Implementing and complying with the Smoke-free Hospitals Project in Catalonia, Spain

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The objective of the study was to describe the implementation of measures for preventing tobacco consumption developed in the Catalan Network of Smoke-free Hospitals. Information from 25 hospitals that are actively involved in the Catalan Network of Smoke-free Hospitals (April 2004) was used. The degree of implementation of the Smoke-free Hospitals Project was analysed by means of the Self-Audit Questionnaire of the European Network for Smoke-free Hospitals; each hospital was analysed globally and according to the duration of its Network membership (<1 year: implementation stage; ≥1 year: consolidation stage). In terms of global indicators, there were high levels of commitment (64.8%), communication (74.7%), tobacco control (77.4%) and implementation of smoke-free environments (81.0%). A lower degree of implementation (<50%) was found in education and training, health promotion and healthy workplaces. According to the duration of Network membership, significant differences were observed for communication, environment, healthy workplaces and follow-up. Deficits were observed in areas such as specialist training and cessation support, and further input is required here. By identifying areas needing attention, providing a guide for policy development and by administering it periodically, one can ensure that progress is kept on track. ***European Journal of Cancer Prevention*** **15:446–452 © 2006 Lippincott Williams & Wilkins.**

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Introduction

The health risks associated with tobacco are well documented and, at the beginning of the twenty-first century (Vineis *et al.*, 2004), it continues to be the most important single cause of preventable morbidity and mortality in Spain (Peto *et al.*, 2003). In Catalonia, data for 2002 revealed that 38% of men and 26.5% of women declared themselves to be smokers (Catalan Health Service, Catalan Government, 2003). With respect to previous years, research has identified a decrease in the prevalence of male smokers (Borras *et al.*, 2000; Fernandez *et al.*, 2001; Jane *et al.*, 2002; Garcia *et al.*, 2004) and an important increase in the prevalence of female smokers, especially among the youngest. Despite its magnitude, the epidemic proportions of smoking can be controlled and prevented (USDHHS, 1990). This will only be achieved, however, through a systematic and persistent approach that is able to reduce its negative effect on people's health (Villalbi and Ballestin, 1994; Villalbi, 1999).

In Spain, increased legislative measures have been introduced to control tobacco consumption, although there remains a good deal of permissiveness when it comes to implementing them (Cordovilla *et al.*, 1997; Serra *et al.*, 1997). Smoking in hospitals is now prohibited under both national and regional legislation (Catalan law, 20/1985, 1985; Spanish Royal Decree, 192/1988, 1988; Catalan law, 10/1991, 1991). Ensuring strict compliance with current legislation on the sale and use of tobacco (in health centres, markets, public transport, restaurants, government offices, etc.) benefits not only nonsmokers but also other antismoking initiatives, as set out in Spain's new law for the Prevention and Smoking Control (Tobacco Law Project, 2005).

As organizations, hospitals and health centres must set an example in terms of controlling tobacco consumption and championing compliance with the law (Batlle *et al.*, 1991; West *et al.*, 2000). Furthermore, health services should be taking a lead in implementing smoking policies that promote smoke-free environments for patients, visitors and staff, and ensure that patients and staff are provided with information and advice about smoking and how to give it up (Amos, 1991). Most studies show that restrictions on tobacco consumption, especially in the

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Table 1 European smoke-free hospital code

Commitment
Engage decision-makers. Inform all personnel and patients.
Communication
Appoint a working group. Develop a strategy and an implementation plan.
Education and prevention.
Set up a training plan to instruct all staff on how best to approach smokers.
Identification and cessation support
Organize cessation support facilities for patients and staff in the hospital and ensure continuity of support on discharge into the community.
Tobacco control
Indicate smoking zones clearly for as long as they are considered necessary and keep them away from clinical and reception areas.
Environment
Adopt appropriate signage, including posters, signposts, etc., and remove all incentives to smoke (such as ashtrays, tobacco sales, etc.).
Health workplace
Support systems are in place to protect and promote the health of all who work in the hospital.
Health promotion
Promote smoke-free actions in the community setting.
Compliance monitoring
Renew and broaden information to maintain commitment to the policy. Ensure follow-up and quality assurance.
Policy implementation
First convince, then constrain, considering legislation if needed. Have patience!

workplace, reduce the number of cigarettes smoked, help smokers in preparing to give up (increasing the number of smokers in the contemplation stage) and eventually favours cessation and a reduction in the prevalence of smokers (Serra *et al.*, 2000; Fichtenberg and Glantz, 2002; Mendez *et al.*, 2003). Other benefits of introducing smoking policies are reduced cleaning costs and fire hazards and increased productivity among staff (Moher *et al.*, 2003). Thus, the basic criterion of a smoke-free hospital is a smoke-free environment to protect non-smokers and a place providing active support for smokers in their quitting process.

Once smoke-free areas have been designated, health centres should consider implementing new strategies aimed at controlling tobacco consumption among health professionals, such as for example, programmes to help smokers give up. To make a hospital gradually smoke-free, however, it is necessary to develop a model of organizational change (McKee *et al.*, 2003). In this regard, the Catalan Network of Smoke-free Hospitals, coordinated by the Catalan Institute of Oncology, favours and promotes the real-time sharing of experience, offers mutual support regarding educational, training and evaluation tools, and enables common continuous education to be provided (Mendez *et al.*, 2004).

Briefly, the rationale for the process to become a smoke-free hospital is the following: commitment concerning all levels of leadership, communication of the project requirements internally and externally, introduction of tobacco control measures step-by-step, baseline and follow-up assessments and, finally, ensuring quality assurance.

The Catalan Network of Smoke-free Hospitals is a partner of The European Network for Smoke-Free Hospitals (ENSH, http://ensh.aphp.fr/). The ENSH has developed a process to support the implementation of a smoke-free hospital environment. The ENSH process aims to provide hospitals with clearly defined standards and a practical supportive instrument that will assist their efforts towards the attainment of a totally smoke-free environment. Emphasis is on supporting continuous improvement, networking and shared experiences, rather than on competition between participating hospitals and participating countries.

The ENSH has developed the European Code and Standards for Smoke-free Hospitals (Table 1).

Furthermore, the Network organization favours and reinforces the exchange of experiences in real time and mutual support in relation to instruments, training and evaluation. Such an initiative, by means of a Network, facilitates the advance of tobacco control. The aim of the present study was to describe the implementation of measures for preventing tobacco consumption as developed in hospitals from the Catalan Network of Smoke-free Hospitals.

Material and methods

Participants

The information used was gathered from those hospitals that were actively involved in the Catalan Smoke-free Hospitals Network as of April 2004. Of the 53 hospitals affiliated to the Network, 18.9% are directly managed by the Catalan Institute of Health, 75.4% are other public hospitals serving the regional health service, whereas the remaining 5.7% are private hospitals. These hospitals have been Network members for different periods of time (stages of expressing an interest, implementation and consolidation).

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Table 2 Main characteristics of the hospitals

Hospital	Year joined the Network	Number of staff	Number of beds	Level of healthcare[a]	Prevalence (%) of smokers			
					Overall[b]	Doctors	Nurses	Year
1	1998	423	136	3	34.0	22.8	38.6	2004
2	2000	770	314	2	32.2	35.7	33.3	2000
3	2000	442	151	1	31.1	28.2	32.6	2002
4	2000	1700	420	3	26.7	24.0	27.7	2000
5	2000	1238	346	2	29.5	16.3	35.0	2002
6	2001	556	334	2	35.5	29.2	37.7	2001
7	2001	893	183	2	41.0	32.4	40.5	2003
8	2002	690	250	2	33.5	30.2	35.2	2002
9	2002	2681	601	3	–	–	–	–
10	2002	420	152	3	32.2	25	28.1	2003
11	2002	1059	447	2	25.5	20.5	22.3	2002
12	2002	546	162	1	37.8	33.3	31.7	2004
13	2002	3374	913	3	30.8	31.8	26.4	2004
14	2002	1699	336	3	30.8	23.3	31.5	2004
15	2002	402	146	1	33.9	0.9	37.7	2003
16	2003	798	243	2	33.9	20.9	37.7	2003
17	2003	426	89	1	32.3	23.1	29.3	2004
18	2003	1082	394	3	27.2	18.0	28.4	2003
19	2003	176	84	1	38.9	45.0	39.3	2004
20	2003	3374	636	3	34.0	24.0	30.0	2003
21	2003	780	231	2	–	–	–	–
22	2004	447	108	1	36.9	32.8	41.9	2004
23	2004	1938	876	2	33.6	31.4	35.6	2004
24	2004	4057	838	3	35.2	25.8	35.6	2004
25	2004	422	164	1	33.5	28.1	32.1	2004

[a]Level of healthcare of the hospitals according to the Catalan Health Service: 1 – general hospital, 2 – reference hospital, 3 – high technology hospital.
[b]Hospital staff.

For this study, we included those hospitals at the implementation or consolidation stage of the Smoke-free Hospitals Project ($n = 25$). Main characteristics of these hospitals are summarized in Table 2.

Self-Audit Questionnaire

The degree of implementation of the Smoke-free Hospitals Project was analysed by means of the Self-Audit Questionnaire of the European Network for Smoke-free Hospitals. The Self-Audit Questionnaire enables hospitals to monitor and review their own progress towards the achievement of a written smoke-free policy that ensures the attainment of a totally smoke-free environment. The Self-Audit Questionnaire is also a tool to acknowledge and reward continuous improvement by facilitating hospitals to categorize their progress.

This instrument was developed to analyse the extent to which tobacco control measures are complied within hospitals, and comprises nine indicators (see Appendix): commitment (five items), communication (one item), education and training (four items), identification of smokers and cessation support (seven items), tobacco control (two items), environment (four items), healthy workplaces (six items), health promotion (two items) and follow-up (two items). Each item is scored as follows: 0 = not implemented, 1 = less than half are implemented, 2 = more than half are implemented, 3 = fully implemented, NA = not applicable. The Self-Audit Questionnaire was developed by experts' working group from the ENSH and piloted in smoke-free hospitals in Ireland, France, Finland and Italy. No formal assessment of its psychometric properties has been carried out to date, but its feasibility has been tested (Ouranou, 2003). The questionnaire was sent by e-mail to project managers in each hospital for them to complete and return to the Network coordinating hospital.

Statistical analyses

The distribution of the quantitative variables was studied through means and standard deviation. To compare means, we first used the Kolmogorov–Smirnov test and equivalence of variance to check whether they were normally distributed; the Student's t-test or Mann–Whitney U-test was then applied depending on whether or not the means fulfilled the assumption of normality. The level of significance was set at $P < 0.05$. Each hospital was analysed globally and according to the duration of its Network membership (< 1 year: implementation stage; ≥ 1 year: consolidation stage).

Results

Overall assessment of the Smoke-free Hospitals Project

The global indicators (Table 3) show the degree of implementation of the Smoke-free Hospitals Project in the various hospitals linked to the Network. It can be seen that there is a high level of commitment shown by institutions (64.8%), an adequate understanding among staff, patients and visitors that the hospital is a smoke-free organization (74.7%), a high degree of compliance with no-smoking regulations in working areas, cafeterias

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Table 3 Achievement of the Smoke-Free Hospitals Project in health centres according to the duration of their Network membership

Indicators	Time of adscription to the Network	Maximum score	Mean	Standard deviation	P
Commitment	Total	15	9.72	2.19	0.732[a]
	<1 year	15	9.55	1.44	
	≥ 1 year	15	9.86	2.68	
Communication	Total	3	2.24	1.09	0.047[b]
	<1 year	3	1.64	1.36	
	≥ 1 year	3	2.71	0.47	
Education and training	Total	12	3.96	3.31	0.947[a]
	<1 year	12	3.91	3.88	
	≥ 1 year	12	4.00	2.93	
Identification and cessation support	Total	21	9.52	5.97	0.082[a]
	<1 year	21	7.18	4.77	
	≥ 1 year	21	11.36	6.32	
Tobacco control	Total	6	4.64	2.02	0.085[b]
	<1 year	6	3.55	2.58	
	≥ 1 year	6	5.50	0.76	
Environment	Total	12	9.72	2.88	0.024[a]
	<1 year	12	8.09	3.56	
	≥ 1 year	12	11.00	1.24	
Healthy workplace	Total	18	7.04	4.55	0.035[a]
	<1 year	18	4.91	4.50	
	≥ 1 year	18	8.71	3.97	
Health promotion	Total	6	1.84	2.03	0.309[a]
	<1 year	6	1.36	1.96	
	≥ 1 year	6	2.21	2.08	
Monitoring	Total	6	3.12	2.39	0.001[a]
	<1 year	6	1.45	1.75	
	≥ 1 year	6	4.43	1.99	

[a]Student's *t*-test.
[b]Mann–Whitney *U*-test.

and other communal areas used by staff, patients and visitors, as well as with the separation between designated smoking and no-smoking areas (77.4%), and a widespread implementation of no-smoking environments (81.0%). Three indicators, however, had levels of implementation below 50%: continuous staff education and training with respect to smoking, where only 33% of educational activities considered adequate were implemented; health promotion, that is, the involvement of hospitals in antismoking activities at the local, national and international level, as well as the promotion of smoke-free activities outside the organization (30.6% implementation); and, finally, healthy workplaces (39.1%), an indicator that includes aspects such as new staff being informed during the recruitment process that the hospital is a smoke-free environment, and whether the obligations associated with being a smoke-free hospital have been included in existing disciplinary procedures.

Assessment of the smoke-free hospitals by stages of implementing the project

According to stages of implementing the project and becoming increasingly smoke-free environments (Table 3), no differences were observed between hospitals in their basic commitment, as reflected in the setting up of a steering committee and the signing of an agreement. When considering the duration of Network membership, however, significant differences were found with respect to informing and communicating to patients, visitors and health professionals that the hospital was a smoke-free organization ($P = 0.047$); such differences were also observed with respect to the presence of signs informing people about the smoke-free hospital environment and the clear identification of no-smoking areas, as well as in terms of patients and visitors being exposed to passive smoke ($P = 0.024$).

The organization of courses, seminars and congresses to foster the continuous education of health personnel was limited in all the hospitals regardless of how long they had been a member of the network. Likewise, the scores concerning the identification of smokers and cessation support are moderate both for hospitals with < 1 year of Network membership (34.2%) and those at the consolidation stage (54.1%).

No significant differences were found in terms of health promotion ($P = 0.309$). Finally, it should be noted that hospitals at the consolidation stage have done more to establish healthy workplaces than those of more recent membership ($P = 0.035$). The former have also developed mechanisms for evaluating and monitoring the Smoke-Free Hospitals Project ($P = 0.001$).

Discussion

High scores were obtained for the level of commitment shown by institutions and for the control of smoke-free

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environments; moderate scores were observed for staff training initiatives, cessation support, and strategies for creating and maintaining healthy workplaces. The pattern revealed in terms of implementing and complying with tobacco control strategies and initiatives is similar to that reported for four countries of the European Network (France, Italy, Finland and Ireland): in all these there was a notable variability in terms of the degree of implementation of the project among hospitals of the same country, the highest levels of implementation of the smoke-free hospitals project being found in Ireland (Ouranou, 2003). Providing resources for smoking cessation interventions may be related in significantly fewer smokers among the staff, which again facilitates the staff's effort to help patients stop smoking (Nimann *et al.*, 2005).

In terms of the duration of network membership, differences were observed on the following indicators: communication, environment, healthy workplaces and follow-up. As expected, we also found that the longer hospitals had been linked to the Network the more developed the project was. Deficits existed, however, in areas such as specialist education and cessation support, and these require further input; both commitment by individual hospitals and the support of the Network are needed here to achieve substantial improvements. Comparing stage of network membership is an important factor in understanding the compliance of a step-by-step implementation.

The high mean score for commitment to the Smoke-free Hospitals Project is partly due to the obligation and responsibility of hospitals, once they have established themselves as smoke-free organizations, to promote the progressive implementation of Network criteria. It should, however, be pointed out that a one-off commitment is not enough to fully develop the project; for the latter to function properly the hospital must establish an action plan involving the design and implementation of strategies aimed at controlling and monitoring healthy practices. This must include a range of interventions targeting both prevention and health promotion as well as tobacco cessation.

In terms of services geared toward users it should be remembered that people attending a health centre – in this case, a hospital – find themselves in an ideal place to give up smoking (Rigotti *et al.*, 2003). This is not only because smokers attending a health centre because of illness may thus come to reflect on their tobacco use, but also because of the opportunity to enter a smoke-free environment in which help and motivation can be offered. Our results, however, illustrate that very few activities of this type are offered to patients in the hospitals linked to the Network. Results obtained in a previous study suggest that the majority of smoking inpatients receive inadequate smoking care even in the context of a smoke-free hospital site (Freund *et al.*, 2005). This deficit may be related to the lack of clinical training for health professionals in terms of treating and controlling smoking. This is probably due, firstly, to the fact that training about smoking does not form a part of the academic syllabus (Richmond *et al.*, 1998; Nerin *et al.*, 2004) of health professionals (principally, doctors, nurses and psychologists) and, secondly, that no continuous education on this issue is systematically offered in the hospitals and health centres in which these professionals work.

Those hospitals that have been members of the Network the longest protect their environment to a great extent and thus achieve more healthy workplaces than do newer Network members. These measures have positive repercussions, as they not only protect nonsmokers from the hazards of environmental tobacco smoke but also help to reduce cigarette consumption among smokers. Finally, the differences with respect to the follow-up and monitoring of the project are due, in part, to the activities carried out by the Network's coordinating centre as part of the project back-up and supervision. Each year, the coordinating centre requires member hospitals to conduct a survey of the prevalence of smoking and an audit of any activities carried out.

With respect to the potential limitations of the study, it should be noted that the questionnaire was completed by the manager of each hospital's smoke-free project, and therefore a degree of bias due to self-complacency cannot be ruled out.

In this regard, it would be useful to carry out external audits of whether the activities proposed by the implementation guide have actually been introduced, the extent to which signs are visible and correct, and the presence or absence of tobacco smoke, etc. Similarly, and in line with the above, the measurement of nicotine and/or other contaminating substances from tobacco smoke could be introduced as a monitoring measure; filters able to detect the presence or absence of these substances in various areas of the hospital would thus provide a marker of airborne smoke (Lopez and Nebot, 2003, Nebot *et al.*, 2005). This type of measure would help provide a more objective record of the levels of environmental tobacco smoke and could prove to be a useful evaluative tool for the Network. Particulate matter measurements as an objective parameter of clear air has already been used in two Italian hospitals to obtain accreditation of the European smoke-free hospital network (Nardini *et al.*, 2004).

In conclusion, the strategy of smoke-free areas has an added value when it is introduced in hospitals and health centres as these institutions can set an example for patients, their families and the community at large. The

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positive institutional performance of smoke-free hospitals is due, in part, to the development of a model of organizational change based on cooperation and consensus between all parties involved, as well as to the fact that each hospital professional is assigned specific and well-defined levels of responsibility and decision-making capacity (Donchin and Baras, 2004).

Despite successful attempts to eradicate smoking in hospitals, however, there are many challenges that remain for comprehensive hospital tobacco-control efforts. Policy decision requires continuous follow-up and evaluation throughout the process to establish and reinforce the maintenance of a smoke-free environment at healthcare institutions (Ullen *et al.*, 2002). Moreover, the actions taken must be subject to quality control and, simultaneously, cessation activities must be organized for staff who still smoke (Tillgren *et al.*, 1998; Nardini *et al.*, 2003). Such actions need funding that should be provided by the Regional or National Health Service.

These results reflect the dynamism of preventive intervention and the sustained progress made by those hospitals with an active antismoking policy. Forming part of local and international networks provides an excellent opportunity to exchange initiatives, and also fosters the development and quality of projects aimed at tobacco control and health promotion (Mendez *et al.*, 2004).

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Appendix

European Self-audit Questionnaire
Performance evaluation towards a smoke-free Organization

1. Commitment	0	1	2	3	NA	Observations
1.1 Organisation documents (general contracts, public documents, etc.) specify the smoke-free policy						
1.2 A designated committee is appointed to co-ordinate tobacco policy						
1.3 The chairperson of the committee is of senior management level						
1.4 Financial and human resources are allocated in the organisation's operational plan and/or contract						
1.5 Members of staff know they have the responsibility to take action in the control of the non smoking policy						
2. Communication						
2.1 Staff, patients, and visitors are informed of the organisation's smoke-free policy						
3. Education & training						
3.1 Staff have been instructed on how to approach and inform smokers in accordance with the policy						
3.2 Brief intervention training is offered to all staff						
3.3 Key clinical staff have been trained in motivational and/or cessation techniques						
3.4 Policy briefings/training is facilitated within staff working time						
4. Identification & cessation support						
4.1 There is a systematic procedure in place for identifying smoking patients						
4.2 Motivational interviewing technique is applied during hospital stay 4.3 NRT/pharmacological therapy is available						
4.3 There is a smoking cessation service available for hospital staff						
4.4 There is a smoking cessation service available for patients (in-patients and out-patients)						
4.5 There are information on smoking cessation available for visitors (parents, caregivers)						
4.6 There are specific resources allocated for cessation support activities						
4.7 There is a systematic follow-up procedure of the patients at one year						
5. Tobacco control						
5.1 Smoking is prohibited in all eating, work and common areas used by staff, patients and visitors						
5.2 If smoking areas are designated, they are completely separate from nonsmoking areas						
6. Environment						
6.1 There is signage in all areas for staff, visitors and patients explaining the smoke free policy and indicating smoke free areas						
6.2 Ashtrays are only found in designated smoking areas						
6.3 Tobacco is sold within hospital buildings (0 = yes, 3 = no sold) 6.4 Visitors and patients are never exposed to passive smoking						
7. Healthy workplace						
7.1 Staff are informed of tobacco policy during the recruitment process						
7.2 Ongoing education programmes regarding tobacco policy exist for staff						
7.3 Smoking habits of staff are monitored regularly						
7.4 Staff receive continuous support towards smoking cessation						
7.5 Members of staff are never exposed to passive smoking						
7.6 Tobacco policy has been incorporated into and enforced according to existing disciplinary procedures						
8. Health promotion						
8.1 Organisation promotes smoke-free activity outside of the organisation						
8.2 Organisation participates in local,a national and international anti-smoking activities						
9. Monitoring						
9.1 The policy is audited and reviewed annually						
9.2 The quality of action plan is audited regularly						

Scoring: 0 = No, disagree/Not implemented, 1 = Less than half implemented, 2 = More than half implemented, 3 = Yes, agree/Fully implemented, NA = non-applicable.

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