DEVICES

Pumps

CGM

G tube

Glucometers

Closed Loop

Glucometers

Are they accurate?

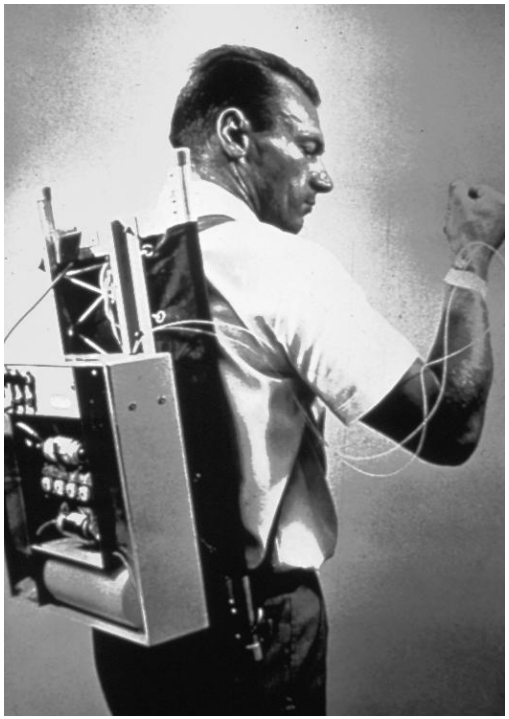
- standards set by the International Organization for Standardization
- Within **± 0.83 mmol/L** of laboratory results at levels under 4.2 mmol/L
- Within **± 20%** of laboratory results at levels over 4.2 mmol/L

What can affect readings :

Heat
Cold
Too little blood
Contamination

Where ?
Alternative sites

Insulin Pumps



- 1963 Dr Arnold Kadish
- Next pump in 1976
- NICE guidance endorsed first UK pump in 2003

Benefits to pumping insulin

- Quality of life
- Less injections
- fine tuning of BG levels
- Feel better
- Exercise made easier
- Sleepovers easier
- Micro managing insulin delivery

Different pumps

Medtronic

Animas

Accu Chek

Omnipod

Dana

- bolus wizards
- basal patterns
- sensitivity factors
- tiny increments

www.inputdiabetes.org.uk

Continuous Glucose Monitors

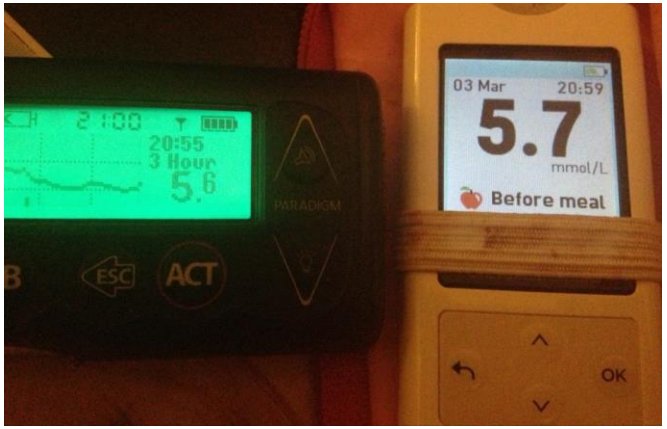
Stand alone and integrated

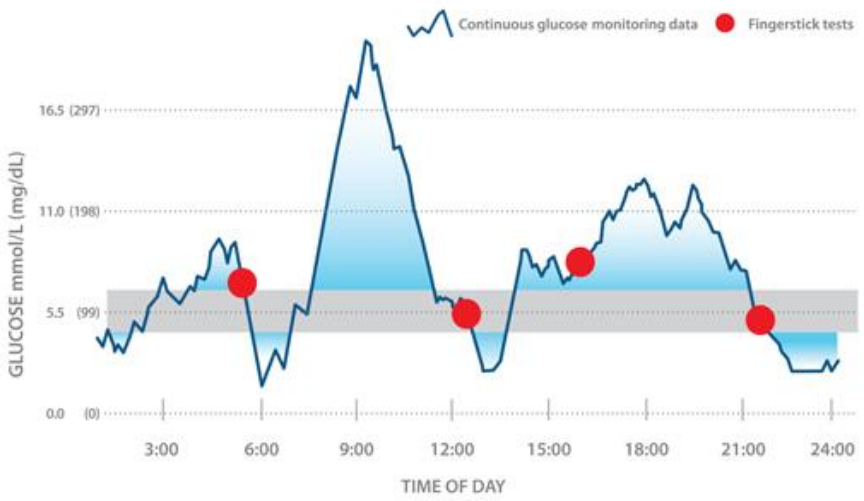
Medtronic :
- Guardian Real Time
- Veo integrated

Animas :
- Vibe integrated

Dexcom
- Dexcom

Abbotts
- Navigator





Ipro :

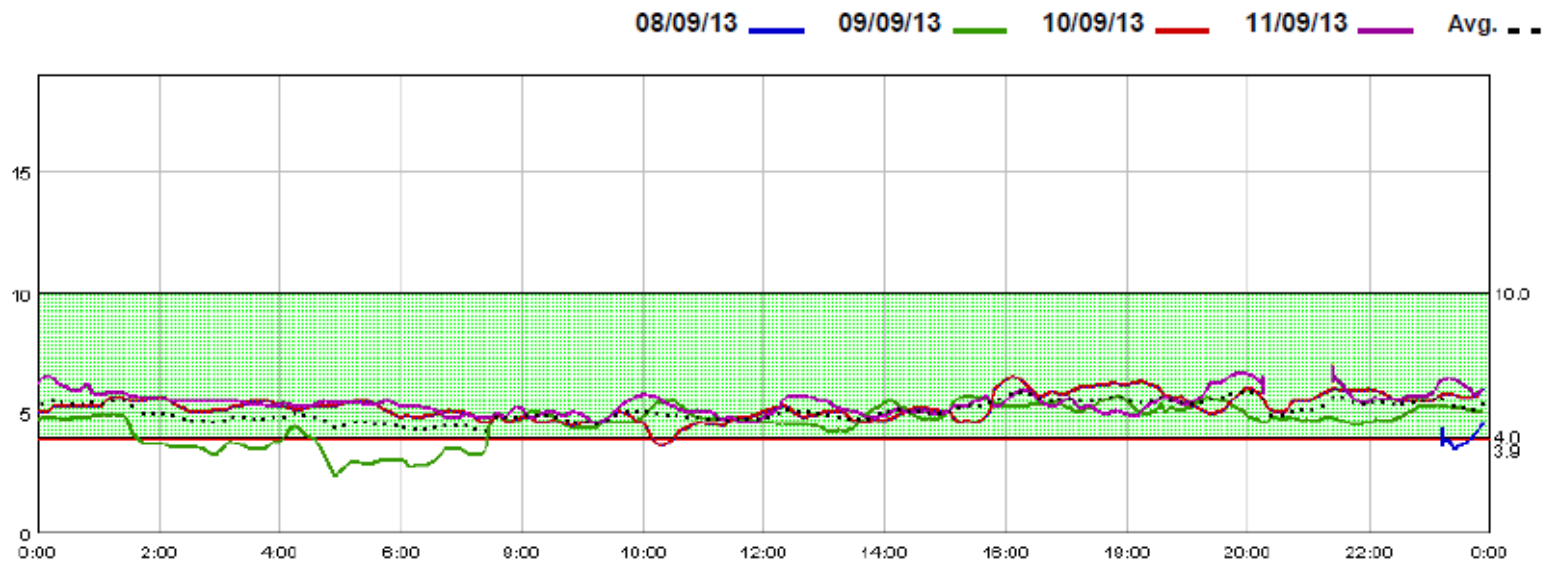
- blind sensor
- Investigate

Full time sensor use :

- Proactive and reactive
- Micro manage
- Tweaking

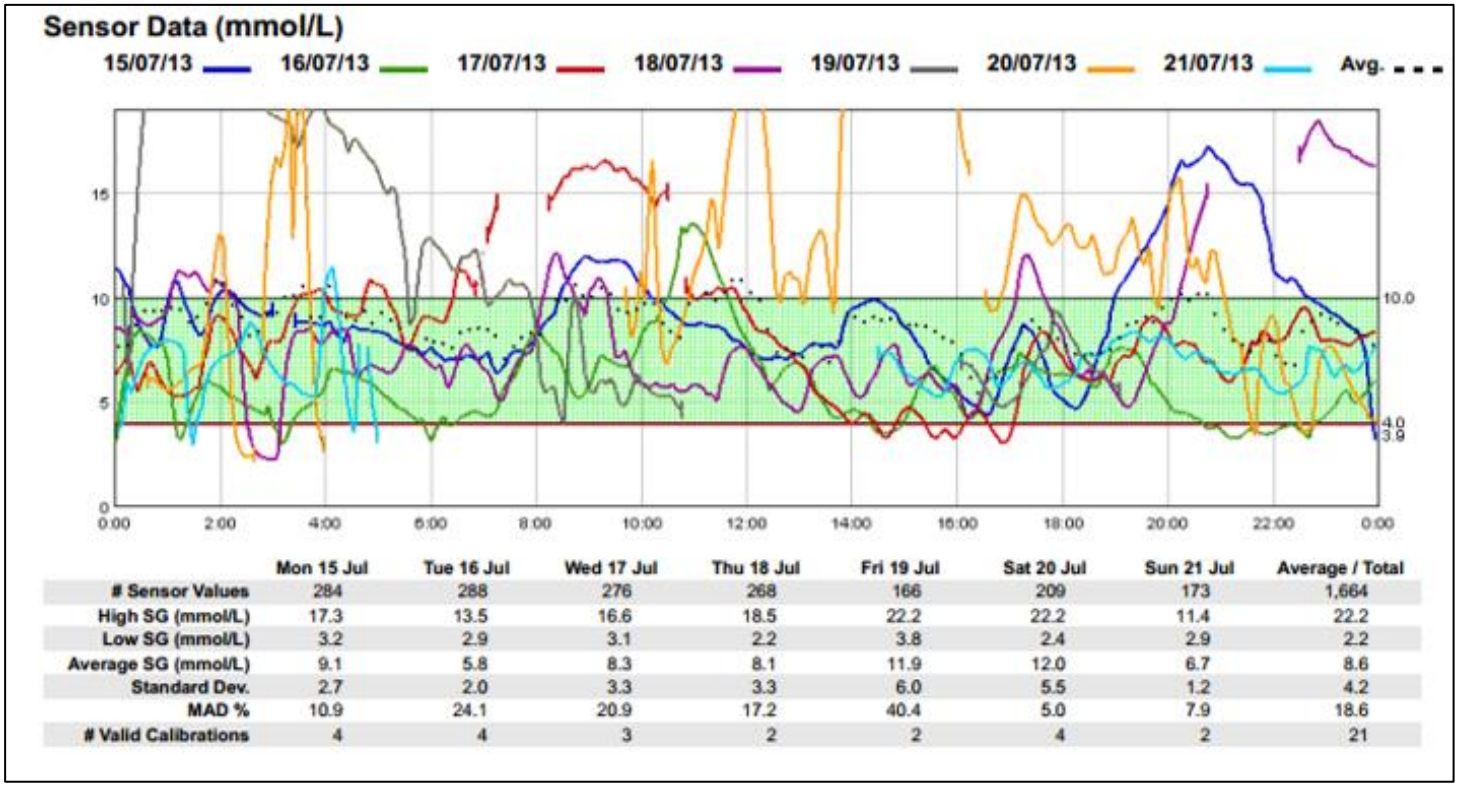
Me

Sensor Data (mmol/L)



	Sun 8 Sep	Mon 9 Sep	Tue 10 Sep	Wed 11 Sep	Average / Total
# Sensor Values	9	288	288	275	860
High SG (mmol/L)	4.6	5.7	6.5	6.7	6.7
Low SG (mmol/L)	3.5	2.4	3.6	4.6	2.4
Average SG (mmol/L)	3.9	4.6	5.2	5.4	5.0
Standard Dev.	0.3	0.8	0.5	0.5	0.7
MAD %	N/A	24.4	13.4	11.9	15.4
# Valid Calibrations	1	2	4	3	10

Not me !

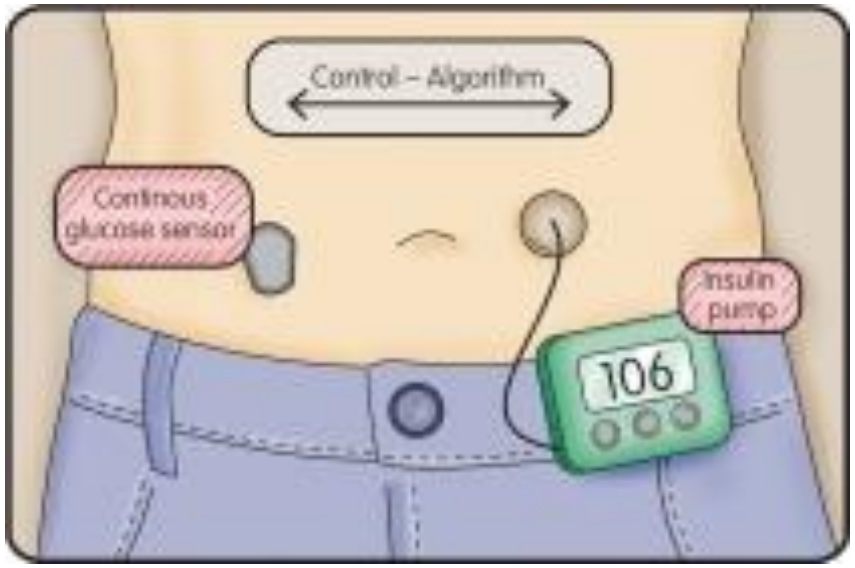


	Mon 15 Jul	Tue 16 Jul	Wed 17 Jul	Thu 18 Jul	Fri 19 Jul	Sat 20 Jul	Sun 21 Jul	Average / Total
# Sensor Values	284	288	276	268	166	209	173	1,664
High SG (mmol/L)	17.3	13.5	16.6	18.5	22.2	22.2	11.4	22.2
Low SG (mmol/L)	3.2	2.9	3.1	2.2	3.8	2.4	2.9	2.2
Average SG (mmol/L)	9.1	5.8	8.3	8.1	11.9	12.0	6.7	8.6
Standard Dev.	2.7	2.0	3.3	3.3	6.0	5.5	1.2	4.2
MAD %	10.9	24.1	20.9	17.2	40.4	5.0	7.9	18.6
# Valid Calibrations	4	4	3	2	2	4	2	21

Closing the loop !

The Artificial Pancreas

- Who ?
- Where ?
- When ?



http://www.jdrf.org.uk

Just three things make an artificial pancreas

1. An insulin pump
2. A CGM – continuous glucose monitor
3. An algorithm

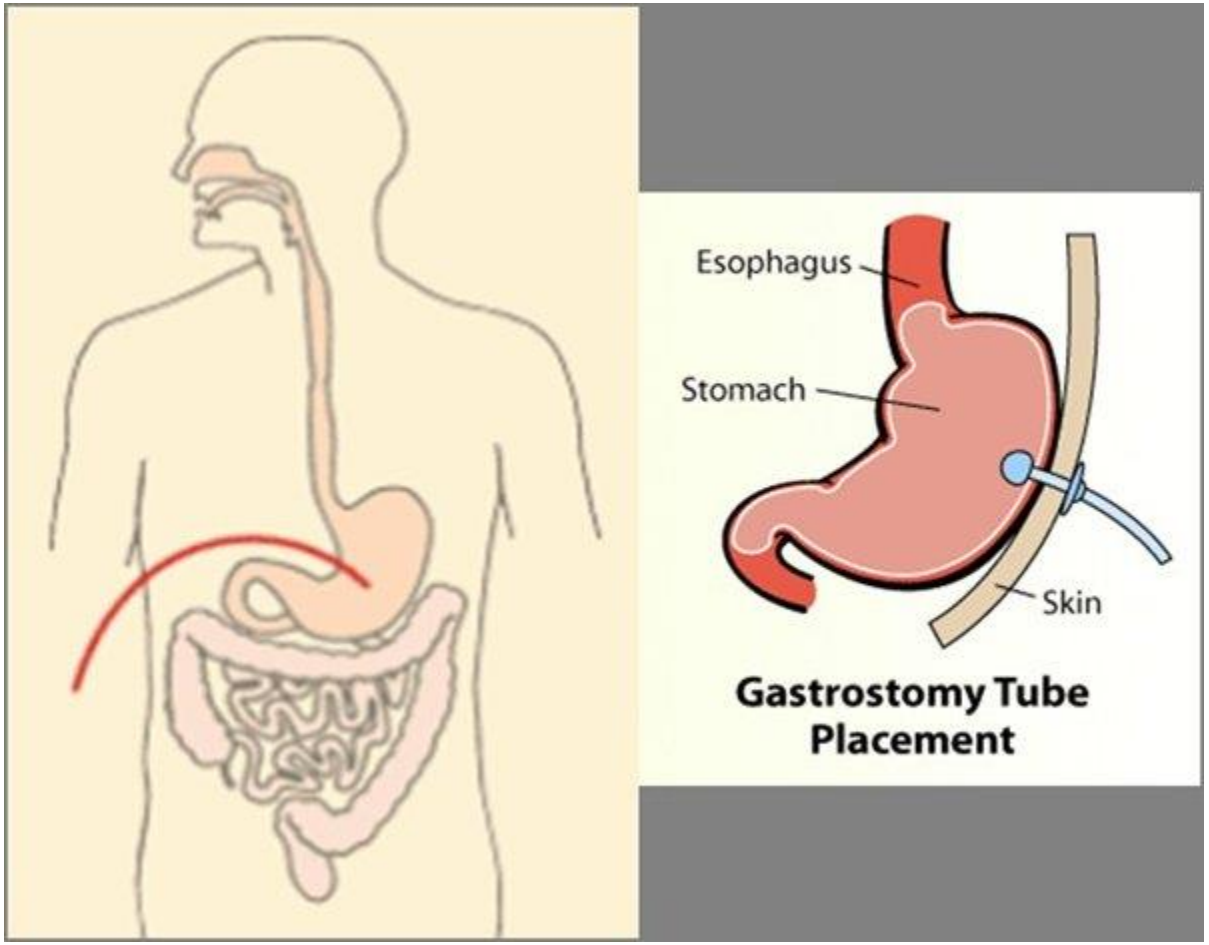
- What is an insulin pump?
- What is a continuous glucose monitor?
- What is an algorithm?

At the moment we are the algorithm

It is a sophisticated computer programme which makes decisions without human input

Trials are taking place but are top secret

What is a Gastrostomy?



Types of Gastrostomies.

These are the main types of devices used at GOSH:

Percutaneous Endoscope Gastrostomy (PEG)	Malecot tube	Balloon device (tube or button)
• A flexible polyurethane tube which is passed down the throat and into the stomach. The end of the tube is brought out through a small incision in the abdomen to allow access for feeding.	• A flexible rubber tube (catheter) which is inserted through an incision in the abdomen.	• There are two types available: a gastrostomy tube and a button or low profile device.
• Can stay in place for about 18 months	• Usually a temporary device for the first six to eight weeks, and is then replaced by a balloon device (see right).	• The tube can stay in place for about three months, and the button for about six months to one year
• Held in place using a disk inside the stomach	• Held in place using wide, flat wings inside the stomach, but may need to be temporarily stitched to the skin	• Both are held in place in the stomach using a small balloon filled with water.
• A feeding adapter may need to be attached for each feed, depending on the type of equipment used.	• It must be secured with tape and the position tested before each feed	• A feeding adapter may need to be attached for each feed, depending on the type of equipment used.
• Removed using an endoscope	• Removed by the clinical nurse specialist. No surgery is necessary	• Removed by deflating the balloon.
		

Questions
on Care Management ?