Pre-diabetes: Information for primary care practitioners
Important Messages

This booklet is based on three key messages for patients.

1. Pre-diabetes is a serious condition with a high risk of progressing to diabetes and heart disease.

2. The good news is that these risks are often preventable.

3. To prevent progression, patients need to make lifestyle changes in terms of healthier eating (losing weight) and increased physical activity.

Impaired glucose tolerance (IGT), impaired fasting glycaemia (IFG) and increased glycated haemoglobin (IGH), collectively known as pre-diabetes, are serious disorders:

- Without treatment, 1/3 to 1/2 of patients with these conditions will progress to type 2 diabetes over 6 years.

- IGT doubles the risk of cardiovascular disease and diabetes triples that risk.

Key prevention strategies are to:
- **Reduce weight** by at least 5%.
- **Increase physical activity** to 20-30 minutes daily.
- **Eat a healthy diet** (5 x fruit/veg per day, high fibre, low saturated fat, low salt).

Even a relatively **small reduction in weight or increase in physical activity** can reduce the risk of developing type 2 diabetes (See ‘Research Evidence’ graph overleaf).

**Blood sugar may return to normal** if lifestyle changes are maintained (although regular monitoring is necessary).
Targets for lifestyle intervention:

✔ **Reduce weight:** A Body Mass Index of >25kgm\(^2\) (or less in Asians and Afro-Caribbeans) is a risk factor for type 2 diabetes.
   → Aim for a sustained **5% weight loss**.
   → Any sustained weight loss is better than none.

✔ **Get active:** Physical activity increases insulin sensitivity. Sedentary behaviour is independently linked to diabetes.
   → Aim for **30 minutes of moderate exercise at least 5 times a week** (i.e. ‘activity that makes you breathe harder’).
   → Any sustained increase in exercise is better than none.
   → It is important that patients understand the physical, mental and health-related benefits of physical activity.
   → Assessing current activity habits and setting achievable goals for increasing physical activity are useful for some patients.

✔ **Eat ‘healthily’:** In essence……‘Eat less and do more’.
   → Substitute less helpful foods (high fat, high salt, high sugar, low fibre) with portions of fruit or vegetables.
   → Reduce sugar intake.
   → Cut down on fatty foods, especially those containing saturated fat (e.g. fatty meat, lard, cheese, milk, palm & coconut oil).
   → Reduce total energy intake.
   → Increase level of whole grains and dietary fibre (lower Glycaemic Index foods).
   → Reduce alcohol intake.

✔ **Stop Smoking**
The Research Evidence

A number of research studies provide clear evidence for the effects of lifestyle change on development of diabetes.

The graph (Figure 1) shows the incidence of diabetes after 6 years for people meeting 0 to 5 of the lifestyle change targets. The cumulative incidence of diabetes was 58% lower in the lifestyle intervention group compared with the control group.

Figure 1: Incidence of diabetes after 6 years in relation to lifestyle targets met.

(Graph adapted from Tuomilehto et al. NEJM, 2001).

Targets used in the randomised controlled study e.g. reduction of weight of 5% or more, total intake of fat less than 30% of energy consumed, intake of saturated fat less than 10% of energy consumed, fibre intake up to at least 15g per 1000kcal and moderate exercise for at least 4 hours per week.

Basically, the more lifestyle targets achieved, the lower the risk.

Even those who made relatively small lifestyle changes were less likely to develop diabetes. Those who did not lose weight, but managed at least 4 hours of exercise per week, also reduced their risk. This may be encouraging for those patients who find weight reduction difficult.
Planning pre-diabetes management in general practice: Some considerations

**Role of the practitioner:** It might be useful to discuss within the practice the role of the practitioner and level of involvement in the provision of lifestyle advice that you consider appropriate and practical, in view of the resources and time available.

- Consider **liaising with public health** colleagues about resources for pre-diabetes patients or for lifestyle change generally (e.g. activity promotion projects).
- Consider **involving other individuals** (e.g. Walk & Talk coordinators, dieticians, exercise advisors, local gym coaches, expert patients, etc.).
- It is worth considering the role of the community in the provision of support for patients with pre-diabetes. It may be possible to allocate one person (possibly administrative staff) to **draw up a list of activities and facilities** available locally (leisure, dancing classes, amateur dramatics, walking groups, yoga, etc) that can be given to patients who could be encouraged to participate. Keep the list updated.
- Set up a system for flagging up raised blood sugar results that are identified by others (e.g. hospital clinics & wards).

**Read codes:** Coding pre-diabetic patients will enable the construction of a pre-diabetes register and may help in scheduling of follow-ups and future interventions.

<table>
<thead>
<tr>
<th>Read codes for Pre-diabetes:</th>
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<tbody>
<tr>
<td>Impaired Glucose Tolerance = C11y2</td>
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<tr>
<td>Impaired Fasting Glycaemia = C11y3</td>
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NB: these are coded under ‘Other specific disorders of pancreatic internal secretion’
**Practice management of pre-diabetes**

**Prior to the first consultation:** Here are a number of suggestions that might help the consultation process:

- **Alert the patient early on** to the reason for taking a fasting blood sugar and what a positive result may signify.
- **Send a letter to the patient** explaining blood sugar results prior to a first consultation.
- **Keep health professional and patient info packs** to hand.
- **Involving partners and close relatives** can be an important aspect for supporting lifestyle change. Ask the patient if it would be helpful to bring along a spouse or cohabiting family member to the second or both consultations which could:
  - Help understanding and memory of advice given.
  - Help to motivate change in the patient.
  - Help one or more family member change their lifestyle.
- **Many patients take in little from a consultation for a new problem.** Consider **undertaking two consultations** for each patient, separated by 4 to 6 weeks (by a GP or practice nurse).

### Consultation 1: Suggestions

- Explain blood sugar results relative to normal levels.
- Explore the patient’s understanding about pre-diabetes, diabetes and heart disease. **Dispel any myths** or inaccuracies.
- **Convey key messages about the risks** (i.e. the risks of diabetes, cardiovascular disorders, etc).
- **Balance fear messages with reassurance** about preventability and support.
- **Convey key messages on ways to reduce risk** (lifestyle change).
- **Give appropriate written materials** for patients to take away and read (see the WAKEUP patient pack).
- Suggest that the patient completes a **food diary** for 3-5 days (see the WAKEUP patient pack), and an activity plan.
- Offer a **second consultation** (in 4-6 weeks) for further planning of lifestyle change and improving motivation.
Consultation 2: Suggestions

- Answer any questions about blood sugar and written materials, etc.
- Individualise the advice by discussing baseline physical activity & sedentary behaviour levels, weight & dietary habits (use a food diary).
- Use a cardiovascular risk calculator (patients like to know their personal risk).
- Ascertain the patient’s readiness to change: How important is it to the patient and how confident are they about their ability to change?
- Discuss specific areas to focus on or prioritise. Explain ways that simple changes can be worked into patients’ daily routine.
- Offer prescriptions for exercise or other classes.
- Set up a system for monitoring progress (blood sugar, blood pressure, cholesterol etc. and their feelings about any changes made).
- Provide support for achievable goal setting.
- Suggest a further follow-up appointment in 3-6 months (or earlier if resources allow) to discuss goal achievement, set new goals, offer further advice etc.
- Let your patients know that it is helpful for you to get feedback too!

Further follow-up appointments: Maintaining lifestyle change can be very difficult, especially without regular support. The large trials which generated changes provided a great deal of input in the form of exercise and dietary advice, and telephone follow-up. In a practice setting, consider follow-up appointments (or phone calls) every 3 to 6 months (perhaps more frequently in the early stages).
Further follow-up: Suggestions

Keep and update a written ‘progress’ record of blood sugar results and any other monitoring measures (e.g. weight, blood pressure). Patients find this extremely useful in maintaining their motivation to change.

- Review the patient’s cardiovascular risk using the Framingham or QRISK2 equation, or the JBS3 ‘Heart Age’ tool. Repeat cholesterol, blood pressure, weight etc. if raised initially.
- Review goals set, discussing new ways to approach goals that have not been achieved. Celebrate successes and explain failures, modify strategies/goals accordingly.
- Offer an appointment with the practice nurse for diet and activity advice.

Consultation methods and materials

- Visual materials are useful to explain complex ideas (e.g. risk) to patients of different educational backgrounds (see ‘Good News’ section of our patient booklet ‘So you have pre-diabetes’). Drawings may be helpful in some circumstances.
- Some patients find written materials that they can take home particularly helpful (e.g. leaflets, written targets or plans, blood sugar results).
- Some patients are keen to find out a great deal about their illness and need perhaps more technical information or information on how to access further details.
Setting up a pre-diabetes group

Consider setting up group education sessions to provide lifestyle advice, signposting and information on local support and activities. This could be a pre-diabetes group or, if appropriate patients might attend existing groups (e.g. cardiac or weight-loss groups). Not all patients will be keen to attend, and the way the group is presented may encourage some and discourage others. A varied venue and agenda may help to maintain a group’s momentum. Groups have many advantages for the practitioner and patient over one-to-one consultations:

- They may help to deal efficiently with increasing pre-diabetes numbers in a busy practice setting.
- They convey the same key messages to many patients.
- Patients gain support, guidance, ideas and even friendship from each other.
- Patients may be keen to help set up and ultimately to run the group themselves.
Communicating risk to patients

Offer the patient the opportunity to learn more about their own risk. Communicating risk to patients should be simple and balanced.

- **Consider a visual representation.** Visual aids (e.g. pie charts) can help communicate risk levels to people of different educational backgrounds and levels of understanding (Figure 2).

- **Avoid using descriptive terms (e.g. ‘low risk’) as these tend to be interpreted differently depending on the patient’s perspective.**

- Try to provide estimated numbers, and **use the same denominator** (e.g. 20 in 1000 and 3 in 1000 rather than 1 in 50 and 1 in 300).

- **Offer risk estimates in terms of positive and negative outcomes** where possible (e.g. ‘a third of patients with pre-diabetes will go on to develop diabetes. However, two-thirds will not’).

**Out of 100 people with pre-diabetes . . .

<table>
<thead>
<tr>
<th>Risk of diabetes if no action taken</th>
<th>Risk reduces with lifestyle change</th>
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<tbody>
<tr>
<td><img src="image1" alt="Risk Diagram" /></td>
<td><img src="image2" alt="Risk Diagram" /></td>
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People who will go on to get diabetes are shown in red (人民网).

Figure 2: Diagram to depict risk (i.e. 33 out of 100 will develop diabetes).
Motivating patients to change:

Motivational interviewing is one technique that practitioners might consider using to help the patient make decisions about change. Please see our separate booklet (‘Promoting Lifestyle Change’) for more information.

Further reading?

The following are a selection of relevant research articles.

Pre-Diabetes:

Communicating Risk:

Policy:
Further information for practitioners on:

Diabetes UK educational web site:

Glucoforum:
http://www.glucoforum.org  This is a European group of diabetes specialists set up to raise awareness about pre-diabetes and diabetes. It provides information on pre-diabetes, diabetes and risk factors for diabetes and has links to other European diabetes organisation websites (various languages).

American Diabetes Association:
http://www.diabetes.org/diabetes-prevention.jsp  This US website has very good detailed information to help practitioners and patients learn about pre-diabetes. It includes research papers as well as more practical ideas about exercise, diet and losing weight.

Evidence-Based Nutrition Principles
http://care.diabetesjournals.org/cgi/content/full/25/suppl_1/s50  This position paper by the American Diabetes Association sets out nutritional recommendations for practitioners to prevent diabetes.

Finnish Diabetes Prevention Programme
http://www.diabetes.fi/english/programme/programme/chapter10.htm  This English language web site sets out the highly successful Finnish Diabetes Prevention Programme, and offers advice on tests and follow-up.