Volume 5, issue 3, 2001 ISSN 1329 - 1874

BestPractice

Evidence Based Practice Information Sheets for Health Professionals

Smoking Cessation Interventions and Strategies

Introduction

This *Best Practice* Information Sheet has been derived from a commissioned review undertaken by The Joanna Briggs Institute[1].

This review sought to identify existing systematic reviews on smoking cessation interventions and strategies. Fifteen systematic reviews were identified that met the inclusion criteria and were assessed as being of sufficient methodological quality. Reviews specific to paediatric and obstetric patients were not included in this review.

The primary references on which this Information Sheet is based are listed on page 5. Evidence from the original reviews used differing classifications for evidence. For the purpose of this Information Sheet we have adopted a uniform classification system (see levels of evidence on this page).

Background

Smoking has been identified as one of the most significant causes of avoidable death and disease.[2] Despite the increase in public knowledge, and the push for smoke exposure reduction, the prevalence of smoking continues to represent a threat to the health and wellbeing of active and passive smokers alike. Programs that encourage smokers to quit have been described as effective tools in promoting health and reducing the burden of disease related to smoking.

This Information Sheet Covers the Following Concepts:

- Background
- Screening
- Advice to Quit
- Treatment Formats
- Follow-up Assessment and Procedures
- Recommendations

Levels of Evidence

All studies were categorised according to the strength of the evidence based on the following classification system.

Level I - Evidence obtained from a systematic review of all relevant randomised controlled trials.

Level II - Evidence obtained from at least one properly designed randomised controlled trial.

Level III.1 - Evidence obtained from well designed controlled trials without randomisation.

Level III.2 - Evidence obtained from well designed cohort or case control analytic studies preferably from more than one centre or research group.

Level III.3 - Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments.

Level IV - Opinion of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

Despite the potential impact of cessation programs on smoking, many smokers enter and exit the health care system every day without receiving advice about this important health risk. In order to effectively implement smoking cessation strategies, establishing the best available evidence relating to this area of health care is a significant first step.

Screening for Tobacco Use

In order to offer treatment or assistance in smoking cessation, patients that smoke must be identified.

The research has examined the impact of screening programs on the uptake of clinical interventions and on long term smoking cessation.

Screening programs have been found to be effective strategies leading to the instigation of clinical interventions in smoking cessation. The impact on long term smoking cessation has not been demonstrated.[3]

Advice to Quit Smoking

Studies have examined the role of physicians in providing smoking cessation advice during routine consultation. In some studies printed materials were additionally provided. The provision of advice by physicians was found to have a positive effect on smoking cessation rates, and should be encouraged.[4]

A number of studies have examined the question of which disciplines are effective in providing advice relating to smoking cessation. Rice and Stead[4] specifically reviewed advice given by nurses and found this to be highly effective in promoting smoking cessation when compared with no intervention. Nurse initiated advice should be considered a front line therapy. This supported the findings of a previous review of dentists, pharmacists, psychologists, nurses, social workers and other health counsellors.[3] All groups were effective in providing advice/ interventions relating to smoking cessation with no clear advantage in any particular discipline. Interventions using multiple providers from different disciplines were markedly more effective than when no provider was involved, further indicating that health care workers from a range of disciplines can effectively promote smoking cessation.[3]

Treatment Formats

Self Help Treatment

Smokers may choose to undertake a quit program without the assistance of a health care professional. Self-help strategies may include written materials, audio or video tape, computer programs and telephone hotlines. Materials can be tailored to particular populations such as different ages or ethnic groups, or to individual smoker characteristics. Self-help programs have been found to be slightly more effective than no intervention and more effective when self-help materials are tailored to the individual smoker.[6]

Individual Counselling and Group Therapy

Two related reviews have been conducted examining individual counselling and group therapy approaches to smoking cessation.[7,8] Both forms of counselling were highly effective, and provided equal benefit to the smoker.

Intensity

A critical question in terms of resource utilisation is the level of intensity required for advice and counselling to be effective.

Studies have examined minimal advice (consultation of < 20 mins with at least one follow-up) versus no advice, and intensive intervention (initial consultation of >20 mins and/or more than one follow-up visit or the provision of additional support materials) versus no advice.[4]

Both levels of advice were shown to be more effective than no advice. Analysis suggests that intensive intervention may have a greater effect than minimal advice.[4]

Aversion Therapy

Aversion therapy involves the provision of unpleasant stimuli to counteract the pleasurable effects of smoking, therefore discouraging the urge to smoke. The most common form of aversion therapy is rapid smoking in which the subject is directed to smoke at a significantly increased rate. Although study results favoured aversion therapy,[9,10] the studies themselves were of poor quality and the results should be treated with caution. There was no evidence that other forms of aversion therapy were effective.

Alternative Therapies

Hypnotherapy has been used as both an individualised therapy and as an adjunct to other smoking cessation interventions.[11] However the quality of studies reviewed on hypnotherapy were poor, and the results inconclusive.

Studies comparing methods of acupuncture including needle puncture, acupressure, and electro-acupressure have also been examined.[12] The treatments, in all forms showed no statistically significant benefit. Based on this evidence, acupuncture can not be recommended for smoking cessation.

Pharmacotherapy

The majority of medications used in smoking cessation act to reduce the side effects of nicotine withdrawal although substances such as silver acetate are used as aversion therapy treatments. The most common and most widely researched is nicotine replacement therapy (NRT) in various forms.

Nicotine Replacement Therapy

Nicotine Replacement Therapy (NRT) is provided in a range of forms including gum, transdermal patches, intranasal spray, inhaler devices and sublingual tablet. These products vary in dosage and delivery duration per day. The overall duration of treatment also varies and treatment regimes may also include concurrent therapies, however, in an extensive review all forms of NRT were found to be significantly more effective than placebo or no NRT.[13]

One review investigated the use of nicotine gum and found 4mg gum was more effective than 2mg gum for smokers identified as 'highly dependant'. Use of 4mg gum was found to be no more effective than 2mg gum for 'low dependence' smokers. Therefore, low dependence smokers may be effectively treated with the lower concentration gum.[13]

Nicotine patches are considered conventional therapy, however the length of time a patch should be worn may impact on its effectiveness and the degree of wearer tolerance. The review showed patches worn for 16 hours (while awake) were as effective as patches worn for 24 hours. Additionally the total duration of treatment was examined and the use of patches beyond 8 weeks was no more effective than stopping treatment at 8 weeks.[13]

When completing NRT there is no difference in effect between weaning or tapering of the therapy, compared to abrupt cessation.[13]

The review also examined the effectiveness of various forms of NRT offered in different settings. It concluded that gum was least effective in the hospital setting. The results for patches were more consistent between settings.[13] This infers that patches may be more suitable in the hospital setting.

Furthermore, support from health care workers was found to increase the effectiveness of NRT in promoting smoking cessation. Increasing the intensity of support improved the effect of both nicotine patches and gum.

Other Medications

Primarily an anti-hypertensive, Clonidine may reduce withdrawal symptoms related to various addictions. It was effective when compared with placebo, but has significant side effects.[14] Lobeline has been widely used in smoking cessation, however when reviewed, no studies of sufficient quality were identified.[15]

A range of anxiolytic and anti-depressant medications has been tested for effectiveness in smoking cessation.[16] Of these, only Bupropion was found to be effective when compared with placebo or NRT. Mecamylamine is a specific nicotine antagonist, and the evidence indicates it is effective in reducing the desire to smoke.[17]

Follow up Assessment and Procedures

Due to the long-term nature of treatment and the risk of relapse over time follow up is important. Additionally the complexity of nicotine addiction and the variety of therapies available suggests follow up strategies be considered a standard component of smoking cessation interventions.[3]

Motivational Strategies

When planning and applying smoking cessation interventions the role of personal motivation should be considered. Although the benefits from quitting smoking are considerable, the level of commitment required to attempt to quit is also considerable. For a variety of reasons patients will defer the decision to stop smoking or make no commitment at all.

Motivational strategies for quitting include concepts such as relevance,

risks, rewards and repetition.[3] The information provided to the patient should be relevant to their disease status, health concerns and social situation. Acute and long-term risks to the patient and environmental risks to others should be highlighted. The rewards of improved health, money saving, increased feeling of wellbeing, better health of spouse and children, freedom from addiction and rewards specific to the patient should also be emphasised. Motivational strategies should be repeated at each follow up visit.[3]

Relapse Prevention

Despite the demonstrated efficacy of interventions available to smokers, long-term quit rates are modest. As a result many smokers who present to clinicians have relapsed after attempts to quit.

Studies indicate relapse most frequently occurs within the first three months of quitting,[3] however relapse may occur many years following the quit date. Relapse prevention strategies should be considered for all former smokers. Minimal strategies include congratulations, encouragement and engaging the patient in discussion that focuses on the positive aspects of smoking cessation. Problem solving with regard to any adverse effects of cessation such as weight gain and prolonged withdrawal symptoms should also be undertaken.[3]

Specific Populations and Groups

Research indicates smoking cessation programs are equally effective amongst both genders.[3] While smoking patterns vary among racial and ethnic groups, nicotine addiction and the desire to quit are consistent.[3]

Hospitalised patients

Hospitalised patients present with both additional smoking related risks that may interfere with recovery, and opportunities to quit with the increased availability of clinicians and interventions.[3] Hospital based interventions are effective at helping patients to quit smoking.

Patients with mental health disorders

Patients with mental health disorders have a higher prevalence of smoking than the general population.[3] Nicotine withdrawal may exacerbate a patient's co-morbid condition and this risk must be considered when planning smoking cessation strategies. These patients also have a higher risk of relapse.

Weight gain

Many smokers are concerned about weight gain as a consequence of quitting smoking. There is some evidence to suggest strict dieting and other attempts to prevent weight gain will undermine the attempt to quit smoking, however, the use of NRT gum will delay the onset of weight gain.[3]

Conclusion

Assisting patients to quit smoking is complex and requires a systematic and multifaceted approach. The benefits of promoting smoking cessation particularly amongst hospital in-patients are well recognised not only for the individual concerned but the whole community. There are a range of interventions and strategy alternatives that are supported by quality research based evidence. Although they may be effective in isolation, a program of multiple interventions including appropriate pharmacotherapy with advice and support tailored to the individual, are more likely to achieve success. These interventions can only be effectively applied if there are systems in place to screen, assess and follow up patients who wish to quit smoking.

Consensus Based Conclusions (Level IV)

Recommendations based on Level I evidence are listed on page 6. In addition there are a number of recommendations listed below arising from the identified reviews that are derived from evidence rated as Level IV, expert opinion.

- Clinical screening systems should be expanded to include smoking status in vital signs to assist in assessment and documentation.
- Continuity of abstinence should be assessed regularly throughout and on completion of treatment.
- Patients not willing to undertake a smoking cessation program at initial contact should be provided with motivational advice.
- If the patient has relapsed, further intervention should be offered.
- Ex-smokers no longer actively in a smoking cessation program should have the positive benefits of that decision reinforced and should be assisted with any residual problems related to smoking cessation.

Specific Groups

- The same interventions may be offered regardless of gender or racial or ethnic group. However, cultural issues may need to be considered in the planning and implementation of a smoking cessation program.
- Smokers with a mental health co-morbidity should be offered smoking cessation interventions following assessment of their risk of co-morbidity exacerbation.
- Smokers should be warned that weight gain is likely following cessation and have the proportional benefits of quitting over weight gain reinforced. Advice should be given to avoid weight loss programs until the patient is confident of avoiding relapse.

References

1. The Joanna Briggs Institute, Smoking Cessation Interventions and Strategies for Hospitalised Patients: An Evidence Based Integrative Review. Health Promotion Unit, Royal Adelaide Hospital; 2000. (unpublished)
2. NHMRC. National Health Policy on Tobacco in Australia and Examples of Strategies for Implementation: National Health and Medical Research Council; 1991.
3. Agency-for-Health-Care-Policy-and-Research. Smoking cessation: clinical practice guideline: US DEPTHHS PUBLPublic Health Serv; 1996.
4. Silagy C. Physician advice for smoking cessation. In: The Cochrane Library. Issue 2, Update Software, online or CD ROM, updated quarterly ed; 2000.
5. Rice VH, Stead LF. Nursing interventions for smoking cessation. The Cochrane Library 2000(2).
6. Lancaster T, Stead L. Self-help interventions for smoking cessation (Cochrane Review). The Cochrane Library, Issue 2, 2000. Oxford: Update Software. 2000.
7. Lancaster T, Stead L. Individual behavioural counselling for smoking cessation (Cochrane Review). The Cochrane Library, Issue 2, 2000. Oxford: Update Software. 2000.
8. Stead LF, Lancaster T. Group behaviour therapy programmes for smoking cessation. The Cochrane Library 2000(2).
9. Hajek P, Stead LF.A versive smoking for smoking cessation. The Cochrane Library 2000(2).
10. Lancaster T, Stead LF. Silver acetate for smoking cessation. The Cochrane Library 2000(2).
11. Abbot NC, Stead LF, White AR, Barnes J, Ernst E. Hypnotherapy for smoking cessation. The Cochrane Library 2000(2).
12. White AR, Rampes H, Ernst E. Acupuncture for smoking cessation. The Cochrane Library 2000(2).
13. Silagy C, Mant D, Fowler G, Lancaster T. Nicotine replacement therapy for smoking cessation. The Cochrane Library 2000(2).
14. Gourlay SG, Stead LF, Benowitz NL. Clonidine for smoking cessation. The Cochrane Library 2000(2).
15. Stead LF, Hughes JR. Lobeline for smoking cessation. The Cochrane Library 2000(2).
16. Hughes JR, Stead LF, Lancaster T. Anxiolytics and antidepressants for smoking cessation. The Cochrane Library 2000(2).
17. Lancaster T, Stead LF. Mecamylamine (a nicotine antagonist) for smoking cessation. The Cochrane Library 2000(2).

THE JOANNA BRIGGS INSTITUTE
FOR EVIDENCE BASED NURSING AND MIDWIFERY

this is a Health Promoting Initiative

Acknowledgments

This information sheet was derived from a commissioned review conducted by Rick Wiechula and Craig Lockwood of The Joanna Briggs Institute for Evidence Based Nursing and Midwifery for the Health Promotion Unit, Royal Adelaide Hospital. The review report and recommendations were reviewed by a multidisciplinary panel and in particular the Institute would like to acknowledge the efforts of Mr Andrew Zoerner, Director, Health Promotions Unit, and Dr Rick Stapleton who chaired the review group with initial funding from the Anti-Tobacco Ministerial Advisory Taskforce.

In addition the Best Practice sheet has been peer reviewed by experts nominated by JBIEBNM centres throughout Australia, New Zealand and Hong Kong.

Screening for Tobacco Use

In order to offer treatment or assistance in smoking cessation, patients that smoke must be identified.

The research has examined the impact of screening programs on the uptake of clinical interventions and on long term smoking cessation.

Screening programs have been found to be effective strategies leading to the instigation of clinical interventions in smoking cessation. The impact on long term smoking cessation has not been demonstrated.[3]

Advice to Quit Smoking

Studies have examined the role of physicians in providing smoking cessation advice during routine consultation. In some studies printed materials were additionally provided. The provision of advice by physicians was found to have a positive effect on smoking cessation rates, and should be encouraged.[4]

A number of studies have examined the question of which disciplines are effective in providing advice relating to smoking cessation. Rice and Stead[4] specifically reviewed advice given by nurses and found this to be highly effective in promoting smoking cessation when compared with no intervention. Nurse initiated advice should be considered a front line therapy. This supported the findings of a previous review of dentists, pharmacists, psychologists, nurses, social workers and other health counsellors.[3] All groups were effective in providing advice/ interventions relating to smoking cessation with no clear advantage in any particular discipline. Interventions using multiple providers from different disciplines were markedly more effective than when no provider was involved, further indicating that health care workers from a range of disciplines can effectively promote smoking cessation.[3]

Treatment Formats

Self Help Treatment

Smokers may choose to undertake a quit program without the assistance of a health care professional. Self-help strategies may include written materials, audio or video tape, computer programs and telephone hotlines. Materials can be tailored to particular populations such as different ages or ethnic groups, or to individual smoker characteristics. Self-help programs have been found to be slightly more effective than no intervention and more effective when self-help materials are tailored to the individual smoker.[6]

Individual Counselling and Group Therapy

Two related reviews have been conducted examining individual counselling and group therapy approaches to smoking cessation.[7,8] Both forms of counselling were highly effective, and provided equal benefit to the smoker.

Intensity

A critical question in terms of resource utilisation is the level of intensity required for advice and counselling to be effective.

Studies have examined minimal advice (consultation of < 20 mins with at least one follow-up) versus no advice, and intensive intervention (initial consultation of >20 mins and/or more than one follow-up visit or the provision of additional support materials) versus no advice.[4]

Both levels of advice were shown to be more effective than no advice. Analysis suggests that intensive intervention may have a greater effect than minimal advice.[4]

Aversion Therapy

Aversion therapy involves the provision of unpleasant stimuli to counteract the pleasurable effects of smoking, therefore discouraging the urge to smoke. The most common form of aversion therapy is rapid smoking in which the subject is directed to smoke at a significantly increased rate. Although study results favoured aversion therapy,[9,10] the studies themselves were of poor quality and the results should be treated with caution. There was no evidence that other forms of aversion therapy were effective.

Alternative Therapies

Hypnotherapy has been used as both an individualised therapy and as an adjunct to other smoking cessation interventions.[11] However the quality of studies reviewed on hypnotherapy were poor, and the results inconclusive.

Studies comparing methods of acupuncture including needle puncture, acupressure, and electro-acupressure have also been examined.[12] The treatments, in all forms showed no statistically significant benefit. Based on this evidence, acupuncture can not be recommended for smoking cessation.

Pharmacotherapy

The majority of medications used in smoking cessation act to reduce the side effects of nicotine withdrawal although substances such as silver acetate are used as aversion therapy treatments. The most common and most widely researched is nicotine replacement therapy (NRT) in various forms.

Nicotine Replacement Therapy

Nicotine Replacement Therapy (NRT) is provided in a range of forms including gum, transdermal patches, intranasal spray, inhaler devices and sublingual tablet. These products vary in dosage and delivery duration per day. The overall duration of treatment also varies and treatment regimes may also include concurrent therapies, however, in an extensive review all forms of NRT were found to be significantly more effective than placebo or no NRT.[13]

One review investigated the use of nicotine gum and found 4mg gum was more effective than 2mg gum for smokers identified as 'highly dependant'. Use of 4mg gum was found to be no more effective than 2mg gum for 'low dependence' smokers. Therefore, low dependence smokers may be effectively treated with the lower concentration gum.[13]

Nicotine patches are considered conventional therapy, however the length of time a patch should be worn may impact on its effectiveness and the degree of wearer tolerance. The review showed patches worn for 16 hours (while awake) were as effective as patches worn for 24 hours. Additionally the total duration of treatment was examined and the use of patches beyond 8 weeks was no more effective than stopping treatment at 8 weeks.[13]

When completing NRT there is no difference in effect between weaning or tapering of the therapy, compared to abrupt cessation.[13]

The review also examined the effectiveness of various forms of NRT offered in different settings. It concluded that gum was least effective in the hospital setting. The results for patches were more consistent between settings.[13] This infers that patches may be more suitable in the hospital setting.

Furthermore, support from health care workers was found to increase the effectiveness of NRT in promoting smoking cessation. Increasing the intensity of support improved the effect of both nicotine patches and gum.

Other Medications

Primarily an anti-hypertensive, Clonidine may reduce withdrawal symptoms related to various addictions. It was effective when compared with placebo, but has significant side effects.[14] Lobeline has been widely used in smoking cessation, however when reviewed, no studies of sufficient quality were identified.[15]

A range of anxiolytic and anti-depressant medications has been tested for effectiveness in smoking cessation.[16] Of these, only Bupropion was found to be effective when compared with placebo or NRT. Mecamylamine is a specific nicotine antagonist, and the evidence indicates it is effective in reducing the desire to smoke.[17]

Follow up Assessment and Procedures

Due to the long-term nature of treatment and the risk of relapse over time follow up is important. Additionally the complexity of nicotine addiction and the variety of therapies available suggests follow up strategies be considered a standard component of smoking cessation interventions.[3]

Motivational Strategies

When planning and applying smoking cessation interventions the role of personal motivation should be considered. Although the benefits from quitting smoking are considerable, the level of commitment required to attempt to quit is also considerable. For a variety of reasons patients will defer the decision to stop smoking or make no commitment at all.

Motivational strategies for quitting include concepts such as relevance, risks, rewards and repetition.[3] The information provided to the patient should be relevant to their disease status, health concerns and social situation. Acute and long-term risks to the patient and environmental risks to others should be highlighted. The rewards of improved health, money saving, increased feeling of wellbeing, better health of spouse and children, freedom from addiction and rewards specific to the patient should also be emphasised. Motivational strategies should be repeated at each follow up visit.[3]

Relapse Prevention

Despite the demonstrated efficacy of interventions available to smokers, long-term quit rates are modest. As a result many smokers who present to clinicians have relapsed after attempts to quit.

Studies indicate relapse most frequently occurs within the first three months of quitting,[3] however relapse may occur many years following the quit date. Relapse prevention strategies should be considered for all former smokers. Minimal strategies include congratulations, encouragement and engaging the patient in discussion that focuses on the positive aspects of smoking cessation. Problem solving with regard to any adverse effects of cessation such as weight gain and prolonged withdrawal symptoms should also be undertaken.[3]

Specific Populations and Groups

Research indicates smoking cessation programs are equally effective amongst both genders.[3] While smoking patterns vary among racial and ethnic groups, nicotine addiction and the desire to quit are consistent.[3]

Hospitalised patients

Hospitalised patients present with both additional smoking related risks that may interfere with recovery, and opportunities to quit with the increased availability of clinicians and interventions.[3] Hospital based interventions are effective at helping patients to quit smoking.

Patients with mental health disorders

Patients with mental health disorders have a higher prevalence of smoking than the general population.[3] Nicotine withdrawal may exacerbate a patient's co-morbid condition and this risk must be considered when planning smoking cessation strategies. These patients also have a higher risk of relapse.

Weight gain

Many smokers are concerned about weight gain as a consequence of quitting smoking. There is some evidence to suggest strict dieting and other attempts to prevent weight gain will undermine the attempt to quit smoking, however, the use of NRT gum will delay the onset of weight gain.[3]

Conclusion

Assisting patients to quit smoking is complex and requires a systematic and multifaceted approach. The benefits of promoting smoking cessation particularly amongst hospital in-patients are well recognised not only for the individual concerned but the whole community. There are a range of interventions and strategy alternatives that are supported by quality research based evidence. Although they may be effective in isolation, a program of multiple interventions including appropriate pharmacotherapy with advice and support tailored to the individual, are more likely to achieve success. These interventions can only be effectively applied if there are systems in place to screen, assess and follow up patients who wish to quit smoking.