

NICE guidelines for type 1 diabetes in adults: implications for insulin regimens

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ARTICLE POINTS

1 NICE guidance for adults with type 1 diabetes focuses on reviews, patient education, self-management, ongoing assessment, pre- and post-prandial glucose and HbA_{1c} targets.

2 Self-monitoring of blood glucose soon after diagnosis is advocated.

3 Management of complications, cardiovascular and microvascular risks are covered in detail.

4 Insulin guidance emphasises selection of a regimen and device that suits the individual and their lifestyle.

5 The guidance is likely to lead to a greater tendency to offer a basal bolus system from diagnosis to optimise glycaemic control.

KEY WORDS

- Guideline
- Review
- Insulin therapy
- Control
- Self-management
- Risk assessment

Introduction

This July, the National Institute for Clinical Excellence (NICE) published its latest guidance for health professionals, covering type 1 diabetes in adults and children (NICE, 2004). The 112 page document, entitled '*Type 1 diabetes: diagnosis and management of type 1 diabetes in children, young people and adults*', is comprehensive and (in the main), easy to read and digest, with helpful sections on the key messages it contains, algorithms for the management of acute situations and structure of care, and recommendations for future research priorities. It separates the guidance for the management of children and adults, which serves to remind health professionals of the important differences between these two populations, but also reminds us that today's children with type 1 diabetes will be tomorrow's adults with type 1 diabetes and thus we have to keep in mind 'the long game' that is diabetes care.

For the care of both adults and children, there are some important emphases for health professionals: the promotion of self-management (as opposed to health professional diktat) is firmly recommended and supported by evidence; trained and specialist health professional teams are seen as the cornerstone of structured care; and an annual educational review is given equal importance as medical surveillance. This is welcome guidance, even if some aspects are not as well developed as others. For example, there is no clear guidance on exactly what 'training' should comprise or for (or by) whom, and some paragraphs are densely packed with jargonese. The guidance is probably best viewed as a companion to the National Service Framework delivery strategy (Department of Health, 2003) as it develops the service models for many of the Standards.

Type 1 diabetes in children will be the subject of other articles, so this article will concentrate on giving an overview of what the National Institute for Clinical Excellence (NICE) guidance for adults with the condition comprises, and in

particular, what implications there are for insulin regimens and their management.

Definition of 'adult' and overall structure of care

The guideline considers adults to be those aged 18 years and older, and separates care into initial review, comprising diagnosis with or without acute care and initial education and skills acquisition, and annual review. The latter is divided into three sections – assessment of education and skills; assessment of arterial risk factors; and assessment of developing complications. *Figure 1* shows the recommended sequaelae of these components.

Diagnosis and initial care

Consideration of possible type 2 diabetes in younger people is given due emphasis in this section along with guidance on the use of tests for insulin antibodies or C-peptide levels (basically, tests are not necessary). This is a useful reminder that the days of 'type 1 diabetes = children or adults under 40, type 2 diabetes = over 40 and overweight' are long gone as diagnostic 'rules of thumb' – dramatically superseded

by the explosion of type 2 diabetes in young people. The correct diagnosis, made according to World Health Organization criteria, is essential. Once diagnosed, initial care might be given in an acute setting or as an outpatient, but has to be provided by 'a range of professionals working together in a coordinated approach' (NICE, 2004, p34) and using a common environment such as a diabetes centre as a resource. Although the grades and disciplines of these professionals are not specified, the care provision and education clearly is: open access during the day, 24-hour helpline, and individual care plans comprising all aspects of information to be given, updated and recorded on a register. Specifically included in this information is the requirement to give details of support groups and organisations for people with diabetes.

Education and self-management skills and ongoing assessment

A major strength of this guidance is the

emphasis on the structure and content of education to be offered, and the principles governing its delivery. Adult education techniques, such as utilising people's own judgements and decision-making capacity to manage their care, and giving sufficient relevant information about food, insulin and physical activity to make choices, are recommended. Paragraph 1.8.1.5 indicates that any consultation with someone with type 1 diabetes might become an educational exchange should the health professional create that opportunity. An annual, formal assessment of education and self-care needs, designed collaboratively between the person and healthcare professional, is a novel and key aspect of annual review.

Blood glucose control and self-glucose monitoring

The guidance states the recommended targets for both prandial glucose results and HbA_{1c} levels (Table 1), which should be

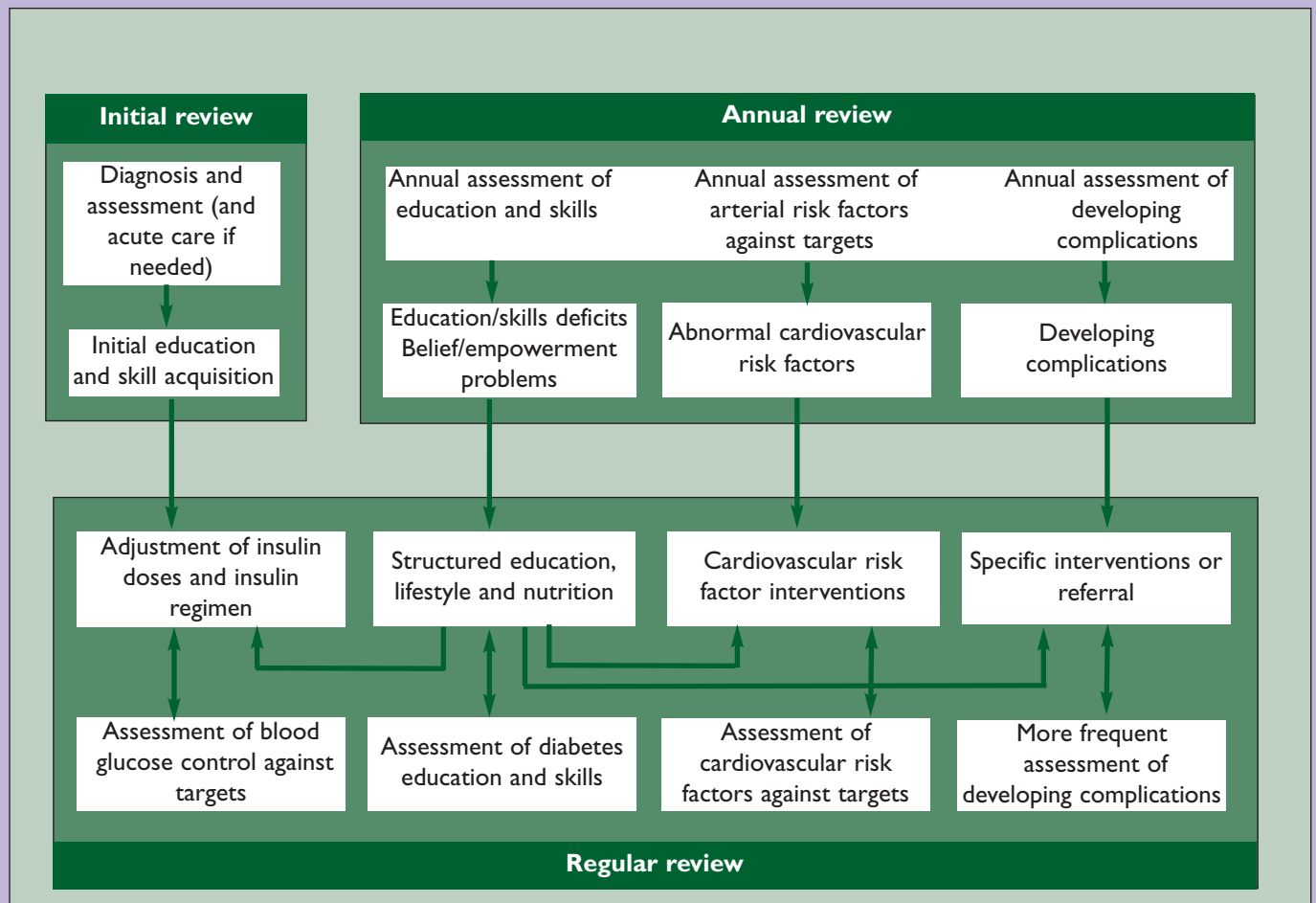
PAGE POINTS

1 Initial care is to be provided by 'a range of professionals working together in a coordinated approach'.

2 Emphasis is on the structure and content of education to be offered, and the principles governing its delivery.

3 Recommended targets for both prandial glucose and HbA_{1c} levels are given.

Figure 1. Outline algorithm for the care of adults with type 1 diabetes



PAGE POINTS

- 1 Teaching self-monitoring of blood glucose soon after diagnosis is recommended.
- 2 Helpful tables outline the levels and measurements indicating increased cardiovascular risk and give management strategies.
- 3 Other complications of diabetes are covered in some detail and useful guidance for optimum management of these situations is given.
- 4 All considerations in respect of insulin regimens and hypoglycaemia are covered – selection of the regimen and device that most suits the individual is emphasised.
- 5 Helpfully, indications for the use of long-acting analogue insulins, e.g. insulin glargine, in combination with meal-time doses of rapid-acting insulin and/or when hypoglycaemia is a problem, are given.

explicitly shared with the person. It also recommends the teaching of self-monitoring of blood glucose for those with type 1 diabetes, commencing close to diagnosis. An important component of this teaching is the interpretation of the results obtained, ‘in the light of clinically significant life events’ (NICE, 2004, p37). This means education about monitoring should be an integrated package, including the utilisation of test results to inform adjustment of insulin, food or physical activity. Consideration is given to situations in which people may not be achieving optimal control, either experiencing frequent hyperglycaemia or hypoglycaemia. The guidance seems to indicate that a discussion of the risks involved and an explanation of the benefits of striving towards, even if not achieving, recommended levels is an important part of a consultation.

Cardiovascular and microvascular risk assessment, surveillance and management

Much of the section on arterial risk comprises well-recognised strategies for prevention and treatment/management. However, the actions to be taken in respect of diagnosis and monitoring are very clearly set out and unambiguous. It is tempting for health professionals to think of cardiovascular risk primarily in respect of type 2 diabetes, but this is a useful and clear reminder of the risk in type 1 diabetes and the need for aggressive management and education for prevention to be given equal importance to that applied to type 2 diabetes. Helpful tables outline the levels and measurements indicating increased risk, and risk is categorised into high and moderate, with according management strategies. This includes management for those who have already suffered an arterial event.

From the point of view of microvascular complications, the surveillance strategies and referral guidance is a rehearsal of that found elsewhere, e.g. in previous documents detailing good practice, but it is presented here in a detailed enough way

to follow or create a protocol from (for example in a primary care diabetes service) and includes a number of ‘do nots’ as well as ‘dos’. The management of painful diabetic neuropathy section is particularly clear.

Other complications and situations

The particular situations of diabetes and pregnancy, psychological consequences of living with a chronic condition, intercurrent illness and erectile dysfunction are all covered in some detail and give useful guidance for optimum management of these situations. In particular, the section on inpatient care emphasises the benefits of attention from specialist diabetes teams and of the use (rather than the simple presence) of protocols for the management of surgery on people with type 1 diabetes. An algorithm for the management of diabetic ketoacidosis is included as an appendix.

Insulin therapy, regimens and delivery

The real life-saver and bottom-line management in type 1 diabetes is, of course, injected or infused insulin. Pages 43 to 50 of this NICE guidance cover all considerations in respect of insulin regimens and the principal side-effect of this treatment, namely hypoglycaemia.

In keeping with the tenor of the guidance on glucose control targets and the promotion of self-management by the person with type 1 diabetes, the guidance on insulin emphasises the selection of a regimen and device which most suits the individual and their lifestyle, including ‘consideration of unusual patterns or combinations’ (NICE, 2004, p45). This is refreshing and probably heralds a more realistic individualisation of regimens than hitherto. The section also helpfully includes indications for the use of long-acting analogue insulins, e.g. insulin glargine, in combination with meal-time doses of rapid-acting insulin and/or when hypoglycaemia is a problem, either in the morning or during the night on isophane

insulin. Although there seems to be an emphasis on the use of multiple injection regimens, in keeping with the most up-to-date evidence and insulin available, there is also a section detailing when twice-daily regimens might be helpfully employed and how to manage the 'honeymoon period' (when endogenous insulin is produced for a short period post-diagnosis) by using meal time or basal insulin only. This section emphasises the connection between self-monitoring and delivering insulin although little is specifically said about the process of dose adjustment. Practical aspects of insulin delivery are covered including selection and rotation of injection sites (the abdomen clearly recommended as the site of choice for meal-time insulin). The provision of a range of options of delivery devices, appropriate sized needles, and sharps containers and disposal are also covered. In respect of the latter, it is disappointing to see no guidance at all on how trusts should organise disposal of sharps containers, merely that 'arrangements should be available' (NICE, 2004, p47).

Implications of the guidance for insulin use

The most likely impact of this guidance on insulin regimen decision making will be a greater tendency to offer people a basal bolus system from diagnosis. It is clear from the guidance that optimum glycaemic control from diagnosis is desirable and that people need the 'tools to do the job'. With the recent advent of rapid-acting and long-acting analogue insulins, and the emphasis on education for self-adjustment of dosages on the basis of self-monitoring, the workshop might be said to be better equipped now than previously. The clarity of the guidance might also help health professionals less experienced with insulin and regimens to better understand them. It may also enable health professionals and their prescribing masters to be more inclined to tolerate changes of regimen in the search for the 'best fit' for the particular time in the person's life.

Table 1. Recommended targets for prandial capillary blood glucose and HbA_{1c} in adults

Glucose:	
● Pre-prandial	4.0–7.0 mmol/l
● Post-prandial	<9.0 mmol/l
HbA _{1c}	<7.5 %

Hypoglycaemia

Regarding hypoglycaemia (hypos), its prevention and management, the guidance makes it clear that people with type 1 diabetes must be informed about the inevitable occurrence of hypos and the circumstances in which it might be delayed or prolonged (after vigorous exercise or alcohol, for example). The strategies for avoidance and prompt treatment by the person themselves are given along with management by others or healthcare workers, although nothing is said about the risk of hypos while driving and the controversy surrounding employment and hypos. The attention to avoiding frequent blood glucose levels of less than 3.5 mmol/l is welcome, as is the mention of serious consideration of hypos being a cause of cognitive decline in people with type 1 diabetes.

Conclusion

This NICE guidance on type 1 diabetes seems to seriously promote the role of self-management by adults with diabetes and reflect the fact that partnership, information and the equipment of choice can bring about the desired clinical outcomes. It clearly outlines what we health professionals need to provide to make this happen, what the targets are and, in the audit section, how we can check that it is happening. All that is needed now is for the words to become a reality of clinical practice. ■

Department of Health (2003). *The National Service Framework for Diabetes: delivery strategy*. London, Department of Health

NICE (2004) *Clinical Guideline 15. Type 1 diabetes: diagnosis and management of type 1 diabetes in children, young people and adults*. London, NICE

PAGE POINTS

1 The connection between self-monitoring and delivering is emphasised, though little is said about the process of adjustment.

2 The most likely impact of this guidance on insulin regimen decision making will be a greater tendency to offer people a basal bolus system from diagnosis.

3 Patients must be informed of the inevitability of hypoglycaemia, strategies for avoidance and prompt self-treatment.

4 NICE guidance on type 1 diabetes in adults seems to seriously promote self-management and reflect that partnership, information and the equipment of choice can bring about desired clinical outcomes.