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## Behavioural interventions for smoking cessation in patients hospitalised for a major cardiovascular event

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## Abstract

The impact of cigarette smoking on progression of atherosclerosis in patients with known cardiovascular disease suggests a strong need for effective cessation interventions in this group. This letter compares and discusses smoking cessation outcomes following behavioural smoking cessation interventions versus usual care in hospitalised cardiovascular patients using meta-analysis of randomised controlled peer-reviewed publications. It particularly focuses on the impact of intensity and duration of intervention on outcome. © 2008 Elsevier Ireland Ltd. All rights reserved.

Keywords: Smoking cessation; Behavioural intervention; Cardiovascular; Hospitalised

## 1. Introduction

Smoking increases the progression of atherosclerosis, angina, myocardial infarction (MI), and sudden cardiac death [1], with cessation thought to reduce the recurrence risk of coronary events to that of non-smokers within 3 years [2]. Helping a smoker who has had an MI achieve cessation reduces their mortality by up to 50% over the next 3 to 5 years [3]. Patients who have recently been hospitalised for a cardiovascular event represent a group who are likely to be more motivated to stop smoking, provided a focused approach is initiated and actively followed up [4].

Hospital initiated smoking cessation programs may vary in intensity (the number of cessation interventions in a

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given period of time), duration, and the use of objective verification (urine, sputum, blood, or carbon monoxide breath testing) [5–7]. In addition, they may include the administration of either nicotine based pharmacotherapy (chewing gums, inhalers, and patches), [8–10] or non-nicotine based medication (buproprion) [11,12]. Although previous research has identified a high intensity of intervention as an important determinant of success [13], the impact of duration of intervention is not yet clear. Distinguishing between duration and intensity is important because longer lasting interventions may not necessarily need to be highly intensive to be effective, as shown in the treatment of other chronic conditions such as depression or diabetes [14,15].

Meta-analysis of randomised controlled trials offers a tool to compare behavioural interventions (BI) for smoking cessation programs versus usual care (UC) in patients hospitalised for cardiovascular diseases. It also allows us to examine the hypothesis that interventions of longer duration (>3 months post-discharge) will be more effective compared to shorter ones.

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Table 1 Characteristics of included studies.

Author (Reference)	Country	No of patients		Reason for	BI Components	Patient group	Duration of	Intensity of	Objective cessation	Follow-up	Type of	Quality
		BI	UC	admission		matching	BI (months)	BI (No in 6 months)	verification	duration	abstinence reported	Score
Taylor et al. [7]	USA	86	87	Acute: MI	a,b,c,d,e,f,i	2,3,5,8,7,11	4	9	Yes (COexp,THIO)	12	PPA	5/5
Ockene et al. [5]	USA	135	132	Acute & Elective: PTCA	a,b,d,e,h,i	1,2,3,4,5,7, 9,10,11	4	6	Yes (COTsaliva)	12	PPA, CA	4/5
Rigotti et al. [25]	USA	44	43	Elective: CABG	a,b,c,d,e,i	1,2,6,7,8,9, 11,12	1	4	Yes (COTsaliva)	66	PPA, CA	3/5
Miller et al. [26]	USA	Gp1=138 Gp2=182	310	Acute: CVD	Gp1: a,b,c,d,f,h,i Gp2: a,b,c,d,e, f,h,i	1,2,3,6,10,11,12	Gp1=48 h Gp2=3	Gp1=2 Gp2=6	Yes (COTsaliva)	12	PPA, CA	5/5
Moreno Ortigosa et al. [22]	Spain	43	47	Acute: MI	e,g,i,d	1,2,3,7,9,11	1	4	Yes (CO exp)	12	PPA	4/5
Dornelas et al.[19]	USA	54	46	Acute: MI	a,d	1,2,3,4,6, 9,10,11	6	6	No	12	PPA, CA	4/5
Hajek et al. [20]	UK	274	266	Acute & Elective: MI, CABG	a,b,e,h,i	1,2,3,4,6,8, 9,11,12	6 weeks	2	Yes (COexp, COTsaliva)	12	PPA, CA	5/5
Quest-Paisen and Gallefoss [23]	Norway	118	122	Acute & Elective: ACS, MI, CABG	a,b,c,d,e,f,i	1,2,4,7,8,9, 11,12	6	10	Yes (COTurine)	12	PPA	3/5
Reid et al. [24]	Canada	126	128	Acute & Elective: PTCA, MI, CABG	a,b,d,e,f,h	1,2,3,6,7,9, 10,11	2	5	No	12	PPA	3/5
Chouniard and Robichaud- Ekstrand [18]	Canada	Gp1=56 Gp2=56	56	Acute: CVD/PVD	Gp1: a,e,f,h,i Gp2: a,d,e,f,h,i	1,2,3,4,5,6, 7,8,12	Gp1=0 Gp2=2	Gp1=1 Gp2=6	Yes (COexp, COTurine)	6	PPA, CA	5/5
Mohiuddin et al. [21]	USA	109	100	Acute: ACS of HF	a,b,e,f,i	1,2,5,6,8,9	3	>12	Yes (COexp)	24	PPA, CA	3/5

Legend: BI = Behavioural Intervention; UC = Usual Care; MI = Myocardial Infarction; PTCA = Percutaneous coronary angioplasty; CABG = Coronary Artery Bypass Grafting; ACS = Acute Coronary Syndrome; HF = Heart Failure; CVD = Cardiovascular disease, PVD = peripheral vascular disease; CA= Continuous Abstinence; PPA = Point Prevalence Abstinence.

BI components: a—seen by specialist nurse/psychologist/counsellor; b—reading materials; c—visual/audio media; d—telephone follow-up; e—face-to-face follow-up offered; f—nicotine replacement therapy; g—follow-up by cardiologist; h—nurse follow-up; i—biochemical/respiratory confirmation of smoking cessation.

Matching: 1—age; 2—sex; 3—addiction level (Fagerstrom); 4—social support/married; 5—age at first smoke/duration; 6—education level; 7—previous quitting attempts; 8—Previous MI; 9—recent acute MI/CABG; 10—self efficacy (confidence to quit); 11—cigarettes/day; 12—unemployment.

Biochemical verification: CO exp-carbon monoxide breath test; COT saliva-salivary cotinine; COT urine-urinary cotinine; THIO-serum thiocyanate level.

Quality Scoring: Validation of self-reported cessation (1 point); Randomisation procedure reported (1 point);>70% of patients remaining at the end of follow-up (2 points); Matched for addiction level (1 point).

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