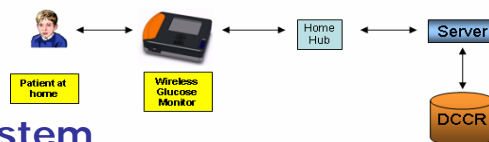


# Healthcare@Home

## A Portal-based Information Support System



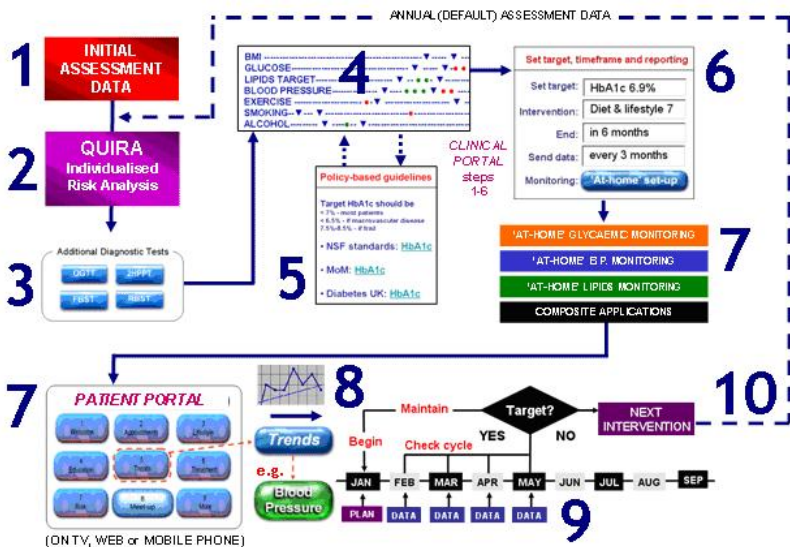
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- The results from a list of tests selected for the patient are sent directly from instruments to the portal via a clinical data integration hub
- Data is assessed for 'individualised risk' to prioritise patients needing urgent referral and to compare their status with a 'risk signature' that may indicate an immediate preventative or screening action to be taken
- Optional specialised diagnostic tests may be triggered
- Collated data populates a patient 'dashboard' to help the clinician judge the status of the condition against observed ranges - and to help determine the best options for the individual's care
- More detailed policy-based guidelines relevant to the options at the 'decision point' are presented
- Options discussed with patient. A specific intervention is selected and an appropriate personal 'target' is set in agreement with the patient. The agreement on the target sets up composite applications that communicate with the patient's portal ...
- ...for comprehensive 'at-home' monitoring to manage the entire intervention 'episode'. These (prescriptive) actions write 'procedural' content into the detailed individualised care plan, together with a schedule of appointments. Different members of the care team (through their view of the clinical portal) are alerted with additional professional support of pertinence to the type of care/treatment intervention
- A data analysis application systematically monitors progress over time to track multiple (physiological) trends via the prescribed measuring modalities
- Checks interim outcomes towards the personal target, capturing deviations from the plan
- Automating recording of steps in the Integrated Care Pathway (ICP) captures new evidence for decision support i.e. whether patients revisit the clinic or 'progress' to the next part of the care pathway according to the outcomes i.e. dotted line back to 'QUIRA'

Glycaemic monitoring STAGE 1  
 Glycaemic monitoring STAGE 2  
 Glycaemic monitoring STAGE 3  
 Glycaemic monitoring STAGE 4  
 Glycaemic monitoring STAGE 5

Patient name: Joe Best      Risk: 0.49  
 Date of Birth: 1957-01-14

Class and currency of data	Policy-based guidelines	Set personal target, timeframe and reporting
<b>Recent Glucose results:</b> 6.9      1903/2007 10:21 9.3      2009/2006 12:05 3.5      2206/2006 08:00	<b>Target HbA1c should be:</b> < 7% most patients < 6.5% if macrovascular disease 7.5% - 8.5% - if frail NSF Standards: HbA1c Mom: HbA1c Diabetes UK: HbA1c	Set HbA1c target    lower: 3.0    upper: 4.0    % Set Glucose target    lower: 5.0    upper: 6.0    mmol/l Intervention: Exercise Details: some details End: 9 Apr 2007 Send data: Every 3 months

Specify structured education:  HbA1c info     Lifestyle info     Dietary info     Lipids DUK  
 Family info (DUK)     TV-PC tools info

Specify structured assessment:  Dietary SA     Activity SA     Smoking SA     Alcohol SA

Device displays patient's name      User identified

Sends user id to Hub

Hub tags sensor data with user id

IBM JS20 Blade Center

Exercise  
 Date and Time : 13/2/2007 09:00  
 Description : Did running and some cycling

### Glucose measurements

Sensor Holograms are stimuli-responsive hydrogels with laser imprinted images. They can change image, wavelength, position or brightness in response to a programmed physical, chemical or biological stimulus. The degree of swelling or contraction of the hologram and the change in the colour of the hologram can be correlated with glucose concentration.

5mol% 3APB  
 10mol% 3APB  
 15mol% 3APB  
 20mol% 3APB  
 25mol% 3APB

3-acrylamidophenylboronic acid (3APB) used to detect glucose

O=C(O)c1ccc(NC(=O)C=C)cc1

**Products:**

- Catheter – fibre optic with hologram on end linked to optical reader
- Contact lens – lens with hologram embedded inside; separate reader

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The Biometrics module from Zarlink Semiconductor uses fingerprint recognition algorithms for detection & storage of up to 1500 fingerprints. The fingerprints are assigned a user defined ID and transmitted via Bluetooth to a Healthcare monitoring device or viewed via an LCD display.