National Institute for Health and Care Excellence
Public Health and Social Care Centre
Review Decision: August 2015

Consideration of an update of the public health guideline on Preventing type 2 diabetes – risk identification and interventions for individuals at high risk

1 Review decision

The guideline on 'preventing type 2 diabetes – risk identification and interventions for individuals at high risk' will be partially updated to incorporate new evidence on risk assessment and lifestyle programmes, and incorporated into an update of PH35 'Preventing type 2 diabetes – population and community level interventions'. The two guidelines will then be merged into one guideline focusing on multi-level prevention of type 2 diabetes.

As this guideline does not relate to a topic in the public health quality standard library and is not an immediate priority, the update will be timed to take into account the evaluation of the NHS national diabetes prevention programme.

2 Background information

Guideline issue date: July 2012
Guideline review date: July 2015

In 2009, The Department of Health asked NICE to:

'Produce public health programme guidance for the health service on the prevention of type 2 diabetes mellitus among high-risk groups'.

It was agreed that the referral should be divided into two separate guidelines:

- The first guideline focused on '*Preventing type 2 diabetes - population and community-level interventions'* (PH35; published May 2011, review decision published October 2014).

- The second guideline focused on '*Preventing type 2 diabetes - risk identification and interventions for individuals at high risk'* (PH38; published July 2012).

This review proposal relates to the second guideline, PH38.

3 Process for reviewing guidelines

This published guidance review initially followed the process for updating guidelines which was in place when this published guidance review process began, set out in NICE's public health methods and process guides (3rd edition, 2012).

NICE convened an expert panel in January 2015 to consider whether any new evidence or significant changes in policy and practice would be likely to lead to substantively different recommendations.

The chair of the Programme Development Group (PDG) for PH38, attended the panel meeting. Also in attendance were representatives from the committees that developed both PH35 and PH38, with expertise in the evidence base for this topic and the clinical management of preventing and treating diabetes.

In accordance with the current methods and processes manual NICE did not consult with stakeholders on the review decision to update the guidance.

4 Consideration of the evidence and practice

The inclusion criteria for developing the evidence reviews for the original guideline (PH38) were used to identify primary research and systematic reviews relevant to the original scope. Searches of databases for papers published after 2011 were undertaken in October 2015. Two public health analysts considered the titles and abstracts to identify new evidence of potential relevance.

Recommendations 1 to 6: type 2 diabetes risk identification

Eighteen descriptive papers were identified that reported uptake of risk assessment for type 2 diabetes. The studies were based in a range of settings - workplace, primary care, community settings, care homes and dental surgeries. Not all appeared to report diabetes outcomes. One paper (Sargeant et al. 2010) reported low uptake of screening among males, those living in deprived areas and people with high BMI. The panel agreed that these studies appeared to support the existing recommendations.

44 papers were identified that considered risk scores. The scores considered included those developed by Leicester, Cambridge, QDiabetes, and FINDRISK. Of the papers identified, there was one systematic review, 8 papers which compared scores, and 2 which considered inequalities in relation to risk scores for diabetes. The panel agreed that these studies were supportive of the existing recommendation, but noted new evidence on young South Asians and risk of type 2 diabetes which had not been available when the guideline was developed.

The panel noted that this new evidence suggests benefits from strengthening links between risk assessment and effective risk reduction programmes. They discussed the lack of evidence in the available studies about the 'usability' of different risk scores in a range of settings, and difficulties practitioners may have in knowing which is the most appropriate score to use. Limited evidence was identified in relation to the cut off point for intensive lifestyle programmes, and on reassessing risk.

Recommendation 7: Commissioning type 2 diabetes risk identification

Limited published evidence was identified on commissioning risk identification programmes. A review of the US Diabetes Prevention Programme by Albright (Albright and Gregg 2013) supported the overarching approach of PH35 and PH38 of commissioning programmes with both population and intensive interventions. The panel noted that relevant data may also be available from local evaluation, particularly through the health check programme. They also suggested an opportunity to link subsequently published, related NICE guidance (PH42 and PH53) which include recommendations on strategic approach to commissioning to this guideline. They agreed that it would be helpful for the guideline to reflect changes to commissioning arrangements that have taken place since publication.

Recommendations 8 to 10 and 17: Intensive lifestyle change programmes for type 2 diabetes prevention

The search identified 68 papers which focused on community-based lifestyle programmes for the prevention of type 2 diabetes for individuals stated as being at high risk. At least half of these focused on the US Diabetes Prevention Programme and included a systematic review of diabetes prevention programme translational research (Whittemore 2011) and a systematic review of external validity in lifestyle programmes for the prevention of diabetes (Laws et al. 2012). Some new evidence was identified on specific components of prevention programmes including number of sessions (Boltri et al. 2011), and on individual vs group sessions (Gagnon et al. 2011),(Lau et al. 2011) and (Nilsen et al. 2011)). However, not all papers included risk assessment information or blood outcomes. Two reviews, Greaves

(Greaves et al. 2011) and Yoon (Yoon et al. 2013) raised concerns about the long term maintenance of observed outcomes of diabetes prevention programmes. An additional qualitative review (Johnson et al. 2011) considered issues among black and minority ethnic groups in England that may improve 'scale up' of a diabetes prevention programme. A further 5 further studies also considered barriers and facilitators to implementation or effectiveness of diabetes prevention programmes. The panel noted that for many 'real world' translational studies, although outcomes appear positive, uptake and adherence is often poor. The panel considered that the new evidence may add helpful nuance to existing recommendations.

Recommendations 11, 12 and 14: Physical activity and dietary advice

Limited information was available in the identified studies on the physical activity or dietary element of interventions. Where new evidence was identified, the panel agreed that it appeared to support existing recommendations.

A review of review by Greaves (Greaves, Sheppard, Abraham, Hardeman, Roden, Evans, Schwarz, & IMAGE Study Group 2011) reported interventions increase activity in line with recommendations and a systematic review by Aguiar (Aguiar et al. 2014) noted benefits of resistance training. Less evidence was identified in relation to longer term outcomes; Yates (Yates et al. 2011) reported education and pedometer-assessed improved outcomes at 2 years, whereas Jansen (Jansen et al. 2013) reported that interventions did not increase activity at 3 years. The panel noted new evidence on reducing sedentary behaviour which may be relevant to an update of the guideline.

Two reviews Carter (Carter et al. 2012) and Esposito(Esposito et al. 2014)were identified on dietary approaches for preventing type 2 diabetes. Davis (Davis et al. 2013) reported that lower energy intake is maintained at 9 years following the Diabetes Prevention Programme. The panel suggested that it would be helpful to align with the final published SACN recommendations on carbohydrate.

Recommendation 13: Weight management advice

Identified reviews and studies suggested mean weight loss of less than the 7% target for the US Diabetes Prevention Programme. For example, Ali (Ali et al. 2012) average loss 4% and Delahanty (Delahanty et al. 2013) 40% achieve 7%. Recently published NICE guidance on lifestyle weight management in adults (PH53, 2014) states that a realistic mean loss for lifestyle weight management programmes is 3% with 30% losing >5%. The panel agreed

that it would be helpful to re-consider achievable targets and align the recommendations with NICE guidance on lifestyle weight management in adults.

Recommendations 15 and 16: Vulnerable groups – information and supporting lifestyle change

Limited evidence was identified on vulnerable groups, but the panel suggested that further searches may identify new evidence on specific vulnerable groups, including people with mental illness.

Recommendation 18: Training and professional development

Limited evidence was identified. The panel were not aware of any new evidence on training.

Recommendations 19 and 20: Metformin and Orlistat

No papers were identified on Orlistat and prevention of type 2 diabetes. The panel noted that recommendations on use of Orlistat are now included in the NICE guideline on the management of obesity (CG189).

Some new evidence on the cost effectiveness of Metformin was identified which the panel felt could add detail to the existing recommendation, for example a review of the US diabetes prevention programme by Goldberg (Goldberg and Mather 2012) reported that 'over 2.8 years, type 2 diabetes incidence fell by 58% and 31% in the lifestyle and metformin groups, respectively, and metabolic syndrome prevalence fell by one-third with lifestyle change but was not reduced by metformin'. Herman (Herman et al. 2012) considered the 10 year cost effectiveness of US diabetes prevention programme and concluded that 'lifestyle was cost-effective and metformin was marginally cost-saving compared with placebo'. However, Gillet (Gillett et al. 2012) reviewed the effectiveness and cost effectiveness of non-pharmacological interventions for the prevention of type 2 diabetes in people with intermediate hyperglycaemia. They reported that 'nine RCTs compared lifestyle interventions (predominantly dietary and physical activity advice, with regular reinforcement and frequent follow-up) with standard care. The primary outcome was progression to diabetes. In most trials, progression was reduced, by over half in some trials. The best effects were seen in participants who adhered best to the lifestyle changes; a scenario of a trial of lifestyle change but a switch to metformin after 1 year in those who did not adhere sufficiently appeared to be the most cost-effective option'.

The panel noted that there are now other products aimed at lowering blood glucose which may be used alongside or following lifestyle intervention, where NICE has not yet assessed their cost effectiveness.

Other considerations

The panel also discussed links between PH35 and PH38, and suggested that any update could bring the two guidelines together into one integrated guideline on prevention of type 2 diabetes. The panel also noted the changes in the health and social care system since the publication of the guideline and that some terminology may need updating.

5 Implementation and post-publication feedback

There has been no significant implementation or post-publication feedback that is relevant to updating this guidance.

6 Related NICE guidance and standards

All relevant guidance published since 2012 is summarised below.

Published since 2012:

- Walking and cycling (2012) NICE Public Health guidance 41
- Obesity: working with local communities (2012) NICE Public Health guidance 42
- Physical activity: brief advice for adults in primary care (2013) NICE Public Health guidance 44
- Assessing body mass index and waist circumference thresholds for intervening to prevent ill health and premature death among adults from black, Asian and other minority ethnic groups in the UK (2013) NICE Public Health guidance 46
- Behaviour change: individual approaches(2014) NICE public health guidance 49
- Managing overweight and obesity in adults – lifestyle weight management services (2014) NICE public health guidance 53
- Maintaining a healthy weight and preventing excess weight gain among adults and children (2015) NICE guideline NG7

- Physical activity: encouraging activity in all people in contact with the NHS (2015) NICE quality standard QS84

In development

- Disability, dementia and frailty in later life- mid-life approaches to prevention NICE public health guidance. Publication expected August 2015
- Proposed update of Prevention of cardiovascular disease (2010) NICE public health guideline 25 (TBC)
- Obesity – adults and children NICE quality standard. Publication expected May 2016
- Obesity: prevention and management in adults NICE quality standard. Publication TBC

7 Equality and diversity considerations

There has been no evidence to indicate that the guidance does not comply with anti-discrimination and equalities legislation.

8 Discussion

The expert panel agreed that the guideline would benefit from a partial update, taking into account new evidence on risk identification and lifestyle programmes. Terminology and the healthcare and system structures referred to in the guideline also require updating, as will alignment to relevant NICE guidelines. The panel agreed that it would be helpful for any update to consider all glucose lowering agents that can complement lifestyle approaches, rather than restricting to Metformin alone. The panel did not consider it necessary to update the recommendation on Orlistat. They suggested that it may be more appropriate for any recommendations on Orlistat to be covered by NICE guidelines on the clinical management of obesity (such as CG189) rather than a refreshed guideline on the prevention of type 2 diabetes.

As part of the NHS Diabetes Prevention Programme (NHS DPP), Public Health England has developed evidence reviews, to establish the current state of evidence on effective diabetes prevention programmes. Additionally, the NHS DPP involves an evaluation of specific interventions to prevent diabetes. The proposed update of PH35 and PH38 will consider

these and other outputs of the NHS DPP as part of the evidence to inform the scope and guidance development.

9 Review Proposal

The guideline will be partially updated to incorporate new evidence on risk assessment and lifestyle programmes. The partial update will be done at the same time as the planned update of PH35 'Preventing type 2 diabetes – population and community level interventions'. The two guidelines should be merged into one guideline focusing on multi-level prevention of type 2 diabetes.

Recommendations in both PH35 and PH38 which do not require updating should be incorporated into the new guideline and be refreshed to ensure that the language and terminology is up to date, and aligned with other relevant NICE guidelines.

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