Joint British Societies' guidelines: Implications for DSNs

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Article points

1. The JBS 2 guidelines aim to reduce the risk of fatal and non fatal atherosclerotic CV events in individuals identified as high-risk.
2. The guidelines support the view that diabetes is a CV risk in its own right and individuals with the condition should be automatically considered to be at high risk.
3. A multifactorial lifestyle and polypharmacy approach is advised for all people with diabetes to treat blood pressure, glycaemic control, and lipids.
4. DSNs and practice nurses are in a prime position to implement CV risk reduction strategies as part of a holistic and integrated approach to diabetes management.

Key words

- CV risk reduction
- Nurse-led management
- Lipids and hypertension
- Independent nurse prescribing

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In December 2005 the second Joint British Society guidelines were published with the objective of reducing the risk of fatal and non-fatal atherosclerotic cardiovascular events in high risk individuals by championing a consistent multidisciplinary approach to cardiovascular risk reduction (British Cardiac Society et al, 2005). The guidelines recommend that clinical practice should focus not only on people with established cardiovascular disease but equally on those at high risk of developing it – in particular individuals with type 1 or type 2 diabetes. Strict targets have been set for glycaemic, lipid and blood pressure control based on the growing scientific evidence base for the management of high risk individuals. The author presents an overview of the JBS 2 guidelines and discusses the role that DSNs and practice nurses can play in implementing the guidelines with specific reference to people with diabetes.

Cardiovascular disease (CVD) remains the leading cause of death in the UK and is also the principle cause of death in people with diabetes – up to 75% of whom die from CVD (Grant et al, 2003). The JBS 2 guidelines firmly establish that diabetes is a major CV risk factor: the evidence comes from studies such as Haffner et al (1998), which estimate that the risk of CVD in people with diabetes approaches that found in people who do not have diabetes but who have had a previous myocardial infarction. The calculation of a CV risk score is no longer deemed necessary for people with diabetes as all service-users should have access to prevention strategies due to the high risk associated with the condition.

In summary, the JBS 2 guidelines state that CV risk reduction can be achieved through the following.

- Lifestyle and risk factor intervention.
- Appropriate medication to lower blood pressure, modify lipids, reduce glycaemia.
- Prescribing of drugs that offer cardio protection (such as anti-thrombotic treatments).

Thus, a multifactorial lifestyle and polypharmacy approach is advised to facilitate addressing all modifiable risk factors thus improving quality and length of life (British Cardiac Society et al, 2005). A summary of the recommended targets and CV protective

therapies are shown in *Table 1* and *Box 1* and discussed in detail below.

Lifestyle targets

A number of lifestyle factors have been shown, through epidemiological and clinical trials, to reduce the incidence of CV events. The key lifestyle interventions outlined in the JBS 2 are:

- smoking cessation
- healthy food choices
- regular aerobic physical activity
- maintenance of optimal weight and body fat distribution (for example, reducing central obesity).

Blood pressure

Meta-analyses and systematic reviews of blood pressure lowering have consistently demonstrated the benefit of blood pressure reduction in reducing CV risk, with the benefit of treatment driven by the quality of blood pressure control (reviewed by Williams et al, 2004). The UK Prospective Diabetes Study (UKPDS Group, 1998) demonstrated that the benefits of blood pressure control outweighed that of glycaemic control. Specifically, the numbers needed to treat to prevent, over 10 years, one patient developing any complication, was 6 for hypertension versus 20 for glycaemic control.

For people with diabetes the target blood pressure is now set at <130/80 mmHg with an audit standard of 140/80 mmHg (British Cardiac Society et al, 2005). This audit standard is the upper limit of blood pressure control: wherever possible the optimal target of 130/80 mmHg should be aimed for.

In June 2006, , the British Hypertension Society produced further guidance in collaboration with the NICE advising that first-line hypertension treatment in those aged 55 years and over or who are of Afro–Caribbean descent should be a calcium-channel blocker or a thiazide. If the individual is under 55 years of age, an angiotensin converting enzyme (ACE) inhibitor should be selected unless there is compelling evidence for the use of another specific class of drugs (such as beta-blockers after a myocardial infarction). This additional guidance was based on evidence of unacceptable levels of increased risk of developing type 2 diabetes when beta-

Table 1. Summary of JBS 2 targets for people with diabetes.

Lifestyle		Smoking cessation Healthy diet Regular aerobic physical activity Weight maintenance	
BMI		20–25 kg/m^2	
Waist circumference	Men	< 102 cm	(Asian men < 90 cm)
	Women	< 88 cm	(Asian women < 80 cm)
Blood pressure		< 130/80 mmHg	
Total cholesterol		<4.0 mmol/l	(or a 25 % reduction)
LDL-cholesterol		<2.0 mmol/l	(or a 30 % reduction)
Fasting plasma glucose		≤6.0 mmol/l	
HbA$_{1c}$		<6.5 %	

Box 1. Summary of JBS 2 targets for cardioprotective therapies in people with diabetes.

Aspirin 75 mg daily

- aged> 50 years old
- established CV disease
- diabetes duration > 10 years
- receiving treatment for hypertension

ACE inhibitors/all receptor blockers

- renal dysfunction and microalbuminuria

Statins

- in all people with either type 1 or type 2 diabetes over 40 years old
- people aged 18–39 years with either type 1 or type 2 diabetes and at least one of the following:
  - retinopathy
  - nephropathy
  - poor glycaemic control (HbA$_{1c}$ > 9 %)
  - elevated blood pressure requiring drug therapy
  - total cholesterol (> 6 mmol/l)
  - features of the metabolic syndrome (central obesity and fasting triglyceride > 1.7 mmol/l [non-fasting > 2.0 mmol/] and/or HDL-cholesterol <1.0 mmol/l in men or 1.2 mmol/l in women)
  - a family history of early CVD in a first degree relative.

Page points

1. The JBS 2 guidelines have lowered the targets for total cholesterol and LDL-cholesterol to 4.0 mmol/l and 2.0 mmol/l, respectively.
2. All people should receive lifestyle advice to reduce total and LDL cholesterol, lower triglycerides and increase HDL.
3. Practice nurses and DSNs have a key role to play in reducing CV risk, particularly with the opportunities afforded by independent nurse prescribers.

blockers were used first-line (NICE, 2006).

Lipids

CV risk increases directly in relation to total cholesterol levels. The benefit of lipid lowering in reducing CV risk has been demonstrated in numerous randomised and controlled trials and is considered to be even more beneficial in people with diabetes. The ASCOT-LLA trial and the Heart Protection Study demonstrated that lowering LDL-cholesterol levels by 1 mmol/l in high risk people with only moderately raised LDL-cholesterol levels reduced risk of coronary heart disease by between 25 and 36 percent (Sever et al, 2003, Heart Protection Study Group Collaborative, 2002). In the Collaborative Atorvastatin Diabetes Study (CARDS) (Colhoun et al, 2004), 10 mg of atorvastatin given to people with type 2 diabetes without raised cholesterol levels reduced cardiovascular events by 37 % (Colhoun et al, 2004).

Previously, National Service Framework for diabetes and NICE guidelines specified 5 mmol/l as the target for total cholesterol and 3.0 mmol/l for LDL. The JBS 2 guidelines have reduced the target for total cholesterol to 4.0 mmol/l and LDL cholesterol to 2.0 mmol/l, or the equivalent to a 25 % decrease – whichever is the greatest. The guidelines also state that once these targets have been achieved other aspects of the lipid profile should be considered, such as HDL-cholesterol and triglycerides, although no targets have been set for these. However, a growing body of evidence now supports an even lower target.

All people should receive lifestyle advice to reduce total and LDL-cholesterol, lower triglycerides and increase HDL-cholesterol (British Cardiac Society et al, 2005).

Glycaemic control

The relationship between blood glucose levels and CV risk is continuous. Every 1 % reduction in HbA_{1c} is associated with 14 % fewer deaths (Stratton et al, 2000). The JBS 2 guidelines state that optimal glycaemic control is indicated by a fasting or preprandial blood glucose value of 4.0–6.0 mmols/l and an HbA_{1c} reading of ≤6.5 %. Recommendations are given for the use of oral agents in type 2 diabetes and insulin is advised where oral agents fail to achieve the audit target of HbA_{1c} <7.5 %.

Antithrombotic treatments

These have been shown to have significant positive benefits in people at high risk of cardiovascular disease (Anti-thrombotic Trialist Collaborative, 2002). Individuals for whom antithrombotic treatments are recommended by the JBS 2 are detailed in *Box 1*.

The role of DSNs and practice nurses in implementing JBS 2

The role of the DSN has traditionally been one of education and helping the individual to manage their glycaemic control. Hypertension and hyperlipidaemia were the domain of doctors and primary care teams. Some may question if there is a role for DSNs to play in CV risk management. However, as the majority of people with diabetes are dying from CVD (Grant et al, 2003), and a growing body of evidence now supports the benefit of CV risk reduction treatment, it is difficult to argue a case against DSNs and practice nurses playing a key role. There is also evidence to support the effectiveness of a nurse-led approach in helping people to achieve blood pressure and lipid targets over traditional physician-led care (New et al, 2003).

The expansion of nurse prescribing rights has opened up the opportunities further. In May 2006, independent nurse prescribers were given the legal rights to prescribe any licensed drug for any medical condition, (with the exclusion of some controlled drugs), as long as it falls within their own level of experience and competence (Department of Health, 2006). This has enabled nurse prescribers working in diabetes care to independently prescribe agents that previously would have had to be prescribed under a supplementary prescribing partnership with a physician. In line with JBS 2 guidelines the standard medication cocktail for most people with diabetes will include treatments for

glycaemic control, blood pressure and lipids in addition to aspirin. All can now be prescribed independently by nurse prescribers who have the experience and competence to do so.

If all individuals with diabetes are to access CV risk reduction treatment – including young people with type 1 diabetes who may previously not have been considered for such treatments – then a multidisciplinary team approach needs to be established in which all health care providers are involved in delivering and monitoring the effectiveness of interventions.

The following case review demonstrates how effective nurse-led intervention can be used to implement a CV risk reduction strategy in a person with type 1 diabetes (*Box 2*).

Conclusion

Modern diabetes strategies now need to focus on tackling all modifiable CV risk factors in everyone with diabetes. This brings implications not only for workload but also for training to ensure that nurses whose roles expand to become qualified prescribers are adequately prepared with the knowledge and skills to assess individuals' needs and to safely prescribe cardiovascular medication. Services may need to be re-designed and resources established to support a move away from a service that views glycaemic control in isolation from other CV risk factors, thus ensuring all high risk individuals have the opportunity to access care that will reduce CV morbidity and mortality. ■

Page points

1. A multidisciplinary team approach needs to be provided so that all patients with diabetes have access to CV risk reduction treatment.
2. A case study shows how a person with diabetes would benefit from a nurse-led approach to tackling CV risk.
3 Modern diabetes strategies now need to focus on tackling all modifiable CV risk factors in all patients with diabetes.
4. Services may need be re-designed to move away from isolating glycaemic control from other CV factors.

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'Modern diabetes strategies now need to focus on tackling all modifiable CV risk factors in all patients with diabetes.'

Box 2. Case study

Paul is 32 years old and has had type 1 diabetes since age 14.

- HbA_{1c} is 9.8 % on a basal bolus insulin regimen.
- Blood pressure is 142/84 mmHg.
- Persistent microalbuminuria with a urine : albumin creatinine ratio of 11.3.
- Total cholesterol is raised at 6.7 mmol/l with an HDL of 1.91 mmol/l.
- BMI is 23 kg/m^2 and waist circumference of 83 cm
- Gave up smoking 6 months ago
- He has a busy job as a hospital porter but does not take any regular form of aerobic exercise.

In accordance with the JBS 2 guidelines Paul needs lifestyle and pharmacological intervention to reduce his CVD risk. He would benefit from a nurse-led holistic approach aimed at tackling all of his modifiable risk factors with regular review of progress. Pharmacological intervention including a statin, aspirin and an ACE inhibitor is indicated as per the JBS 2 guidelines due to the following factors:

- persistent microalbuminuria with a raised blood pressure
- duration of diabetes over 10 years
- cholesterol >6.0 mmol/l
- HbA_{1c} > 9%.

The management plan developed for Paul was as follows.

- Establish a rapport and negotiate a plan of contact. How often will he need to be seen and by whom? Follow up to ensure a consistent approach.
- Assess CV risk factors.
- Establish medical history, including any relevant family history of early CVD, medications prescribed and any over-the-counter medications taken.
- Assess HbA_{1c}, lipid profile, liver function, urea and electrolytes, thyroid function, creatinine kinase.
- Establish that he needs to take aspirin, improve his diabetes control, blood pressure and lipid profiles.
- Negotiate priorities for treatment, explaining benefits and risks. How many changes is he willing to make and is going to be able to cope with at the present time? Note that it would be undesirable to add all treatments in at once due to possible adverse effects of treatments and due to the risk of overwhelming him with information.
- Prescribe treatments as per established priorities (or refer on if not a prescriber). Explain possible side effects and what to do if side effects occur.
- Inform Paul what monitoring tests need to be performed and provide the necessary education to accompany the treatment, such as dose adjustment or timing of medication.
- Monitor effectiveness, including: therapeutic response, any adverse reactions, side effects or abnormal blood results. For example, if adding a statin such as atorvastatin 10 mg:
  - review after 8–12 weeks
  - re-check bloods (lipids, liver function, creatinine kinase levels)
  - enquire about side effects (especially muscle symptoms)
  - titrate dose to 20 mg if target lipids not achieved
  - review again 8–12 weeks or sooner if problems have occurred.
- Provide ongoing support and advice for lifestyle behaviour changes and medication initiation and titration.
- Refer to other specialist services (eg a dietitian) as required.