A DESCRIPTION OF THE ADOPTION OF THE 'FRESH START' SMOKING CESSATION PROGRAM BY ANTENATAL CLINIC MANAGERS

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ABSTRACT

This paper reports the dissemination by the Cancer Education Research Program (CERP) of a previously tested smoking cessation program called *'Fresh start'* to 23 antenatal clinics. The program was specifically designed for use by staff in antenatal clinics. The aim of the study was to investigate the factors that influenced midwifery managers' adoption of the program. Clinics were randomly assigned to groups that received the program by simple dissemination (mail-out), or intensive dissemination (a mail-out, plus personal contact with midwifery facilitators). A case history approach was used to investigate the variables which influenced a midwifery manager's decision to adopt the program. The results indicated that intensive dissemination improved program adoption and that program components were selected to fit the physical and social context within antenatal clinics. Managers believed the main barriers to the implementation of the program were: the negative reactions of clients; insufficient time available for smoking cessation interventions; lack of support from professional colleagues; inability to provide follow-up to clients; staff turnover; and poor access and storage of materials.

INTRODUCTION

A number of smoking cessation interventions (i.e., advice, education, self-help material, and cognitive-behavioural strategies to quit) have been developed and tested for use in primary and secondary health-care settings (Mattick and Baillie 1992). Randomised controlled trials indicate that the use of brief interventions have a small but significant effect on smoking quit-rates in both general and pregnant populations (Walsh and Redman 1993; Lumley 1992; Baillie et al 1994). The *'Fresh start'* smoking cessation program has been specifically designed for use during the antenatal period and has a 9% difference in validated smoking cessation when compared with usual care (Walsh 1994).

Experimental trials investigating the effectiveness of smoking cessation programs are often tested in only one or two institutions. Experimental trials require rigorous compliance with program protocols therefore they are often unable to adequately describe the factors which influence adoption and implementation of the program by organisations and clinicians (Susser 1995; Norman et al 1990; Halvorsen et al 1993; Edmundson et al 1994). Experimental trials do not allow the investigation of factors (for example uptake of programs and program fidelity) which can influence the program outcomes when they are disseminated to a large number of institutions (Steckler et al 1992; Walsh et al 1990; Wiggers and Sanson-Fisher 1994; Sanson-Fisher and Campbell 1994). Bauman et al (1991) states there is little guidance on how best to disseminate and implement programs when environmental conditions differ (e.g. experience of staff, number of resources, client populations) because there has been inadequate research about the dissemination of programs. These authors further suggest there is a need to identify program and contextual factors necessary and sufficient for a desired outcome.

The Cancer Education Research Program (CERP) disseminated the *'Fresh start'* smoking cessation program to 23 antenatal clinics in NSW Australia. The objectives of the project were to examine the relative effectiveness of the tested program using two methods of dissemination (simple and intensive). This paper describes the dissemination process and the adoption of the program by antenatal clinic managers. Dissemination is the planned and active diffusion of a new idea to a social system (Basch et al 1986). Rogers' Diffusion of Innovation model suggests that the dissemination process can be described in five stages (Rogers 1995). These stages are: knowledge, persuasion, decision to adopt, implementation and confirmation. Dissemination failure can occur at any of these stages and the model implies that different strategies may be required to promote dissemination during each phase (Scott and Bruce 1994; Parcel et al 1990; Orlandi 1987). This study describes the factors that influence a manager's decision to adopt the *'Fresh start'* program.

Several authors state that understanding the process associated with health promotion programs is as necessary as investigating the outcomes of such programs (Dolan-Mullen et al 1995; Portnoy et al 1989; Susser 1995). Information about the interaction between the context, the mechanism of delivery and the program, is necessary to determine the practicality and flexibility of the program and the generalisability of the outcomes (Susser 1995). This study aims to describe the *'Fresh start'* smoking cessation program and its mechanism of dissemination. It also aims to gain some understanding of the range of variables which impact on program dissemination and a manager's adoption decision in different organisational contexts.

A descriptive case history approach is used in this study to explore the process of program dissemination to hospital antenatal clinics. Case histories, which are descriptive rather than predictive in nature, are useful for generating hypotheses and appropriate for this study because of the early stage of development of dissemination research (Portnoy et al 1989). A case history approach is also appropriate due to the methodological issues inherent in studies investigating large complex social units. It is difficult to obtain a sample of sufficient size to carry out statistical analyses with adequate power to test the effect of the large number of organisational and individual variables (Dolan-Mullen 1995; Susser 1995).

Study aims

The principal objective of the research was to examine the relative effectiveness of a tested smoking cessation education program using two methods of dissemination. This paper examines the dissemination process during the adoption phase of dissemination. The specific aims are to describe: the adoption of the program by clinic managers; the factors which influence a manager's decision to adopt the program; the perceived processes necessary for program implementation and the perceived barriers to implementation.

METHOD

The *'Fresh start'* smoking cessation program was developed and disseminated by the Cancer Education Research Program (CERP) to 23 hospital antenatal clinics. A description of the design, research materials, and the methods used to disseminate the program will be presented followed by the procedure used to evaluate the adoption of the program.

Design

The research design was a randomised-controlled trial of the dissemination of a smoking cessation program using two methods of dissemination (Simple and Intensive). This paper is a descriptive study of the adoption of the program by clinic managers three months post dissemination.

Research materials

The *'Fresh start'* smoking cessation program is multifaceted and has components for: policy development; training of clinicians; resources for smoking cessation intervention and program evaluation. The smoking intervention component of the *'Fresh start'* program has been tested in a randomised controlled trial and found to be effective (Walsh 1994). The program attempts to provide smoking clients with a repetitive message about smoking cessation through a variety of sources; written, visual and interpersonal. The interventions are designed to take a minimum amount of staff time (approximately 10 minutes) and allow for flexibility, according to the day-to-day demands of the clinic. All hospitals received materials to trial the program and could request more if required. These materials consisted of a training video and staff flip chart for staff, a quit-kit, video and stickers for clients, details about sample policy and computerised feedback resources.

Staff training video: a 20-minute video that described a seven-step approach, which could be tailored to an individual client needs. These steps ranged from asking the client about her smoking patterns to arrangement of follow-up dependent on the client's decision.

Staff flip chart: a chart used by staff to facilitate discussion about smoking so that smoking cessation messages could be reinforced and barriers to smoking cessation addressed with clients.

Client stickers: labels which provided information about smoking status and smoking cessation interventions offered to a client and which were designed to fit on antenatal records.

Client quit-kit: consisted of written materials which were offered to clients. These included the 'Smoking and Pregnancy' pamphlet (Quit: Smoking and Pregnancy 1993), a self help quit booklet 'Extra help to quit for good' (Quit: Extra help to quit for life 1993), and a quit declaration. These provided information about the effects of smoking during pregnancy and strategies that could be used by the client to quit smoking.

Client video: a 15 minute video (Walsh 1994a) which was directed towards pregnant smokers and provided similar information to the quit kit, but in a visual form. The video could be shown to groups, or loaned to individual clients.

Sample policy: detailed the agreed role of clinic staff regarding detection, treatment and follow-up of pregnant women who smoke. Best practice recommendations were described according to the readiness of clients to quit smoking. Policy formation was an important step to establishing positive staff attitudes and practices to smoking cessation and the sample policy could be modified to best fit the context of the clinic.

Computerised feedback: a computer program designed to monitor smoking cessation intervention was available for a duration of two weeks to those clinics selected for intensive dissemination of the program. Clients used a touch screen computer to provide information about smoking status and smoking cessation intervention provided by the clinic. Computerised feedback was only offered to the Intensive dissemination clinics because this component required negotiation and training which could not be executed via simple mail-out.

Sample selection

All hospitals in NSW, where there were greater than 500 births/year were asked to participate in the trial. Twenty-three hospitals agreed to participate after ethics approval by the area health service. Two additional hospitals did not participate because of a delay in ethics approval. The 23 clinics were stratified according to clinic size (number of births) and the proportion of smoking clients. Hospitals were then randomly allocated to either the simple or intensive dissemination groups. The results of a previously conducted pre-dissemination survey (Cooke et al 1998), indicated that the dissemination groups did not appear to differ in the number of beds, number of births, number of clinic staff, length of appointment times, type of decision-making, staff perceptions of barriers to smoking cessation education, clinic size, proportion of smokers, current smoking cessation education (SCE) practice or barrier scores for providing smoking cessation education (see Table 1).

Table 1: Means and frequencies of variables by dissemination group

Variable	Range	Simple dissemination Mean (sd) n=12	Intensive dissemination Mean (sd) n=11	Significant difference
Average no. beds/hospital	90-903	352 (296)	334 (227)	ns
Average no. births/hospital	818-4697	2508 (1207)	2089 (1098)	ns
Average no. clinic staff/day	3-13	7 (2)	7 (2)	ns
Average time for medical antenatal appointment	10-15 mins	12.1 (2.5)	11.4 (2.3	ns
Average time for midwifery antenatal appointment	10 -30 mins	17.9 (5.4)	14.5 (3.5)	ns
Average staff rating for centralised decision-making	6-30	18.4 (2.0)	17.7 (2.2)	ns
Average staff score for barriers to smoking cessation	11-42	24.8 (6.3)	25.1 (6.4)	ns
Frequency of hospitals by type of hospital		**n = 12**	**n = 11**	
Tertiary		2	2	
Regional referral		3	3	
Teaching referral		2	3	
District		5	3	
Frequency of hospital with SCE policy		2	1	
Frequency of hospitals with midwifery clinics		10	7	

Dissemination methods

Two methods of dissemination were used to distribute the program (simple and intensive).

Simple Dissemination (SD): Twelve clinics were sent the *'Fresh start'* program components via a simple mail-out. The covering letter was addressed to the antenatal clinic manager. This letter gave information about the risks associated with smoking during pregnancy, the effectiveness of brief interventions and how the *'Fresh start'* program could be used to overcome the barriers to smoking cessation. It provided a brief description of the various components offered in this program and how they should be used. It also discussed the availability of materials for clients who were unable to speak or read English. SD Clinics were given enough materials to trial the program and a contact number should they desire more materials to continue the program. All materials were provided free of charge. The computerised feedback was the only program component not offered to the SD clinics.

Intensive Dissemination (ID) n = 11: For this group a mail-out was facilitated by personal contact with midwifery facilitators. The ID clinics were also provided with specific feedback from a pre-dissemination survey about the proportion of clients who were smokers and the level of smoking cessation intervention that was provided in the clinic. Future evaluation of the program was offered via computerised feedback.

The ID clinics were supplied with the name and photograph of a midwife who would contact them within seven days of receiving the package. The role of these midwives was to persuade managers to adopt the program. They were also available to provide training and support for the program and to discuss any difficulties associated with the implementation of the program. The midwifery facilitators were trained in the use of the *'Fresh start'* program. Clinics could contact the midwives at any time. The midwives were able to provide materials as well as resources (such as video machines, computers) necessary to run the program.

Evaluation procedure

Evaluation was undertaken by a) midwifery facilitators who kept a logbook on all contacts with the clinics, b) a structured interview with clinic managers three months after introduction of the program and c) the use of the Moore and Benbasat attribute scale (Moore and Benbasat 1991) which measured each manager's perception of the program.

Logbook: The midwifery facilitators kept logbooks of all contacts with clinics. The type of contact, length of contact and a summary of the interaction between facilitator and clinic were recorded.

Interview: Three months after the *'Fresh start'* program had been disseminated, 23 antenatal clinic managers were contacted by phone and asked about their awareness and adoption of specific program components. A structured interview schedule with some open-ended questions was used to collect data. The managers were asked their reasons for adopting/not adopting specific components, their plan for implementing the program and potential barriers to implementing the program.

The Moore and Benbasat attribute scale (1991) was used to obtain the managers perceptions of the program. Whilst this instrument was originally developed to study the adoption and diffusion of information technology, Moore and Benbasat state that it could be modified to investigate other types of innovations (Moore and Benbasat 1991). This scale has been recommended for use by Rogers and is consistent with his ideas about influential innovation characteristics (Rogers 1995). The brief 25 item version of the scale was reworded to improve face validity and piloted using 10 midwifery managers, who were sent the smoking cessation program, but were not associated with the dissemination. The scale had items which measured a manager's perceptions of the relative advantage of the program, compatibility with clinic routines, ease of use, visibility of the program to others, demonstrability of program outcomes, ability to trial the program, impact on professional status and degree to which program use was voluntary. Qualitative and quantitative analysis of the data was carried out using content analysis and simple descriptive statistics to describe the dissemination and adoption of the program.

RESULTS

The results will describe the differences between the various dissemination methods (SD and IS). The findings will be described in relation to the research aims which were: the adoption of the program by clinic managers; the factors that influence a manager's decision to adopt the program; the perceived processes necessary for program implementation and the perceived barriers against implementation.

The dissemination process: differences between SD and ID clinics

The facilitation of the program by midwives in the Intensive Dissemination clinics increased the level of contact with the change agency. After the initial mail-out of the program, only three out of twelve midwifery managers in the Simple Dissemination (SD) clinics had contacted CERP. These managers requested more quit-kits, flip charts and client videos. Phone contact with these three clinics ranged between 5-35 minutes.

Table 2: Mean differences between intensive and simple dissemination groups for TINT1, Attribute score2 and Adoption score3.

Variables	Mean	Sd	n	95% CI	t	p
TINT[1]						
Intensive group	4.60	1.46	12	-1.00 - 1.35	.31	ns
Simple group	4.42	.72	8			
Attribute score[2]						
Intensive group	60.67	5.93	12	-10.09 - 2.85	-1.18	ns
Simple group	64.29	7.30	7			
Adoption score[3]						
Intensive group	8.33	3.45	12	.44 - 8.23	2.34	.03
Simple group	4.00	4.87	8			

Note: TINT[1] = The mean number of types of smoking interventions used by staff in each antenatal clinic prior to dissemination. This measure was obtained from a pre-dissemination survey of all ANC staff in the participating clinics.
Attribute score[2] = the addition of the sub-scale scores from the Attribute scale.
Adoption score[3] = the number of program components adopted or planning to be adopted. Components not being adopted were given a score of 0, planning to be adopted were given a score of 1 and components already adopted/implemented were given a score of 2. n = number of ANC clinics in each group, 95% CI = the 95% confidence interval of the difference between the means. ns = not significant at = .05.

Phone contact and personal visits for the Intensive Dissemination (ID) clinics were usually initiated by CERP. The ID clinics were contacted by phone 4-9 times by the midwifery facilitators. The duration of the calls was between 12-95 minutes. These calls were used to provide further information about the program, persuade the managers to adopt the program, obtain a firm decision to adopt the program and negotiate training sessions. All but two clinics in the ID group had at least one personal visit from CERP midwifery facilitators. These two clinic managers refused training as they believed that the program was self-explanatory. Three of the ID clinics had more than one visit from the facilitators. The visits were primarily used by midwifery facilitators to provide information about the program to managers and provide training to clinic staff. The average time for each visit was approximately 60 minutes.

Program adoption

Of the 23 antenatal clinics, 17% (4) reported adopting all of the program components, 48% (11) were adopting parts of the program, 17% (4) were planning to adopt the program and 17% (4) were not using or planning to use the program. The reported adoption of the program by clinic managers was cross-checked with each facilitator's logbooks and the number of materials supplied to the clinics by CERP. There was consistency for 16 of the 23 clinics. Three clinics with discrepant findings appeared to be adopting (managers had requested and been provided with large numbers of program materials) even though the managers reported not adopting those components. All these hospitals were in the ID group. ID clinics may have been under some pressure from facilitators to accept program components. Four hospitals (SD n=2 and ID n=2) reported they were adopting the program although they had not ordered extra components. Several of these clinics stated they had other sources for the smoking cessation quit kits.

Significantly more of the six components of the *'Fresh start'* program were adopted by the ID group than by the SD group (See Table 2 - Adoption score).

The majority of clinics adopted the training video, quit-kits, client video and flip chart and perceived these program components to be useful. Overall, clinics were less likely to adopt the labelling stickers or the sample policy.

Factors influencing adoption

Reasons for program adoption: On average, most of the managers rated the quality of the program as high (M = 7.3, sd 1.7, range 1-10) with eight of the managers spontaneously commenting on the 'good' quality of the program. However, the managers' perceptions of attributes (Moore and Benbasat 1991) of the *'Fresh start'* program did not appear to differ due to the method of dissemination (See Table 2 -Attribute score).

Reasons given for adopting the program, in order of frequency cited, were: to decrease the number of smokers, the quality of the program, to improve women's health status, the availability of the program, the unfulfilled need for a smoking cessation program, and to assist research. Managers, who were planning to use the program but did not have the complete authority to adopt the program, stated that adoption was delayed due to the need to gain approval from medical personnel. Other managers who were planning to use the program had difficulty organising and providing staff with information and training for the program.

Reasons for non-adoption of the program: There were four managers who did not adopt the program. Of these managers, one had not received the program and three managers reported clinic disruptions due to staff turnover and workload. For example, one clinic was in the

process of closing its maternity service and the manager had changed twice since the program had been disseminated. The other clinic had a new manager and the third had a daily rotation of midwives, who required extensive orientation to the clinic. Two of these managers also expressed doubts about the effectiveness of smoking cessation during pregnancy and the third was a smoker who believed it was the doctors' role to address drug use during pregnancy. The non-adopters were aware that the program existed, but only one was motivated/able to review and evaluate the program.

There was a difference in the type and number of components adopted by the clinics and the reasons given for adopting/not adopting them. For example, the flip chart was believed to be a useful reminder to staff by several managers, but others believed it to be time-consuming and too 'clinical' to use with clients. The stickers were perceived to be useful by only a minority of the managers and two managers in the SD group believed labelling would have negative consequences. The sample policy was neither positively nor negatively rated by any of the managers. Also, the client video was perceived by one manager to be too confronting, while another manager rated it as excellent because it did not 'sanitise' the risks associated with smoking.

Furthermore, the physical context within the clinics influenced the adoption of some components. For instance the client video was perceived to be of limited use in three clinic situations: in crowded and noisy clinics, in clinics where clients controlled the TV and in clinics which had no video fixtures. The quit-kits and client videos were also perceived to be of limited use in clinics with a high proportion of non-English speaking clients.

Essential implementation processes

The managers indicated that important processes for program implementation included informing the stakeholders, training, program evaluation and structural changes. They believed that it was necessary for hospital administrators to be accepting of the program. This occurred primarily through CERP gaining ethics approval for the research trial. Nevertheless, several of the midwifery managers also stressed the need to inform or gain approval for the program from both the nursing and the medical supervisors of the clinic. Midwifery staff, and to a lesser extent medical staff, were informed of the program during usual ward meetings or on an informal basis in smaller clinics. Staff generally participated in discussions about the program and decisions to use the program, except in one instance when the manager decreed the use of the program.

The managers believed training was necessary to change staff behaviour and attitudes. For example, some respondents stated, 'staff find it hard to get a woman to set a quit date, as they are used to telling a woman to cut down'. Training involved staff (mainly midwives) viewing the training video in groups during an inservice session arranged by the midwifery facilitators (in the case of the ID clinics) or by the manager or midwifery educators (in the SD clinics). In a few clinics, new staff were informed of the program during orientation.

Several managers also perceived program evaluation was important for the maintenance of the program beyond the trial period. These managers believed their supervisors would require evidence that the program was effective. They also believed that their clinic would not be able to evaluate the program without the evaluation resources offered by CERP.

Finally, managers from two clinics said that the program required structural changes within the clinic. One clinic obtained extra staff to conduct the initial antenatal history to cope with the increased time associated with the use of the program. The other referred interested clients to a clinic where staff, who specialised in management of drug use in pregnancy, were available. This was done due to time constraints within the clinic.

Implementation barriers

Open-ended questions were used to elicit the actual or potential barriers associated with the implementation and administration of the program. These were categorised and Table 3 provides the number of participants who identified barriers. There was no difference in the total number of barriers identified by SD and ID clinics.

The negative attitudes or reactions of a smoker to the program were the most commonly cited barrier to program implementation. It was believed that clients would ignore advice given by clinicians and that this would have consequences for the patient/clinician relationship. The program was also believed to be inappropriate for smokers who could not speak English.

Table 3: Frequency of ANC managers who reported barriers to the implementation of the 'Fresh start' smoking cessation program

Barriers to implementation	Frequency reported (n = 23)
Client behaviour	12
Time	11
Medical role	9
Follow up failure	8
Staff turnover	7
Staff attitude	7
Access/storage of materials	4
Staff training	4
Cost	2
Distance	1

The time involved with either using the program or in training staff was also seen as a barrier to implementing the program by approximately half the participants. Even those managers, who believed the program did not entail extra

time, were concerned about the availability of time to carry out interventions in a busy clinic. As one participant said *'if it is really busy it adds 10-15 minutes and if the client is refusing to listen...this is not necessarily extra time, as we covered it (smoking) anyway... there is just not enough time to do everything'*. The managers estimated that the time needed to provide smoking cessation interventions to smokers ranged between five to twenty-five minutes. Furthermore, although both ID and SD managers found it difficult to arrange time for inservice training, the additional persuasion the ID managers received from midwifery facilitators meant that staff training was more likely to be organised in ID clinics, than in SD clinics.

Another problem perceived by managers was the difficulty in achieving the involvement of medical staff in the program. Medical staff did not usually attend ward meetings or clinic training sessions. This perception was supported by the midwifery facilitators from CERP. Midwifery staff had no control or authority over the behaviour of medical staff. Senior medical staff were sometimes believed to be unsupportive of the program and junior medical staff were transient members of staff. There was a common perception, among the midwifery managers, that medical staff did not believe smoking intervention was part of their medical role. These statements are typical of the comments made *'I don't think the medical staff will be actively involved, particularly the VMOs'* and *'Doctors tend to call midwives to do smoking cessation because they don't see it as their role'*. The CERP midwifery facilitators also believed that the doctors preferred to have doctors to train them in the program.

Lack of follow-up due to poor involvement of medical staff was perceived to be a barrier to the program. Midwives began the program with clients at the initial history-taking visit, but subsequent clinic visits were frequently carried out by medical staff and the managers believed follow-up of smoking cessation intervention was minimal. This was particularly true when subsequent care occurred outside the antenatal clinics, for example, during shared care with general practitioners. As one participant said *'medical staff are not supportive, and there is a problem with follow-up because of this.'*

Staff turnover, although only mentioned by seven participants, appears to be a significant barrier to the implementation of the program. All of the clinics which did not adopt the program, commented on the barrier due to staff turnover. Staff turnover was the only reason given for non-adoption by two of these clinics. Associated with staff turnover issues is the need to continually train staff and the time involved in doing this. As one manager commented *'we have new students every three weeks.... you have to reiterate it (the program) to them (students) five or six times'*. Another difficulty with training in larger hospitals was getting the staff together in one place for training sessions.

Finally, a few of the participants saw that access and storage of program materials, future costs of the program and distance from the change agency were seen as potential or real barriers to implementing the program. Two managers also commented on the need to modify the program to suit their clinic. This could potentially decrease the fidelity and effectiveness of the program.

DISCUSSION

This study describes the *'Fresh start'* smoking cessation program and the methods used by CERP to disseminate the program to 23 antenatal clinics. It describes the adoption process and explores some of the complex interactions between the program, the dissemination method and the social context. The findings indicate that adoption of the program varies due to the method used to disseminate the program. Intensive dissemination clinics adopted more program components than simple dissemination clinics. Although the method of dissemination did not influence a manager's perception of the program, individual beliefs of managers and the context within the clinic appeared to influence the adoption of the program and the selection of specific components to be used by staff.

A limitation of the study is that only a small number of clinics were involved in the research. The range of variables that influenced adoption within these clinics was diverse. For this reason, this study can only present some of the factors which may influence adoption and cannot fully determine the relative importance of these factors to the outcomes of dissemination. There may also have been some 'pressure' on managers in the ID clinics to 'overstate' their adoption of the program due to the persuasion from CERP facilitators to use the program. Nevertheless, the three general areas that seem to influence program adoption are dissemination method, program characteristics and social context. Awareness of these areas and their relation to each other may assist in the future design and dissemination of programs (Norman et al 1990).

Dissemination method

Intensive interpersonal contact with program facilitators and the additional time, training, skill and material resources supplied by the facilitators in the ID clinics increased the number of program components which were adopted, when compared with simple dissemination (SD). However, simple dissemination and increased availability of program materials seems to be sufficient to increase awareness and encourage at least partial adoption of the program by clinics. It remains to be

seen whether the number of components adopted influences the implementation and the cost-effectiveness of the program.

It is difficult to form any firm conclusions about the causes of adoption failure as only a small number of clinics failed to adopt the program. Nevertheless, simple dissemination resulted in adoption failure in one clinic because there was no follow-up of the mail-out to check that clinics had received the program. This adoption failure could be addressed by improving the simple dissemination procedure. A routine follow-up of all clinics, two or three months after the initial dissemination, may increase adoption of the program.

The intensive dissemination involved the use of midwifery facilitators. A small proportion of midwifery managers believed that the program would not be effective. Similar to other research studies managers with negative attitudes towards smoking cessation interventions were less likely either to adopt the program or to support its use by other staff members (Saunders and Foulds 1992; Bruce and Burnette 1991). Interpersonal contact with facilitators compared with written materials only, did not improve the perceptions midwifery managers had about the program (Rogers 1995). Although intensive dissemination increased the number of components adopted by managers this does not appear due to the changing of managers' attitudes but may have improved the accessibility and availability of the program components.

The program characteristics

Adoption of the program appeared to be facilitated because the managers were able to select components perceived from the variety of program components as most suitable for their clinic. There was wide variation in the program components that were adopted and implemented by clinic managers. Several factors associated with the clinic environment appeared to influence their adoption decisions. These were the attitudes of the managers, client characteristics (particularly language), and the physical setting and resources of the clinic.

The components which were least likely to be implemented were the stickers (which recorded smoking status and treatment) and the sample policy. Bauman and colleagues suggest that lack of program fidelity may have implications for the implementation and maintenance of the program (Bauman et al 1991). Stickers on clients notes make the program more visible and act as cues for clinicians to provide intervention and follow-up. Several studies indicate that cues improve the effectiveness of smoking cessation interventions (Lindsay and Wilson 1994; Kottke et al 1994). Furthermore, use of the stickers may increase the ability of the clinic to evaluate program implementation and its effectiveness. The managers in this study suggest program evaluation is critical for program maintenance and this is supported by other research (Kottke et al 1994; Rogers 1995).

The other component, which was generally not adopted by the clinics, was the policy for smoking cessation intervention. Policy development has been found to be associated with increased levels of smoking cessation within hospitals (Cooke et al 1996). The managers suggested there were two factors that influenced the non-adoption of policy development. Firstly, the program was perceived as a research trial and the managers were reluctant to commence policy development procedures without evidence of the program's effectiveness. Policy development within hospitals also involved several organisational levels and professions. The managers believed policy adoption required a substantial amount of time and effort. It may be that policy adoption requires more time and should occur later in the dissemination process. While changes to the program may influence the fidelity and effectiveness of the program, when a clinic was flexible enough to allow these changes, program adoption was enhanced (Bauman et al 1991).

Social context

Program adoption was facilitated when managers were able to make necessary changes to the social setting such as organising training, increasing staffing and changing clinic structure. This supports the assertion that organisational change is often necessary for the implementation of health education programs (Rogers 1995). It also indicates that the degree of flexibility within the social context is an important factor in the dissemination process (Dolan-Mullen et al 1995; Rogers 1995). The ability of organisations to adapt to change is believed to be influenced by the complexity and nature of communication networks with organisations (Rogers 1995).

The social context of the clinics also may have hindered program dissemination. Although the *'Fresh start'* program was believed to be relatively advantageous, it was also perceived to have some negative consequences. Almost half the managers believed that the program would have a negative effect on the patient/clinician relationship and that there were significant time and resource costs associated with its implementation. Negative attitudes and lack of time are frequently cited barriers to health promotion adoption and these perceptions will need to be addressed if successful implementation and maintenance of the program is to occur (Wender 1993).

In addition to the social context, situational constraints of the clinics such as the staff turnover; problems with follow-up; the proportion of non-English speaking clients; the clinic's physical environment and distance from the

change agency, were believed to be barriers to program adoption. The barriers to the program were specific to each clinic and need to be addressed by clinic staff during implementation planning. Mechanisms and strategies to identify and overcome barriers to program implementation in each organisation should be part of the dissemination process.

Finally, some midwifery managers appeared to lack the authority to influence people who have a key role in program adoption and implementation, such as medical staff and hospital administrators. The managers generally believed medical staff were either unsupportive of the program, or disinterested. Whether this perception is accurate or not, it is likely to have acted as a barrier to program dissemination to medical staff and should be addressed in future dissemination efforts.

CONCLUSION

Evaluation during the early phases of dissemination can highlight factors that may facilitate or hinder adoption. Adoption is facilitated by the intensive interpersonal dissemination, program flexibility, managerial support, and adaptability of the clinic. But lack of program fidelity and situational barriers to program implementation are of concern. The effect of these factors on the implementation and the eventual outcomes of the program will be explored in future papers investigating the dissemination of the *'Fresh start'* program.

The barriers to the dissemination of a smoking cessation program are specific to each clinic. A process which could be used to identify and address potential barriers to adoption and implementation should be a component of any health promotion program.

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