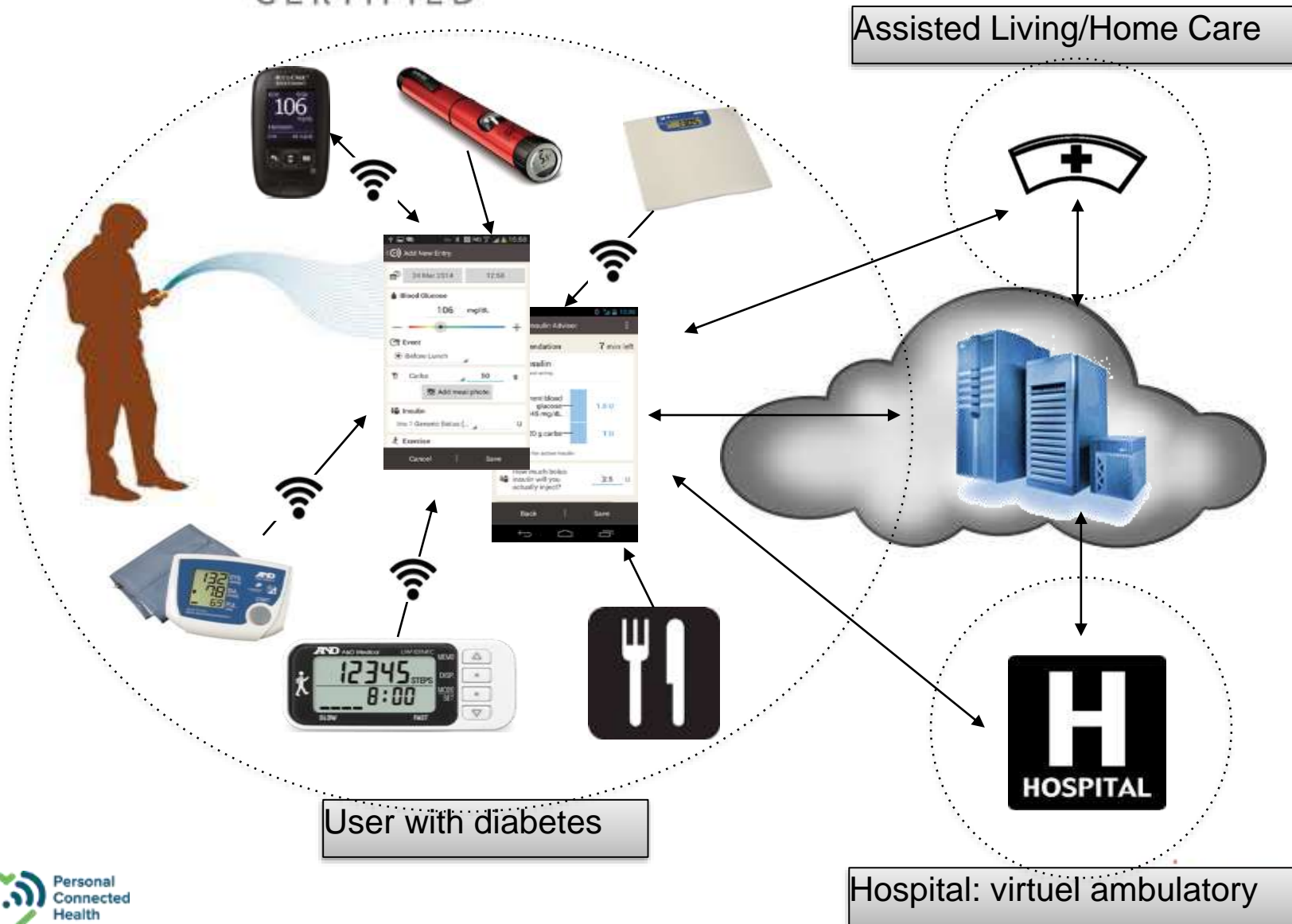


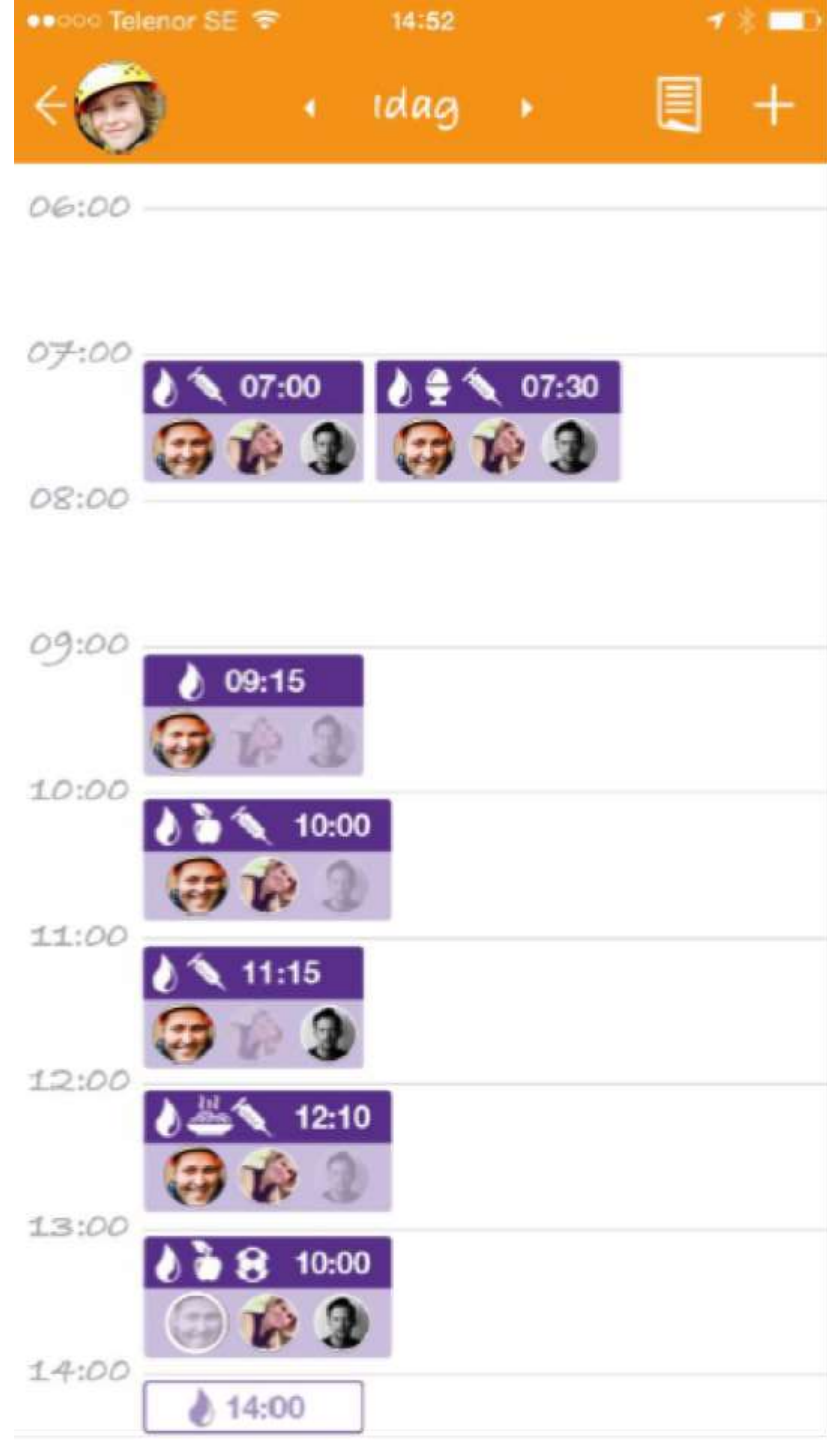
Continua Framework (ITU-T)





Continua™
CERTIFIED







< Messages (26) Anton Details

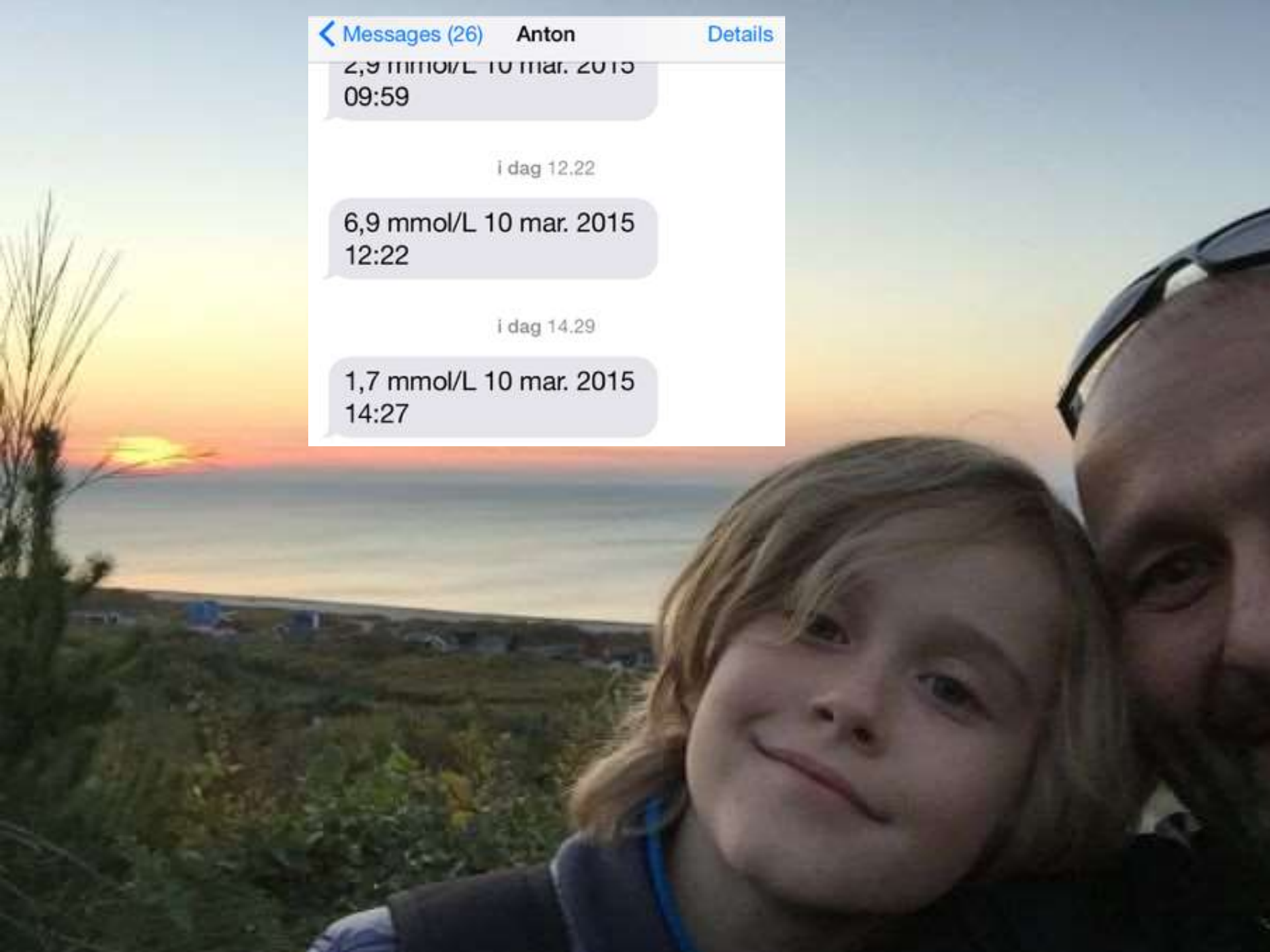
2,9 mmol/L 10 mar. 2015
09:59

i dag 12.22

6,9 mmol/L 10 mar. 2015
12:22

i dag 14.29

1,7 mmol/L 10 mar. 2015
14:27





Skema for nonbehandling

ID: 290405-6181
 Navn: Nielsen, Anton
 Cpr: HIBA HIB

Mail: 20415430 / 61160999
 Telefon: Debutdato: Type: type 1

Ambulantskema Børneafdelingen Hillerød

Dato	Sign		Morgen		Middag		Efter	Senge-tid	Total	HbA1c 1 %	Højde (cm)	Vægt (kg)	BT	Ændrer i behandling	Alv. Hypo Indl. Keto	Infiltrater (mave, baller, lår)	TLF opkald
			N	type	N	type											
14/4/13	Før	Basal	4	T													
	Efter	Bolus	2.34	R													
16/4/13	Før	Basal	5	T													
	Efter	Bolus	6.7	R													
21-1-14	Før	Basal	5	T													
	Efter	Bolus	6.7	R													
5/1	Før	Basal															
	Efter	Bolus															
	Før	Basal															
	Efter	Bolus															
	Før	Basal															
	Efter	Bolus															
	Før	Basal															
	Efter	Bolus															

Forkortelser: R= Rapid, I= Insulatard, M= Mixtard, L= Levemir, ...
 Alv. Hypo: antal hypoglykæmi tilfælde med bevidstløshed eller koma
 Indl. Keto: Indlæggelse med ketoacidose, hvor pH er < 7,30 eller bicarbonat < 15 mmol/L
 SMBG= blodsuktermålinger pr. uge
 Tidspunkt på ba i journalen
 Udfyld baksiden med dato og bicarbonat

Børneafdelingen
 Hillerød

Standard Day

Time Range: 12 Weeks 03-08-2016 - 25-10-2016



Display: All, All, All

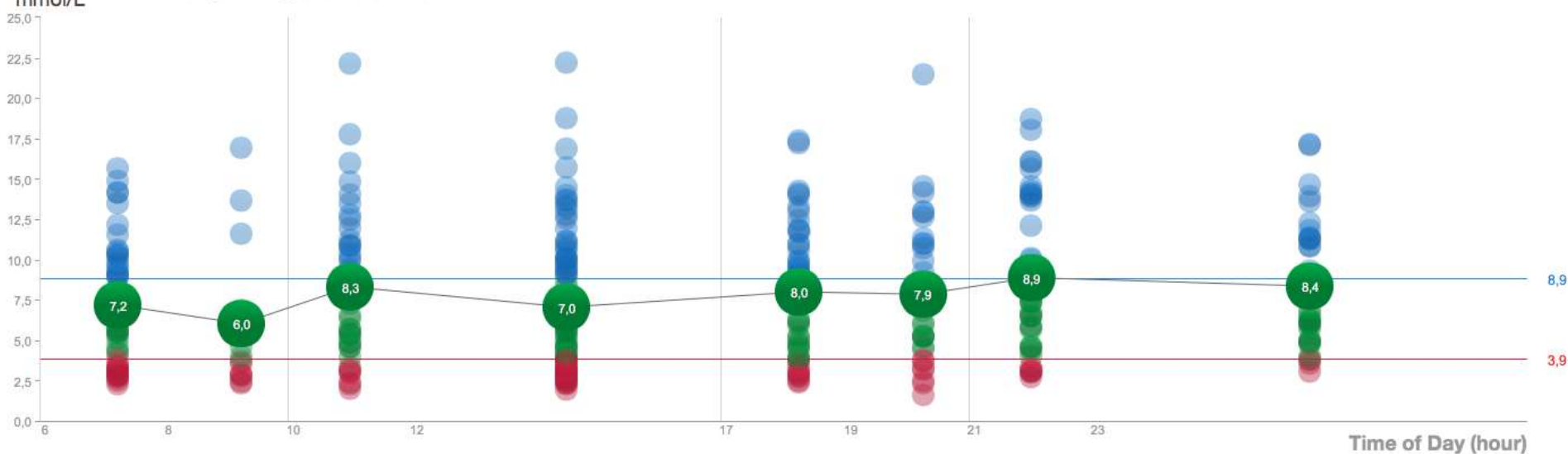
Average Target Range Hypo Within Above

Average bG : 7,7 ± 4,2 mmol/L Tests: 364

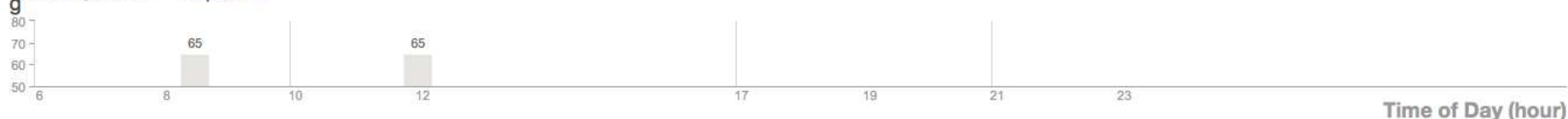
All

Breakfast		Lunch		Dinner		Bedtime	
Before	After	Before	After	Before	After	Before	Sleep

Blood Glucose mmol/L Target Range 3.9–8.9 mmol/L



Carbohydrates expand



Insulin expand



> Praktisk til ...

> **Blodsuktermåler**

> **Kabler og programmer**

> **Kontrolvæske**

> **Batterier**

> Teststrimler

> Fingerprikkere

> Lancetter

> Kanylebøtter

> Spritservietter

> Penkanyler

> Insulinsprøjter

> Insulinpenne

> Bøger for diabetikere

> Insuflon

> Insulin køletaske

> Tilbehør til
Insulinpumpe

tilpas udvalget
ælg en eller flere...



**Accu-Chek Mobile
blodsukkerapparat**

795,00

Se varen



**2in1 SMART
blodsuktermåler**

I kombination med en
smartphone vil måle

199,00

Se varen



**Bayer Contour XT
blodsukkerapparat**

75,00

Se varen



**Accu-Chek Aviva
blodsukkerapparat**

99,50

Se varen



**Accu-Chek Aviva
Nano**

Accu-Chek Aviva Nano
blodsukkerapparat har et

152,00

Se varen



**Freestyle Freedom
Lite**

125,00

Se varen

Innovating health & care systems







THE TOYOTA WAY

**CONTINUOUS
IMPROVEMENT**

**RESPECT
FOR PEOPLE**

FROM ONE MAN'S EXACTING STANDARDS COME
THE EVER-PRESENT THREADS THAT DRIVE A
WORLDWIDE LEADER IN BUSINESS INNOVATION.





Heart attack patient claims Shrewsbury hospital food was 'overcooked' and 'inedible'

A man recovering from a heart attack claims he was served meals he "wouldn't give to a pig" during his stay at the Royal Shrewsbury Hospital – and has taken pictures of the food to prove it.



HOSPITAL FOOD BINGO



The Economist

15 DECEMBER 2012 \$7.50

economist.com

Immigration: Obama gets it right

The rift between China and North Korea

Can Egypt's revolution be rescued?

How to reform America's lawyers

The mystery of the Bermuda Triangle

The next supermodel

**Why the world should look at
the Nordic countries**

A 14-PAGE SPECIAL REPORT

2007



46

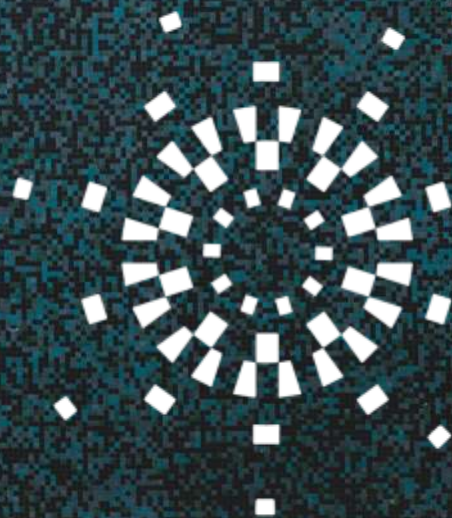
(7,5 mmol/L)

2017



32

(5,5 mmol/L)



DATA for GOOD FOUNDATION



Key Points

- The market potential is huge for mHealth and needed to sustain our societal model
- Tech's Big Boys Line Up for Battle – and digital health tech is the Battleground! When will they get it?
- Non conducive re-imbursement system and fragmented markets is a barrier for scaling up
- Who cares about Quantified Self? – We need Patient engagement
- Interoperability - not sexy but needed to large scale
- Give the user back full control and ownership of their health data
- Take a look to Scandinavia for the next supermodel of personal connected Health adoption



SMART APPLIANCES

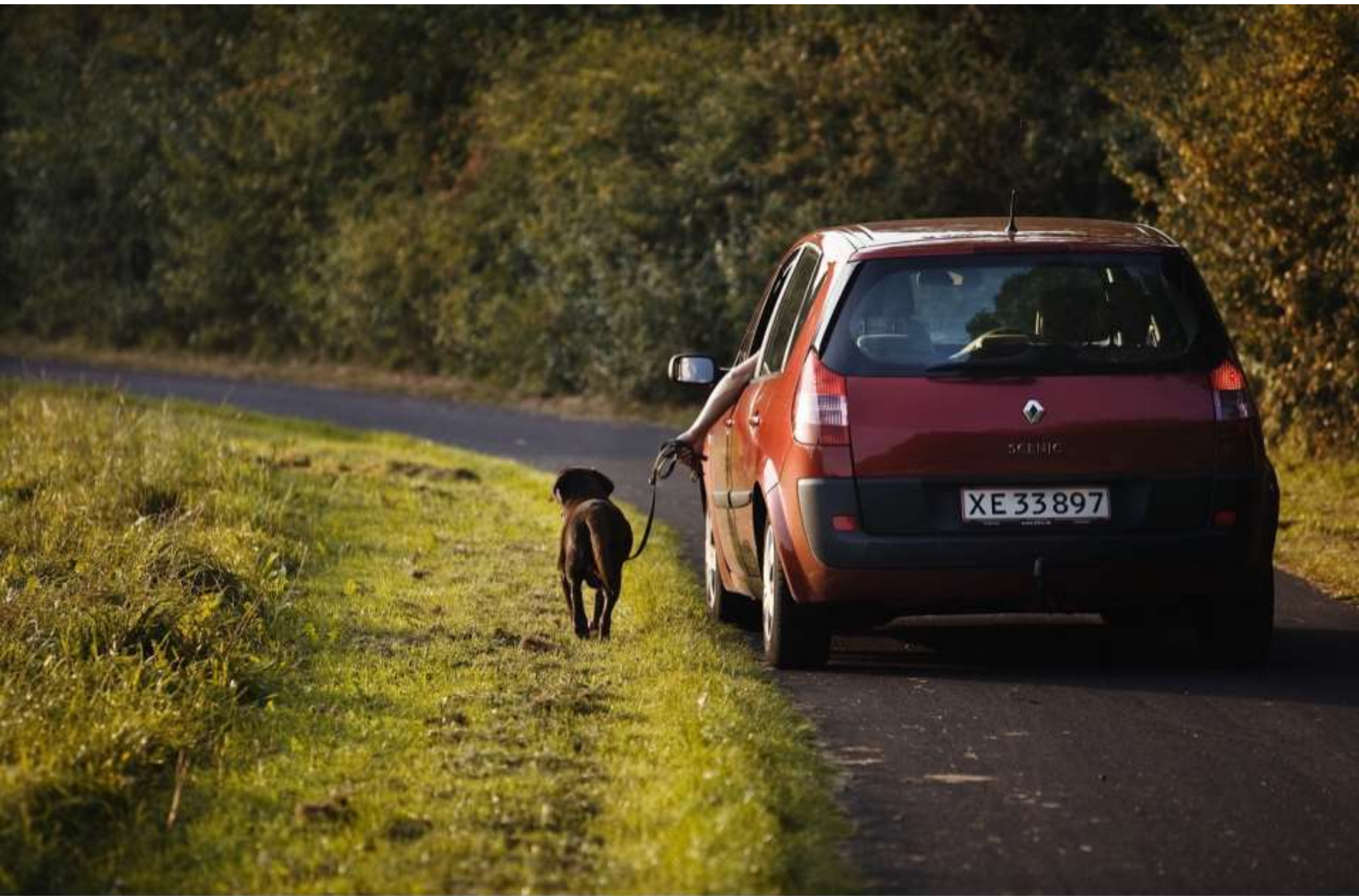
ANOTHER BEER,
PLEASE, HAL...

I'M SORRY, DAVE.
I CAN'T DO THAT.
THE *BATHROOM SCALE*
AND THE *HALL MIRROR*
ARE REPORTING
DISTURBING
FLAB ANOMALIES

©2009 J. Michael Kestel for You
by Robert R. Rasmussen

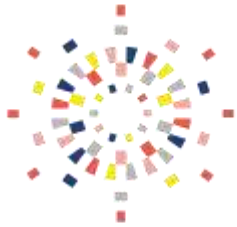
Panel
10/10/09







Thank you for your attention



DATA for **GOOD**
FOUNDATION



Claus F. Nielsen
Co-founder, Public Affairs
Data For Good Foundation
Vice chair
PCHA Europe

Twitter:
@clausfn
@datafgood
@pchalliance
@opentelehealth





Health Care in Denmark



The Danish Health Care System

Basic Features

**Universal
Coverage**

**Free & Equal
Access**

**Financed by
general taxes**

**A high degree of
decentralization**

Organization of the Health Care System

National Level



Ministry of
Health

Regional Level



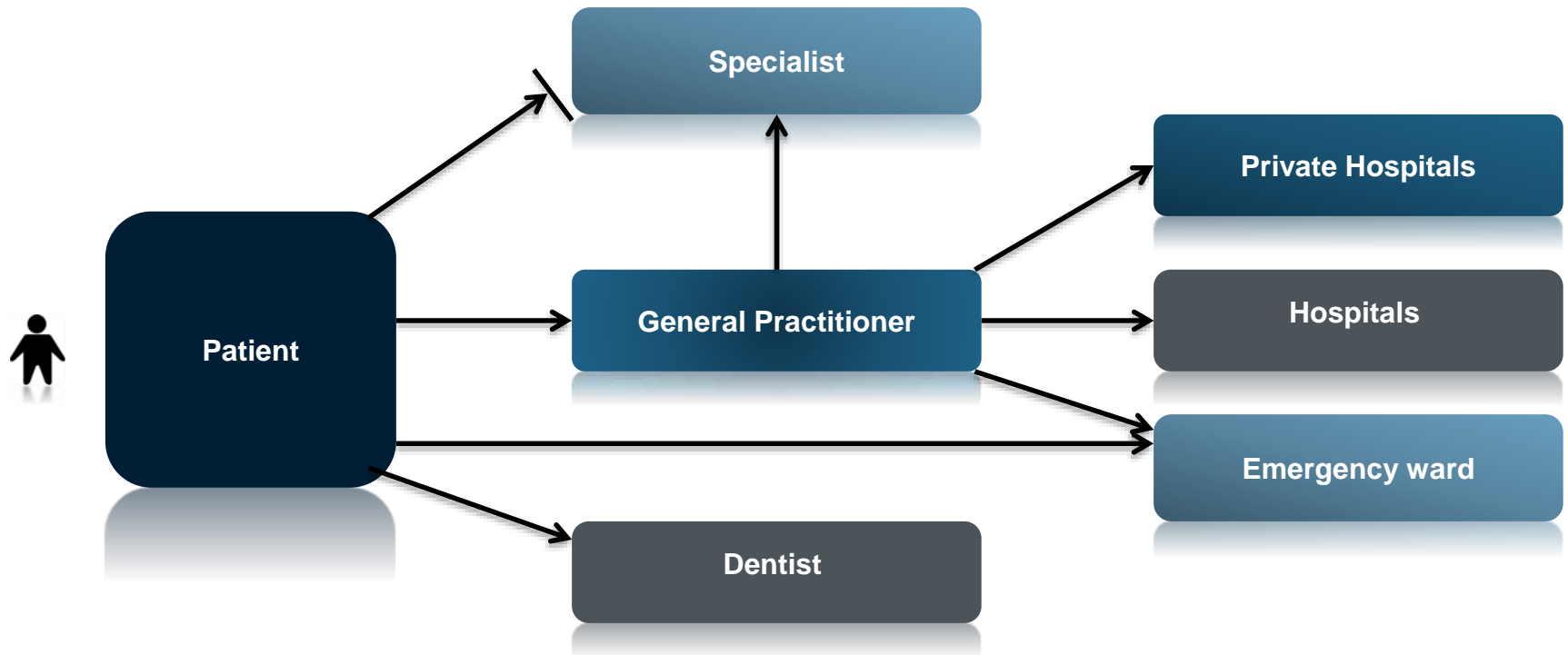
5 Regions

Local Level



98 Municipalities

Where to go to if you get ill?



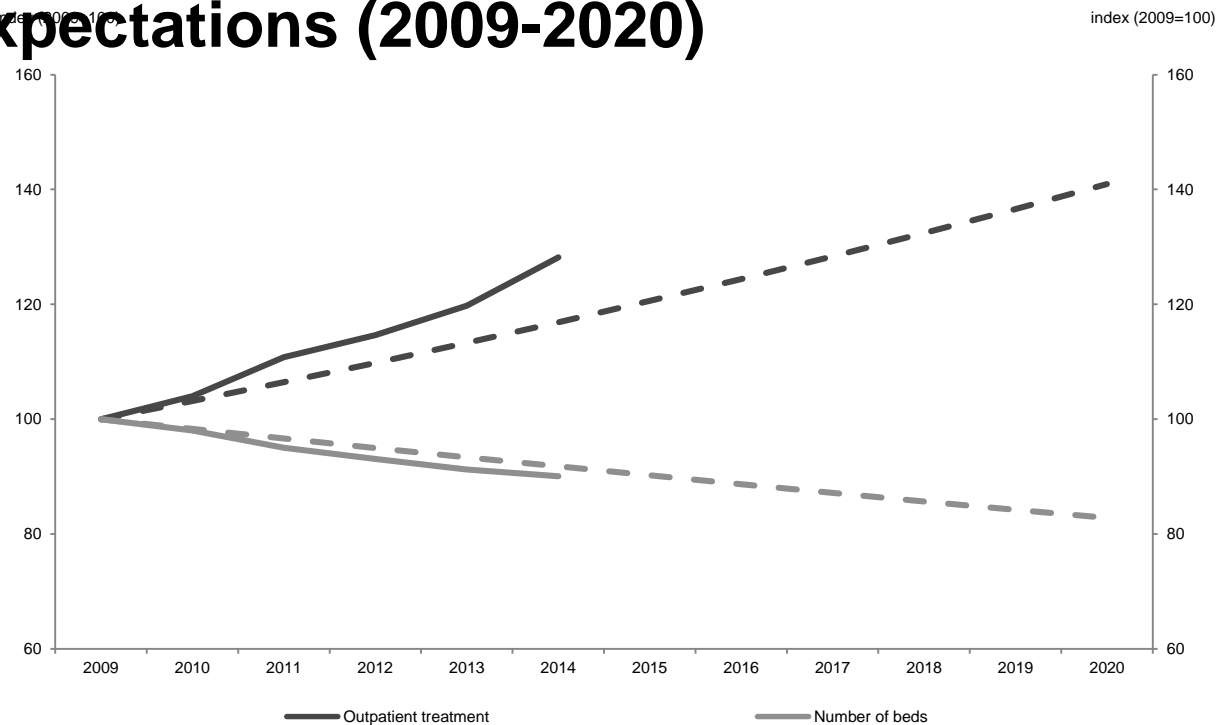
Hospital Investments – A new hospital structure (and 16 new hospital projects)

- A total investment of **5,5 billion Euros**
 - The Government: 3,3 billion Euros
 - The Regions finances the rest
- New structure for **emergency departments** (From 40 → 20)
- Approx. 20 percent reserved for investments in **ICT and medico-technical devices**
- Demands for efficiency gains of 4-8 percent on **future activity**

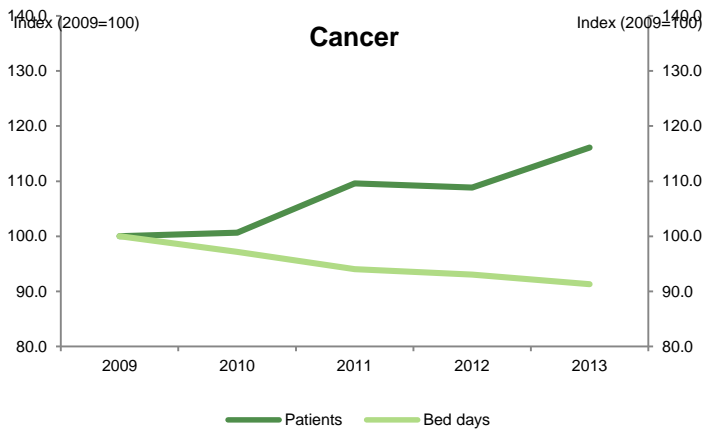
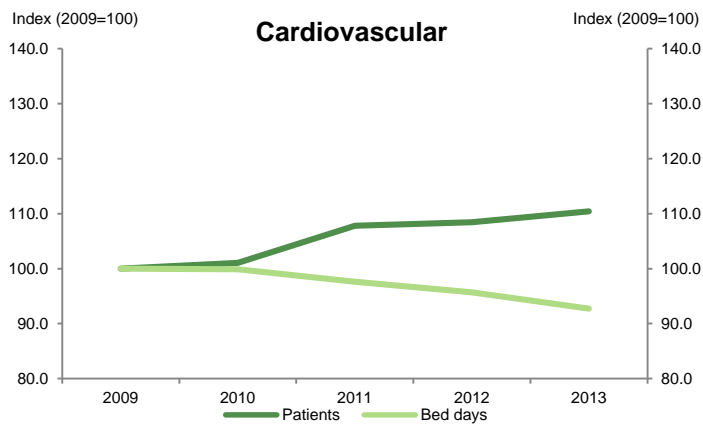
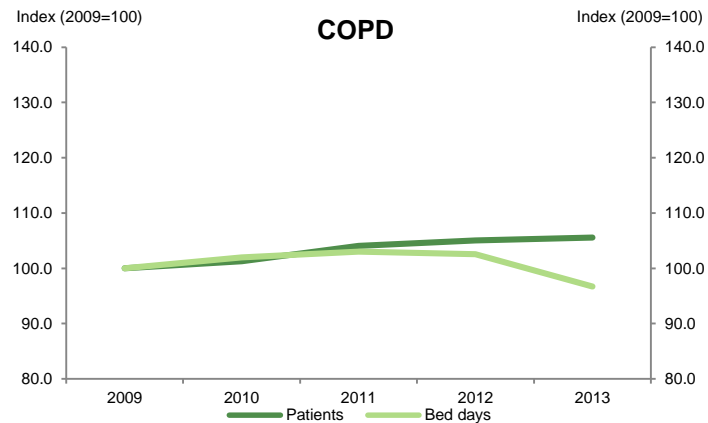
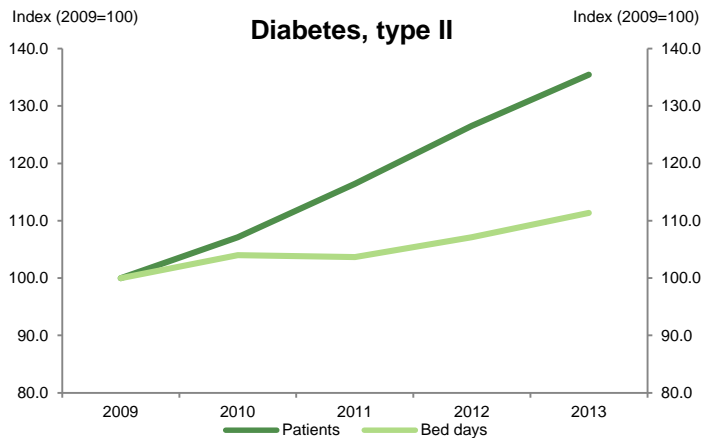


How are we doing so far? - Outpatient treatment and beds

Actual developments (2009-2014) and expectations (2009-2020)



Unique patients vs. bed days (2009 = index)

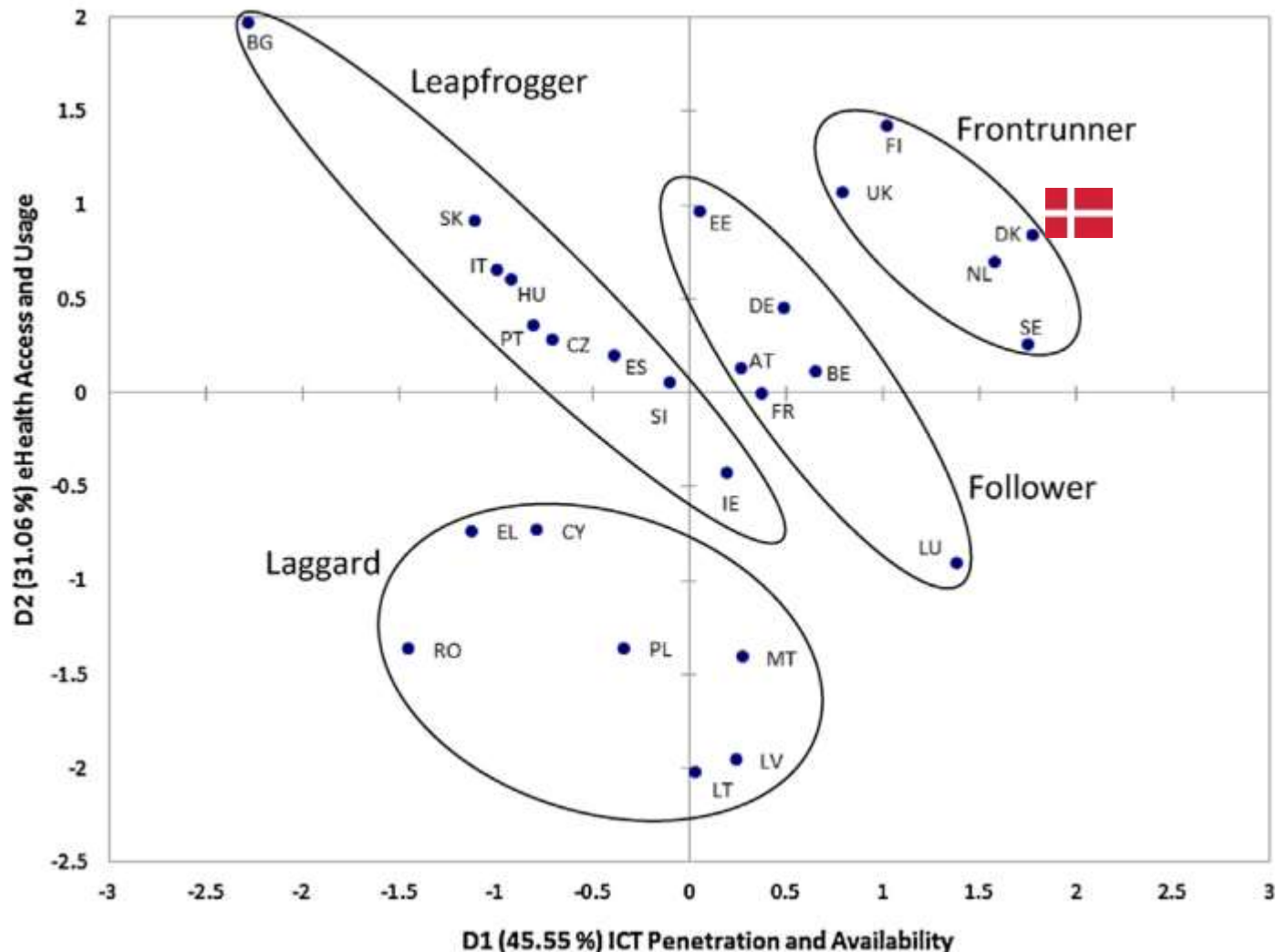


Reshaping the healthcare landscape

- From castles to light houses



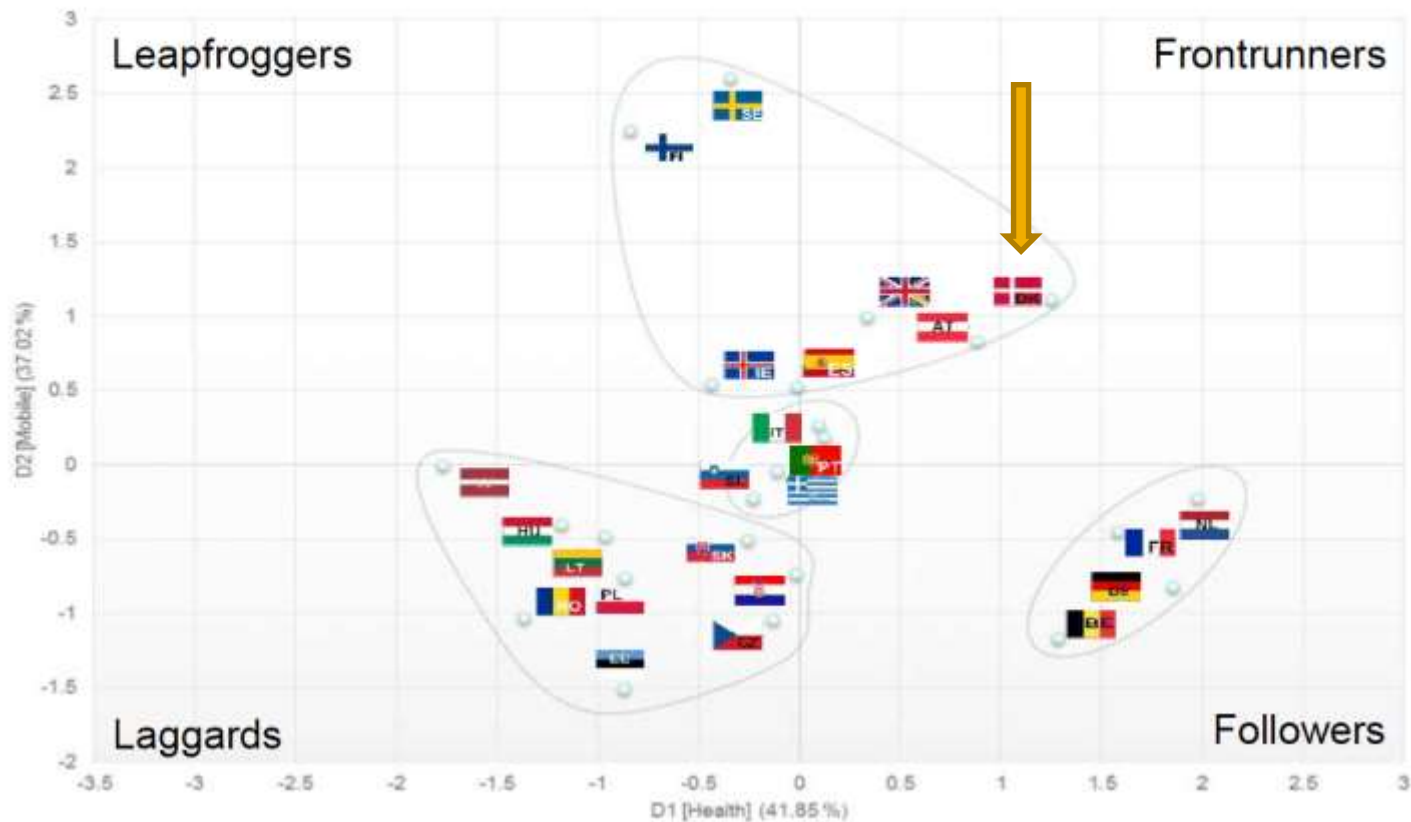
eHealth – Denmark as a frontrunner



Currie, Wendy L., and Jonathan JM Seddon. "A cross-national analysis of eHealth in the European Union: Some policy and research directions." *Information & Management* 51.6 (2014): 783-797

mHealth – Denmark as a frontrunner

EU Country Readiness for mHealth



Source: Currie & Seddon, 2014

Telemedicine - home measurements for patients with

- Two years and 1200 patients
- TeleKit including a tablet with mobile internet, scale, blood cuff and pulse oximeter
- **Weekly measurements – shared data base**

The Benefits:

- 7 out of 10: Increase in level of comfort, safety and understanding of own disease
- Impairments are discovered earlier, and hence emergency hospitalizations is reduced (GOLD3).
- 9 out of 10 thought it was easy to use the Telekit
- **National implementation:** the goal is to offer telemedicine to all relevant COPD patients by 2019 (QALY and cost savings)

