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DIAdvisor
A Diabetes Management System Empowering Patients to Reach Optimised Glucose Control

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eHealth
Better Healthcare for Europe

SEVENTH FRAMEWORK PROGRAMME

Type 1 diabetes
The discovery of insulin

Patient JL
15 December, 1922

Patient JL
15 February, 1923

T1 diabetes is caused by autoimmune destruction of the insulin producing pancreatic beta cells

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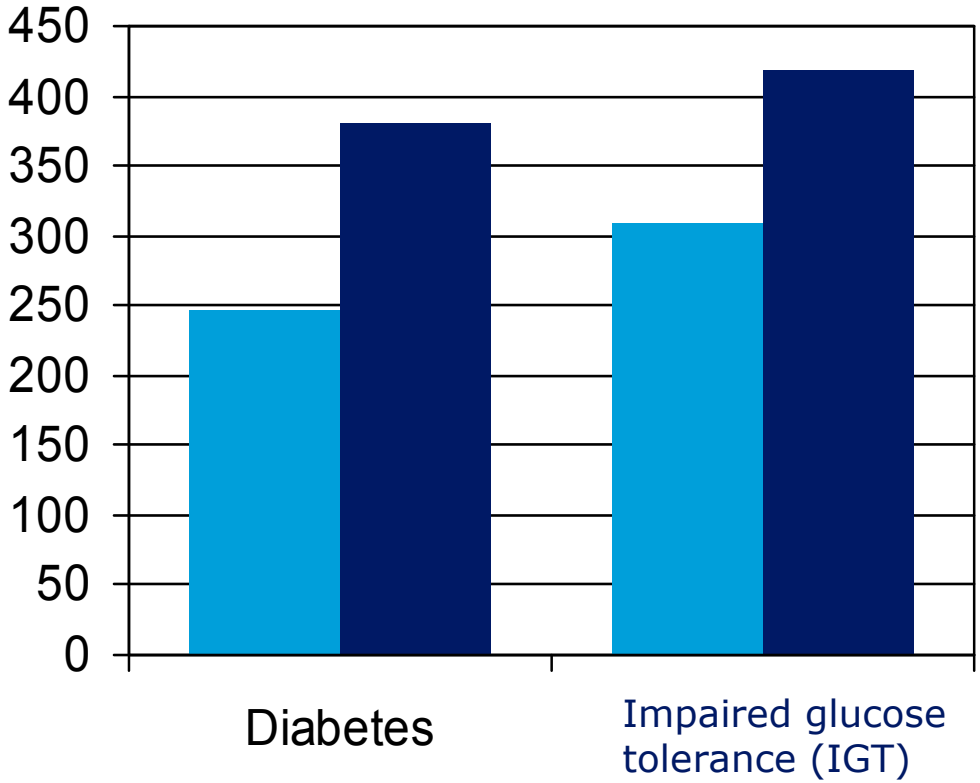
Rapidly increasing number of people affected by or at risk of diabetes T2

2007:
246 million people with diabetes

2025:
380 million people with diabetes



Source: IDF, Diabetes Atlas, third edition

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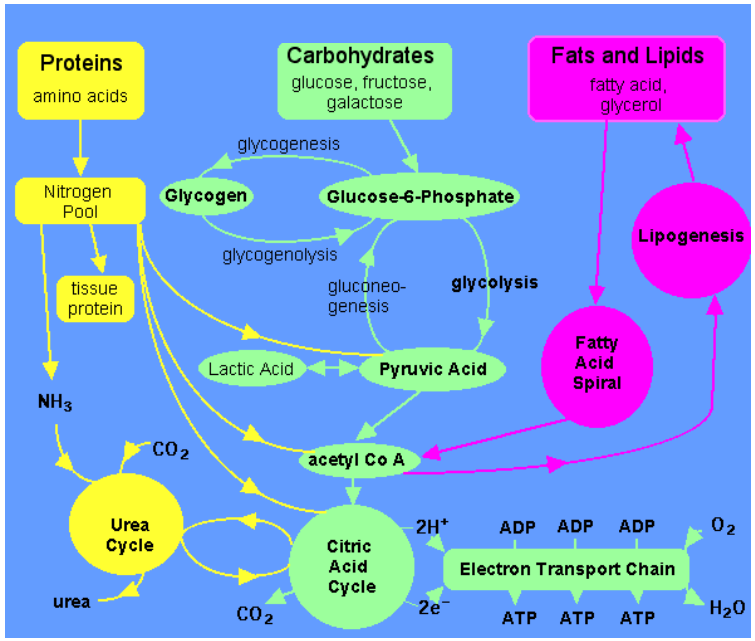
Need for control in diabetes

- It has been proved that tight control of blood glucose level is key to a successful treatment*
- The complexity of metabolism calls for technical assistance
- With the right tools a patients can live an almost normal life



Human metabolism**

* Diabetes Control and Complications Trial (1983-1993), http://diabetes.niddk.nih.gov/dm/pubs/control

** Virtual Chembook, www.elmhurst.edu/~chm/vchembook

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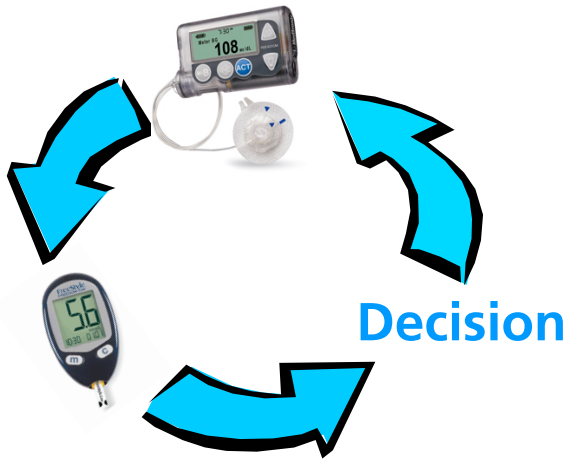
Patient perspective

- Diabetes treatment is complex
- Decision-making difficult
- It is hard to judge how blood glucose will evolve



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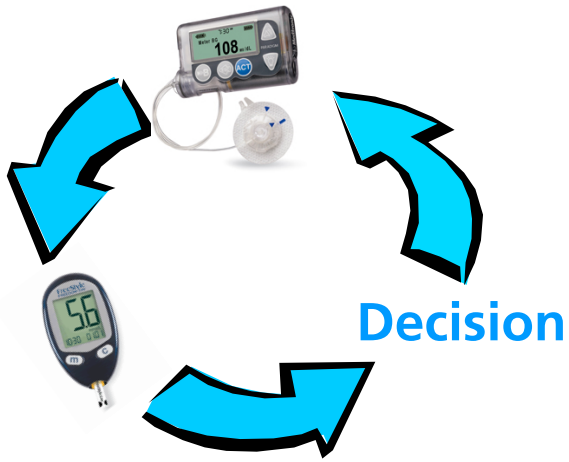
The dilemma of diabetes

Fear of hypoglycaemia

Add hyperglycaemic buffer

Risk of late complications

Bad conscience



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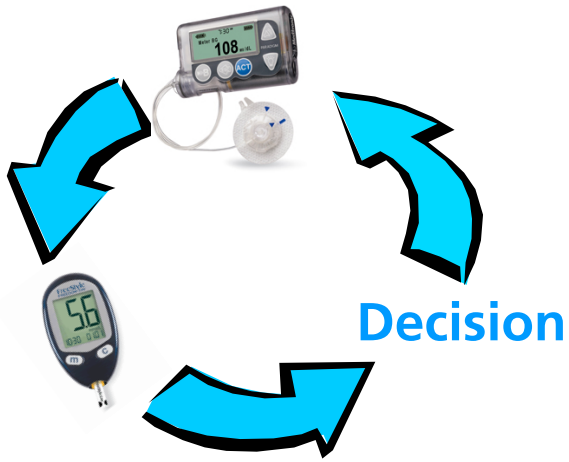
DIAdvisor Project vision

- Blood glucose prediction and treatment advice enable people to stay in tighter control
  - ➔Improved treatment outcome
  - ➔Reduced anxiety
  - ➔Ease of conscience
  - ➔Improved QoL



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What is DIAdvisor?

Personal

Mobile

Short term

Blood glucose predictor

Diabetes advisor

DIAdvisor

DIAdvisor concept

1. Prediction ➔ 2. Advise ➔ 3. Updated prediction

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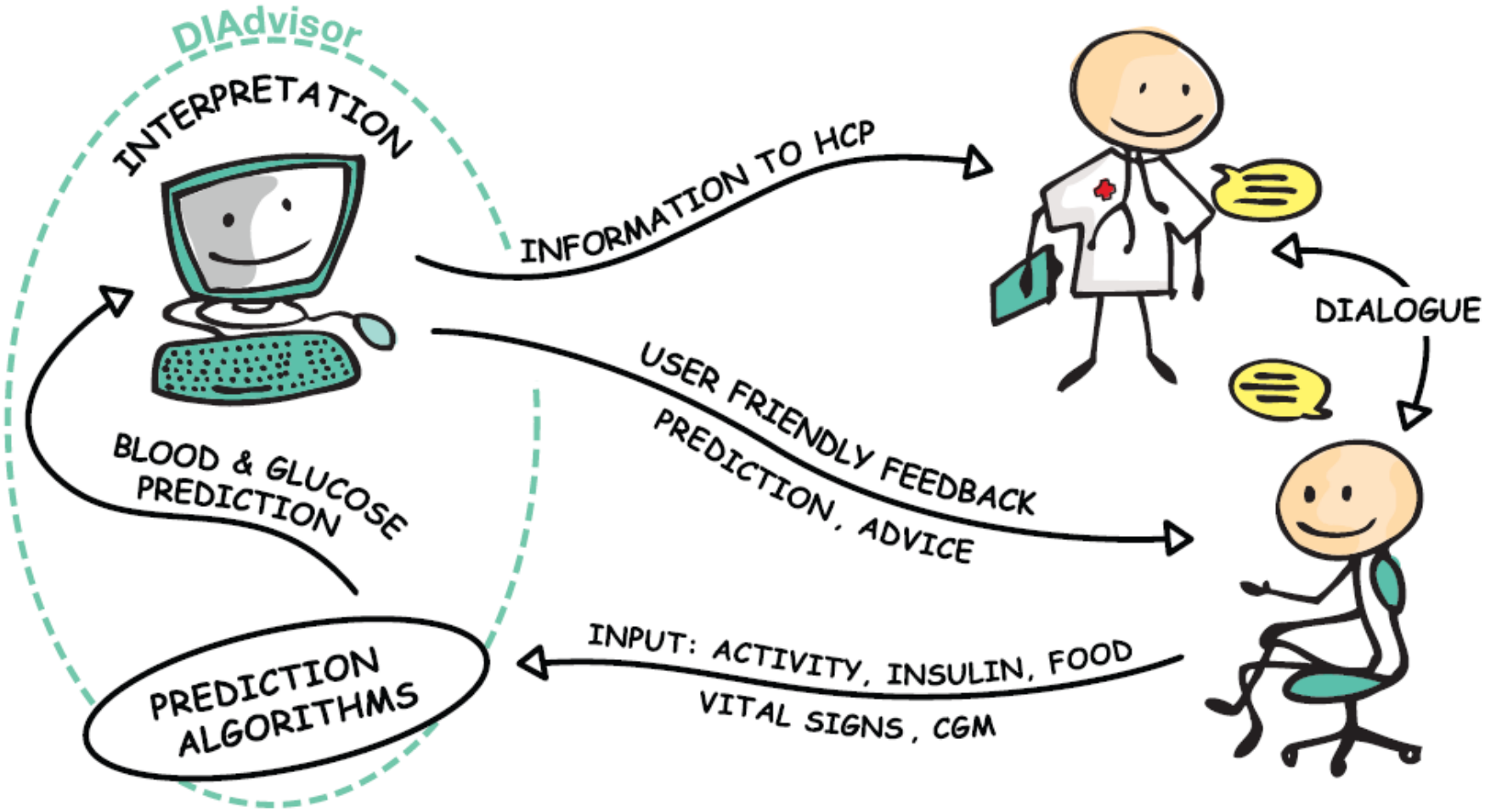
DIAdvisor concept



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How are we doing it?

- Establish rich database of corresponding factors relevant to carbohydrate metabolism
- Utilise data to develop models of short term metabolism
- Configure models for prediction and advice
- Establish device platform connecting sensor input to models
- Output prediction and advice through MMI

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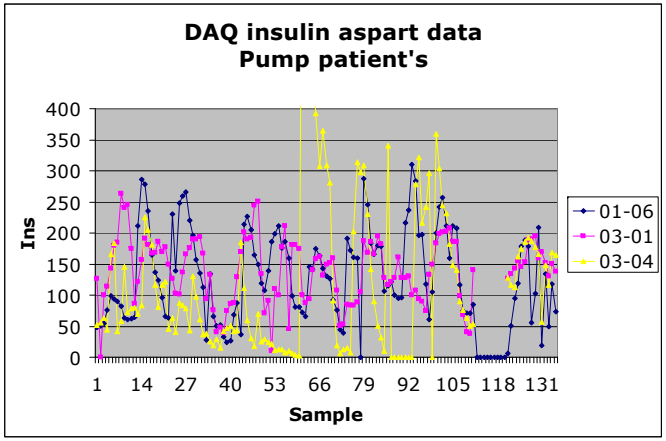
Data Acquisition trial

90 highly instrumented T1 and T2 patients
3 sites
12 systems
>33000 samples/data series

- CGM, BGM, NIGM
- Food: Carbohydrates, Lipids, Proteins, D2 Glucose
- Physical Activity: HR, Acceleration, Respiration, Skin temp
- Insulin
- C-Peptide



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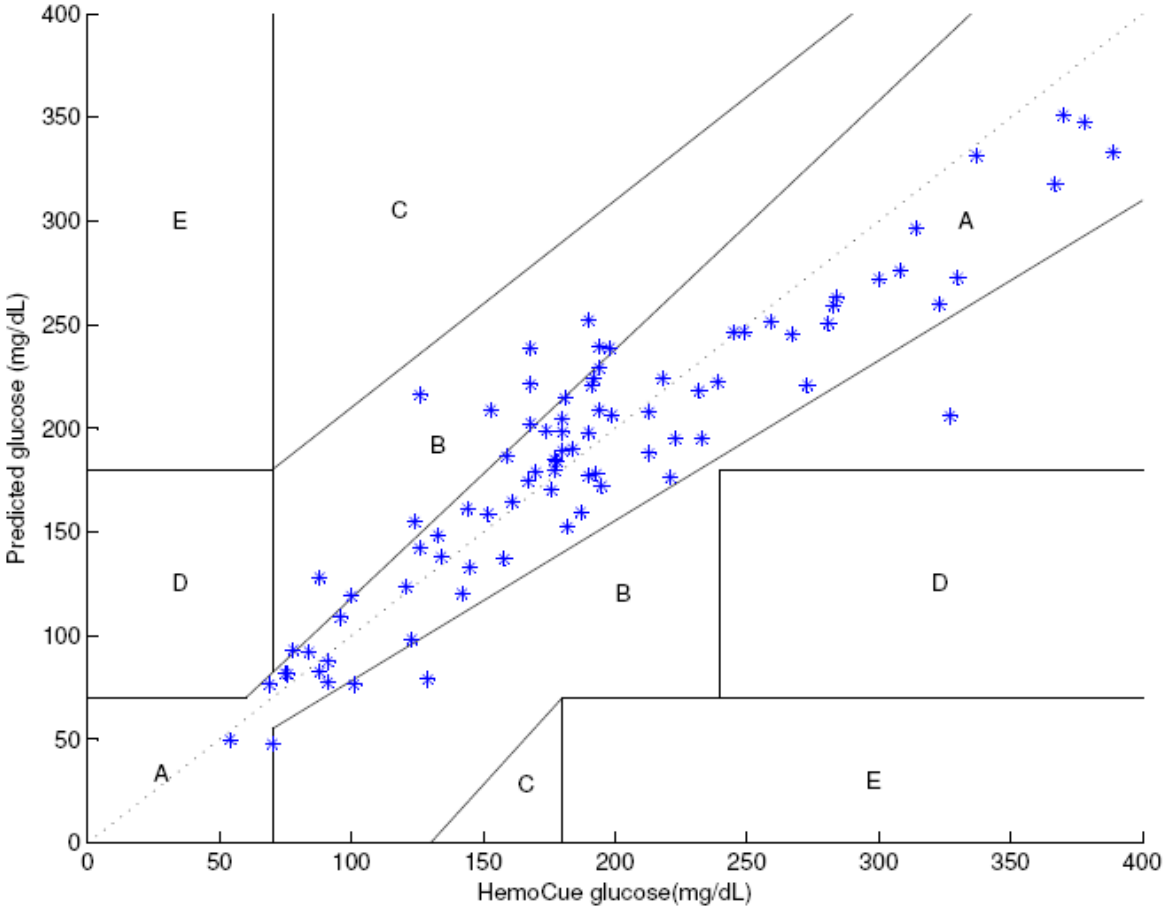
Clark Error Grid Analysis
20 minutes prediction



Zone	%
A	81,4
B	18,6
C	-
D	-
E	-

Sub Id: 0203, Pred: RICAM

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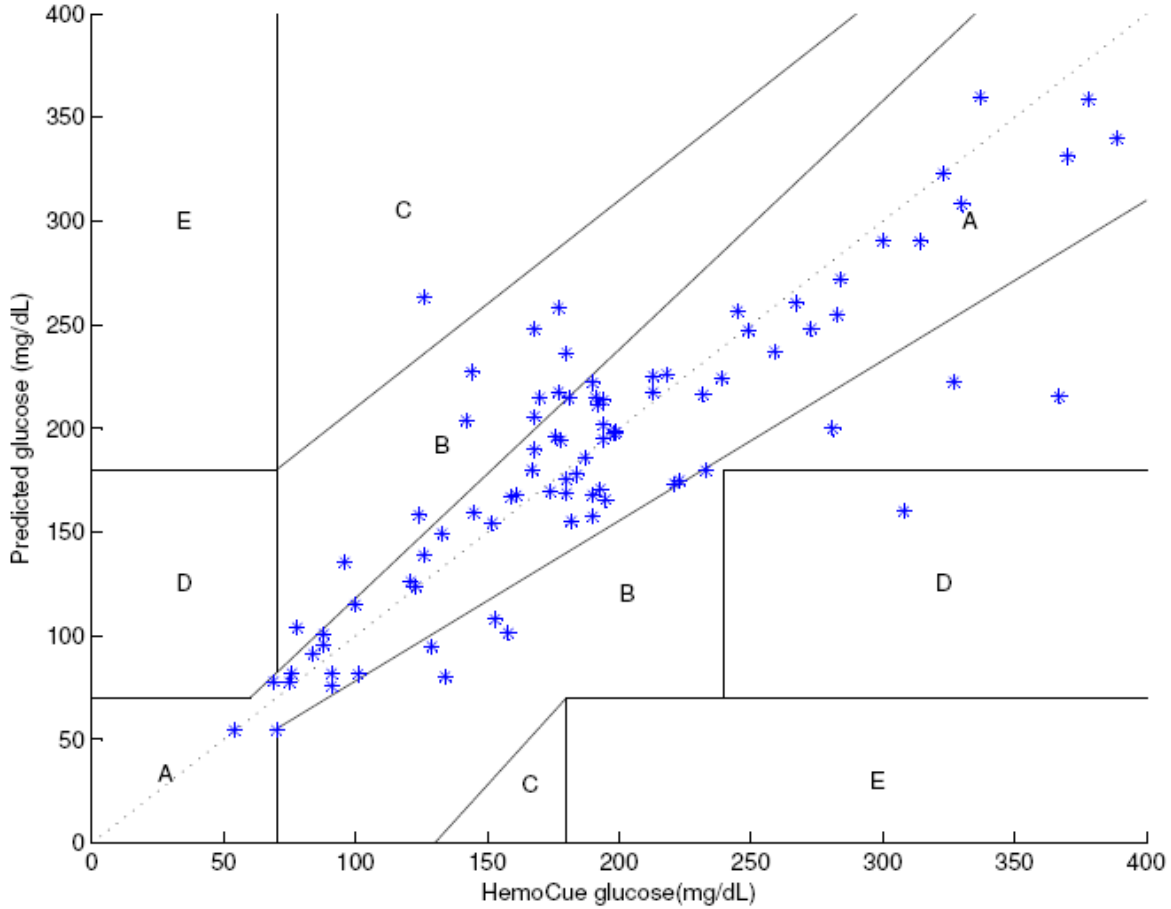
Clark Error Grid Analysis
40 minutes prediction



Zone	%
A	74,4
B	23,3
C	1,1
D	1,1
E	-

Sub Id: 0203, Pred: RICAM

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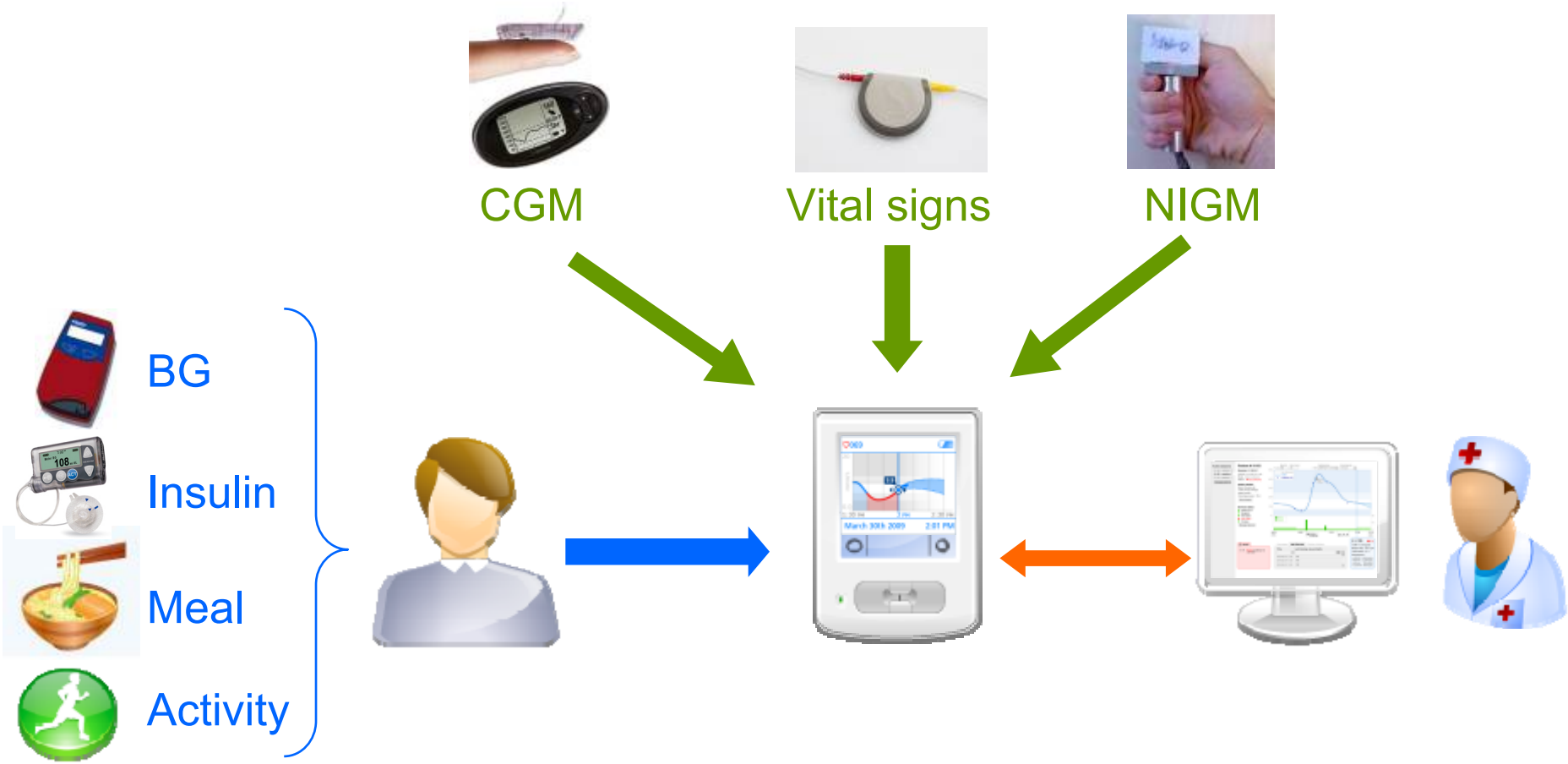
DIAdvisor Clinical Trial Platform



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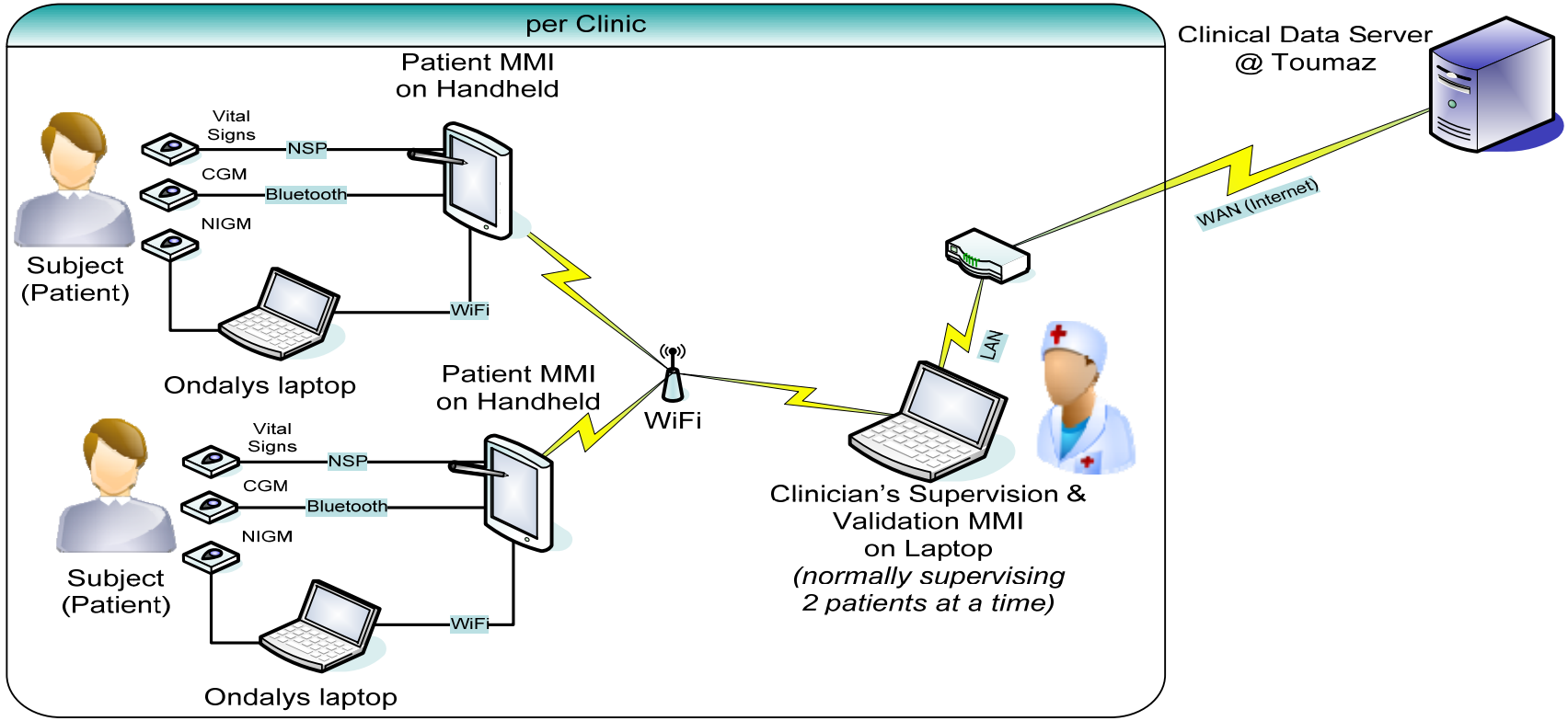
DIAdvisor Clinical Trial Platform



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Summary

- Globally health systems are challenged by the diabetes pandemic
- Diabetes is a very dynamic disease changing hour by hour
- Medical devices are needed to support patients
- Insulin delivery devices and blood glucose meters are well established
- DIAdvisor is a next step providing decision support for improved control

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1. Dept. Information Eng.
2. Dept. of clin. and Exp. Med.

The consortium

9 countries
13 partners
3 Universities
3 Hospitals
4 SME's
2 Large enterprises
1 NGO

Funding

EC: 7.1 M€
Total: 9.3 M€

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