

The Clinical Case for Smoking Cessation for WOUND CARE

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 supported by a referral to local NHS Stop Smoking Services. 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 healed may still have worthwhile benefits.

What is the relationship between smoking and wound healing?

Compared to non-smokers, smokers are more likely to experience complications in tissue healing such as infections and dehiscence.¹ Smoking is also associated with an increased rate of non-union and slowed healing of bone.² Smoking has effects on the cardiovascular and respiratory systems, which have the net effect of reducing the amount of oxygen available to the tissues. Oxygen is necessary for wound and bone healing so a smoking induced reduction in oxygen availability is likely to play a major role in wound healing complications.^{3,4}

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 smokefree environment creates an external force to support abstinence.
- Thirdly, patients are ideally placed to be given information about treatment options, support through withdrawal and signposted to specialist services.
- Fourthly, abstaining from smoking at this time can lead to significant health benefits.

What are the health benefits of quitting for patients?

Successful quitting will not only benefit a patient's long term health by reducing the risk of disease development⁵ but there is evidence that quitting smoking may reduce wound healing complications (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 function⁶ (24-48 hrs)
- Formation of carboxyhaemoglobin leading to reduction in oxygen delivery to the tissues⁷ (8-24 hrs)
- Formation of carboxymyoglobin leading to reduction in oxygen storage in the muscles⁸ (8-24hrs)
- Increase in red cell production which leads to increase in blood viscosity, a decrease tissue perfusion and decrease in oxygen delivery to the tissues³
- Hypersecretion of mucus, narrowing of the small airways, decrease in ciliary function and change in mucus rheology leading to a decrease in mucociliary transport³ (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 immunity³ (1week-2 months)
- Induction of hepatic enzymes which increases drug metabolism through both pharmacokinetic and pharmacodynamic mechanisms⁹ (6-8 weeks)

Improvements in wound healing associated with smoking cessation

- Reduced rate of wound infections.^{10;11}
- Reduced rate of impaired wound healing.^{12;13}
- Increased rate of bone healing.^{14;15}
- Permanent smoking cessation reduces the risk of heart disease, stroke, cancer and premature death.⁵

How was this information sheet put together?

This information is a summary of the current scientific evidence on the association between cigarette smoking and wound care. Studies were found by searching MEDLINE and EMBASE using combined exploded subject headings of “wound healing” 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.¹⁹ Evidence has been included in this summary from cohort studies, randomised controlled trials and reviews only.

The 3A's

How to approach smoking cessation with patients

Smoking cessation interventions have been proven effective for hospitalised patients in general¹⁶ and specifically for surgical patients.¹⁷ Smoking cessation interventions increase the rate of long term quitting if they include regular behavioural support and pharmacotherapy that is continued at least 1 month after discharge.

The DH guidance “Stop Smoking Interventions in Secondary Care”¹⁸ outlines a care pathway for supporting smoking cessation that can be adopted for cardiovascular patients. In essence, the care pathway incorporates a very brief intervention using 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 NHS Stop Smoking Service



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