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▼ ***Invokana® (canagliflozin)*** *This medicinal product is subject to additional monitoring and it is therefore important to report any suspect adverse reactions related to this medicinal product.*

Patient Education Models:
Cost effective vs clinical effectiveness

Grace E Vanterpool MBE
Diabetes Nurse Consultant
Diabetes Integrated Care
Ealing

Job number: PHGB/VOK/0515/0049
Date of preparation: May 2015

Contents

- NICE
- Patient education models
- Self management
- Care planning
- Evidence
- Clinical effectiveness
- Cost Effectiveness

NICE TA 60

- Education is considered to be a fundamental part of diabetes care. People with diabetes, whether they are using insulin or other means of achieving glycaemic control, have to assume responsibility for the day-to-day control of their condition. It is therefore critical that they understand the condition and know how to treat it

- Whether this is through an appreciation of the basis of insulin replacement therapy and its optimal use, or through lifestyle management, including nutrition and physical activity. :

NICE cont'd

- The aim of education for people with diabetes is to improve their knowledge and skills, enabling them to take control of their own condition and to integrate self-management into their daily lives

Goals of structured education

The ultimate goal of education is improvement in the following areas:

- Control of vascular risk factors, including blood glucose, blood lipids and blood pressure
- Management of diabetes-associated complications, if and when they develop
- Quality of life

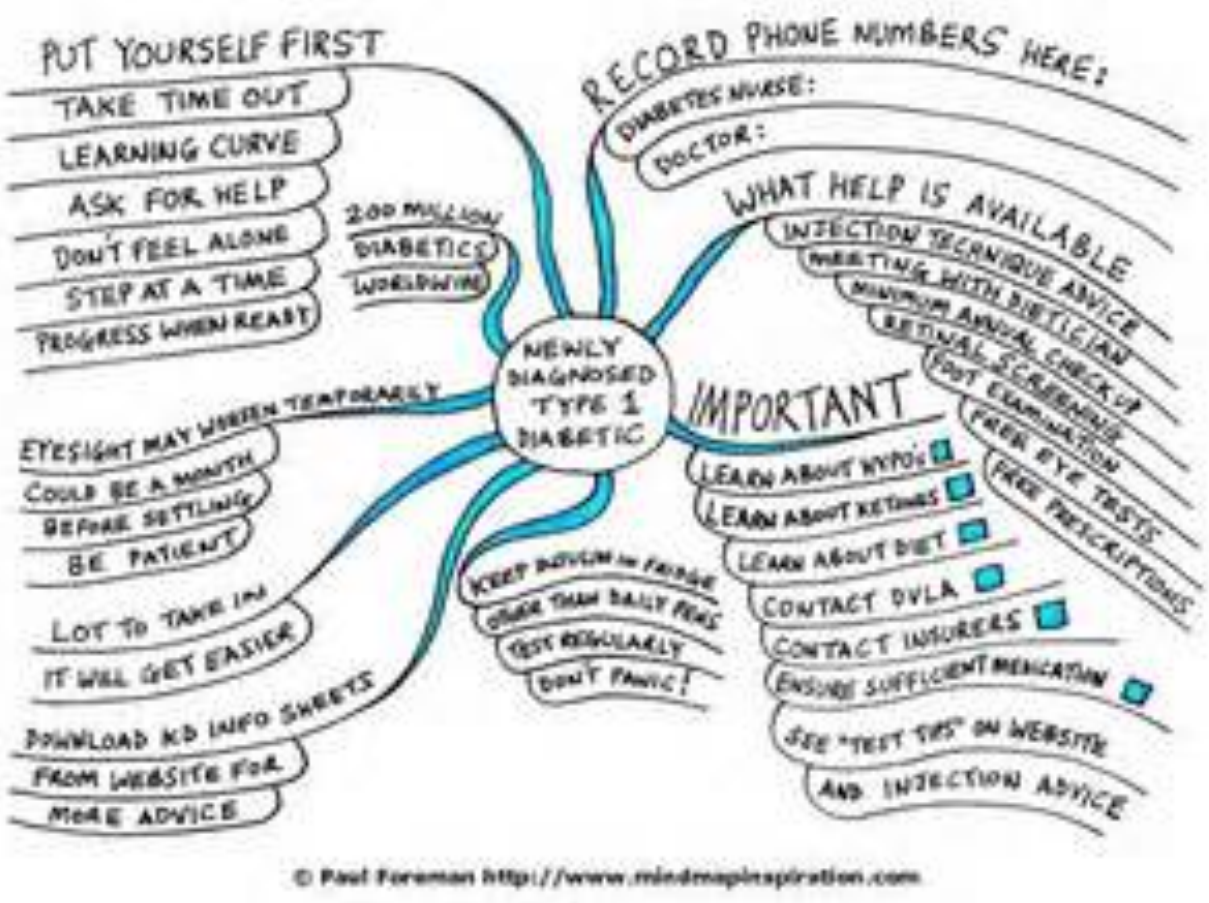
The National Service Framework for Diabetes proposes a 'supported self care service model' for diabetes and recognises the importance of education in facilitating self-management as the cornerstone of diabetes care.

Self management programmes

- Expert Patient lay led
- Long Term Care (LTC)
- Heart Manual
- Angina Manual

For consideration !!

- Most people with diabetes in England and Wales are offered education, at least at the time of their diagnosis;
- However, the length, content and style of educational options varies greatly between services;
- Some of the educational programmes offered are unstructured;
- Very few have been formally evaluated, and few individuals who deliver education have been formally trained for this purpose.



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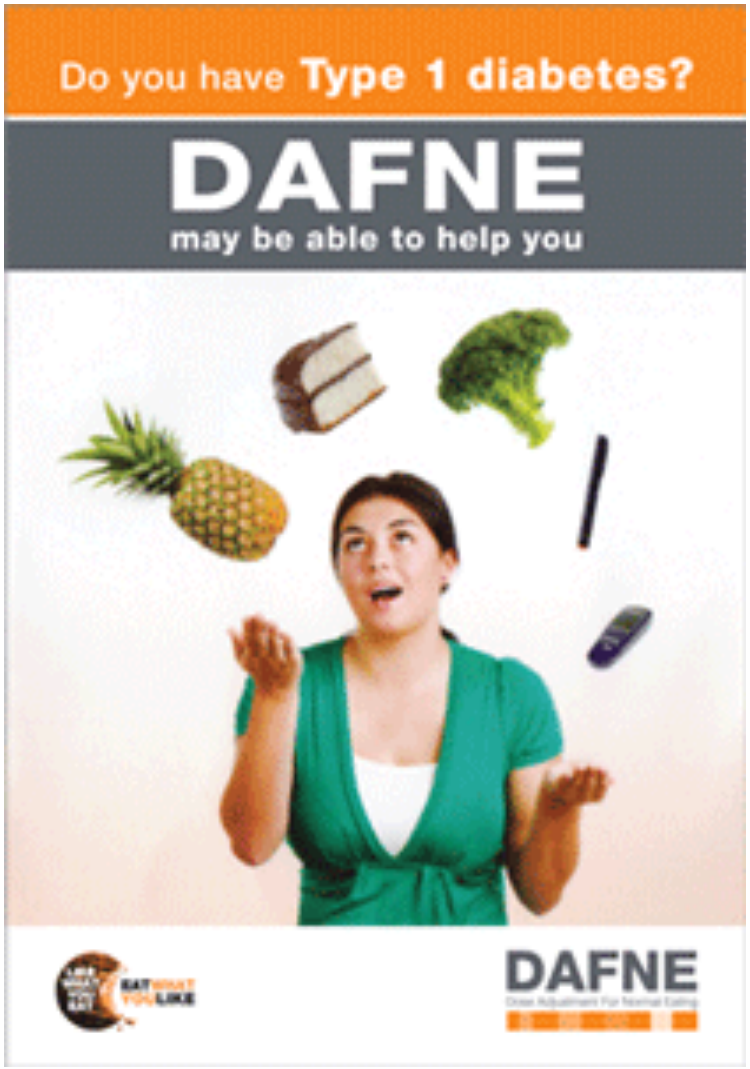
DAFNE



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What is DAFNE?

- Dose Adjustment for Normal Eating (**DAFNE**) is a structured educational programme for people with type 1 diabetes that teaches individuals to adjust their insulin to match carbohydrate intake and lifestyle on a meal-by-meal basis, thereby allowing enhanced dietary freedom.

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- 5 days of intensive training
- Delivered to groups of six to eight individuals on an outpatient basis.
- The programme is based on the Diabetes Treatment and Teaching Programmes, developed in Europe in the 1970s, and often referred to as the Geneva-Düsseldorf model of education.
- DAFNE was recognised as being both a treatment and an educational package

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Clinical Effectiveness

- Over 80% of participants met their goals
- Over 95% of participants feel they benefitted form attending the course
- 0.5% average reduction in HbA1c for up to six years
- Many participants have less hypoglycaemia

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DAFNE Cost

- The cost of patient education for diabetes depends on the type of programme offered.
- Current estimates of cost range from £66 per person attending a diabetes centre-based teaching programme spread over three afternoons, to £545 for DAFNE

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Bournemouth type 1 Intensive Education (BERTIE) Programme

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What is BERTIE?

BERTIE is a four week course for people with type 1 diabetes, which involves attending a 6-hour group education programme once a week for four consecutive weeks. The time between sessions is used for participants to put their newly-learned skills into practice.

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- Developed in 1998 for patients with type 1 diabetes who struggled with erratic blood glucose levels and frequent hypos.
- There was a need for people to learn how to manage their diabetes in a way that fitted their lifestyle, while avoiding hypoglycaemia.

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- BERTIE was modelled on the 5-day programme in Dusseldorf
- Benefits in spreading the course over a longer time period, to enable people to learn in their everyday life, rather than just in a classroom.

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The Aims of the course are

- for participants to achieve their own goals relating to their diabetes
- for participants to learn how to adjust their insulin according to their lifestyle and not vice versa
- for participants to learn how diabetes can affect their health, and what they can do to stay healthy

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BERTIE Program

- Information on diabetes, how it is treated
- Information on how it can affect health and how these effects can be avoided
- How to recognise and count carbohydrates in food
- How to work out background and meal-time insulin doses
- A meal during each session to provide practical experience, including a meal out in the final session
- Keeping records on food intake, blood glucose levels and insulin doses between sessions
- Exercise between sessions to learn the effect on blood glucose levels

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How has BERTIE changed since 1999?

- Higher emphasis on helping participants set their own goals at the start of each programme
- As the programme progressed to try and ensure it remains relevant to all participants

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Social Learning Theory

- To work out their own solutions to problems (either individually of by discussion with fellow participants) rather than provide set solutions which may not work for an individual
- To try out different strategies for managing their diabetes, to find out what works best for them
- To learn from each others experiences

DOH & NICE criteria for diabetes patient education programmes

- A patient-centred philosophy
- A written curriculum
- Fully trained educators
- A quality assurance programme
- Regular audits

Who can attend BERTIE?

- Anyone over 16 with type 1 diabetes
- Patients motivated to learn more about how to manage their diabetes
- Patients on multiple daily injections (MDI), or someone who is willing to switch to MDI
- Anyone with type 2 diabetes who are treated with multiple-daily injections and who feel they who would benefit from this approach

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Spreading the word

- Over 40 centres in all parts of the UK offer a programme which is based upon BERTIE
- On line version of BERTIE
- www.b-dec.co.uk

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Evidence

- 2 RCTs
- 2CCT
- Further research is needed
- DAFNE dominates conventional treatment (that is, it is associated with more quality-adjusted life years and a net cost saving over 10 years £2679.
- DAFNE demonstrates cost saving after 4 years

N.B. Invokana® is not licensed for use in Type 1 diabetes

Clinical Effectiveness

- over 80% of participants met their goals
- over 95% of participants feel they benefitted form attending the course
- 0.5% average reduction in HbA1c for up to six years
- Can reduce long-term complications by 15-20%
- Many participants have less hypoglycaemia

N.B. Invokana® is not licensed for use in Type 1 diabetes

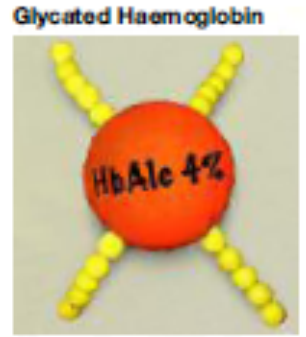
- Bournemouth Insulin Dose Adjustment Course BIDAC for HCPs
- DAFNE
- XPERT
- DESMOND
- Train the trainer courses

Cost Effectiveness

- More difficult to prove because it takes time
- Reduction in ambulance call outs
- Reduction in admissions
- Reduction in long-term complication
- £10bn
- 80% of the NHS spend goes on diabetes and related complications
- Avoidable

WEEK 1

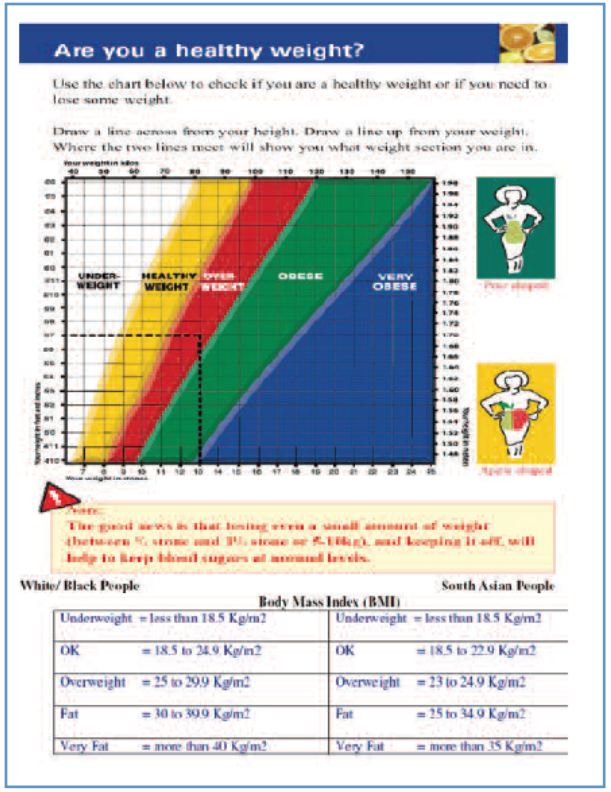
WHAT IS DIABETES



HbA1c 4%. or 20mmol/mol

HbA1c 10%. or 86mmol/mol

WEEK 2



Are you a healthy weight?

Use the chart below to check if you are a healthy weight or if you need to lose some weight.

Draw a line across from your height. Draw a line up from your weight. Where the two lines meet will show you what weight section you are in.

Note:
The good news is that losing even a small amount of weight (between ½ stone and 1½ stone or 5-10kg), and keeping it off, will help to keep blood sugars at normal levels.

Body Mass Index (BMI)

White/ Black People		South Asian People	
Underweight	= less than 18.5 Kg/m2	Underweight	= less than 18.5 Kg/m2
OK	= 18.5 to 24.9 Kg/m2	OK	= 18.5 to 22.9 Kg/m2
Overweight	= 25 to 29.9 Kg/m2	Overweight	= 23 to 24.9 Kg/m2
Fat	= 30 to 39.9 Kg/m2	Fat	= 25 to 34.9 Kg/m2
Very Fat	= more than 40 Kg/m2	Very Fat	= more than 35 Kg/m2

Eatwell Plate

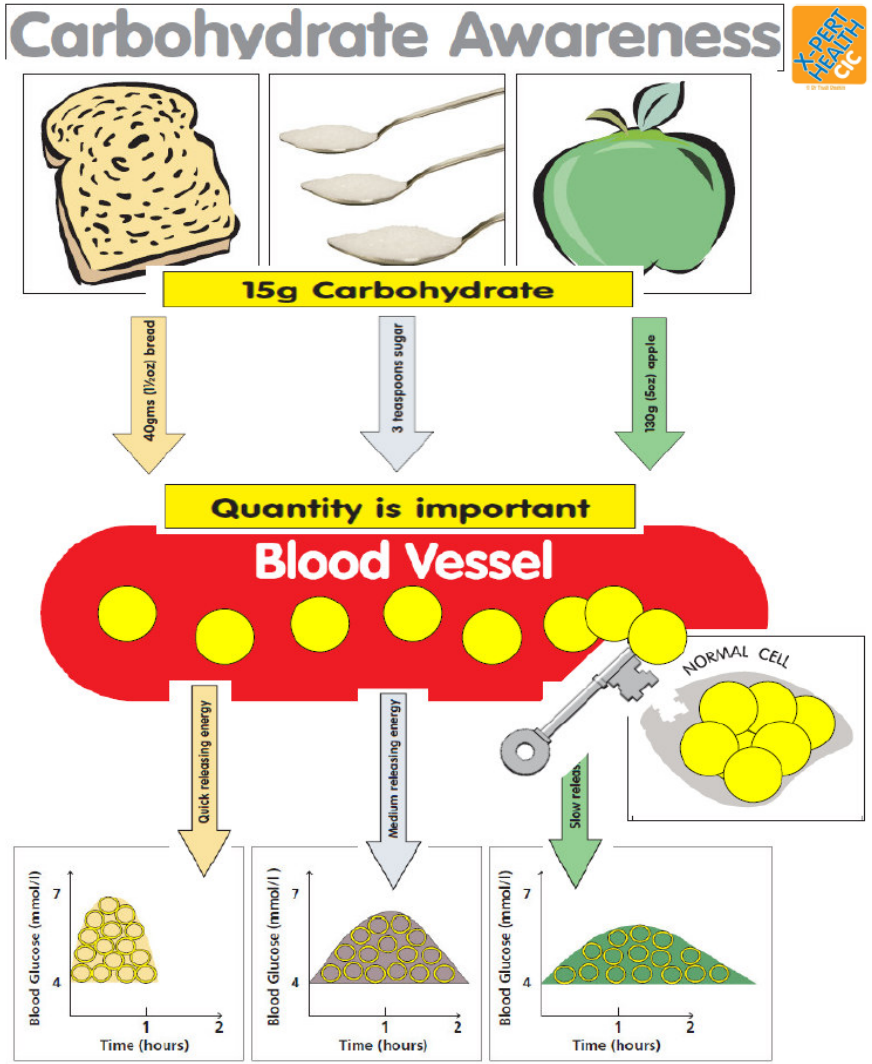
WEIGHT MANAGEMENT

WEEK 3

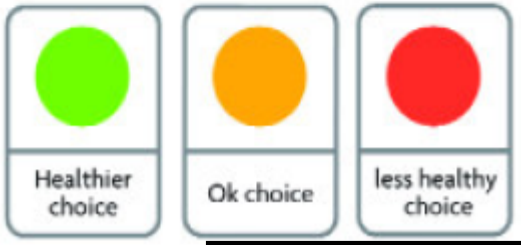
CARBOHYDRATE AWARENESS

Quantity is the ***Key Strategy*** for optimal glycaemic control

Quality offers additional benefits



WEEK 4



Guide to Food Labelling

A lot (per 100g)	A Little (per 100g)
15.0g of sugars	5.0g of sugars
20.0g of fat	3.0g of fat
5.0g of saturates	1.5g of saturates
3.0g of fibre	0.5g of fibre
1.5g of salt	0.3g of salt
0.6g of sodium	0.1g of sodium

Diabetes UK 2008

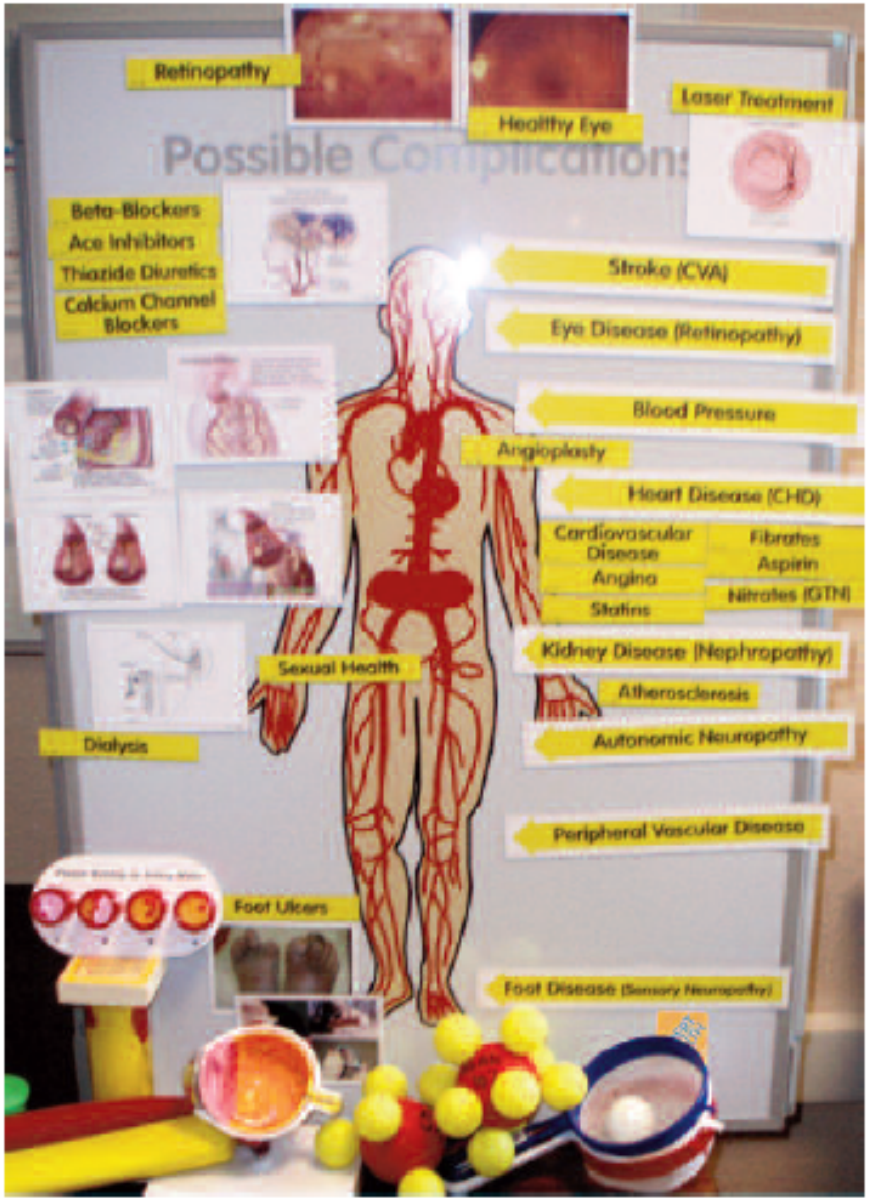
SUPERMARKET TOUR

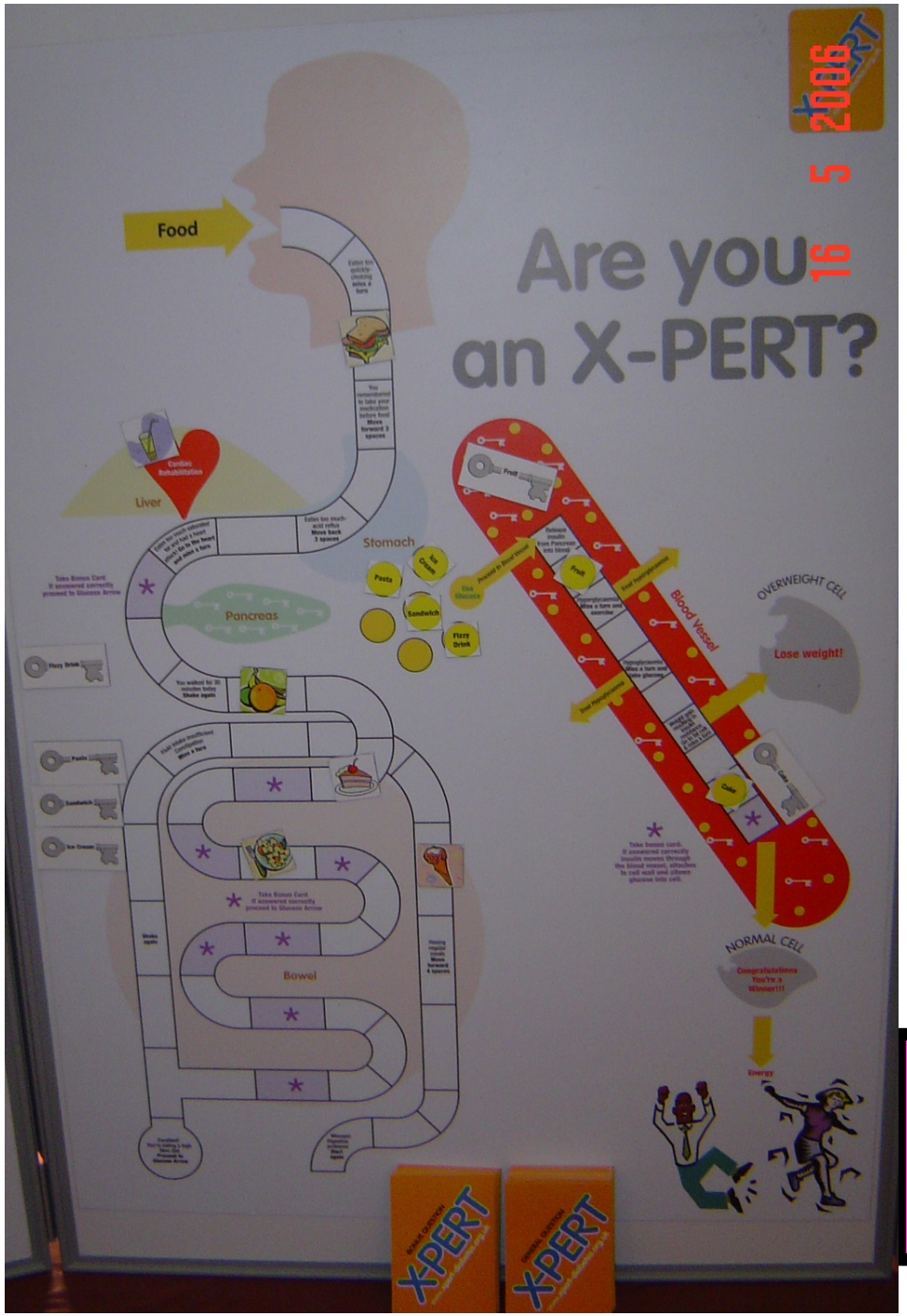
WEEK 5

POSSIBLE COMPLICATIONS

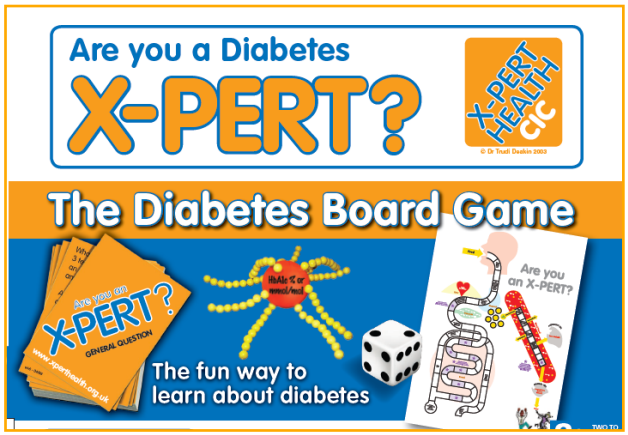
This session is intended to be informative without being too alarming.

Short term complications
Long term complications
Living with diabetes





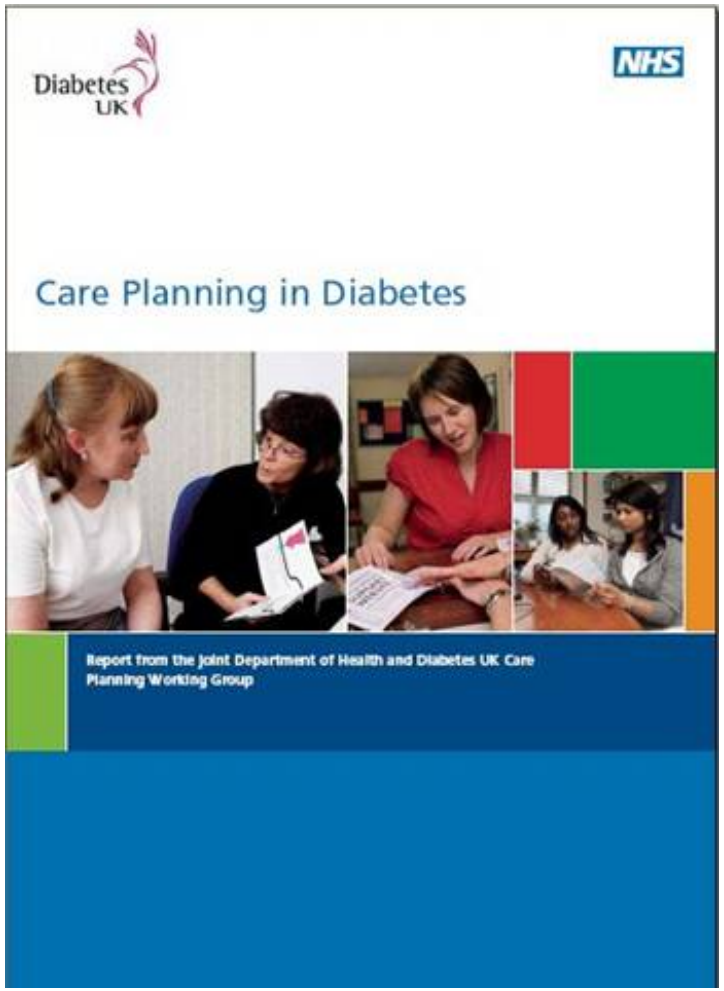
WEEK 6



Designed to recap on main messages. It's fun and helps to increase skills, knowledge & confidence in making informed decisions regarding diabetes self-management.

X-PERT Game

Care Planning



"an approach which offers people active involvement in deciding, agreeing and owning how their diabetes will be managed. It aims to help people with diabetes achieve optimum health through a partnership approach with health professionals in order to learn about diabetes, manage it and related conditions better and to cope with it in their daily lives."

Care Planning with the Empowerment Model

- Identify your main concer
- Explore that concern
- What can I do?
- What am I going to do?
- Is it working?

X-PERT Educator Role

- Engage
- Facilitate
- Enable

Care Planning Lifestyle Experiment

- Final 20-30 minutes of each weekly session
- Diabetes Health Profile
- Not didactic in nature
- Informed decisions
- Small steps
- Confidence building

Diabetes Health Profile	RESULT	DATE
Height m (ft inch)		
Weight Kg (st lb)		
BMI (Kg/m^2) weight for height measure		🟩 **18.5 to 24.9** = healthy 🟨 **25 to 29.9** = overweight 🟥 More than **30** = obese
Waist Size (cm)		Men Women 🟩 Healthy - less than: **94** **80** 🟨 Increased risk: **94-102** **80-88** 🟥 Greater risk - above: **102** **88**
Blood Glucose (mmol/l)		Pre-meal: between **4 - 7** 2 hrs after meal: less than **8.5** (Type 2) **9.0** (Type 1)
HbAlc (%) (Average blood glucose)		Normal: less than **6.3%** *or* 45 mmol/mol 🟩 **6.5-7.0%** *or* 48 to 53 mmol/l 🟨 **7.0-7.5%** *or* 53 to 59 mmol/l 🟥 Above **7.5%** *or* 59 mmol/l
Blood Pressure (mmHg)		🟩 Below **130/80** 🟨 Below **140/80** 🟥 Above **140/80**
Total Cholesterol (mmol/l)		🟩 Less than **4.0** 🟨 Less than **5.0**
HDL (mmol/l) (good cholesterol)		🟩 Men: **1.0** or above 🟩 Women: **1.2** or above
LDL (mmol/l) (bad cholesterol)		🟩 Less than **2.0** 🟨 Less than **3.0**
Triglycerides (mmol/l)		🟩 Less than **1.7** 🟨 Less than **2.3**
10-year heart attack and stroke (cardiovascular [CVD]) risk percentage		Over the next 10 years..... 🟩 CVD risk less than 10% 🟨 CVD risk between 10 to 20% 🟥 CVD risk over 20%
ACR (mg/mmol) (albumin : creatinine ratio)		🟩 Men: Less than **2.5** 🟩 Women: Less than **3.5**
Prescribed Diabetes Medication	Type(s)	Dose

*If you have Type 1 diabetes or there is any damage to the kidneys, eyes or blood vessels in the brain the national target for blood pressure is below 130/80.

Traffic Light coding:
🟩 = National Target
🟨 = Do I need to take action to improve this result?
🟥 = What could I do to reduce my health the risk?

N.B. It is important to discuss personal targets with your diabetes team.

Improve my blood glucose levels

Are you:
- eating too much?
- eating at regular times?
- eating too many sweet foods?
- a sensible body weight?
- taking your medication correctly?

Do you need extra/ different medication?
Can you increase your physical activity level?

Lose weight

Do you do enough activity?
Is your diet too fatty?
Are your portion sizes too big?
Do you eat regular meals?
Do you drink too much alcohol?

Lower my triglycerides

Lower your blood glucose levels!
Are you eating too many sweet foods?
Drink less sweet liquids – including unsweetened juice!
Watch your alcohol intake!
Try to eat oily fish once or twice a week!
Are you overweight?
Try to be active!

I WANT TO.....

Lower my cholesterol level

Do you
- eat too much fatty foods?
- eat enough wholegrains?
- do you eat enough fruit & vegetables?
- take your medication?
- need medication?

Are you overweight?
Do you do enough activity?

Lower my bad cholesterol (LDL)

Watch the amount of fatty foods you eat!
Maintain a sensible weight!
Increase your physical activity!

Increase my good cholesterol (HDL)

Do you take enough exercise?
Do you need to lose weight?
Can you lower your triglycerides?
if you are a drinker, a **small** amount of alcohol can help!

Lower my blood pressure

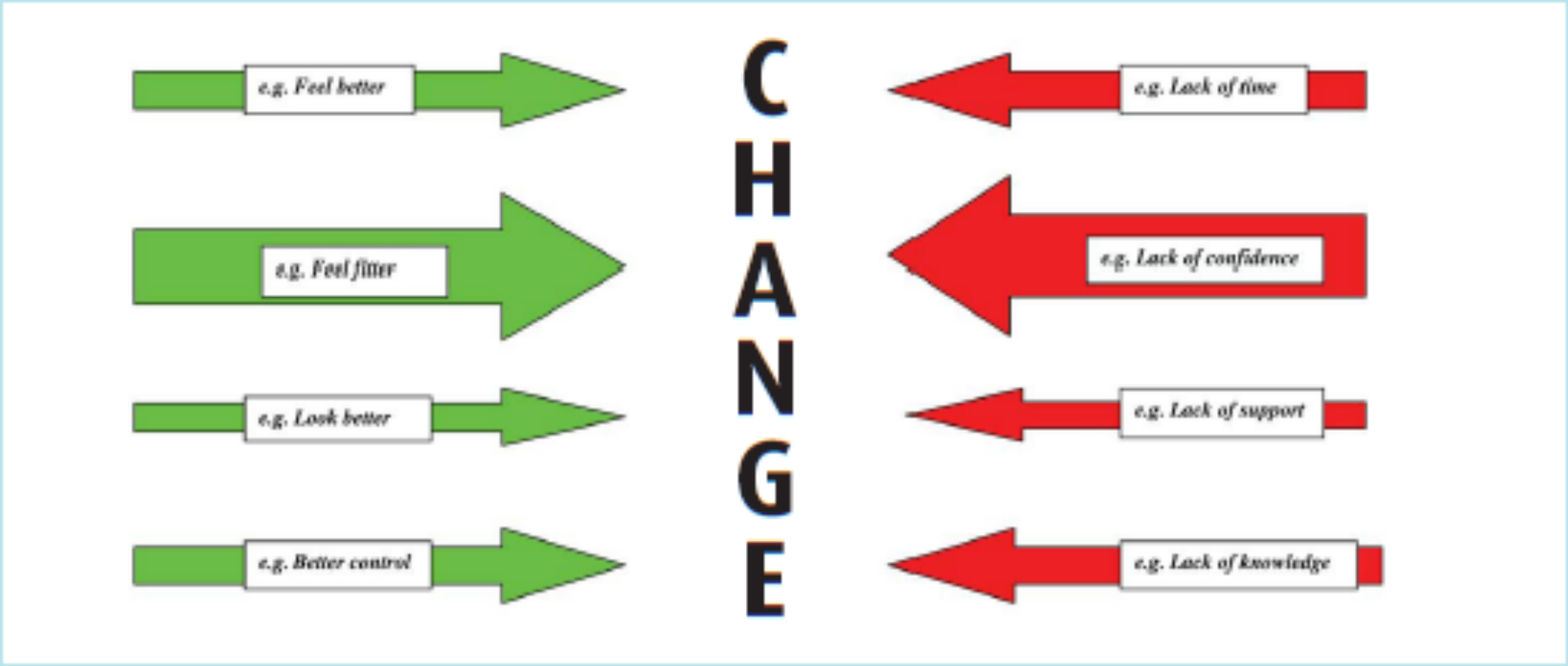
Are you
- adding salt to your meals?
- eating too many salty foods?
- drinking too much alcohol?
- eating enough fruit and vegetables?
- taking enough low fat dairy foods?
- overweight?
- taking your blood pressure medication?

Do you need medication/ extra medication?
Do you smoke?
Take time to relax!

Making changes to your lifestyle is not easy. When you are ready to make a change it can be helpful to plan how you will reach your goal. Thinking about the things in your life that are helpful and the things that are unhelpful will make it easier for you to plan changes.

Things that will HELP me reach my goal

Things that will STOP me reaching my goal

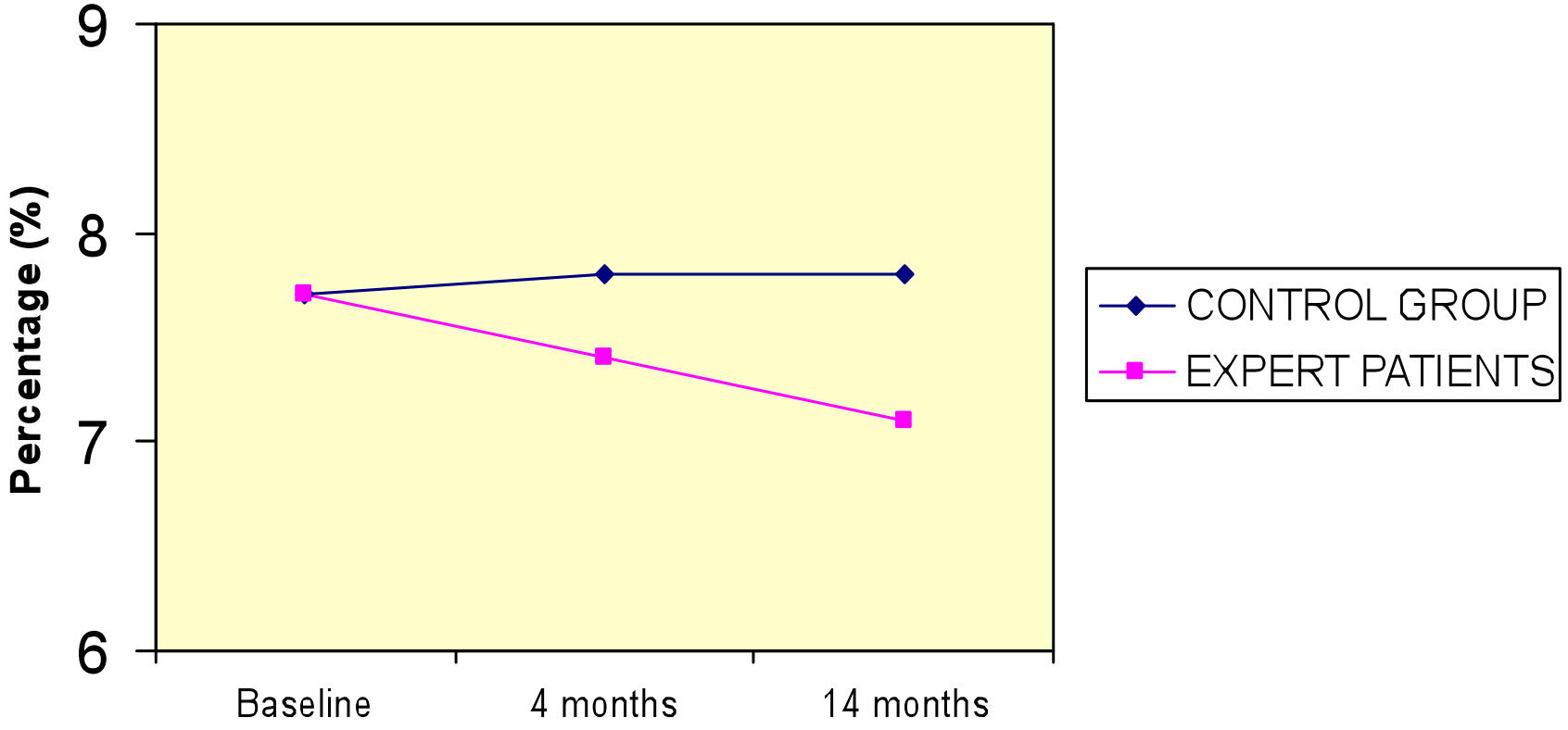


1) Can you add any things that will help you reach your goal?
2) Can you think of any ways to make one or more of the helpful things more important to you?
3) Can you remove any things that will stop you from reaching your goal?
4) Can you think of any ways to overcome the things that stop you reaching your goal?

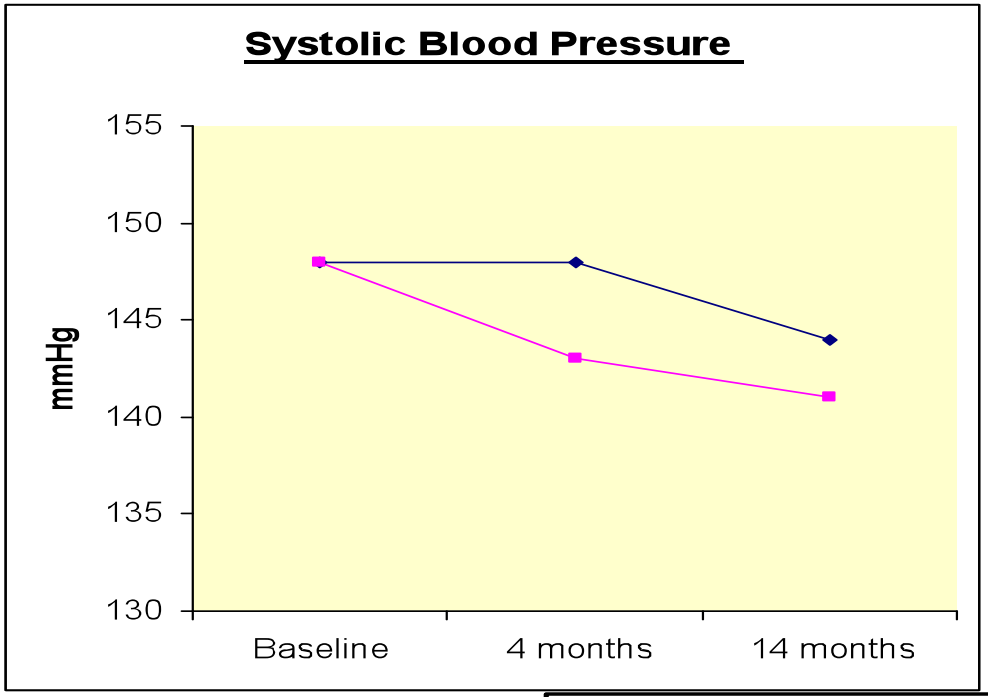
Clinical Effectiveness

√ Randomised controlled trial
√ National Audit

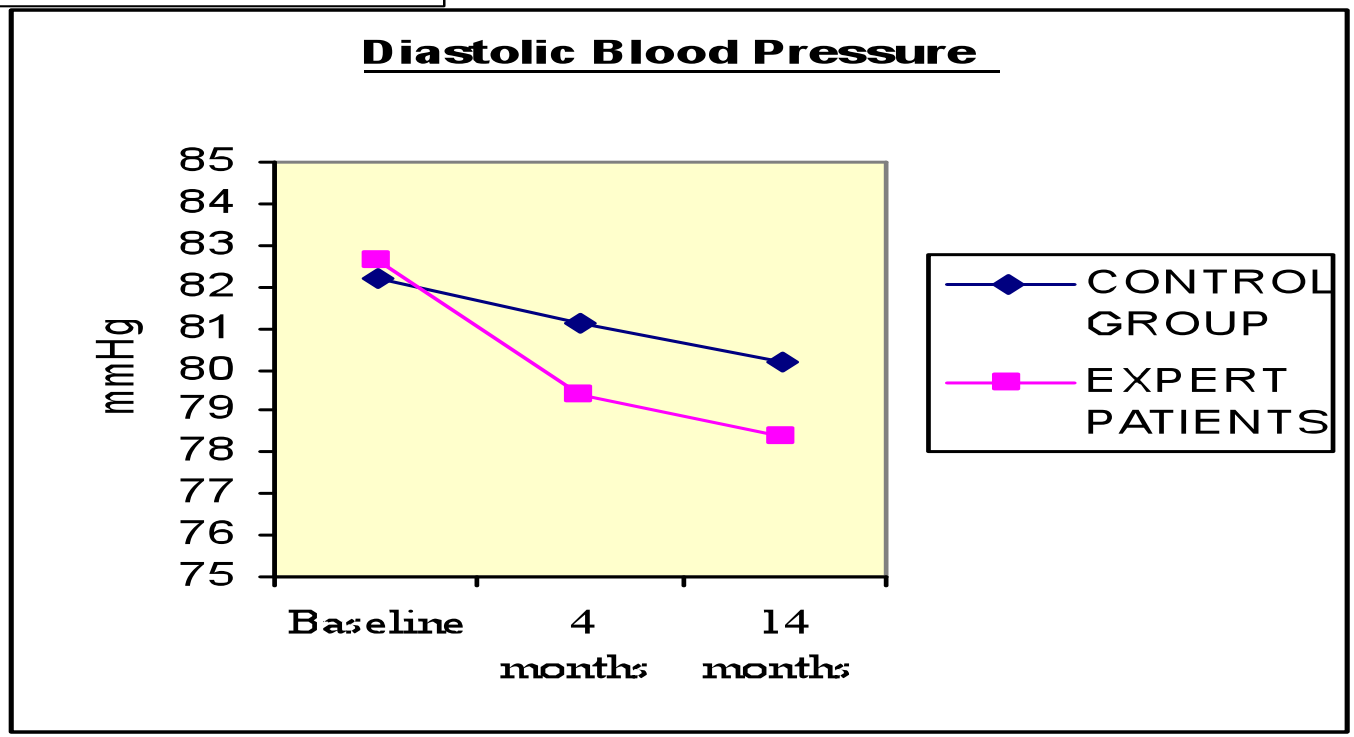
Glycated Haemoglobin (HbA1c)

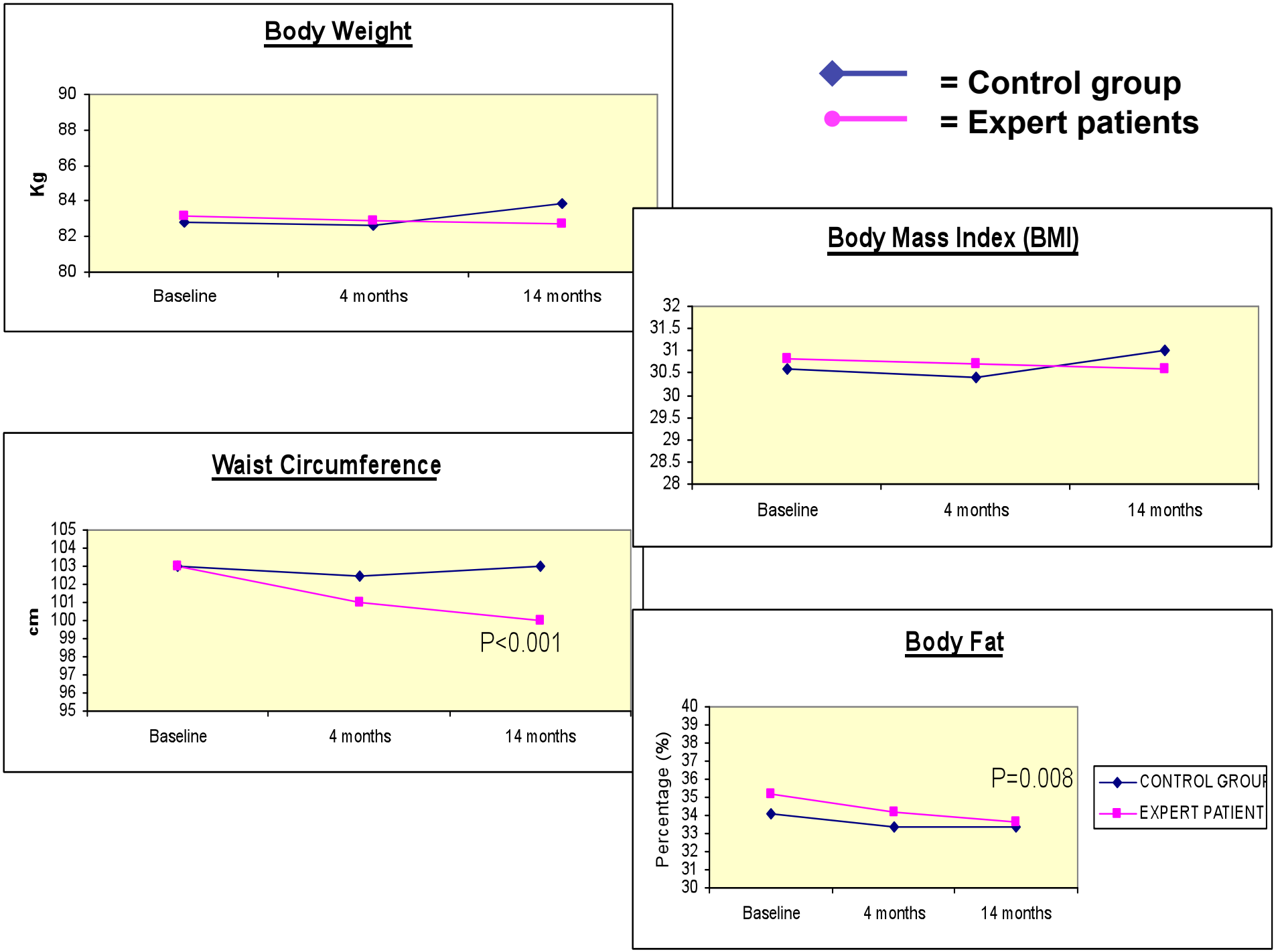


aDifference 0.4%, 95% CI: 0.1% to 0.7%
bDifference 0.7%, 95% CI: 0.3% to 1.0%

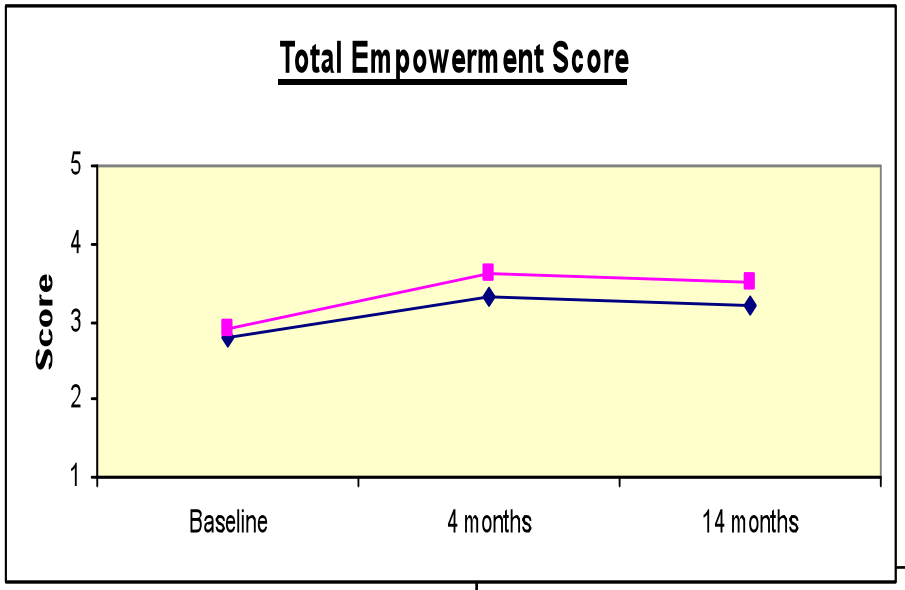


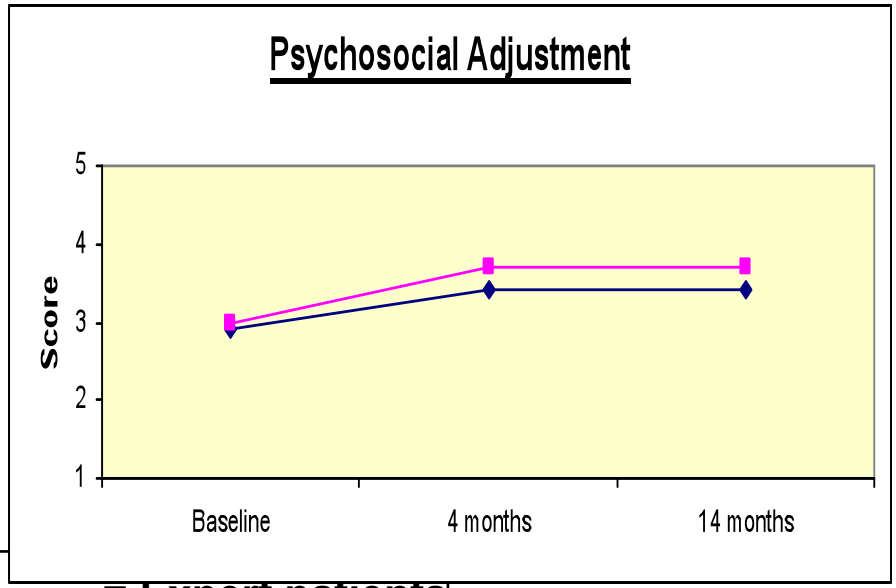
*Difference 5 mmHg,
95% CI: 0 to 9 mmHg




Body Weight
Kg
90
88
86
84
82
80
Baseline
4 months
14 months
= Control group
= Expert patients
Body Mass Index (BMI)
32
31.5
31
30.5
30
29.5
29
28.5
28
Baseline
4 months
14 months
Waist Circumference
cm
105
104
103
102
101
100
99
98
97
96
95
P<0.001
Baseline
4 months
14 months
Body Fat
Percentage (%)
40
39
38
37
36
35
34
33
32
31
30
P=0.008
Baseline
4 months
14 months
CONTROL GROUP
EXPERT PATIENT

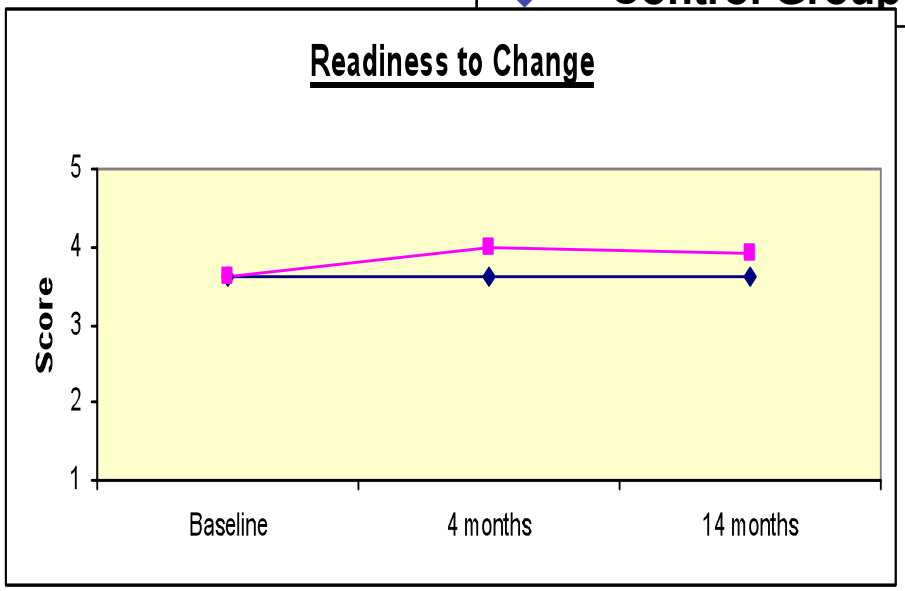
Diabetes Empowerment Scale developed by Anderson *et al*, Michigan Diabetes Research and Training Centre

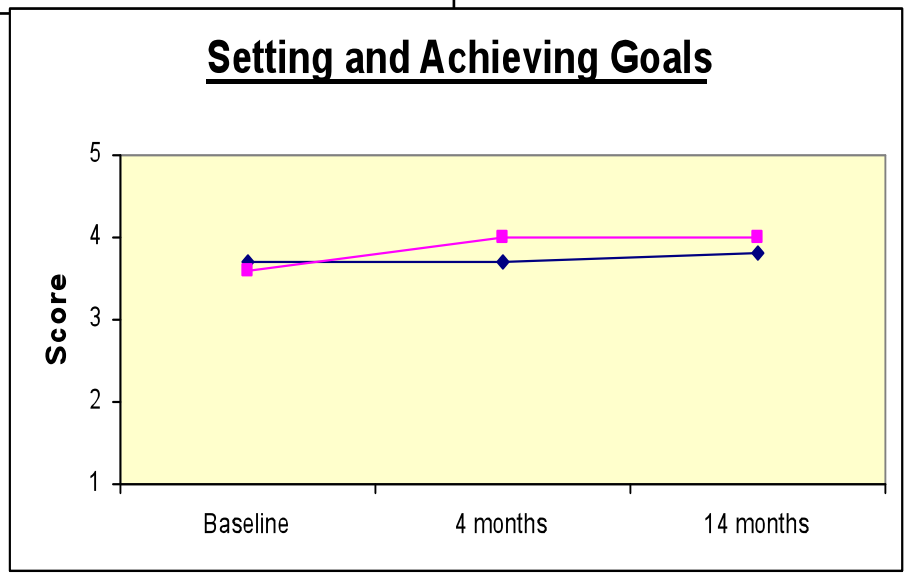




= Control Group

= Expert patients





Audit Summary

Summary – all audit standards (based on the results from the randomised controlled trial) have been met

1) Excellent attendance score – 95% attend at least one session and 81% four or more sessions (better attendance than routine clinic appointments).
2) Patient evaluation score 94%.
3) Increased empowerment score by 24% post education programme and by 32% at 1 year.
4) Improved diabetes control (HbA1c 0.5%) at six months and (HbA1c 0.6%) at 1 year.
5) 2kg weight loss at six months, 2.7kg weight loss at 1 year.
6) 1.1 cm waist circumference reduction at 6 months, 2.4 cm reduction at 1 year.
7) 2 to 4 mmHg reduction in diastolic and systolic blood pressure.
8) Reductions in total, LDL and VLDL cholesterol whilst maintenance of the beneficial HDL cholesterol.

X-PERT makes a difference.....it's cheap at £12 to £26 per patient.....can we afford not to deliver it?

The annual cost of diabetes treatment

The yearly cost of treating one diabetes patient can be extremely high:

- Metformin = **£31**
- Generic gliclazide = **£168**
- Glitazone = **£373 - £634**
- Insulin = **£780**
- Average bed stay = **£215 per day,** so an average four-week stay = **£5,805**
- First amputation = **£6,536**
- Dialysis = **£22,224**

Diabetes is a costly condition taking up 10% of NHS expenditure. The cost of X-PERT is little in comparison. The X-PERT Programme has also been shown to decrease the requirement for diabetes medication and reduce the risk of secondary complications. Thus, it has potential to be an immense cost saving initiative for the NHS

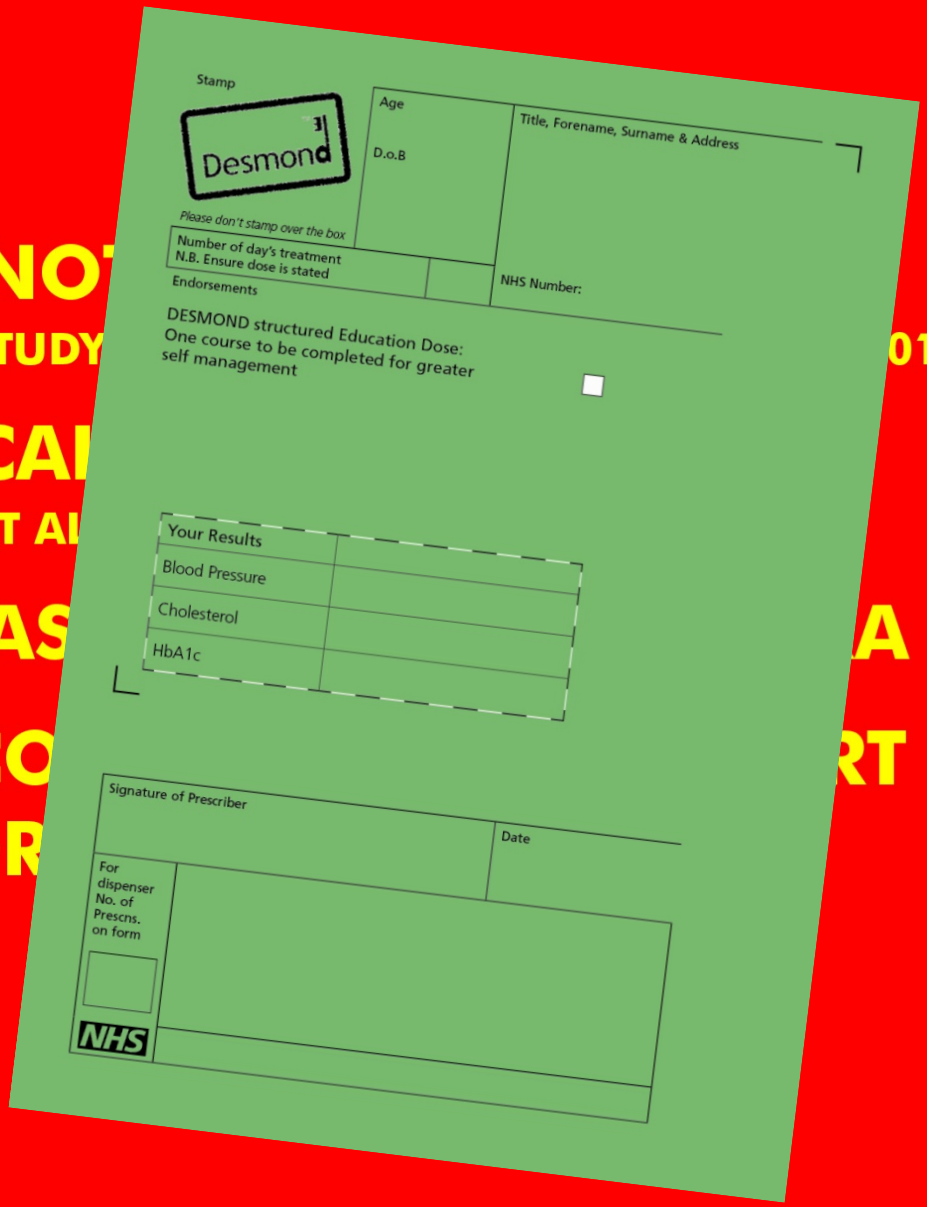
Cost of X-PERT Structured Patient Education – 6 week programme

£51 to £65 *including* admin & HCP time

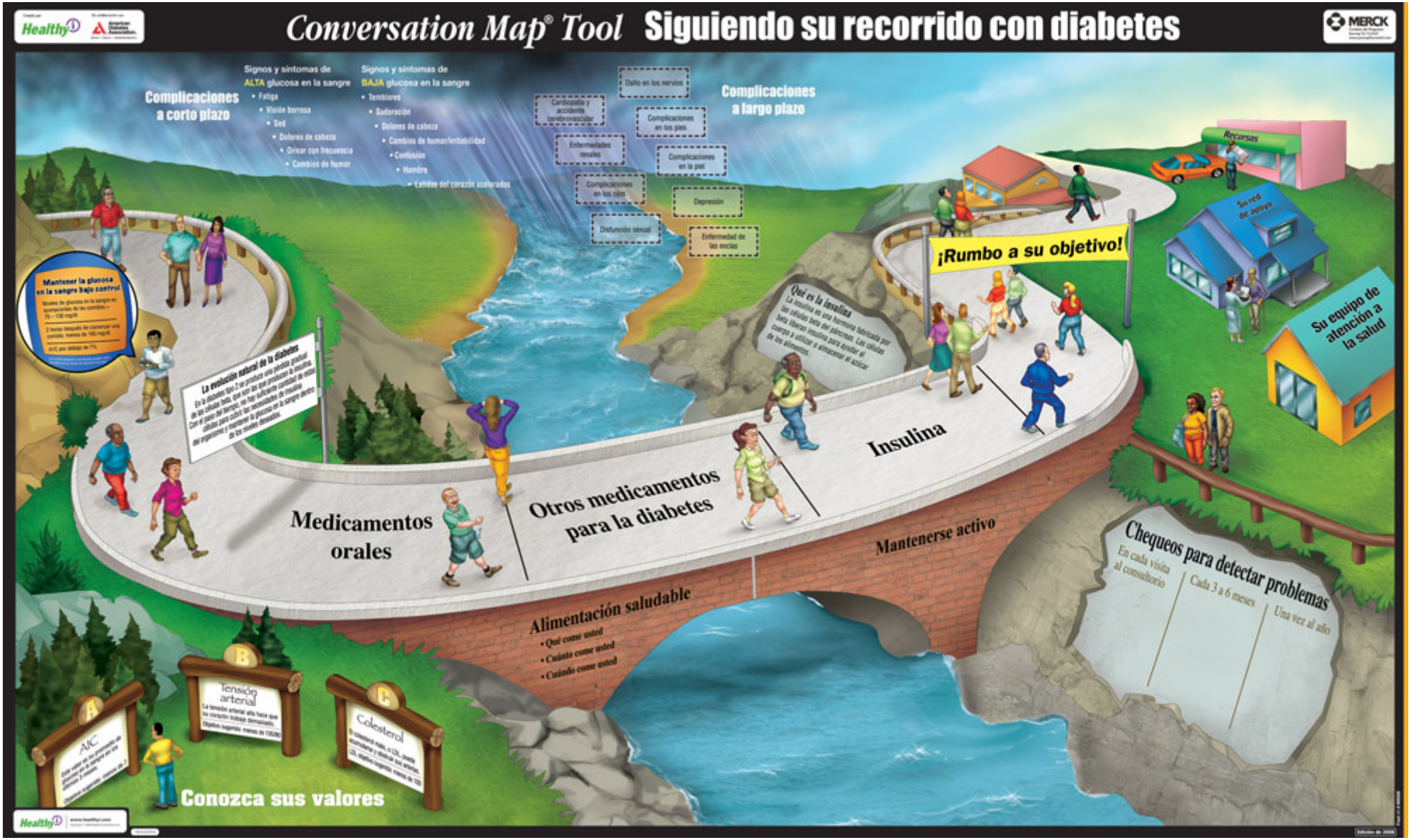
£16 to £26 *excluding* admin & HCP time

Just 14 hours of structured patient education makes real a difference!

- **HCPs NO**
  (DAWN2 STUDY **013)**
- **CLINICA**
  (KHUNTI ET AL
- **SEEN AS** **A**
- **NOT CO** **RT OF INTEGR**



Conversation Map® Tool Siguiendo su recorrido con diabetes

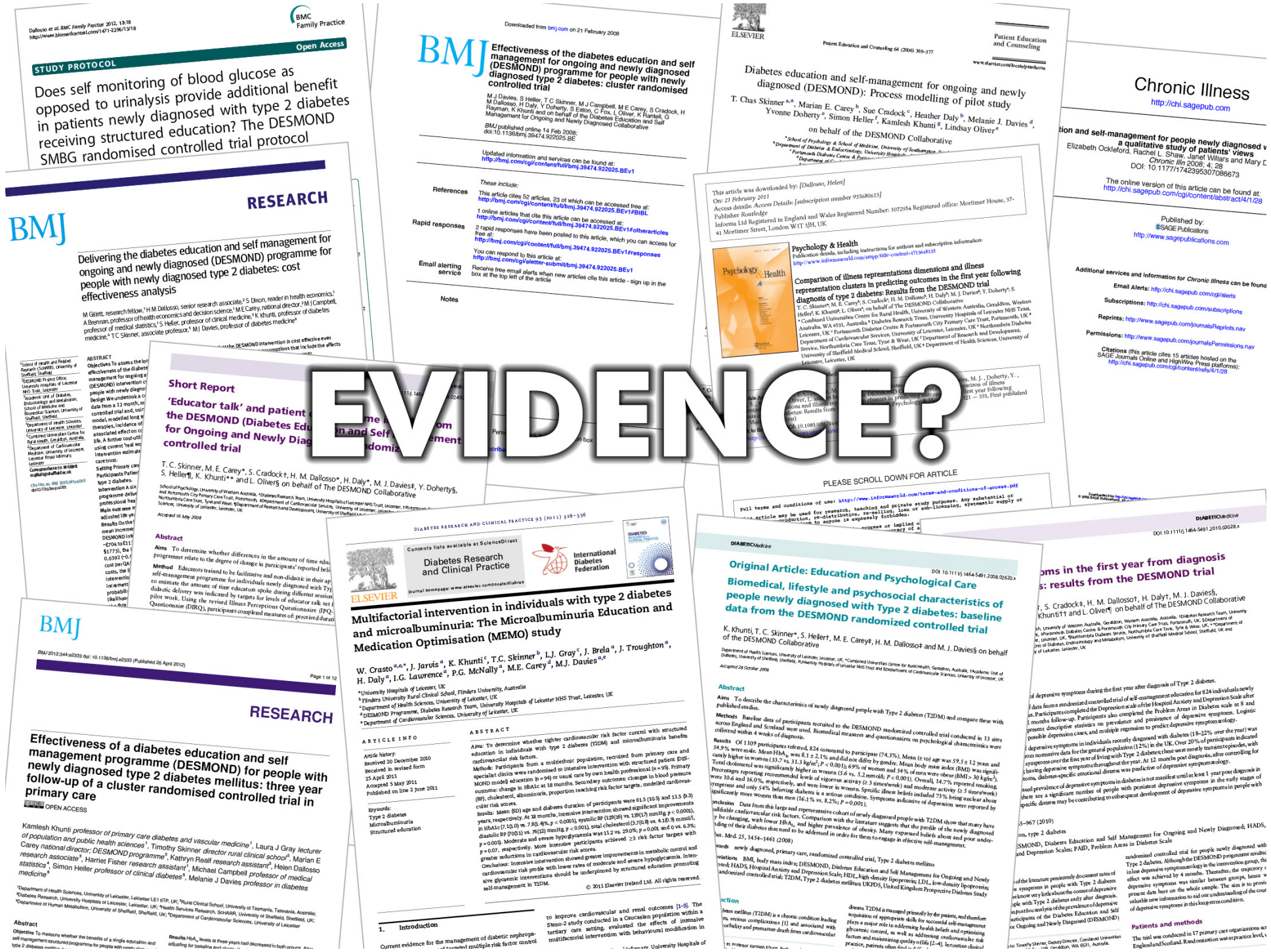


Other Examples

Discussion Point

- What do you think is needed to improve the uptake of diabetes education?

- Take 2 minutes to discuss this with person next to you


EVIDENCE?

INVOLVING PEOPLE WITH DIABETES

HIGH QUALITY COMPETENCY BASED TRAINING

Purchasers and providers should incentivise good management in early disease in order to optimise quality of life for those people with diabetes.

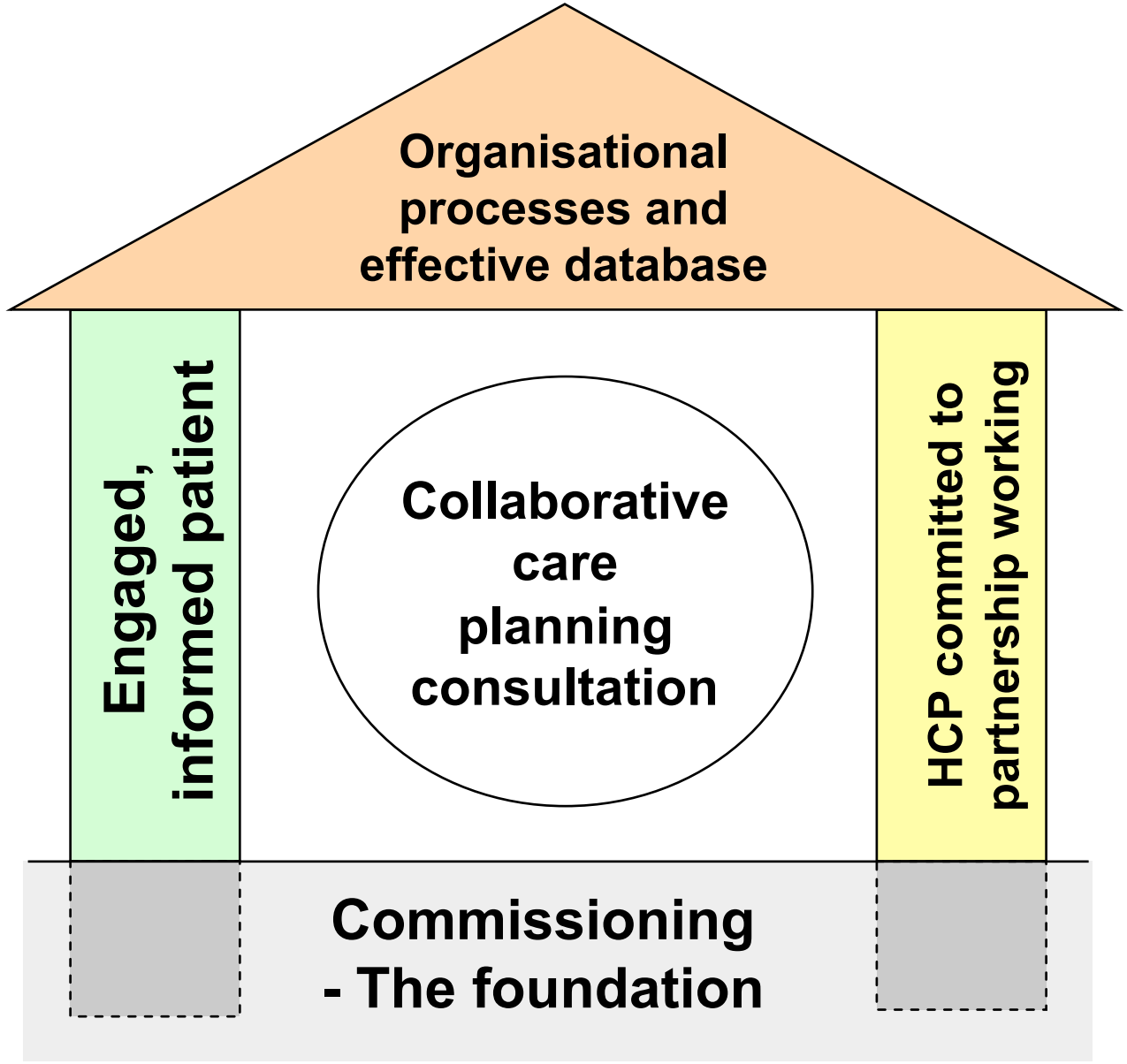
Individualising care needs to be personalised to all aspects of the needs of the person with diabetes, not simply chasing glycaemic, blood pressure, or lipid targets.

It is the duty of that team to establish realistic shared goals and a contract in order to achieve these objectives.

The health outcomes for people with diabetes are a function of the communication between the HCPs and people with diabetes acting as a team.

Why Diabetes Self Management Education helps patients ?

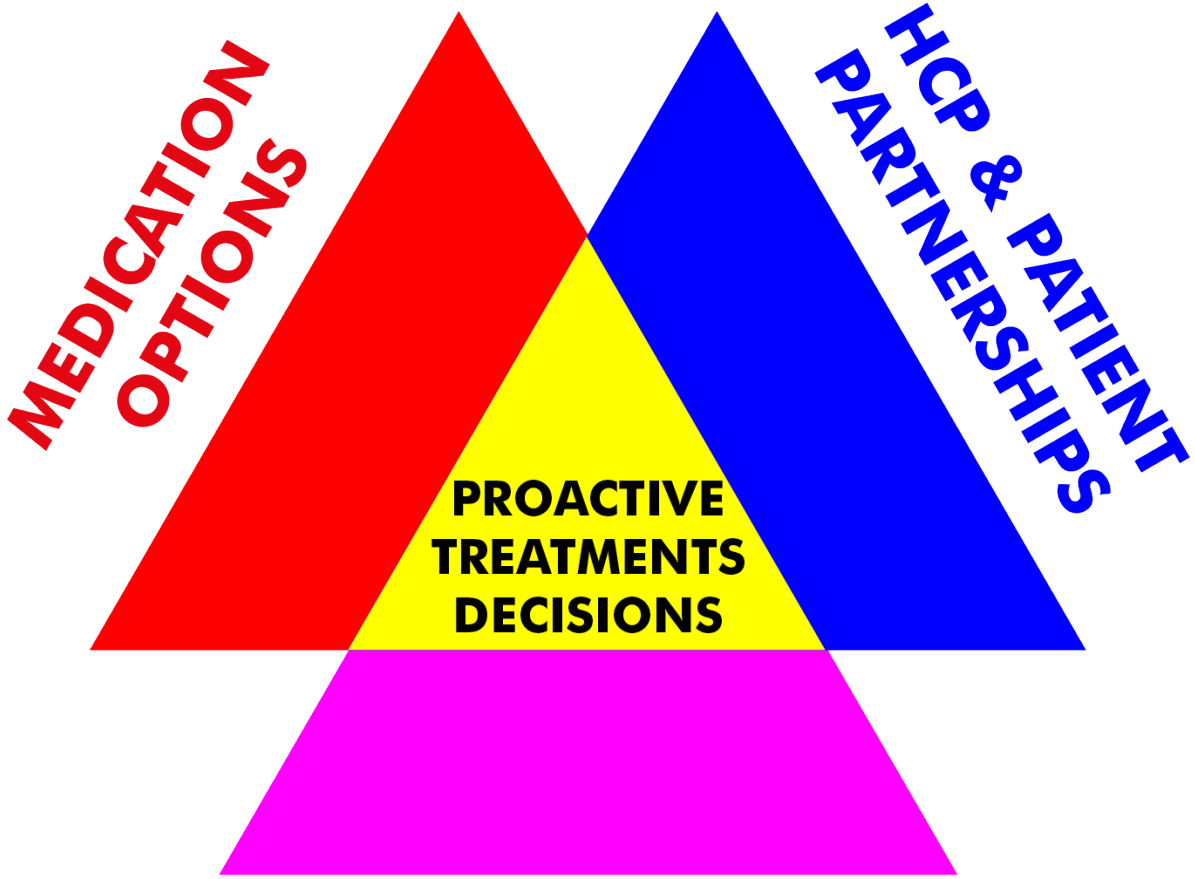
- Pro-active patient
- Engaged in their own care
- Knowledgeable
- Shared and informed decision making
- Behaviour change and action planning a key components
- Group interaction increases self efficacy
- Impact on concordance


Organisational processes and effective database
Engaged, informed patient
Collaborative care planning consultation
HCP committed to partnership working
Commissioning - The foundation


DIET
MEDICATION
ACTIVITY

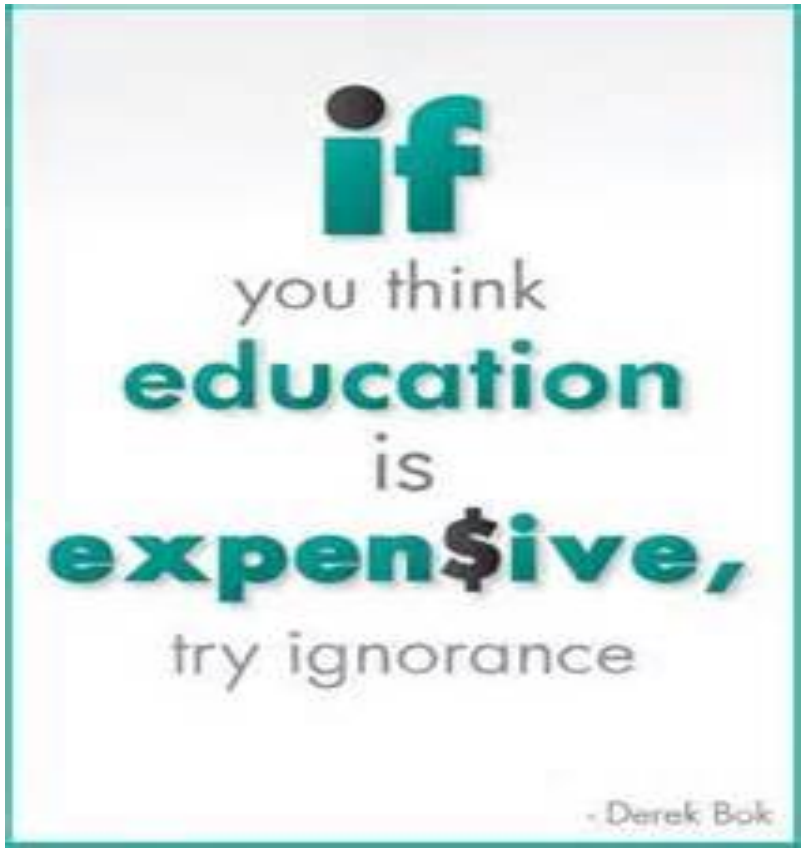

CARE PLANNING
EFFECTIVE DATABASE
BETTER
COMMUNICATIONS

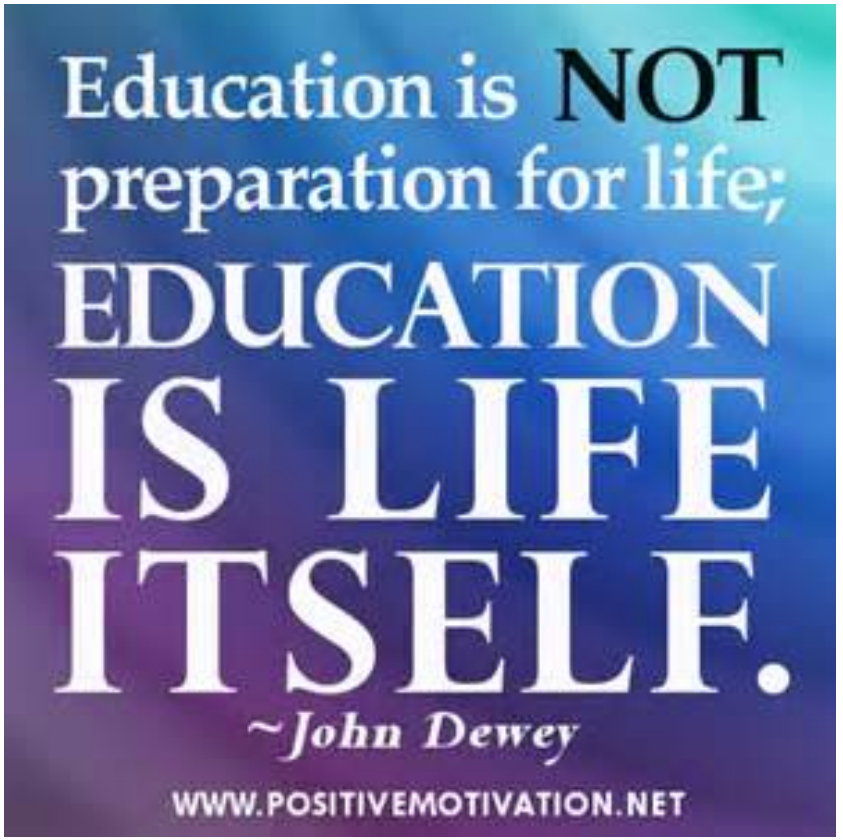

SERVICE DELIVERY
HCP TRAINING
SELF-MANAGEMENT


MEDICATION OPTIONS
HCP & PATIENT PARTNERSHIPS
PROACTIVE TREATMENTS DECISIONS
EFFECTIVE DATABASE

Summary

- We discussed the importance of patient education models and reviewed what NICE has to say
- We know that they work and they are both cost effective and clinically effective over time **but we need to do more research.**
- We need more integrated systems and processes across the NHS
- Greater access to patient education


if
you think
education
is
expen$ive,
try ignorance
- Derek Bok


Education is NOT
preparation for life;
EDUCATION
IS LIFE
ITSELF.
~John Dewey
WWW.POSITIVEMOTIVATION.NET

References

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