

## Independent Nurse Management of prediabetes

### Prevalence

The number of people with pre-diabetes is increasing worldwide. In 2010 the prevalence of pre-diabetes was estimated at 344 million adults; this figure is expected to rise to 472 million by 2030.<sup>1</sup> In 2009, pre-diabetes in UK adults totalled over 7 million and the number of people diagnosed with the condition continues to increase. Pre-diabetes, also known as Impaired Glucose Regulation (IGR), is a precursor condition for type 2 diabetes. Although in many cases it is reversible, pre-diabetes frequently remains undiagnosed and, therefore, increases people's risk of developing type 2 diabetes. In fact, people with pre-diabetes are up to 15 times more likely to develop type 2 diabetes.<sup>2</sup> By 2025 it is estimated that five million people will have diabetes in the UK, which apart from the personal costs, places a huge financial burden on the NHS. Currently, people with diabetes require at least 2-3 times the health care resources of people who do not have diabetes and diabetes care accounts for up to 10% of hospital budgets.<sup>3,4</sup> Furthermore, as an increasing number of people in younger age groups are affected, with type 2 diabetes being diagnosed in children and adolescents, most experts agree that diabetes is one of the biggest health challenges currently facing the UK.<sup>5</sup>

Given its rising prevalence, this article focuses on the importance of recognising pre-diabetes. In particular, it addresses the risk factors for pre-diabetes and associated complications, approaches to identifying pre-diabetes and what can be done in terms of managing pre-diabetes, including the role of nurses in this process.

### Risk factors and associated complications

Pre-diabetes is defined as raised and impaired blood glucose levels indicated by impaired glucose tolerance (IGT) or impaired fasting glucose (IFG). Many agree that the term 'pre-diabetes' is not ideal and can be misleading since not everyone with raised or impaired blood glucose levels will go on to develop type 2 diabetes. However, it is a term that is widely recognised and is more easily understood by members of the public when communicating messages about the risks of developing type 2 diabetes. Also, at present there is no suitable alternative.

The risk factors for pre-diabetes are described as the same as those for type 2 diabetes. An individual's risk factors for pre-diabetes include: obesity (a body mass index [BMI] of more than 30kg/m<sup>2</sup>); a high waist circumference (more than 80cms in women and 94cms in men); over 40 years old (over 25 years old if black or South Asian); a close family member with type 2 diabetes; a history of high blood pressure or incidence of a heart attack or stroke; a history of gestational diabetes in women; a sedentary lifestyle. As well as these risk factors, there are certain groups of people who are at greater risk of developing pre-diabetes, including those of black, South Asian and African-Caribbean descent. In addition, those people from lower socioeconomic groups are 2.5 times more likely to have type 2 diabetes and to experience morbidity as a result of diabetic complications.<sup>6,7</sup> The more risk factors that apply, the greater the risk that an individual will develop pre-diabetes and type 2 diabetes. Furthermore, pre-diabetes in itself is a risk factor for type 2 diabetes.

It is accepted that type 2 diabetes is a complex condition, which if not properly managed, can result in a range of long-term complications, including micro- and macrovascular diseases such as kidney disease, cardiovascular disease, eye problems and foot ulcers. In addition, it is recognised that although 100,000 people in the UK are diagnosed with type 2 diabetes every year, many more have the condition, but are unaware of it. Less well known is that between 33% and 66% of people with pre-diabetes will go on to develop type 2 diabetes over a period of 3-6 years and during that time they too are at increased risk of coronary heart disease and other micro- and macrovascular complications.<sup>4, 8</sup> In fact, approximately 50% of people already have one or more complications of type 2 diabetes on diagnosis and earlier diagnosis and treatment may have prevented this.<sup>9</sup>

### Recognising pre-diabetes

It is imperative that people with pre-diabetes are identified as early as possible so that early intervention and education can reduce the risk of developing type 2 diabetes and related complications. However, this represents a major challenge, not least because people at high risk of developing pre-diabetes are less likely to use health services and, therefore, are less likely to receive the early diagnosis and treatment they require. Diabetes UK recommends a proactive and systematic approach to ensure the identification of people with type 2 diabetes, as well as those with pre-diabetes, who remain undiagnosed. This involves delivering risk assessments at every available opportunity, for example, as part of a NHS Health Check, self-assessment or opportunistic testing, assessment in the workplace, etc. The risk assessment for pre-diabetes should be no different from the risk assessment for type 2 diabetes given that the same risks factors apply to both; therefore, these categories, as outlined above, should be used in identifying the condition. Examples of risk assessment tools available include: the Cambridge risk score; the QDScore and the FINDRISC self-assessment questionnaire. However, of more relevance in the first instance is aiming to raise awareness, amongst both health professionals and high risk groups, of the importance of identifying pre-diabetes and the factors that can lead to its development. Training of health professionals is imperative in order to explain the ways in which populations, communities and individuals at risk of developing pre-diabetes can be identified. Strategies include community mapping, needs assessments, opportunistic screening in primary care and other proactive efforts to find people who are at high risk. Education and training of health professionals of the increased risk of pre-diabetes faced by certain groups may also be required.

### Management of pre-diabetes

As the prevalence, health care costs and progression of pre-diabetes to type 2 diabetes continue to rise, preventative strategies are becoming increasingly important. In the majority of cases pre-diabetes and type 2 diabetes can be prevented by improving dietary intake, being physically active and maintaining a healthy weight. Research indicates that in two-thirds of people who develop type 2 diabetes the condition could have been prevented by improved lifestyle modifications.<sup>10</sup> However, because many people are unaware that they are at risk of type 2 diabetes, they are also unaware of the extent to which changes to their lifestyle can help to prevent the onset of the condition. Therefore, a combined approach to managing pre-diabetes is required, incorporating awareness-raising at population level aimed at reducing overall risks, and the provision of specific, targeted support and information for those people who are at high risk of developing the condition.

Both approaches are recommended, together with helping people to achieve long-term behaviour change.

#### The role of nurses in managing pre-diabetes

Nurses and other health professionals have a key part to play in the management of pre-diabetes because of their skills in promoting patient self-management support and fostering motivation for lifestyle change. Patients are no longer passive recipients of health professionals' interventions, but are active participants in their own care and, therefore, they need to be empowered to exercise personal control over the day-to-day management of their condition and to experience the best possible quality of life. Nurses can do this through a holistic, patient-centred approach.

In general, mass-media campaigns, advertising and social marketing can be used to disseminate health promotion messages and promote health promotion programmes. Societal approaches such as these are complementary to clinical approaches for targeting and treating people who have pre-diabetes. For the health professional there are specific pre-diabetes management strategies that can be considered beyond the traditional professional-patient appointment scenario, and which still focus on the promotion of a healthy lifestyle. These can be delivered in a variety of ways depending on the resources, time available and the population, and can include both individual and group interventions. Healthy living workshops, presentations to relevant groups, education sessions for staff in other settings such as schools, pre-diabetes support groups and a pre-diabetes/type 2 diabetes awareness day are just some examples of what can be done. In addition, there are other practical options available to health professionals. Firstly, liaise with health promotion units and public health colleagues about the resources available for both lifestyle change generally and for those with pre-diabetes. Secondly, contact other individuals, both specialists and members of the public. For example, local leisure representatives, exercise and activity coordinators, expert patients, etc. can all be involved. Furthermore, it is important to ensure that interventions are culturally sensitive and appropriate and one way of achieving this, whilst at the same time fostering empowerment, is to involve people in the planning and delivery of their service. Thirdly, consider the role of the community and outreach groups in the provision of support for those with pre-diabetes, for example, walking groups, places of worship, etc. Nurses can coordinate care for people with pre-diabetes by signposting them to appropriate services and resources or referring them to other specialists or agencies.

Increasingly, nurses are involved in the diagnosis of pre-diabetes, the joint preparation of a management strategy with the individual concerned, monitoring and review of progress and the involvement of other health professionals. Since they play such a central role in the care of those with pre-diabetes, it is important that health messages are communicated in an appropriate manner. Clear and consistent information needs to be provided to minimise misunderstandings, highlighting the seriousness of pre-diabetes, along with the risks if it is not managed effectively and the ways in which the progression to type 2 diabetes can be prevented. Importantly, information should be communicated in a way that the individual living with pre-diabetes can understand and relate to; it needs to be given at a pace that s/he can cope with taking into account their needs and priorities at the time. Simple and balanced information that dispels any myths and provides reassurance, and which also

incorporates visual and written materials that people can take home, seems to work most effectively.

### Conclusion

Pre-diabetes is a serious condition with a high risk of progressing to type 2 diabetes. If the growing health crisis of pre-diabetes and type 2 diabetes is to be managed effectively and prevent increasing numbers of people dying from type 2 diabetes and its related complications, policies and procedures need to be in place to increase awareness of the risks, bring about changes in lifestyle, improve self-management amongst those with the condition and improve the provision of and access to integrated care services. Since the fundamental premise of pre-diabetes management is that nurses are trained and confident in their role to communicate, advise and support people to self-manage, procedures need to be in place to facilitate this. In addition, nurses should be enabled, through the provision of appropriate resources, to realise their ideas and initiatives, in order that individuals have a variety of options at their disposal and can make appropriate choices for the benefit of their long-term health.

### **Box 1**

An individual's risk factors for pre-diabetes include: obesity (a body mass index [BMI] of more than 30kg/m<sup>2</sup>); a high waist circumference (more than 80cms in women and 94cms in men); over 40 years old (over 25 years old if black or South Asian); a close family member with type 2 diabetes; a history of high blood pressure or incidence of a heart attack or stroke; a history of gestational diabetes in women; a sedentary lifestyle. As well as these risk factors, there are certain groups of people who are at greater risk of developing pre-diabetes, including those of black, South Asian and African-Caribbean descent. In addition, those people from lower socioeconomic groups are 2.5 times more likely to have diabetes and to experience morbidity as a result of diabetic complications. The more risk factors that apply, the greater the risk that an individual will develop pre-diabetes and type 2 diabetes. Furthermore, pre-diabetes in itself is a risk factor for type 2 diabetes.

### **Box 2**

It is imperative that people with pre-diabetes are identified as early as possible so that early intervention and education can reduce the risk of developing diabetes and related complications. This involves delivering risk assessments at every available opportunity. The risk assessment for pre-diabetes should be no different from the risk assessment for type 2 diabetes given that the same risks factors apply to both. In the first instance the aim should be to raise awareness amongst health professionals. Training of health professionals is imperative. Firstly, in order to ensure that they are confident in advising and supporting people to self-manage. Secondly, to explain the ways in which populations, communities and individuals at risk of developing pre-diabetes can be identified. Strategies include community mapping, needs assessments, opportunistic screening in primary care and other proactive efforts to find people who are at high risk. Education and training of health professionals of the increased risk of pre-diabetes faced by certain groups may also be required.

### Box 3

In the majority of cases pre-diabetes and type 2 diabetes can be prevented by improving dietary intake, being physically active and maintaining a healthy weight. Nurses have a key part to play by promoting self-management and fostering motivation for lifestyle change. There are specific pre-diabetes management strategies that can be considered beyond the traditional professional-patient appointment scenario. Healthy living workshops, presentations to relevant groups, education sessions for staff in other settings, such as schools, pre-diabetes support groups and a pre-diabetes/type 2 diabetes awareness day are examples of what can be done. In addition, there are other practical options to be considered. Firstly, liaise with health promotion units and public health colleagues about the resources available for both lifestyle change generally and for those with pre-diabetes. Secondly, contact other individuals, both specialists and members of the public, for example, local leisure representatives, exercise and activity coordinators and expert patients. Thirdly, consider the role of the community and outreach groups in the provision of support for those with pre-diabetes, for example, walking groups and places of worship. Nurses can coordinate care for people with pre-diabetes by signposting them to appropriate services and resources or referring them to other specialists or agencies.

### References

1. Colagiuri S. Epidemiology of prediabetes. *Med Clin North Am.* 2011;95(2):299-307.
2. Diabetes UK. *Prediabetes: Preventing the Type 2 diabetes epidemic.* A Diabetes UK report. London: Diabetes UK; 2009.
3. World Health Organization. *Screening for Type 2 Diabetes: Report of the World Health Organization and International Diabetes Federation meeting.* Geneva: World Health Organization; 2003.
4. NICE. *Type 2 diabetes: preventing pre-diabetes among adults in high-risk groups.* London: NICE; 2009.
5. Diabetes UK. *Diabetes in the UK 2012: Key statistics on diabetes.* London: Diabetes UK; 2012.
6. Diabetes UK. *Diabetes and the disadvantaged: reducing health inequalities in the UK. A Report by the All Parliamentary Group for Diabetes and Diabetes UK.* London: Diabetes UK; 2006.
7. Department of Health. *National service framework for diabetes.* London: Department of Health; 2002.
8. Garber A, Handelsman Y, Einhorn D, Bergman D, Bloomgarden Z, Fonseca V et al. Diagnosis and Management of Prediabetes in the Continuum of Hyperglycemia—When Do the Risks of Diabetes Begin? A Consensus Statement from the American College of Endocrinology and the American Association of Clinical Endocrinologists. *Endocr Pract.* 2008;14(7):933-946.

9. Hainsworth T. Progress and challenges in delivery of the diabetes NSF. *Nurs Times*. 2006;102(26):23-24.

10. Department of Health. *Turning the corner: Improving Diabetes Care*. London: Department of Health; 2006.