



# my diabetes + my way

## **Using Technology to support Self-management in Diabetes**

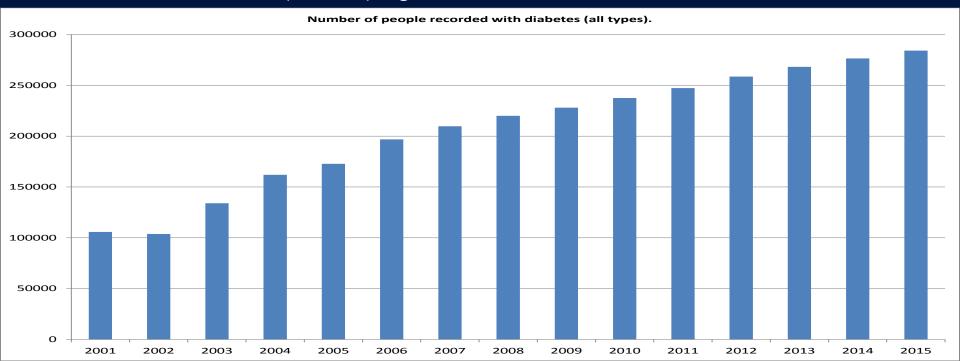
Dr Scott G Cunningham, University of Dundee Michelle Brogan, Scottish Centre for Telehealth and Telecare

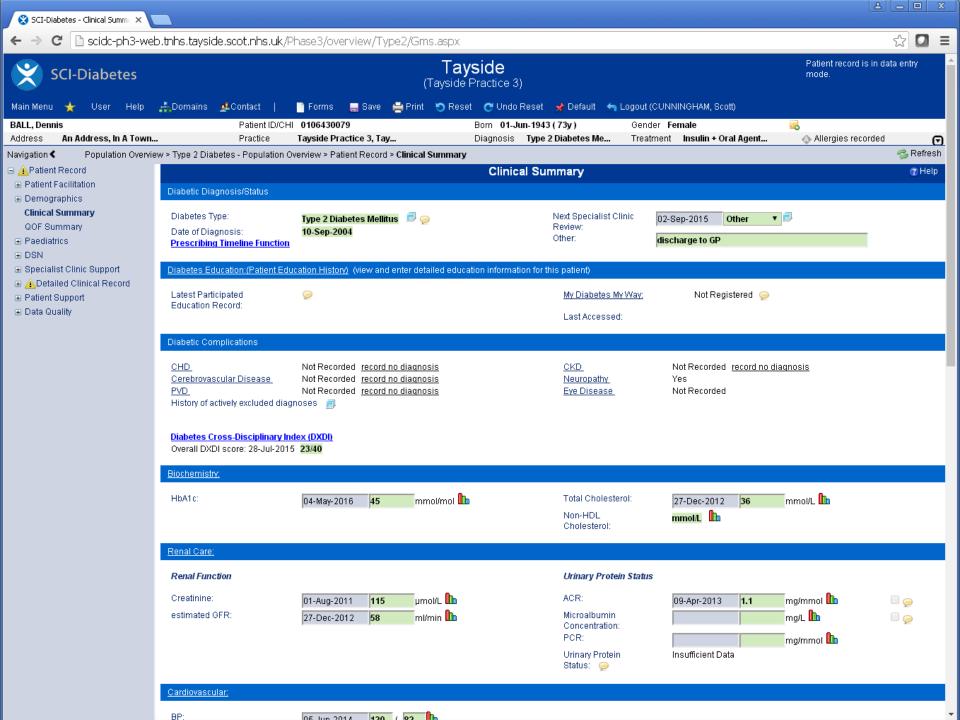
### **Overview**

- Introduction to
  - My Diabetes My Way
  - Remote Monitoring Solution (Diasend)
- Scaling up experiences & outcomes from United4Health Programme in Scotland
- Discussion & Q&A

### **Diabetes in Scotland**

- Scotland's diabetes prevalence
  - 2002: 103,835 (2%)
  - 2015: 284,123 (5.3%)
    - Type 1: 10%; Type 2: 89%; Other types: 1%
    - 148,487 (15.3%) aged 65 and over







### **SCI-Diabetes Data Flows**





Laboratory Results



Master Patient Index



Retinopathy Screening





Primary Care Systems



Clinical Portal



Ambulance Service



Point of Care Blood **Glucose Testing** 

**SCI-Diabetes** 



Inpatient Linkage



winscribe winscribe

**Digital Dictation** 



**Patient Access** 

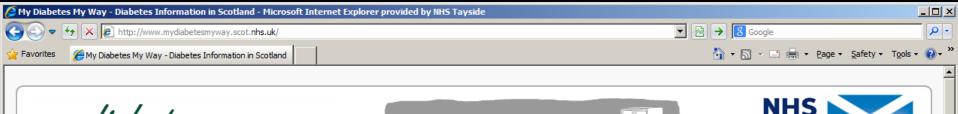


**Scottish Diabetes** Research Network



## My Diabetes My Way

- Website for patients and carers
- Information leaflets
- Interactive content
  - Videos / Patient Testimonials / Interactive tools
- Validated internal/external content
- Overseen by multidisciplinary group
  - Patients / HCPs / IT professionals
- Live since October 2008



my diabetes \* my way
... the interactive diabetes website

ACCESS YOUR RECORDS











home what is diabetes my complications my medication my lifestyle my family my diabetes my local services my involvement

home >

my diabetes my way is the NHS Scotland interactive diabetes website to help support people who have diabetes and their family and friends.

You'll find leaflets, videos, educational tools and games containing information about diabetes. You can now also use this website to view your own up-to-date diabetes clinic results, to help you manage your condition more effectively.

Diabetes (know formally as Diabetes Mellitus) is a long-term condition caused by too much glucose, a type of sugar, in the blood. There are over 250,000 people with diabetes in Scotland - that's around one person in every twenty.

#### In the case of an emergency, view the emergency contact leaflet here



#### My Diabetes

Sign up to gain access to your own test results, clinic letters and your treatment plan. Take advantage of this opportunity which is only available in NHS Scotland.



REGISTER



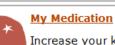
#### What is Diabetes?

Understand the different types of diabetes mellitus and learn how to manage your type of diabetes. Read about blood glucose monitoring.



#### My Complications

Learn how poor diabetes control affects your body. Reduce your risk of complications or prevent worsening of existing symptoms. Read about treatment of diabetes complications.



Increase your knowledge of the diabetes treatments available for your type of diabetes. Learn about how to administer your medications - insulin and non-insulin treatments are discussed.



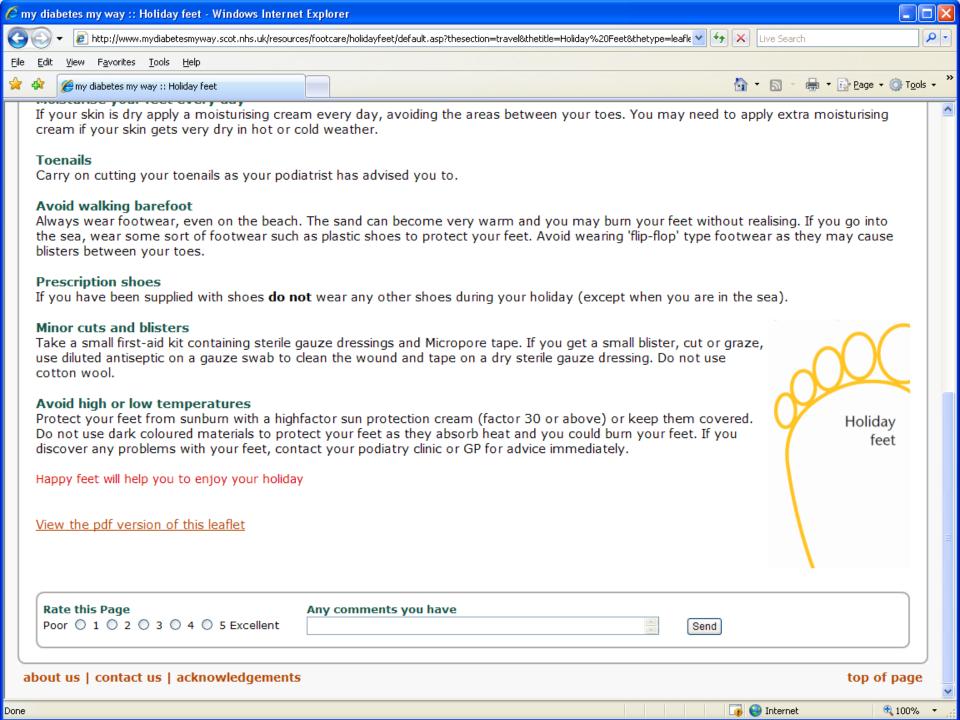
#### My Lifestyle

This section discusses how diabetes affects your life, including topics such as driving, employment, travel and exercising.

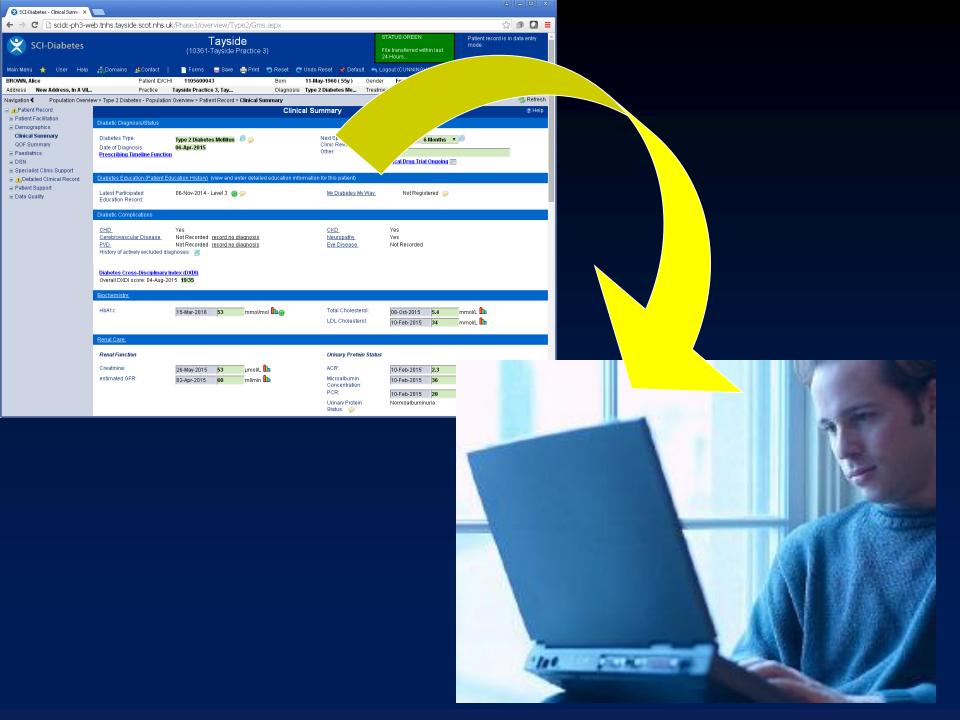


#### My Family

This section contains information to help support you or your family when dealing with diabetes. It covers diabetes and pregnancy and resources for children and parents of children who have diabetes.

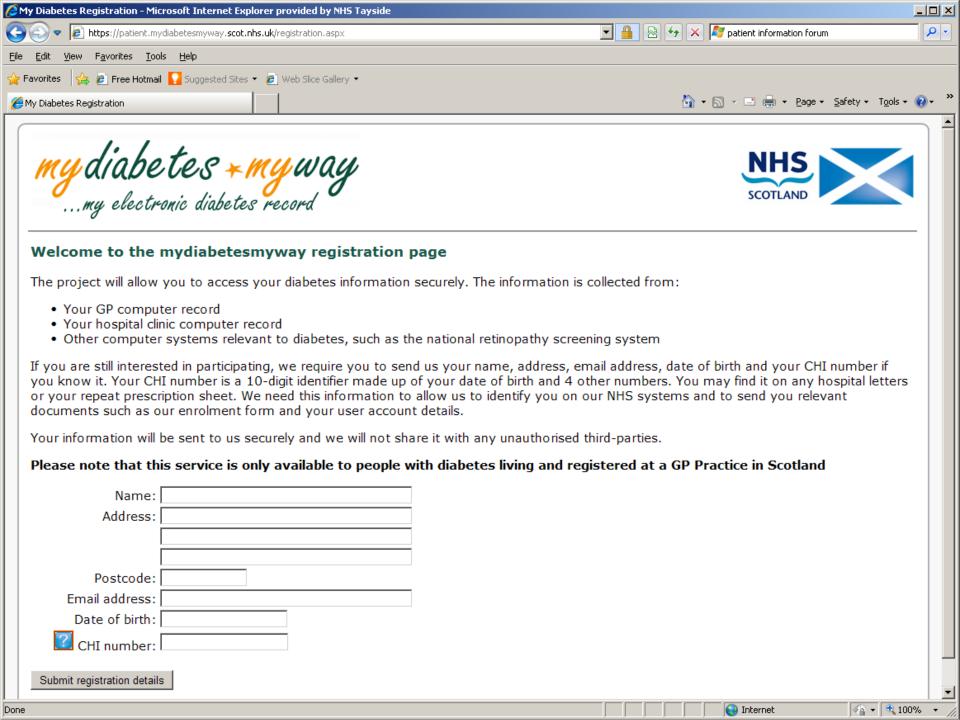


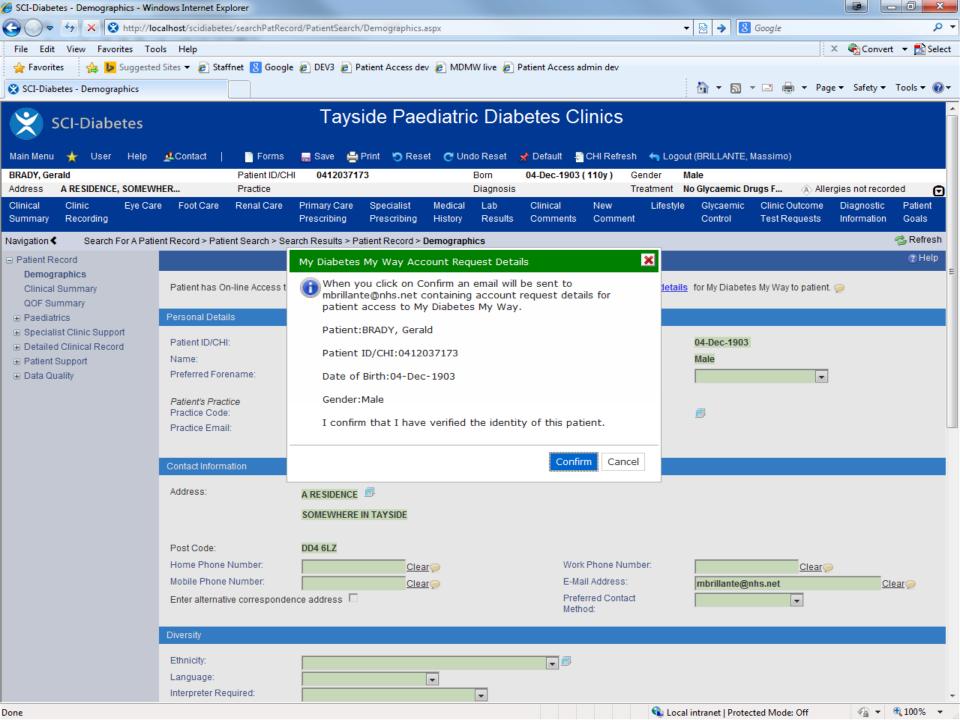




### **MDMW Personal Health Record**

- Limited to key diabetes data
- Information to explain clinical measurements
- Feedback processes to report errors
- Full system audit trail
- Live since December 2010
- Available to anyone with diabetes in Scotland











 $my \ details \ | \ my \ lifestyle \ | \ my \ eyes \ | \ my \ feet \ | \ my \ medication \ | \ my \ letters \ | \ my \ goals \ | \ my \ recordings \ | \ my \ summaries$ 

#### ARCHIBALD MACKIE

#### My Personal Details

These are the personal details from your diabetes medical record.

If any of them are wrong, please let us know by contacting your diabetes team

- **Date of Birth:** 29/05/1932
- **CHI Number:** 290532V[DC
- 🕜 Address: A RESIDENCE, SOMEWHERE IN TAYSIDE, DUNDEE
- **Type of Diabetes:** Type 1
- Year of Diagnosis: 1995
- General Practice:
- Registered GP:

#### My Links (Show More)



Diabetes explained

Hands on Insulin

Coping with Illness

Insulin Injection Technique

Insulin Pumps

Reviewing your diabetes

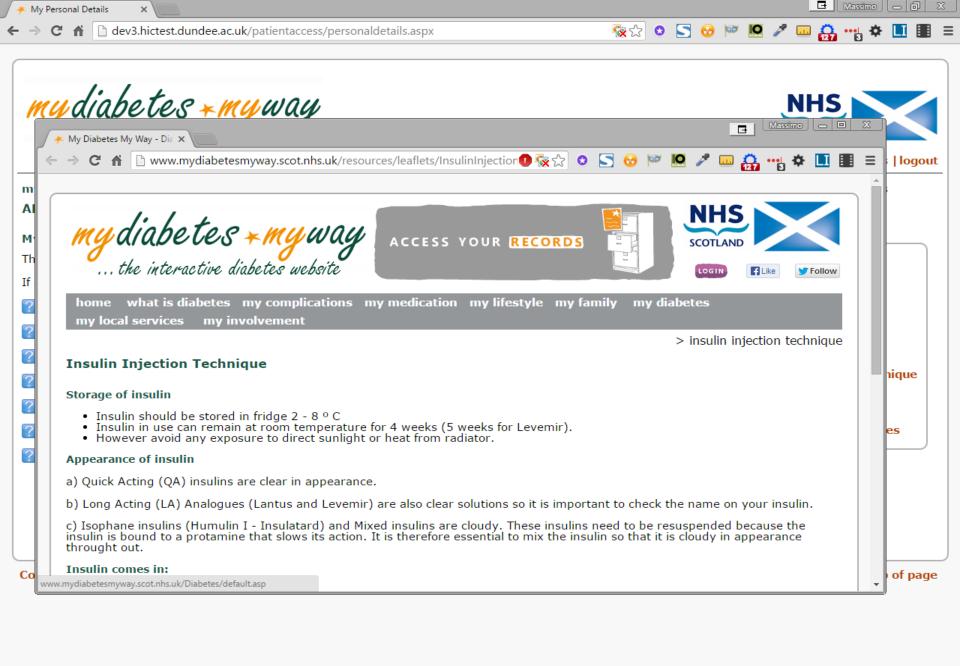
#### Print Options



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my details | my lifestyle | my results | my eyes | my feet | my medication | my diary | my letters | my goals | my recordings | my summaries

#### ARCHIBALD MACKIE

#### My Lifestyle

Height: 1.69 metres (5ft 7in) on 13/01/2016

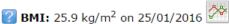
Weight: 74kg (11st 10lb) on 25/01/2016







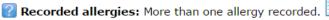




Manage my Food Diary:









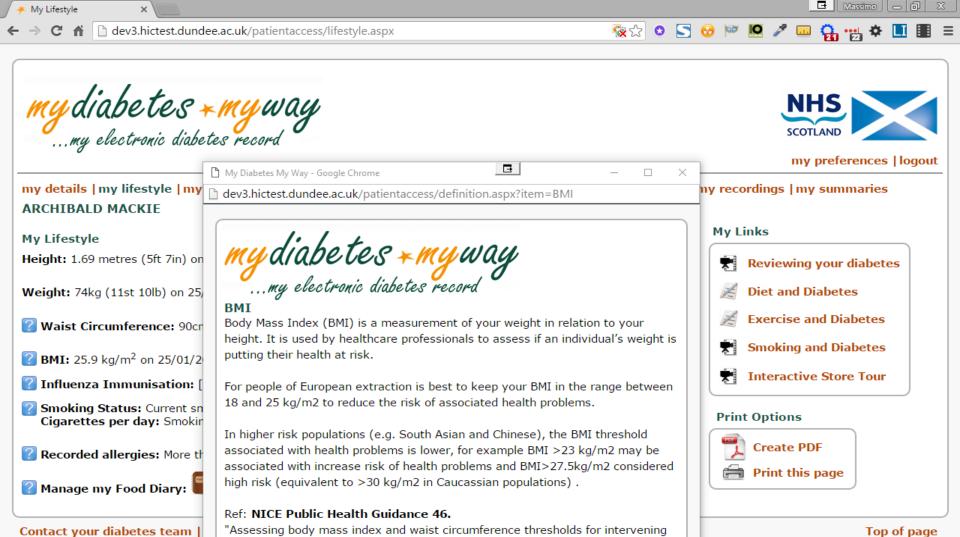


#### My Links



#### **Print Options**





to prevent ill health and premature death among adults from black, Asian and

other minority ethnic groups in the UK"







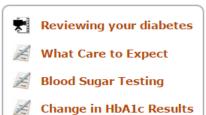
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#### ARCHIBALD MACKIE

#### My Test Results

- 🕜 My target chart: 🧿
- PhbA1c: 36.0 mmol/mol (5.4%) on 17/01/2016
- ? Blood Glucose: 4.0 mmol/L on 27/02/2016 🚧 🔠 🗽 🚺 diasend.
- Plood Pressure: 130/80 mmHg on 05/02/2016
- 🕜 Total Cholesterol: 4.5 mmol/L on 27/02/2016 🏁 📝
- **?** HDL Cholesterol: 1.50 mmol/L on 28/01/2016
- PLDL Cholesterol: 1.2 mmol/L on 28/01/2016
- **?** Triglycerides: 2.4 mmol/L on 14/01/2016
- Creatinine: 88.0 umol/L on 24/02/2016
- Albumin/Creatinine Ratio: > 2 mg/mmol on 12/02/2016
- **?** eGFR: > 68 ml/min on 20/01/2016

#### My Links





dev3.hictest.dundee.ac.uk/patientaccess/testresultshistory.aspx?type=hba1c





























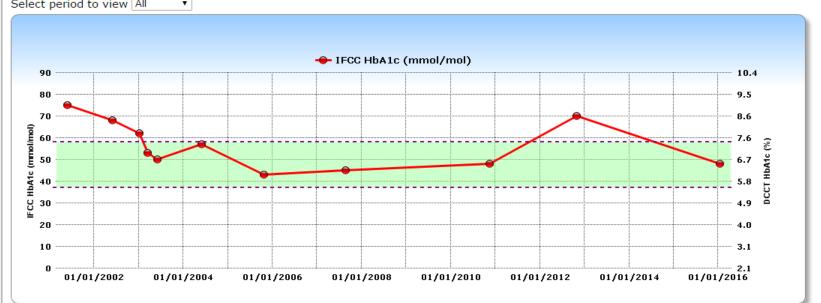
my preferences | logout

my details | my lifestyle | my results | my eyes | my feet | my medication | my diary | my letters | my goals | my recordings | my summaries

#### ARCHIBALD MACKIE

My HbA1c History

Select period to view All



| Date             | IFCC HbA1c (mmol/mol) | DCCT HbA1c (%) | Source                                   |
|------------------|-----------------------|----------------|--|
| 17/01/2016 18:55 | 48.0                  | 6.5%           | Tayside Practice 1 - GPASS, Primary Care |
| 01/11/2012       | 70.0                  | 8.6%           | Tayside Practice 1 - GPASS, Primary Care |
| 18/11/2010       | 48.0                  | 6.5%           | Tayside Practice 1 - GPASS, Primary Care |
| 24/08/2007       | 45.0                  | 6.3%           | Tayside Practice 1 - GPASS, Primary Care |
| 25/10/2005       | 43.0                  | 6.1%           | Tayside Practice 1 - GPASS, Primary Care |
| 01/06/2004       | 57.0                  | 7.4%           | Tayside Practice 1 - GPASS, Primary Care |
| 03/06/2003       | 50.0                  | 6.7%           | Tayside Practice 1 - GPASS, Primary Care |
| 20/03/2003       | 53.0                  | 7.0%           | Tayside Practice 1 - GPASS, Primary Care |

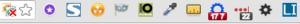
















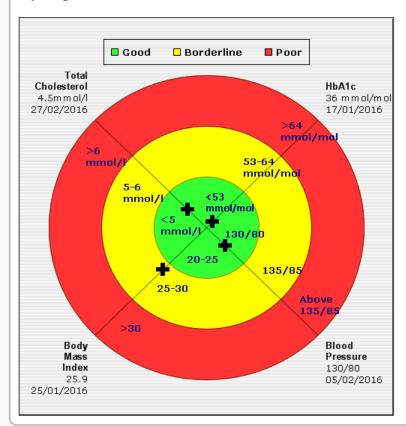




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#### ARCHIBALD MACKIE

#### My Target Chart









my details | my lifestyle | my results | my eyes | my feet | my medication | my diary | my letters | my goals | my recordings | my summaries

#### ARCHIBALD MACKIE

#### My Eye Screening

Last Retinal Screening: 07/01/2016

🕜 Retinal Status

Right Eye: No Retinopathy on 07/01/2016 **Left Eye:** No Retinopathy on 07/01/2016

Maculopathy Status

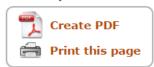
Right Eye: No Maculopathy on 07/01/2016 Left Eye: No Maculopathy on 07/01/2016

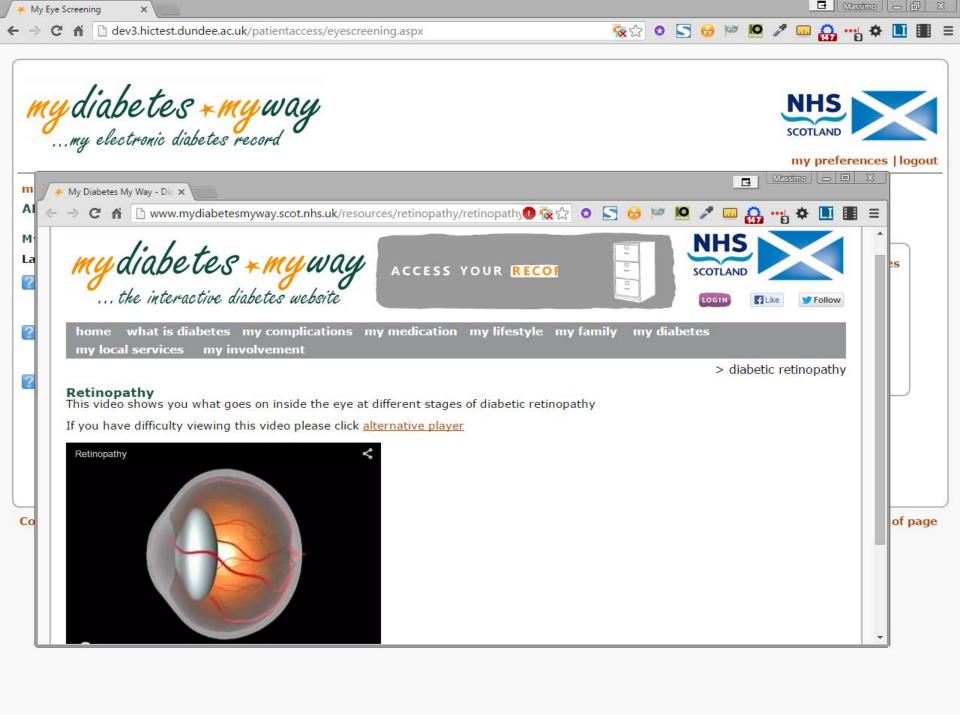
Visual Acuity

Right Eye: 6/6 (Corrected) on 07/01/2016 **Left Eye:** 6/6 (Corrected) on 07/01/2016

#### My Links













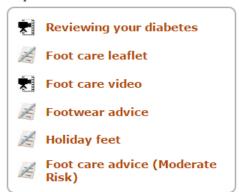
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#### ARCHIBALD MACKIE

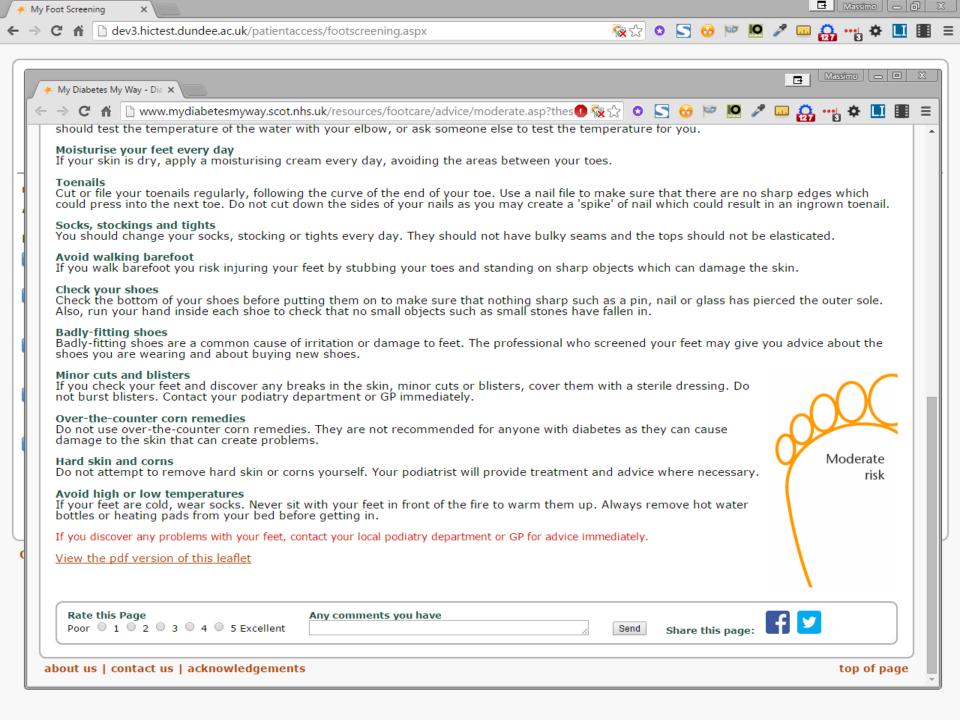
#### My Foot Screening

- Poot Risk Category
  Moderate Risk on 27/01/2016
- Peripheral Pulses
  Right Foot: Present on 27/01/2016
  Left Foot: Present on 27/01/2016
- Proot Sensation
  Right Foot: Normal on 27/01/2016
  Left Foot: Normal on 27/01/2016
- Monofilaments
  Right Foot: Normal Foot Unspecified on 27/01/2016
  Left Foot: Normal Foot Unspecified on 27/01/2016
- Proof Vibrations
  Right Foot: Normal on 27/01/2016
  Left Foot: Normal on 27/01/2016

#### My Links











dev3.hictest.dundee.ac.uk/patientaccess/medication.aspx







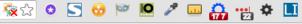






















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#### **ARCHIBALD MACKIE**

#### My Medication

| Date Drug Name |                                      | Preparation           | Dose  | Quantity |
|----------------|--------------------------------------|-----------------------|-------|----------|
| 29/01/2016     | Bendroflumethiazide (Bendrofluazide) | TABS 2.5MG            | 1 Tab | 56       |
| 29/01/2016     | Losartan Potassium                   | TABS 50MG             | 1 Tab | 56       |
| 29/01/2016     | Doxazosin Mr                         | TABS 4MG              | 1 Tab | 56       |
| 29/01/2016     | Candesartan Cilexetil                | TABS 16MG             | 1 Tab | 56       |
| 29/01/2016     | Aspirin                              | Dispersible TABS 75MG | 1 Tab | 56       |
| 27/01/2016     | Nuseals Aspirin                      | Ec TABS 75MG          | 1 TAB | 56 tabs  |
| 27/01/2016     | Doxazosin                            | TABS 4MG              | 1 Tab | 56       |
| 27/01/2016     | Candesartan Cilexetil                | TABS 16MG             | 1 Tab | 56       |
| 27/01/2016     | Bendroflumethiazide (Bendrofluazide) | TABS 2.5MG            | 1 Tab | 56       |
| 27/01/2016     | Atenolol                             | TABS 50MG             | 1 Tab | 56       |
| 27/01/2016     | Aspirin                              | Dispersible TABS 75MG | 1 Tab | 56       |
| 27/01/2016     | Alphosyl 2 In 1                      | Shampoo               | Apply | 125      |
| 27/01/2016     | Bendroflumethiazide (Bendrofluazide) | TABS 2.5MG            | 1 Tab | 84       |
| 26/01/2016     | Losartan Potassium                   | TABS 25MG             | 1 Tab | 28       |
| 25/01/2016     | Losartan Potassium                   | TABS 25MG             | 1 Tab | 56       |
| 24/01/2016     | Alphosyl 2 In 1                      | Shampoo               | Apply | 125      |
| 23/01/2016     | Doxazosin Mr                         | TABS 4MG              | 1 Tab | 56       |
| 23/01/2016     | Atenolol                             | TABS 50MG             | 1 Tab | 56       |
| 23/01/2016     | Candesartan Cilexetil                | TABS 16MG             | 1 Tab | 84       |
| 23/01/2016     | Bendroflumethiazide (Bendrofluazide) | TABS 2.5MG            | 1 Tab | 84       |
| 23/01/2016     | Atenolol                             | TABS 50MG             | 1 Tab | 84       |
| 23/01/2016     | Aspirin                              | Ec TABS 75MG          | 1 Tab | 84       |
| 22/01/2016     | Clarithromycin Mr                    | TABS 500MG            | 1 Tab | 7        |
| 20/01/2016     | Doxazosin                            | TABS 2MG              | 1 Tab | 56       |
| 20/01/2016     | Candesartan Cilexetil                | TABS 16MG             | 1 Tab | 56       |
|                |                                      | <u> </u>              |       |          |

#### My Links



Reviewing your diabetes



**Hands on Insulin** 



**Treatment of Diabetes** 



**Smoking and Diabetes** 

#### **Print Options**

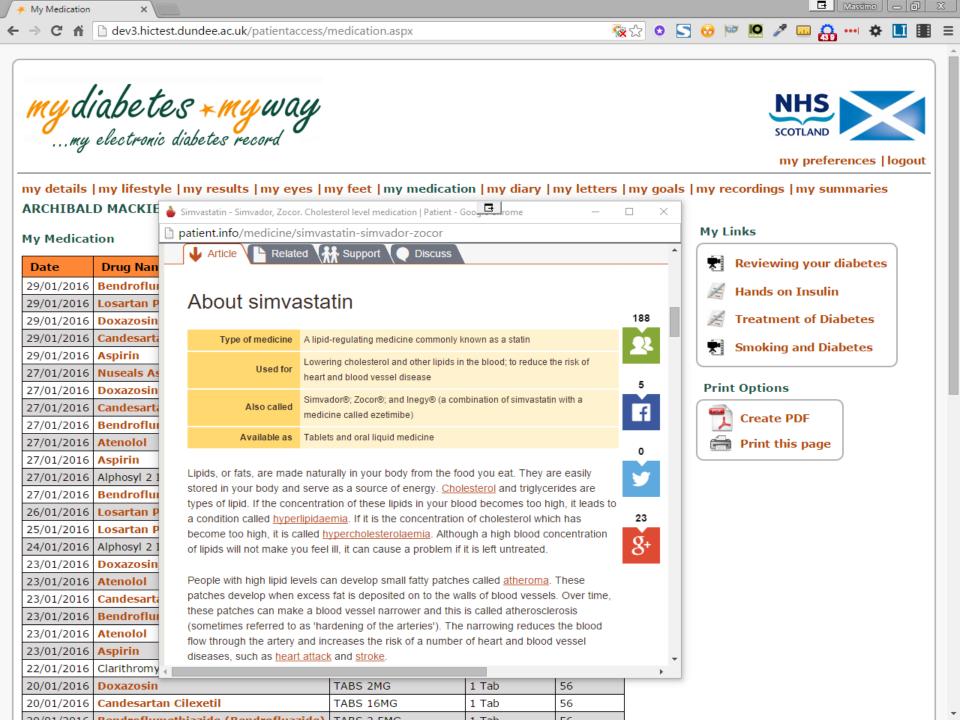


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#### ARCHIBALD MACKIE

#### Care Measures Summary

Patient Name: ARCHIBALD MACKIE Address: A RESIDENCE, SOMEWHERE IN TAYSIDE, DUNDEE

**Date of Birth:** 29/05/1932 **CHI Number:** 290532V[DC

C dev3.hictest.dundee.ac.uk/patientaccess/summarycaremeasures.aspx

Type of Diabetes: Type 1 Year of Diagnosis: 1995

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There's a minimum level of care that every person who has diabetes deserves and should expect from their health service. Getting all the checks, seeing the right healthcare professionals and understanding your diabetes are all essential in helping you manage your condition. Use this checklist to make sure you're getting all the care you need.

#### Get your blood glucose levels measured. 4.0 mmol/L on 27/02/2014

You should have an annual HbA1c blood test to measure your overall blood glucose control. Although there are recommended targets, no two people with diabetes are the same and your target should have been agreed by you and your diabetes healthcare team.

#### Have your blood pressure measured. 130/80 mmHg on 05/02/2016

You should have your blood pressure taken and recorded at least once a year. There are recommended targets but you should have a target that is right for you.

#### Have your blood fats (cholesterol) measured. 4.5 mmol/L on 27/02/2014

You should have an annual blood test to measure your cholesterol level. Like blood glucose and blood pressure, you should have your own target that is realistic and achievable.

#### Have your eyes looked at. 07/01/2016

You have the right to have your eyes screened for signs of retinopathy every year. Using a specialised digital camera, a photo of your eyes is taken and examined by a specialist who is looking for any changes to your retina (the seeing " part at the back of your eye).

#### Have your legs and feet checked. Moderate Risk on 27/01/2016

The skin, curculation and nerve supply of your legs and feet should be examined annually. If there is any risk to your limbs, you should be referred to a podiatrist or a specialist foot clinic.

#### Have your kidney functions monitored. > 68 ml/min on 20/01/2016

You should have two tests for your kidneys each year. A urine test checking for protein - a sign of possible kidney problems - and a blood test measuring the rate at which blood is filtered by the kidneys.

Have your weight checked. 74kg (11st 10lb) on 25/01/2016

You should be weighed and have your waist measured to see if you need to lose weight.

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my details | my lifestyle | my results | my eyes | my feet | my medication | my diary | my letters | my goals | my recordings | my summaries

#### **ARCHIBALD MACKIE**

#### My Data Trends

| Result              | Previous result                         | Current result                          | Change | Comment  | Full history |
|---------------------|---|---|--------|--|--------------|
| PhbA1c              | 48 (6.5%) on<br>12/07/2008              | 36 (5.4%) on<br>17/11/2011              | -12 棏  | Your HbA1c has decreased since your last measurement and is on target - Click here to find out how to maintain your healthy level.   | <b>◇</b> ≫   |
| Pody Mass Index     | 25.6 kg/m <sup>2</sup> on<br>04/10/2014 | 27.3 kg/m <sup>2</sup> on<br>20/11/2014 | 1.7    | Your weight is <b>74 Kg</b> . Your ideal weight based on your height is between <b>53 Kg</b> and <b>71 Kg</b> . Your body mass index (BMI) is above target (overweight) and is higher than your last result. Losing weight will reduce your risk of diabetes complications <b>Click here</b> to find out how to maintain a healthy level.                      | <b>◇</b> ◆   |
| Waist Circumference | 100cm on<br>02/02/2015                  | 84cm on<br>20/02/2015                   | -16 棏  | Your Waist circumference is normal and lower than last result - Click here to find out how to maintain a healthy level.  | <b>**</b>    |
| Blood Pressure      | 120/80 mmHg<br>on 17/02/2014            | 180/70 mmHg<br>on 24/03/2014            | 60 🛖   | Your blood pressure is significantly above target and is higher than your last result. Keeping your BP in target will reduce your risk of heart attack, stroke & kidney problems. If your blood pressure is regularly above target you should discuss your medication with your health care provider - Click here to find out how to maintain a healthy level. | <b>◇</b> ◇   |
|                     |   |   |        | Your Cholesterol is slightly above target but lower than your last   |              |





























my details | my lifestyle | my results | my eyes | my feet | my medication | my diary | my letters | my goals | my recordings | my summaries

ARCHIBALD MACKIE

Information Links For HbA1c

#### Return to my data trends summary

HbA1c is an important measure of your overall sugar level over the last 2-3 months. Ideally this should be somewhere between 48 -58 mmol/mol (6.5 - 7.5%). For type 2 diabetes, sugar levels can be improved by regular exercise, maintaining a normal body weight, eating a healthy balanced diet, avoiding high sugar foods and taking any diabetes medication regularly. If HbA1c remains above target despite this, you should discuss with your health care provider whether your medication needs changed. For people with type 1 diabetes, it is important to balance the amount of insulin with your food (carbohydrate) intake and activity levels.

The higher your HbA1c is above target, the greater your risk of diabetes complications affecting kidney, eyes, feet and heart.

Self-monitoring of blood glucose is a beneficial part of diabetes management for some people. Blood glucose levels in people without diabetes are 3.5-5.5mmol/L before meals and less than 8mmol/L 2 hours after meals. People with diabetes often have targets around 5-7mmol before meals (lower in pregnancy).

Want more information?

What is HbA1c?

Healthy eating

10 steps to eating well

**Monitoring Diabetes** 

**Diabetes Complications** 

Hypoglycaemia (low blood sugars)





























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#### ARCHIBALD MACKIE

#### My Goals Summary

Setting goals is a good way of focusing on specific aspects of your health that you wish to improve.

dev3.hictest.dundee.ac.uk/patientaccess/summarygoals.aspx

Here is a summary of the goals you have set yourself, with achievement dates. Try to set goals that are realistic and review and revise your goals regularly. Sharing your goals with your health care team and friends and family can help provide the support and knowledge you need to make these positive changes.

#### Good Luck!!

| Result                 | Current Result                              | Goal  |            |
|------------------------|---|---|------------|
| HbA1c                  | 36.0 mmol/mol (5.4%) on 17/01/2016          | No goal set   | Set goal   |
| Blood glucose          | 4.0 mmol/L on 27/02/2014                    | 4.0 mmol/L by 01/09/2016                                    | Amend goal |
| Cholesterol            | 4.5 mmol/L on 27/02/2014                    | 4.4 mmol/L by 27/04/2016                                    | Amend goal |
| Blood pressure         | 130/80 mmHg on 05/02/2016                   | 130/90 mmHg by 01/06/2016                                   | Amend goal |
| Weight                 | 74kg (11st 10lb) on 25/01/2016              | No goal set   | Set goal   |
| Waist<br>circumference | 90cm on 17/02/2016                          | No goal set   | Set goal   |
| Smoking status         | Current smoker on 03/02/2016                | No goal set   | Set goal   |
| Cigarettes per<br>day  | Smoking 21 cigarettes per day on 03/02/2016 | Reducing cigarettes to a maximum of 5 per day by 01/09/2016 | Amend goal |









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#### ARCHIBALD MACKIE

#### Manage My Blood Glucose Goal

Maintaining blood glucose levels as close to the normal range as possible, and reducing large swings in blood glucose is important. Good blood glucose control will reduce your risk of long term complications but also help you maintain good energy levels and a positive mood.

Current result: 4.0 mmol/L on 27/02/2014

#### Suggested goal:

These blood glucose targets below are a rough guide. Your own health care professionals may give you a different target depending on your age, type of diabetes and medication. Pre-meal or fasting blood glucose levels will be lower than blood glucose levels checked after meals.

| Add or amend Your goal     | Your current goal  |  |  |
|----------------------------|--|--|--|
| Blood glucose: mmol/L      | Your goal: 4.0 mmol/L by 01/09/2016  |  |  |
| Timescale: Please select ▼ | Your comments: Reducing my Blood Glucose goal                                |  |  |
| Comments:                  | Clinical guidelines  |  |  |
|                            | Your clinician would normally aim to have your Blood Glucose between 4 and 8 |  |  |
| Set goal                   | Back to goals summary  |  |  |

Contact your diabetes team | Discussion forum | frequently asked questions





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#### ARCHIBALD MACKIE

#### **Contact Your Diabetes Team**

Please use this page to ask us a question or to view history of your current questions.

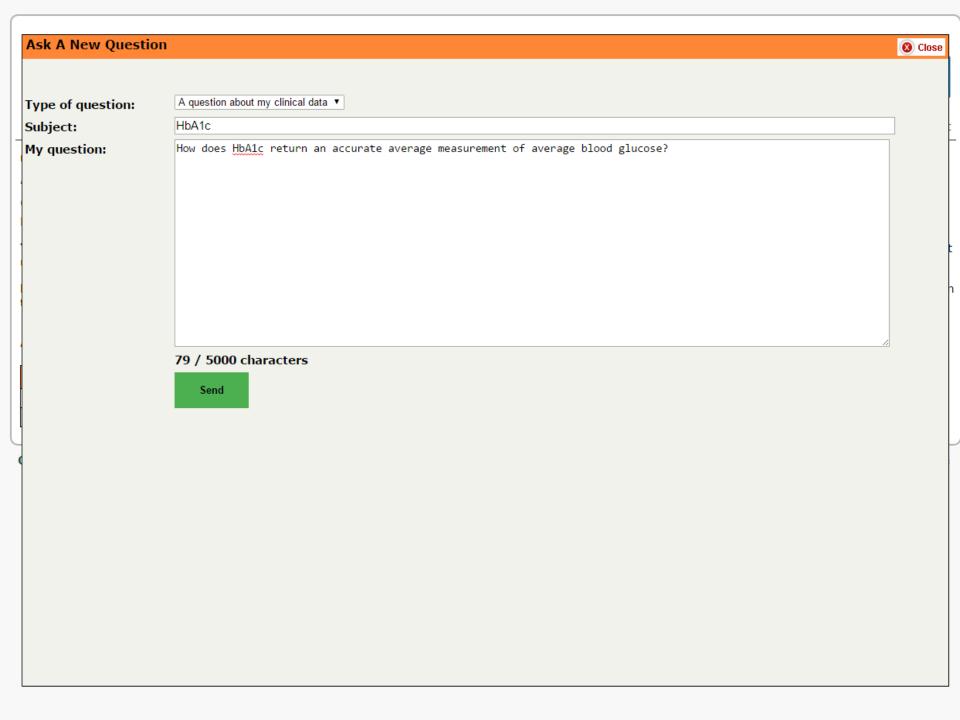
You can also use it to report any technical problems you are having with the website. If you notice that there is something wrong with your information, or it is not updating, then we will get back to you as soon as we can.

**Please note:** this service is for non-urgent clinical queries. You should expect to receive a response within 3 working days. If you have an urgent medical problem then please contact your medical team by telephone.

#### Ask a new question

| Subject                 | Status | Amended on         |
|-------------------------|--------|--------------------|
| Diasend Upload software | Opened | 01/03/2016 (14:26) |
| HBA1c                   | Read   | 01/03/2016 (14:25) |

Contact your diabetes team | Discussion forum | frequently asked questions









🔐 😬 🌣

my preferences | logout

my details | my lifestyle | my results | my eyes | my feet | my medication | my diary | my letters | my goals | my recordings | my summaries **ARCHIBALD MACKIE** 

Your conversation for the question "HBA1c"

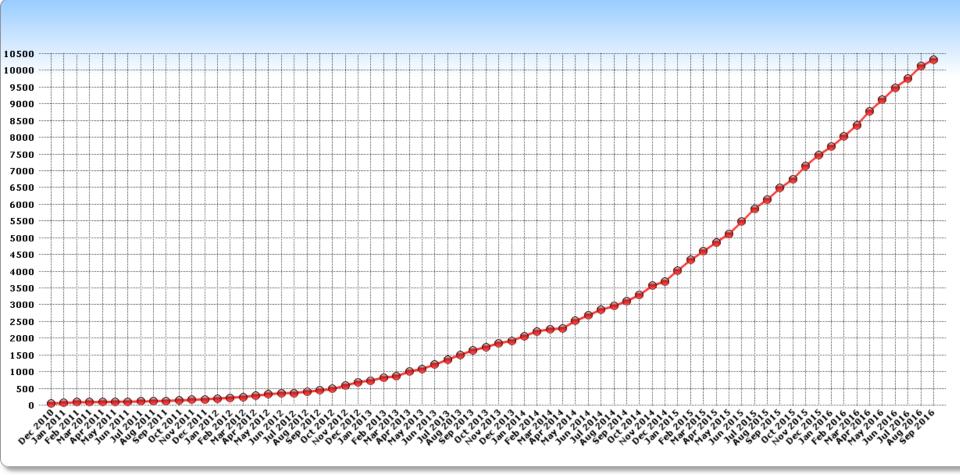
Add reply / more information Back to your questions

| Message   | Amended on         |
|---|--------------------|
| When the body processes sugar, glucose in the bloodstream naturally attaches to haemoglobin. The amount of glucose that combines with this protein is directly proportional to the total amount of sugar that is in your system at that time. Because red blood cells in the human body survive for 8-12 weeks before renewal, measuring glycated haemoglobin (or HbA1c) can be used to reflect average blood glucose levels over that duration, providing a useful longer-term gauge of blood glucose control. If your blood sugar levels have been high in recent weeks, your HbA1c will also be greater. | 01/03/2016 (14:25) |
| How does HBA1c return an accurate average measurement of average blood glucose?   | 01/03/2016 (14:23) |

Contact your diabetes team | Discussion forum | frequently asked questions

### Records Access - Current Status

10,312 people have accessed their records



### **Evaluation**

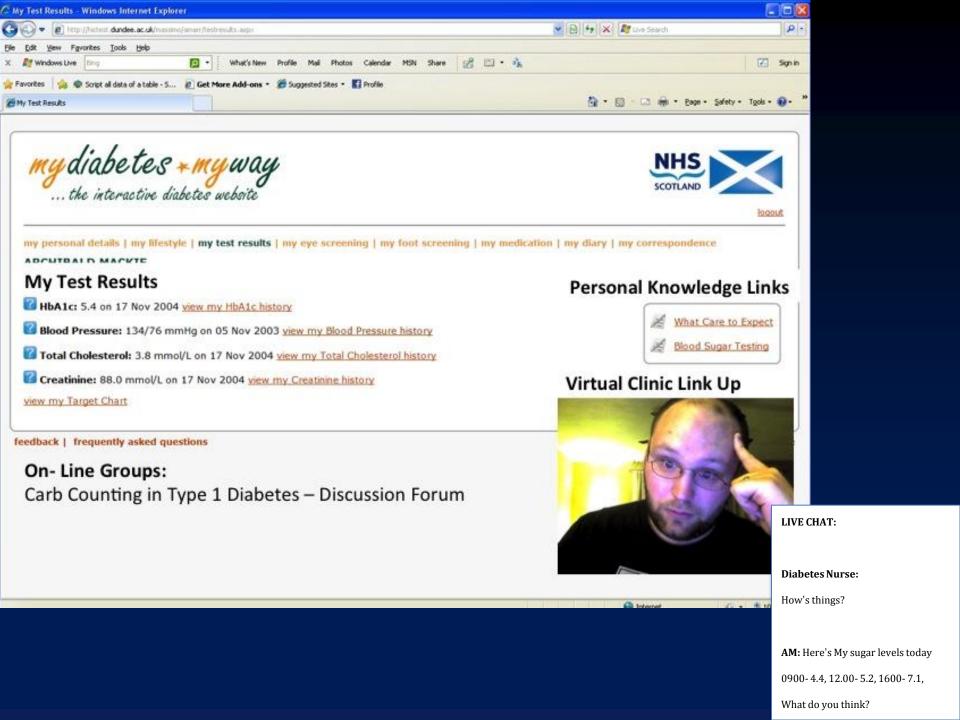
- Survey opinions following system use:
  - -87% reminders of information discussed
  - 89.6% better use of consultation time
  - 94.2% improved understanding
  - 95.9% helped to monitor changes over time
  - 88.2% helped manage diabetes better
- Significant improvements in outcomes:
  - HbA1c (p < 0.001) 1.53 mmol/mol
  - Total cholesterol (p=0.002); HDL (p=0.012);
     LDL (p=0.001); Diastolic BP (p=0.007);
     weight (p=0.003)

### **Anecdotal Feedback**

- The knowledge provided helps me understand the normal parameters and where I stand/can improve...
- more information available to me means I can play a more positive role in my treatment...
- Great site and like having the long term history available to put current results in perspective...
- It is great to be able to view all of my results so that I can be more in charge of my diabetes...
- What a fab resource, wish we had this in @NHSEngland

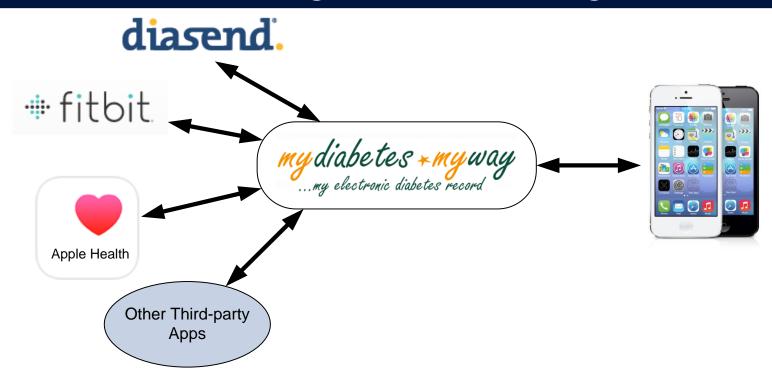
#### What's Next?

- Further Developments
  - Parent and carer access
  - eLearning modules in pilot
  - Smartphone App
  - Virtual clinics
  - Data integration and analytics
  - Notifications and alerts

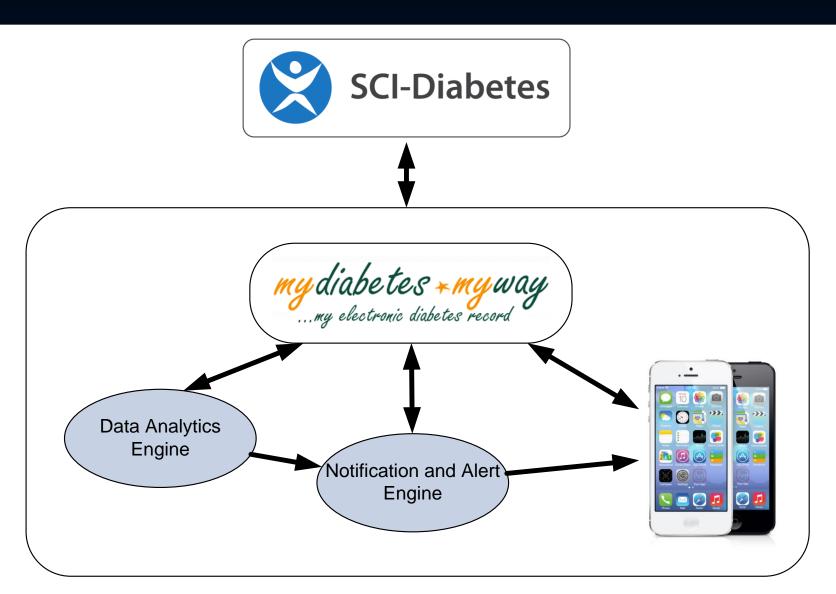


#### **Patient-recorded Data**

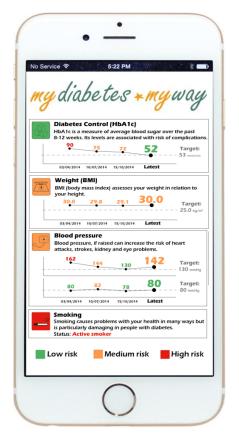
- Mobile: >1,300 diabetes apps!
- Wearable technology: pumps, CGM, activity
- Home monitoring: BG, BP, weight, CHO



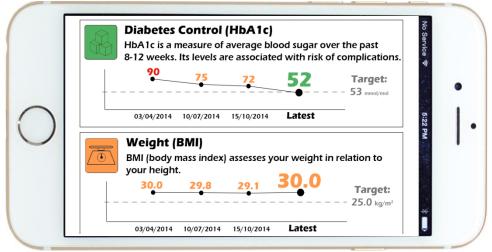
## **Patient-recorded Data**





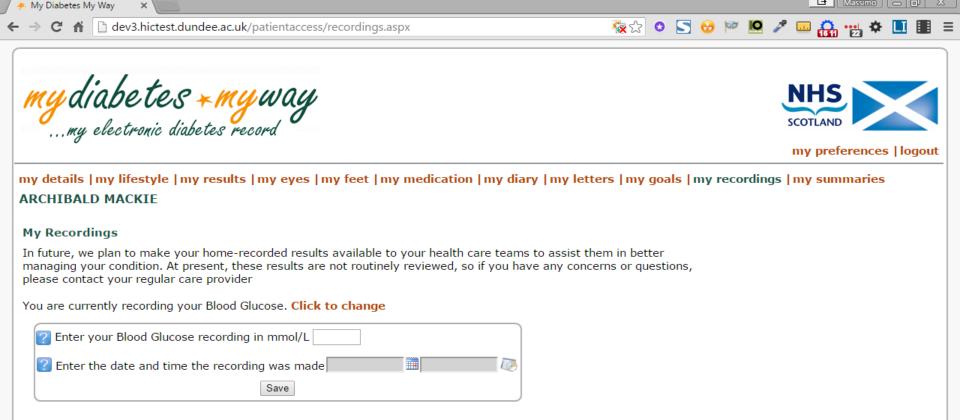






# Raising Awareness

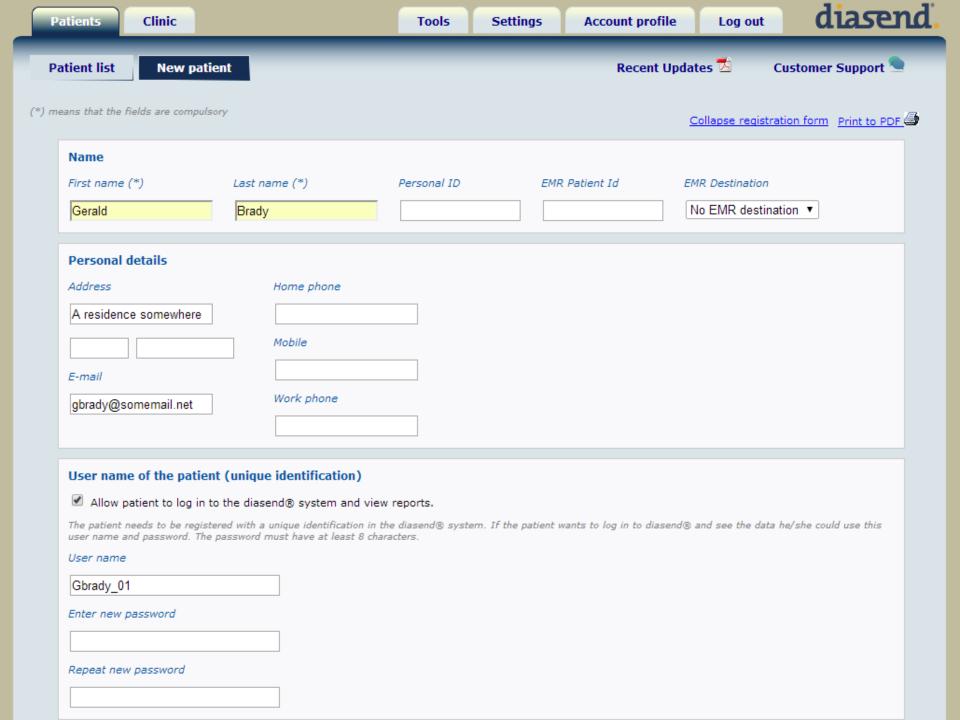
- Primary Care Mailout
  - List of unregistered patients supplied
  - Review to exclude inappropriate patients
  - Letter sent out on practice headed paper
  - All postage and stationery paid by MDMW

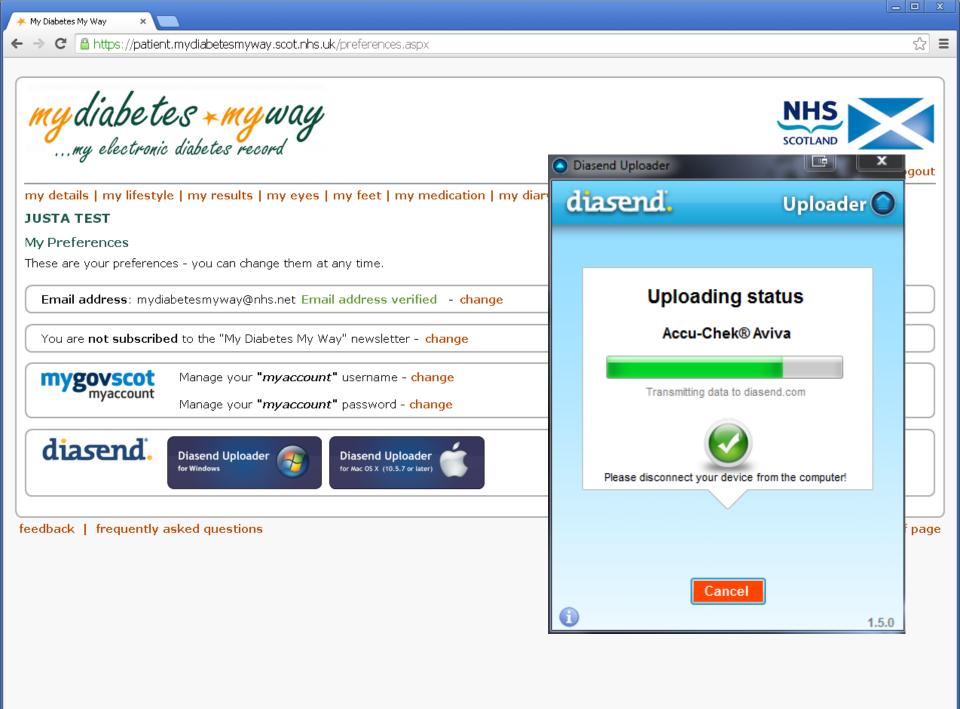


Contact your diabetes team | Discussion forum | frequently asked questions

Top of page

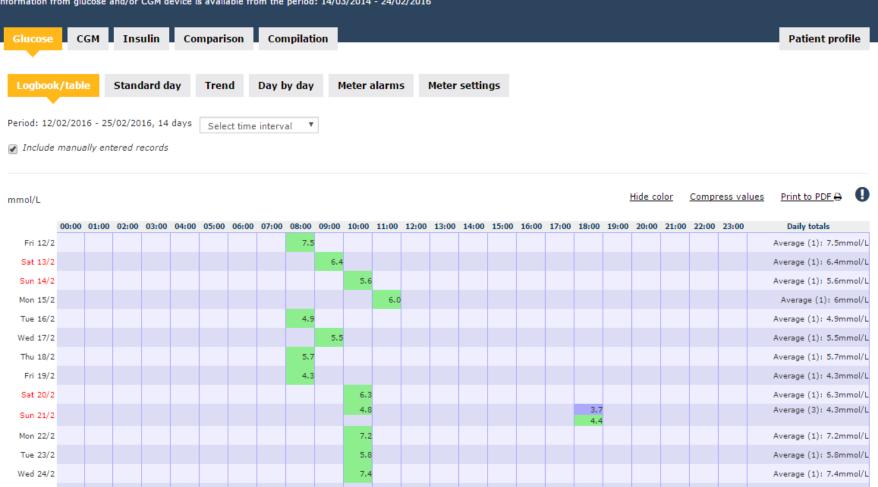
☐ Massimo ☐ ☐ X





Joe Blogg

Information from glucose and/or CGM device is available from the period: 14/03/2014 - 24/02/2016



<4 mmol/L Within > 10 mmol/L m tagged values were typed in manually by the patient

Number of values: 15
Values per day: 1.1

Period average (mmol/L): 5.7

Values above goal (10 mmol/L): 0
Values within goal (4-10 mmol/L): 14

Values below goal (4 mmol/L): 1

Highest value (mmol/L): 7.5 (12/02/2016 08:33)

Lowest value (mmol/L): 3.7 (21/02/2016 18:08)

Standard deviation: 1.1

Comments ( Show )

Thu 25/2

Average (0): --

# my diabetes + my way

Dr Scott G Cunningham, Technical Consultant scott.cunningham@nhs.net

www.sci-diabetes.scot.nhs.uk www.mydiabetesmyway.scot.nhs.uk

- @MyDiabetesMyWay
- **mww.facebook.com/mydiabetesmyway**

# Scaling up in Routine care - Technology to support Self Management

- potential to increase provider productivity, deliver cost savings, reduce avoidable service use and improve health outcomes
- Digital technologies can empower patients and carers by giving then more control over their own health & increase patient "activation" levels \*
- Targeted appropriately support Improvements in HBA1c, self efficacy \*
- Wide scale adoption of TEC will be essential for sustainability of future health and care services

<sup>\*</sup> References : How digital technology is transforming health and social care ( Deloitte Report, 2015 ) ;
The Kings Fund, 2015 , Self Management & Patient Activation .

Patient uptake and engagement with digital & On line tools

Right infrastructure & environment conditions

Scaling up Digital Health & Care

Overcome cultural & regulatory barriers

What implementation engagement strategies support "Scale up "?

Technology Integration so patients really benefit

Increase patient access to digital information to support self-management.





Support and facilitate the redesign and delivery of services through digital Home Health monitoring

Large Scale Deployment in routine care

- Clinical & Economic Impacts
- Critical Success Factors for scale up

NHS 24/SCTT lead co-ordinator across consortium with 14 regions & 34 partners

www.united4health.eu

# NHS 24/ SCTT led a collaboration with 3 Health Board Regions, Diabetes Clinical Leads, SCI Diabetes

Preparation for deployment

Phase 1 ""Kick off – Target 100 Phase 2
Expand to more sites & Primary
Care

Phase 3
Evaluation
Consolidation
Sustainability

Project Start

November 2014

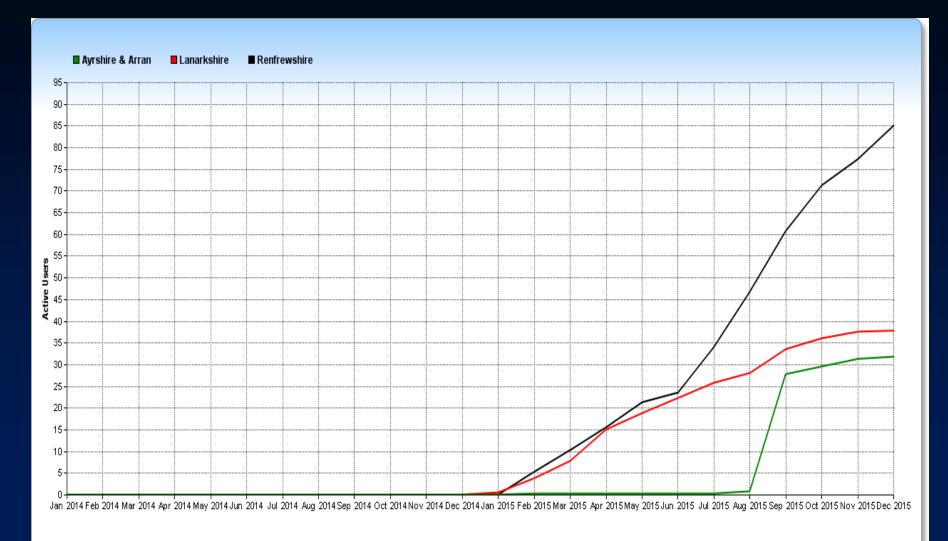
January - September 2015

Project End

#### **Active MDMW Users: Scotland v U4H**



## **U4H Diasend: % of Target**



#### 

- Tele-monitoring in Diabetes can be deployed into routine care at scale
- Clinical Effectiveness Improved Diabetes control
- Patient Satisfaction Positive patient response
- Fewer face to face GP/Consultant consultations – shift more self management
- Lower hospital admission rates

#### **Critical Success Factors**

- Technology to meet changing needs of population (Smart phone v laptop)
- Effective integration through service redesign
- Clinical Leadership at early stage
- More about people than technology
- More co-design with service users.

#### What next?

- Growing Diasend and MDMW registrations – uptake issues
- SCI DC improve BGM monitoring functionality
- Benefits Realisation / Evaluation/ Sustainability
- Policy Mandate to accelerate spread across Scotland of Digital remote monitoring through National TEC programme

# Video clip

 Diasend – Clinician & Patient Prospective.

https://youtu.be/6NhytEiRQDo

# **Thank You**

**Any Questions?**