

The Clinical Case for Smoking Cessation for DIABETIC PATIENTS

What is this initiative aiming to achieve?

The aim of this initiative is to provide clinical support for temporary abstinence with a view to prompting a permanent quit. To gain maximum benefit, hospital associated abstinence needs to lead to permanent quitting. However, temporary abstinence beginning immediately around the time of admission and lasting until a patient has recovered may still have worthwhile benefits.

Why intervene in secondary care?

Hospitalisation offers an opportune time to encourage patients to stop smoking for four main reasons.

- Firstly, this time is often a “teachable moment” where patients are more receptive to intervention and are more motivated to quit.
- Secondly, the hospital's no smoking environment creates an external force to support abstinence.
- Thirdly, patients are ideally placed to be given information about treatment options, supported through withdrawal and signposted to specialist services.
- Fourthly, abstaining from smoking at this time can lead to significant health benefits.

What is the relationship between smoking and diabetes?

Cigarette smoking has been identified as an independent risk factor for the development of Type II diabetes mellitus^{1,2} and smoking cessation is associated with a reduction in this risk.³ There is mounting evidence that smoking compounds the problems associated with diabetes. Compared to non-smoking diabetic patients, smoking patients have been associated with the following:⁴⁻⁸

- Decreased insulin sensitivity, possibly due to increased circulating levels of insulin-antagonistic hormones e.g. catecholamines, cortisol and growth hormone.
- Impaired control of glucose and lipid metabolism.
- Increased blood pressure, total cholesterol and obesity.
- Increased risk of hypoglycaemia in type 1 diabetes.
- Increased risk and progression of microvascular complications in type 2 diabetes.
- Increased risk of coronary heart disease, stroke and peripheral vascular disease in type 2 diabetes.
- Increased risk cardiovascular and all cause mortality in type 1 and type 2 diabetes.

What are the health benefits of quitting for diabetic patients?

Non-smoking diabetic patients are at an increased risk of developing cardiovascular disease compared to the general population and smoking increases that risk. Successful quitting will not only benefit a patient's long term health by reducing the risk of developing other disease,⁹ smoking abstinence has been associated with improved diabetes specific outcomes (see below).

Main acute effects of smoking on the body (estimated time of recovery, if known)

- Increase in sympathetic tone leading to increase in blood pressure, heart rate and peripheral vasoconstriction leading to an increased demand for oxygen and cardiac function.¹⁰ (24-48 hrs)
- Formation of carboxyhaemoglobin leading to reduction in oxygen delivery to the tissues.¹¹ (8-24 hrs)
- Formation of carboxymyoglobin leading to reduction in oxygen storage in the muscles¹² (8-24hrs)
- Increase in red blood cell production, which leads to increase in blood viscosity, a decrease in tissue perfusion, a decrease in oxygen delivery to the tissues and potentiation of thrombotic process.^{13;14}
- Hypersecretion of mucus, narrowing of the small airways, decrease in ciliary function and change in mucus rheology leading to a decrease in mucociliary transport^{13;14} (12-72 hours)
- Changes in functioning of a range of immune cells (pro- and anti-inflammatory cytokines, white blood cells, immunoglobulins) which lead to decreased immunity and are associated with atherosclerosis^{13;14} (1week-2 months)
- Induction of hepatic enzymes which increases drug metabolism through both pharmacokinetic and pharmacodynamic mechanisms¹⁵ (6-8 weeks)

Health benefits for diabetic patients that have been found to be associated with smoking cessation

- Decreased risk of developing coronary heart disease, within 11 years the risk decreases to that of non-smoking diabetics.¹⁶
- Slows the progression of nephropathy in type II diabetics.¹⁷⁻¹⁹
- Decreased risk in all cause mortality, cardiovascular and cancer mortality, within 11 years the risk decreases to that of non-smoking diabetics.²⁰

The 3A's

How to approach smoking cessation with patients

Smoking cessation interventions have been proven effective for hospitalised patients regardless of reason for admission,²¹ and smoking cessation rates have also been improved by smoking cessation interventions specifically in the diabetic population.^{22;23} Smoking cessation interventions for hospitalised patients increase the rate of long term quitting if they include regular behavioural support and pharmacotherapy that is continued at least 1 month after discharge.

There is some evidence to suggest that until the body readjusts after the withdrawal of nicotine, glycaemic control may be affected in diabetic patients and therefore patients need to be extra vigilant and may need closer monitoring through this period.²⁴

The DH guidance "Smoking cessation in Secondary Care" outlines a care pathway for supporting smoking cessation that can be adopted for diabetic patients. In essence, the care pathway incorporates the 3A's:

ASK and record smoking status

ADVISE the patient of the personal health benefits of quitting

ACT on the patient response

- prescribe NRT for patients in withdrawal
- monitor withdrawal and adjust pharmacotherapy accordingly
- refer to local stop smoking service

How was this information sheet put together?

This information is a summary of the current scientific evidence on the association between cigarette smoking and diabetes. Studies were found by searching MEDLINE and EMBASE using combined exploded subject headings of "diabetes mellitus" and "tobacco use cessation" from 01/1990 – 10/2009 and by searching the Report of the US surgeon general on the health benefits of smoking cessation.²⁶ Evidence has been included in this summary from cohort studies, randomised controlled trials and reviews only.

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