



## Improving smoking cessation outcomes in secondary care: Predictors of hospital staff willingness to provide smoking cessation referral

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### ABSTRACT

Since implementation of the New Smoking Cessation Policy in Taiwan, more patients are attending smoking cessation clinics. Many of these patients were referred by hospital staff. Thus, factors which influence the hospital staff's willingness to refer are important. In this study, we aim to understand the relation between smoking cessation knowledge and willingness for referral.

A cross-sectional study using a questionnaire was conducted with staff of a community hospital during the year 2012–2013. Willingness to provide smoking cessation referral and relevant correlated variables including demographic data, knowledge of basic cigarette harm, and knowledge of resources and methods regarding smoking cessation were measured.

A total of 848 of 1500 hospital staff returned the questionnaire: 249 physicians (29.4%), 402 nursing staff (47.4%), and 197 administration staff (23.2%). 790 (93.2%) staff members have never smoked, 19 (2.2%) had quit smoking, and 39 (4.6%) still smoke. 792 (93.4%) members had interest in receiving smoking cessation education. The mean total score (highest potential score of 6) of basic cigarette harm knowledge was 4.56 ( $\pm 1.25$ ). The mean total score (highest potential score of 7) of resources and methods about smoking cessation was 4.79 ( $\pm 1.35$ ). The significant variable correlated with willingness to refer was total score of resources and methods about smoking cessation.

Hospital staff who knew more about resources and methods about smoking cessation were more willing to refer smoking patients to the smoking cessation service. Thus, continuing medical education for hospital staff should include resources and methods about smoking cessation to promote smoking cessation.

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### 1. Introduction

Quitting smoking at any age affords significant health benefits in secondary care organizations, such as fewer complications and shorter hospital stays (Cataldo et al., 2010). People who stop smoking after diagnosis of early stage lung cancer also have better prognostic outcomes than the patient who continues smoking (Parsons et al., 2010). Thus, health professionals working in a hospital setting have the responsibility to promote healthy behavior among patients in their organization. Due to the above reasons, promoting smoking cessation is of paramount importance to secondary care.

Tobacco control is also an important issue in Taiwan. The tobacco health and welfare tax was instituted by the Taiwanese government in 2002. Funds from the tax were used to initiate and maintain several smoking cessation outpatient programs (Chang et al., 2010). Although doctors had some financial incentives to provide medication (either nicotine replacement therapy or varenicline) and brief cessation consulting during routine outpatient visits, patients attempting to quit smoking had to pay 550–1250 NTD (New Taiwan dollars) (approx. US\$18–42) every week for medication. Due to these out of pocket costs, the smoking cessation rate remained unsatisfactory. In order to encourage more smokers to use the smoking cessation service, the Taiwanese government implemented the New Smoking Cessation Policy in March 2012. In the new policy, (i) all outpatients and inpatients can use the smoking cessation clinic service (ii) patients pay no more than 200 NTD (US\$6.6), per week for two 8 week courses each year. As a result, the number of smokers using the smoking cessation service from March 2012 to February 2013 increased by 39.2% compared to March 2011 to

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February 2012. The 6-month point abstinence rate during March 2012 to May 2013 was 30.3%, while it was only 23.9% during the decade of February 2002 to February 2012.

In Taiwan, many smokers have health problems, and they have been referred to smoking cessation service during admission or routine clinics by hospital staff, including physicians, nurses and administration staff (Chou et al., 2013; Li et al., 2014). However, few studies have elucidated factors that affect the likelihood of referral. This lack of knowledge poses challenges to any health care institution. It is necessary to understand the influential factors. In this study, we aim to explore the barriers and the variables related to hospital staff willingness to provide smoking cessation referrals so that we can contribute to the development of smoking cessation service.

## 2. Methods

### 2.1. Design

This study represents a cross-sectional questionnaire survey of 1500 employees at a 850 beds community hospital in New Taipei City, Taiwan. Paper surveys were given to each department then distributed to the staff during the period of December 2012 to February 2013. The data was analyzed in 2014. Informed consent was implied by the return of the questionnaire. All study procedures were approved by the ethical committee of the hospital.

### 2.2. Participants

The target population was the entire staff of the community hospital. The survey period was from December 2012 to February 2013. The staff included physicians, nurses and administrators.

### 2.3. Instrument

A questionnaire with four parts was administered to all participants. Questions on staff demographic characteristics, knowledge of basic cigarette harm and smoking cessation, knowledge of resources and methods about smoking cessation, and willingness to provide smoking cessation referral were included. The questionnaire was designed after careful scrutiny of the literature by a group of experts.

Variable included category of work, smoking status. We also asked about previous participation of smoking awareness activities. These events are usually held in or around the hospital including free exhaled carbon monoxide sampling, free lung function testing, etc. that raise general awareness about the harmful effects of smoking. We also asked whether the staff have interest in receiving more education about smoking cessation. Smoking cessation education for hospital staff included consulting training, review of available medications and pharmacology, and an overview of available resources for patient referral. The other 3 sections are described below.

#### 1. Knowledge of basic cigarette harm

Knowledge of basic cigarette harm was measured with six items. All items were based on the clinical experience of investigators and literature review (Peters et al., 2013; Freedman et al., 2008; Asomaning et al., 2008; Hurt, 2009). The section contained 6 items, and was scored as true = 1 and false/unknown = 0 for each item with highest potential score of 6.

#### 2. Resources and methods about smoking cessation

Seven survey items were included to measure knowledge regarding methods and resources about smoking cessation. These items were

decided by journal review (Tillgren et al., 1996; Broms et al., 2004; Perkins et al., 2011) and experts' practical experience. The section included 7 items, and was scored as true = 1 and false/unknown = 0 for each item with highest potential score of 7.

#### 3. Willingness to provide smoking cessation referral

This section examined staff willingness to provide patients with smoking cessation referral. Willingness was graded using yes = 1 and no = 0.

### 2.4. Statistical analysis

Data management and statistical analyses were calculated by SPSS 11.0 statistical software. Frequency distributions were used to describe the demographic data and the distribution of each variable. Mean values and standard deviations (SDs) were measured to analyze the association of each variable with occupation, smoking status, interesting in receiving smoking cessation education, knowledge of basic cigarette harm, knowledge of resources and methods regarding smoking cessation, and willingness to provide smoking cessation referral. Logistic regression analysis determined the relative values of the variables related to willingness to provide smoking cessation referral. A value of  $p < 0.05$  was considered statistically significant.

## 3. Results

### 3.1. Study participant characteristics

Questionnaires were given to all hospital staff a total of 1500 people. And complete information was collected from 848 people for a response rate of 56.5%. There were 249 physicians (29.4%), 402 nursing staff (47.4%), and 197 administration staff (23.2%). Seven hundred and ninety (93.2%) staff members had never smoked, 19 (2.2%) had quit smoking, and 39 (4.6%) still smoked at that time. Of the 848 staff, 114 (13.4%) had ever joined a smoking cessation awareness activity. Seven hundred twenty-nine staff (93.4%) had interest in receiving smoking cessation education in the future. Seven hundred ninety-six (93.9%) staff had a supportive attitude toward creating a smoking free hospital, defined as having an indoor non-smoking policy with smoking cessation clinic available for anyone interested. 699 (82.4%) staff members thought that

**Table 1**  
Variables related to the willingness of referral.

Variables	n	%
Occupation		
Physician	249	29.4
Nursing staff	402	47.4
Administration staff	197	23.2
Smoking status		
Yes	39	4.6
Quit	19	2.2
Never	790	93.2
Ever joined smoking cessation awareness activity		
Yes	114	13.4
No	734	86.6
Interest in receiving smoking cessation education		
Yes	792	93.4
No	56	6.6
Attitude toward smoking free hospital		
Supportive	796	93.9
Not at all or fairly supportive	52	6.1
Attitude toward smoking cessation education		
Important	699	82.4
Not at all or fairly important	149	17.6
Variables	Mean ( $\pm$ SD)	Range
Total score of basic cigarette harm knowledge	4.56 ( $\pm$ 1.25)	0–6
Total score of resources and methods about smoking cessation	4.79 ( $\pm$ 1.35)	0–7

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