Smoking cessation interventions among hospitalized patients: what have we learned?

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Authors' objectives
To describe the findings of the published controlled studies on hospital-based smoking cessation interventions, and to delineate the characteristics of successful hospital-based smoking cessation programmes.

Searching
MEDLINE was searched, first reviewing all the papers listed with the union of 'smoking cessation' and 'hospitalisation', and then under the general term 'smoking cessation'. Studies published in any language through 1999 were reviewed. The references of the retrieved studies were also reviewed for further pertinent studies.

Study selection
Study designs of evaluations included in the review
Published in-patient studies with a control group or comparison condition, including non-randomised trials, were included.

Specific interventions included in the review
Hospital-based smoking cessation interventions. The intensity of the hospital interventions (counselling) ranged from low (brief physician counselling) to high (bedside counselling, videotapes and/or cassette tapes, and written materials), and were delivered by respiratory therapists, research assistants, physicians, registered nurses or health educators. The duration of the intervention ranged from 2 minutes to 16 sessions of 60 minutes.

In addition to this, nicotine replacement therapy and post-discharge relapse prevention were used in some studies. Post-discharge relapse prevention consisted of telephone calls, clinic visits, and/or follow-up mailings of self-help materials.

Participants included in the review
Hospitalised smokers. The included participants were general admission, cardiac, surgery and other specialist populations of patients. The participants included both pre-contemplators (smokers not considering quitting) and contemplators (smokers planning to quit in the next 6 months).

Outcomes assessed in the review
The authors did not predefine any inclusion or exclusion criteria relating to the outcomes. The primary outcome of interest was the quit rate, as measured by self-report and biochemical corroboration.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
The authors do not state that they assessed validity.

Data extraction
The authors do not state how the data were extracted for the review, or how many of the reviewers performed the data extraction.

The following categories of data were extracted from each study: author; whether a randomised controlled trial (RCT) or not; intervention group size; study population; smoker participation (% of eligible); pre-contemplators enrolled; intensity of hospital intervention; use of nicotine replacement therapy (% for usual care and intervention); post-
discharge relapse prevention; primary end point quit rates (% of usual care versus intervention); absolute risk
difference; and the risk ratios with 95% confidence intervals.

Methods of synthesis
How were the studies combined?
A narrative synthesis was undertaken, where the studies were grouped according to the intensity of the hospital
intervention and relapse prevention.

How were differences between studies investigated?
Heterogeneity was not formally assessed.

Results of the review
Twenty controlled studies, of which 15 were RCTs, were included. The total number of enrolled participants in the 19
studies that provided such information was 7,387.

The participation rates ranged from 34 to 100% across the studies. Fourteen studies provided information on the rate of
study refusal. From these data, it appears that studies of patients with a serious tobacco-related acute illness had higher
participation rates than those of patients with a general hospital admission, or with a chronic illness.

The risk ratio was calculated by dividing the quit rate for the intervention group, by that for usual care. Overall, the risk
ratios ranged from 0.9 to 2.3 (median 1.5). Eight of the studies found the differences between the quit rates to be
statistically significant. Among the general admission patients (9 studies), the control condition quit rates ranged from 5
to 21% (median 15), and the absolute increases in smoking cessation associated with the intervention ranged from -1 to
10% (median 4).

The control condition rates among the cardiac patients (6 studies) ranged from 28 to 54% (median 31), whilst the
increases in the absolute risk rates ranged from 7 to 36% (median 15). The range in rate ratios was similar for studies of
general admission patients (range: 0.9 to 2.0; median 1.3) and studies of cardiac patients (range: 1.1 to 2.3; median 1.5).
The rate ratios for general surgery admissions (2 studies) and special in-patient populations (3 studies) had ranges
similar to those seen for general and cardiac admissions.

One of the included studies did not offer relapse prevention, whilst another did not describe relapse prevention very
well. The latter found a significant impact of the intervention on long-term quit rates (62% versus 28%, 1 to 3 years
after the intervention).

Low to moderate intensity hospital intervention, with brief (i.e. one month or less) relapse prevention (2 studies):
neither of these 2 studies showed any long-term success.

Low-intensity hospital intervention, with sustained (i.e. over one month) relapse prevention (3 studies): none of these 3
studies showed any long-term success.

High-intensity hospital intervention, with brief relapse prevention (5 studies): one of these 5 studies found a significant
long-term increase in cessation rates (21% in the intervention arm compared with 16.7% among the controls). This
study was distinct from other similar studies in that it used experienced, smoking cessation counsellors for the bedside
intervention.

High-intensity hospital intervention, with sustained relapse prevention (9 studies): all 9 studies found that the long-term
quit rates were higher among the intervention group than in controls, with absolute increases in quit rates of 6 to 29%
and risk ratios of 1.3 to 2.0. Six of the 9 studies had statistically-significant increases in long-term smoking cessation.
The 3 studies in which the findings were not statistically significant increased the absolute quit rates by 7 to 15%, but
none had adequate power to detect these effect sizes.

Studies with a dedicated smoking cessation counsellor and 3 to 5 months of relapse prevention had a significant impact
on the cessation rates.
Authors' conclusions
Efficacious in-patient smoking programmes have been developed and validated. The challenge now is to translate these interventions more widely into practice, given changing hospitalisation programmes.

CRD commentary
The review question was clearly stated and was well supported by the inclusion criteria. The literature search was restricted to a single database (MEDLINE) and was limited to published studies, but studies published in any language were eligible for inclusion. Publication bias was not assessed. There was no validity assessment of the primary studies. The data were synthesised in a narrative format, with studies grouped by the intensity of the hospital intervention and relapse prevention. The authors did not provide any details regarding the review process.

The authors' conclusions appear to follow on from the results of the review, but should be viewed in light of the caveats highlighted.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors state that effectiveness trials in new settings are needed, and that hospital-based smoking cessation programmes should be adopted across a variety of hospital settings. The settings in which hospital-based smoking cessation programmes have been studied have been limited to teaching hospitals and to Kaiser Permanente hospitals, and have not included more traditional community hospitals or public health hospitals.

The authors also state that future research should evaluate low-intensity hospital interventions coupled with sustained relapse prevention programmes. This is needed to determine whether such interventions might provide meaningful increases in cessation rates, while minimising the need for bedside counselling support.

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