

**PASS IT ON!**

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**EVIDENCE**

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Hospital Authority Head Office  
Professional Services & Medical Development Division

Clinical Effectiveness Unit  
Issue No. 18, May 2002

## Smoking Cessation Interventions

**Invited commentaries ... .. pg 7 & 8**

This issue covers the delivery of smoking cessation interventions:

- A. Professional Advice
- B. Partner Support
- C. Self-help Interventions
- D. Telephone Counselling
- E. Behavioural Counselling (individual and group)
- F. Nicotine Replacement Therapy
- G. Quit Smoking Helpline

It provides a summary on the evidence derived from meta-analyses, randomised controlled trials (RCT) or recommendations from evidence-based clinical practice guidelines (CPG) identified as at February 2002. Where high level of evidence is not available, lower level evidence will be used to represent current available knowledge on the subject.

Evidence presented in this document was mainly derived from the following sources:

- i. Meta-analyses - those from the Cochrane Collaboration and those included in the clinical practice guideline published by the U.S. Department of Health and Human Services (1).
- ii. Evidence-based CPG - UK's Health Education Authority (HEA) smoking cessation guidelines (2, 3), U.S. Department of Health and Human Services CPG on treating tobacco and dependence, New Zealand National Advisory Committee on Health and Disability (National Health Committee) guidelines for smoking cessation (4).

### **A. PROFESSIONAL ADVICE**

This consists of advice from health care professionals (such as physicians, dentists, health visitors, midwives, pharmacists, physiotherapists, nursing staff) delivered opportunistically during consultations to smokers whether or not they are seeking help to quit smoking.

#### **Physician advice:**

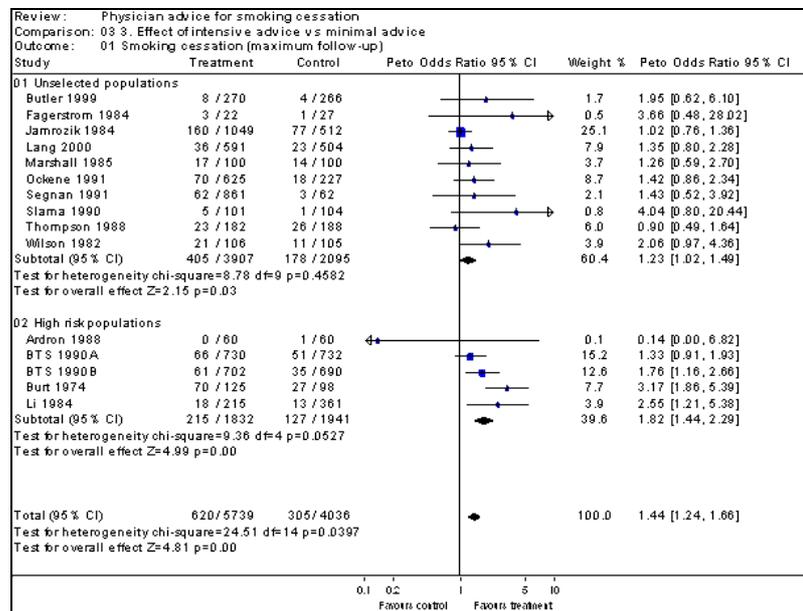
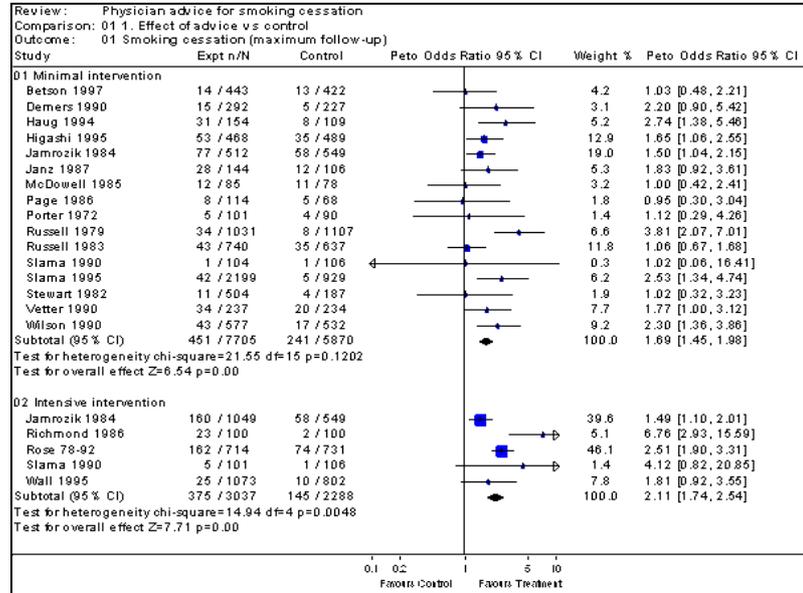
A systematic review of 34 studies (5), conducted between 1972 and 1999, involving 27,000 smokers, confirmed that brief advice from physicians is effective in promoting smoking cessation. The most common setting for delivery of advice was primary care; other settings included hospital wards and outpatient clinics, and industrial clinics. Main outcome measures were abstinence from smoking after at least 6 months follow up and mortality.

Combined data from 16 studies (5) of brief advice versus no advice revealed a small but significant absolute difference in the cessation rate of about 2.5%. However, direct comparison of intensive versus minimal advice showed a small advantage of the former (OR 1.44, 95% CI 1.23 to 1.68).

This means that there would be one extra quitter as a result of minimal intervention from a physician for every 40 people who receive such advice. However, the authors cautioned the use of this NNT of 40 because the absolute quit rates was much more variable between studies than was the odds ratio.

[Cochrane Reviews are regularly updated as new information becomes available and in response to comments and criticisms. The reader should consult The Cochrane Library for the latest version of a Cochrane Review. Information on the Cochrane Library can be found at [www.update-software.com](http://www.update-software.com). The Cochrane Library can also be accessed from the e-Knowledge Gateway (eKG) <<http://ekg>>]

[Both figures were obtained with permission from: Silagy C, Stead LF. Physician advice for smoking cessation (Cochrane Review). In: The Cochrane Library, Issue 1, 2002. Oxford: Update Software. MetaView® Update Software, Oxford.]



### Nursing interventions:

Nursing intervention is defined as the provision of advice and/or other content and strategies to help patients to quit. Systematic review of 16 studies (6), comparing nursing intervention to a control or usual care, indicated the potential benefits of smoking cessation advice and counselling given by nurses to their patients (OR 1.50, 95% CI 1.29-1.73 of abstinence from smoking for at least six months). The authors also advocated the incorporation of smoking cessation intervention as part of standard practice so that all patients are given the opportunity to be queried about their tobacco use and to be given advice to quit along with reinforcement and follow up (6).

### B. PARTNER SUPPORT

Partners were defined as spouses, friends, co-workers, buddies, or others who supported the smokers as a part of the cessation programme they were assigned. Examples of partner support included training smokers in obtaining social support, encouraging increased contacts between smokers and supportive partners, providing training or written materials to partners to assist them in engaging in supportive behaviours, or intervention with smokers/partner pairs in couple theory or in larger groups to encourage supportive interactions.

A systematic review (7) of evidence (8 articles) concluded, "... .. interventions designed to enhance partner support for smokers did not increase quit rates. Limited data from several RCTs suggested that these interventions did not increase partner support either. No conclusions can be made about the impact of partner support on smoking cessation."

## C. SELF-HELP INTERVENTIONS

Self-help is defined as structured programming for smokers trying to quit without intensive contact with a therapist (2).

- There is a small effect of self-help materials compared to no intervention based on 9 trials (OR 1.23, 95% CI 1.02-1.49) (8). This corresponds to a NNT of 100 (1 in 100 smokers using self-help materials quit smoking for at least 6 months) (2). A similar small effect was found in another meta-analysis (OR 1.2, 95% CI 1.02-1.3) (1).
- Materials tailored to the characteristics of a particular smoker are more effective than standard materials based on 8 trials (OR 1.41, 95% CI 1.14-1.75 of abstinence from smoking for at least 6 months) (8).
- The addition of proactive calls from counsellors to self-help materials is more effective than self-help materials alone based on 6 trials (OR 1.62 95% CI 1.33-1.97 of abstinence from smoking for at least 6 months) (8).
- A benefit of access to a hotline offering either recorded messages or the chance to speak with a counsellor was demonstrated in 1 trial (8).

## D. TELEPHONE COUNSELLING

There are two forms of telephone counselling - "proactive counselling" where smokers receive calls from counsellors according to a pre-agreed schedule, and "reactive counselling" where smokers calls a helpline seeking help or advice. Proactive services, compared to reactive services, have been more widely evaluated as they can be more easily controlled.

### ***Proactive follow-up telephone counselling + face-to-face intervention:***

- Evidence on the benefit of face-to-face intervention followed by proactive telephone counselling compared to face-to-face intervention alone is inconclusive.
- The combined estimate from 4 trials did not show a significant increase in quitting from the addition of telephone follow-up (OR 1.08, 95% CI 0.87-1.34 of abstinence from smoking for at least 6 months) (9). Results of another meta-analysis, however, support the recommendation of proactive telephone counselling as one of the formats for delivering behavioural counselling (OR 1.2, 95% CI 1.1-1.4 OR 1.08, 95% CI 0.87-1.34 of abstinence from smoking for at least 6 months) (1). It should be noted that while the former analysis was based only on trials making direct assessments of the effect of telephone support, the latter analysis included trials that used proactive telephone support even in combination with other components in an intervention. The 95% CI of the combined estimate of the former analysis overlaps with that of the latter analysis suggesting that it does not exclude a similar size of effect.

### ***Intensity of telephone follow-up after face-to-face counselling:***

- No meta-analysis is available.
- One RCT showed that a high intensive telephone follow-up (4 calls at 48 post discharge, 7, 21, 90 days) was more effective than low intensive follow-up (1 call at 48 post discharge) in addition to 30 minutes counselling for hospitalized patients (OR 1.40, 95% CI 1.00-1.96 of abstinence from smoking for 1 year) (10).

### ***Proactive follow-up telephone counselling + NRT:***

- The combined estimate of 4 trials did not show a significant effect of adding telephone support (OR 1.08, 95% CI 0.82-1.43). NRT was accompanied by some form of face-to-face intervention in 3 of the 4 trials. The 95% CI does not exclude a small benefit.

### ***Reactive telephone counselling:***

The efficacy of reactive telephone counselling has been evaluated in very few trials.

- One RCT found that self-help manual plus materials promoting 24-hours hotline (with daytime access to counsellors) was more effective than self-help manual alone (OR1.74, 95% CI 1.12-2.69). At 12 months, 10% using the hotline and a self-help manual had quit for at least 3 months, compared to 7.1% using the manual only (biochemically validated). A 2.9% increase in quit rate at 12 months was achieved by hotline and self-help manual versus self-help manual alone (11).

## E. BEHAVIOURAL COUNSELLING

### *Individual counselling:*

A Cochrane review adopted the definition of individual counselling as “a face-to-face encounter between a smoking patient and a counsellor trained in assisting smoking cessation.” (12). This review excluded trials on counselling delivered by doctors and nurses as part of clinical care.

- The combined estimate of 10 trials found significant benefit of individual counselling over minimal intervention ranged from usual care to up to 10 minutes of advice, with or without the provision of self-help materials (OR 1.55, 95% CI 1.27-1.90) (12). This is consistent with the results of another meta-analysis (OR 1.7, 85% CI 1.4-2.0) (1).

### *Group counselling:*

- Combined estimate from 13 trials found statistically significant benefit in group counselling over self-help programmes (OR 2.44, 95% CI 1.78-3.36) (13). However, there were insufficient evidence to demarcate the contribution or effectiveness of different elements/strategies used.
- If group counselling is compared to no intervention or minimal contact, combined estimate of 5 trials produced a OR of 1.91 (95% CI 1.20-3.04) in favour of group counselling. Finding is consistent with another meta-analysis (OR 1.3, 95% CI 1.1-1.6) (1).

### *Individual vs. group counselling:*

- Only two trials compared group with individual counselling, and neither found a significant difference though there was a trend towards higher quit rates with individual therapy (14). There is no evidence that meeting with a group of other smokers is a critical element in an intensive smoking cessation programme (14).
- Comparison between combined estimates on trials with individual counselling and with group counselling, respectively suggests a similar size of effect (1).

Format	No. of arms	Estimated odds ratios (95% CI)	Estimated abstinence rate (95% CI)
No format	20	1.0	10.8
Individual counselling	52	1.7 (1.4-2.0)	16.8 (14.7-19.1)
Group counselling	67	1.3 (1.1-1.6)	13.9 (11.6-16.1)

### *Content of behavioural counselling:*

- There are methodological difficulties to isolate and attribute efficacy to particular types of counselling and behavioural therapies per se.
- Comparison between combined estimates of various types of counselling/behavioural therapies with no therapies (1), however, may serve as a guidance:

Type of counselling & behavioural therapy	No. of arms	Estimated odds ratios ^ (95% CI)	Estimated abstinence rate# (95% CI)
No counselling / behavioural therapy	35	1.0	11.2
Relaxation / breathing	31	1.0 (0.7-1.3)	10.8 (7.9-13.8)
Contingency	22	1.0 (0.7-1.4)	11.2 (7.8-14.6)
Weight / diet	19	1.0 (0.8-1.3)	11.2 (8.5-14.0)
Negative affect	8	1.2 (0.8-1.9)	13.6 (8.7-18.5)
Intra-treatment social support	50	1.3 (1.1-1.6)*	14.4 (12.3-16.5)
Extra-treatment social support	19	1.5 (1.1-2.1)*	16.2 (11.8-20.6)
General problem-solving	104	1.5 (1.1-2.1)*	16.2 (14.0-18.5)
Other aversive smoking	19	1.7 (1.04-2.8)*	17.7 (11.2-24.9)
Rapid smoking	19	2.0 (1.1-3.5)*	19.9 (11.2-29.0)

\*Statistically significant    ^Outcome data with follow up at least 5 months after designated quit day    # Abstinence from smoking for at least 6 months

Based on the results, the U.S. Department of Health and Human Services guidelines recommend that three types of counselling and behavioural therapies should be included in smoking cessation interventions: (a) providing smokers with practical counselling (problem-solving skills/skills training); (b) providing social support as part of treatment; and (c) helping smokers obtain social support outside of treatment (1).

## F. NICOTINE REPLACEMENT THERAPY (NRT)

- There is little evidence about the role of NRT in individuals smoking less than 10-15 cigarettes per day (15).
- A meta-analysis arrived at a combined estimate of OR 1.73 (95% CI 1.62-1.85 of abstinence from smoking for at least 6 months) for any form of NRT relative to placebo (15).
- Observations derived from independent studies comparing different forms of NRT to placebo yielded similar odds ratios in quit rates after 12 months (15):

NRT	No. of trials	Combined OR (95% CI)
Gum	51	1.66 (1.52-1.81)
Patch	34	1.76 (1.59-1.95)
Intranasal spray	4	2.27 (1.61-3.20)
Inhaler	4	2.08 (1.43-3.04)
Sublingual tablet	2	1.73 (1.07-1.85)

- The effectiveness of nicotine gum, patch, nasal spray and inhaler, respectively is supported by results of another set of meta-analyses (1) and their use is recommended by the U.S guidelines (1).
- For direct comparison between different forms of NRT, a meta-analysis (15) showed:

Comparison	Study design	Results (for 6-12 months of not smoking)
Gum 4mg vs. 2mg	Meta-analysis	<ul style="list-style-type: none"> <li>• For high dependency smokers (4 trials): a significant benefit in favour of 4mg gum (OR 2.18, 95% CI 1.48-3.17)</li> <li>• For low dependency smokers (3 trials): no significant difference (OR 0.70, 95% CI 0.38-1.29)</li> </ul>
Patch + gum vs. patch	1 RCT	No significant difference (OR 1.53, 95% CI 0.81-2.88)
Patch + gum vs. gum	1 RCT	No significant difference (OR 1.51, 95% CI 0.86-2.65)
Nasal spray + patch vs. patch	1 RCT	Significant difference in favour of combination (OR 3.03, 95% CI 1.50-6.14)
Patch + inhaler vs. inhaler	1 RCT	No significant difference (OR 1.49, 95% CI 0.16-1.53)
Patch + inhaler vs. patch or inhaler	1 RCT	No significant difference (OR 0.50, 95% CI 0.16-1.53)
Inhaler vs. patch	1 RCT	No significant difference (OR 0.57, 95% CI 0.19-1.65)

There is some evidence that combining different forms of NRT may be more effective than one form alone (15). The U.S. guidelines recommend the use of nicotine patch with another form of NRT (gum or nasal spray) taken *ad libitum* as a second-line treatment for smokers unable to quit on a single form of NRT, though evidence is inconclusive due to heterogeneity of the studies in the analysis. The guidelines also recommend that combination treatment should be used only with those smokers unable to quit using a single form of NRT (1).

- One trial compared nicotine patch and bupropion on smoking cessation at 12 months (15):

Comparison	Results
Patch vs. bupropion	No significant difference (OR 0.48, 95% CI 0.28-0.82)
Patch + bupropion vs. patch	Significant difference in favour of combination (OR 2.65, 95% CI 1.58-4.45)
Patch + bupropion vs. bupropion	No significant difference (OR 1.28, 95% CI 0.82-1.99)

### Specialist smoking cessation clinics:

- The effectiveness of these clinics in terms of abstinence rate was previously reported e.g. self-reported total abstinence of 27% at 6 months follow-up, among 12 hospital-based clinics in Paris (16), 22% at six months at the Mayo Clinic (17), 32% abstinence rate at 12 months in one New Zealand clinic (18). It should be noted, however, that there is variation in the definition of abstinence rate.
- In the context of specialist smoking cessation clinics, the following recommendations were made by the HEA guidelines (2):
  - Where possible smokers should have access to a specialist smokers' clinic. [A]
  - Specialist clinics and other support services should be staffed by individuals specially trained and employed for the purpose rather than attempting to fit the job in with other duties. [A]
  - The extent of provision of specialist smokers' clinics should be commensurate with demand. [C]
  - Clinics should offer both individual and group treatment [A].
  - Specialist services should incorporate advice to use NRT or bupropion into the

regimen. [A]

- vi. The withdrawal orientated treatment model offers a practicable and proven system for most specialist services. [C]

Strength of evidence:

A – Many well-designed RCT directly relevant to the recommendation, yielding a consistent pattern of findings.

B – Some evidence from RCT but not optimal. More interpretation of the evidence was needed.

C – No RCT but the issue is important enough to merit a recommendation, which is based on published evidence and expert opinion of the authors and reviewers.

## G. QUIT SMOKING HELPLINE

- There were no studies comparing helpline alone with a control group.
- A U.S. study compared a help line in addition to self-help manual with self-help manual alone (11). This 10-county U.S. study found the addition of help line to self-help manual enhanced quit rates compared to self-help manual alone. At 12 months, 10% of the help line/self-help manual group had quit (biochemically validated) for at least 3 months, compared with 7.1% of the manual only group. The help line achieved a 2.9 % increase in quit rate at 12 months compared to the manual alone group.
- The Scottish Smokeline service (supported by mass-media advertising) having reached 6% of Scottish smokers was associated with a quit rate of 24% at one year (19).
- The Australian National Quitline Service achieved a point prevalence and 12-month period prevalence of 29% and 6%, respectively twelve months after first calling the Quitline (20).

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## Invited Commentaries

### Professor TH Lam

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We have long known that tobacco kills and the best way to reduce the tobacco epidemic is smoking cessation in a large proportion of smokers in addition to the prevention of nicotine addiction in young people. While some smokers manage to quit by themselves, most need professional help. However, health professionals have been slow in taking up this life saving duty despite the strong evidence that some smoking cessation interventions are effective, and more cost effective than many other medical interventions. Meanwhile, tobacco continues to kill nearly 6,000 people each year in Hong Kong and cause serious diseases requiring long term medical care in large numbers of patients.

This issue of **EVIDENCE** is important and timely. It comes at the time of the Hospital Authority's launching of the *biggest ever* smoking cessation programme in Hong Kong. We hope that this issue of **EVIDENCE** will inform not only those who are directly involved in existing services or in the new programme but all doctors, nurses and other health professionals who provide clinical care to patients. All health professionals should be familiar with the evidence and apply it in their everyday practice.

Not all smokers will quit after interventions, but some (probably up to 30%) will quit, and the success rate depends on the commitment and skill of the health professionals, their counselling effort and the use of nicotine replacement therapy or bupropion. Even if a smoker fails the first time, such failure is a strong predictor of future success, and our efforts will not be wasted. Of course, successful quitters are usually most grateful, and some doctors are now organising quitters to help other smokers. As one out of two smokers will be killed prematurely by smoking, changing two smokers into two quitters means saving at least one life.

Readers of **EVIDENCE** will notice that all the evidence on smoking cessation has been derived from studies elsewhere and Hong Kong has contributed virtually nothing so far to the international pool of evidence. With the launching of the new HA programme, several randomised controlled trials (RCT) will be carried out to test new hypotheses about the efficacy and cost effectiveness of different methods of interventions. We hope to register the trials with the Cochrane collaboration, and to contribute new evidence from our RCT results in the next few years.

Additional information and comments relative to this issue are welcome, and should be addressed either to



available from <<http://ekg>> or Dr SP Lim at [splim@ha.org.hk](mailto:splim@ha.org.hk). Reprint of this publication for research or further study is granted without prior permission from the Hospital Authority.

**Dr Sophia Chan***Acting Head**Department of Nursing Studies**The University of Hong Kong*

Smoking is the single most preventable cause of death and five hundred million people alive today will eventually be killed by tobacco. There are clear health benefits for smokers to quit. It is encouraging that the Hospital Authority is launching a large smoking cessation service in its hospitals and clinics.

Nurses have a vital role in supporting smoking cessation programmes, as they are taking care of an increasing number of patients with tobacco-related disorders each day. Recently, the Department of Nursing Studies and the Department of Community Medicine from the University of Hong Kong and the Hospital Authority collaborated to provide a Smoking Cessation Counsellor Training Programme for hospital nurses. This pioneer programme is the first of its kind in Hong Kong and aims to equip nurses with knowledge and skills on managing care for smokers. In this programme, nurses learn how to assess smoking status, plan individualised behavioural and pharmacological treatment, deliver smoking cessation interventions and preventive measures to minimise relapse, and to evaluate outcomes. This initiative and the supports demonstrated by the senior nursing managers has inspired more nurses to realize their role in fighting tobacco. Such training should be made more readily available in the basic nursing curriculum and also in continuing nursing education activities.

A local randomised controlled trial showed that health education delivered by nurses to mothers of sick children on the harmful effects of environmental tobacco smoke (ETS) was effective in enhancing the mothers' actions to protect the child from ETS exposure, in actually reducing the child's ETS exposure at home, and in changing the fathers' smoking and quitting behaviour resulting in a higher quit rate (1). Another study showed that nurses in Hong Kong had good grasp of knowledge and positive attitudes in health education but was poorly supported in the area of smoking cessation (2). Together, they indicate great potential for nurses to participate and even take lead in developing smoking cessation activities in the clinical settings of Hong Kong. In August 2000, the Hong Kong Council on Smoking and Health (COSH), in collaboration with the University of Hong Kong, the Chinese University of Hong Kong, and the Ruttonjee Hospital, initiated the first Smoking Cessation Health Centre in Hong Kong. In this service model, nurses trained as Smoking Cessation Counsellors (SCC) provided individual counselling, consultation and nicotine replacement therapy to smokers. I think this is an important step in expanding the nurse's role in delivering smoking cessation interventions.

Nurses represent the largest proportion of the health care workforce who has frequent direct contact with patients. They are in a unique position to deliver health education and play an active and leading role in promoting and implementing smoking cessation activities. Given the evidence cumulated on the harmful effects of active and passive smoking, and the size of such problems from the public health perspective, Fiore (3) suggested smoking status to be a vital sign routinely assessed for all patients. Evidence supports that nursing interventions exerted positive effects on patients' health outcome in smoking cessation. It is time for nurses to show more ownership and leadership in combating the tobacco epidemic. Apart from providing supports to formal smoking cessation programmes, nurses are in a good position to contribute by taking up the responsibility to assess the smoking status of patients, as part of their everyday practice.

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