Increased Evidence-Based Tobacco Treatment Through Oklahoma Hospital System Changes

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Background: Oklahoma hospitals admit approximately 120,000 tobacco users each year, many for diseases resulting from tobacco use.

Purpose: To describe a unique partnership between the Oklahoma Hospital Association and Oklahoma Tobacco Settlement Endowment Trust to reach more tobacco users through the implementation of sustainable health system changes within hospitals and clinics to integrate an evidence-based tobacco treatment protocol for all tobacco-using patients.

Methods: The Oklahoma Hospital Association tobacco-cessation model included (1) identifying all tobacco-using patients; (2) assessing addiction level and readiness to quit; (3) prescribing medications to manage withdrawal while in hospital; and (4) proactively faxing a referral to the Oklahoma Tobacco Helpline for all patients ready to quit. Helpline registration patterns and characteristics of fax-referred hospitalized patients were tracked for the 4 years of the initiative (2009–2013); data were analyzed in 2013.

Results: Twenty-one hospitals and 12 clinics participated in the initiative. Fax referrals to the Helpline increased by >150% in the first year, from about 600 during the year prior to the implementation of the program (July 2009 to June 2010) to 1,581 from Oklahoma Hospital Association facilities alone in the first year following the launch of the initiative. Nearly 5,600 Oklahoma Hospital Association fax referrals were made during the 4-year study period. About 41% of these referrals resulted in Helpline enrollment (n=2,289).

Conclusions: Sustainable, evidence-based tobacco treatment interventions embedded in hospital systems can successfully identify tobacco users and provide effective treatment, including increased proactive Helpline referrals for quit coaching.

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Introduction

A number of factors highlight hospitalizations as a particularly opportune time to help tobacco users to quit.[1] Tobacco use is a cause of many of the diseases that result in hospitalizations, making hospital stays a potentially effective teachable moment[2] and a time when patients are particularly interested in quitting.[3] Hospitals seeking Joint Commission approval must be smoke free, frequently resulting in many inpatients experiencing an extended period free of tobacco use.[4,5] Furthermore, recent data have highlighted the potential of delivering tobacco-cessation interventions during the hospital stay, particularly when supplemented with post-discharge counseling and medication, as a particularly effective strategy to promote cessation.[6]

Based on 2011 hospitalization, population, and tobacco use prevalence data, an estimated 120,000 tobacco users are admitted to Oklahoma hospitals annually.[7–10] In an effort to seize this opportunity to intervene, the Oklahoma Hospital Association (OHA), Oklahoma Tobacco Settlement Endowment Trust Fund, and select hospitals partnered to implement healthcare system changes to integrate a sustainable tobacco-cessation protocol for all tobacco-using patients. The initiative, Hospitals Helping Patients Quit, is based on the 5A's

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treatment model (Ask, Advise, Assess, Assist, and Arrange) outlined in the U.S. Public Health Service publication *Treating Tobacco Use and Dependence: 2008 Update*[11] endorsed by CDC. The goal of this initiative is to identify hospitalized tobacco users and those in hospital-affiliated outpatient clinics, assess their readiness to make a quit attempt, and refer them to the Oklahoma Tobacco Helpline. Prior studies[12–14] have demonstrated that tobacco-cessation referral programs delivered through hospitals and clinics reach substantial numbers of tobacco users and effectively link them to quitline services. This paper describes the implementation of the OHA hospital-based intervention and quitline referral initiative, Hospitals Helping Patients Quit.

Methods

The Hospitals Helping Patients Quit initiative provides steps that hospitals can take to systematically implement sustainable tobacco-cessation interventions for patients and employees (www.okoha.com). The role of OHA staff, throughout the entire process, is to provide constant guidance, consultation, and technical assistance to the hospital work group and provide staff training prior to implementation. Hospital leadership and key staff are urged to work together to develop and improve tobacco-free campus policies for all hospital property; identify and implement strategies for policy compliance by patients, visitors, employees, and others; determine how to imbed key patient tobacco-cessation screening questions into the patient health history in paper chart or electronic systems; outline a process for the bedside intervention, which includes designating staff to provide it and complete the patient fax referral to the Helpline (paper chart or electronic systems); develop an approved medication order set and work flow process by which physicians can order these for patients; determine a system to ensure automatic access to the orders; deliver initial and ongoing training of health professionals in the 5A's; and develop an overall written plan of activities, responsible parties, and timeline.

Furthermore, hospitals are expected to create patient admission and 5A's treatment processes as follows. All patients are given a clear message by nursing staff during health history assessment: that the hospital policy is tobacco free and all tobacco use is prohibited. All patients are screened by nursing staff for tobacco/nicotine use, including type and amount used, through several in-depth questions contained in the health history (Ask); patients identified as tobacco users are flagged to receive U.S. Food and Drug Administration–approved pharmacotherapy, approved by a physician. The patient is also automatically flagged to receive the counseling intervention from hospital staff through a consult notification sent to a designated health provider, determined by that particular hospital's process. The health provider contacts the patient to discuss the patient's tobacco use and counsels him or her on the most effective methods to quit including new treatment methods that are available. The patient is advised to quit tobacco use through a clear and personal message, linking it specifically to his or her health issue(s) (Advise). Utilizing motivational interviewing[15] techniques, the health provider counsels the patient and assesses his or her level of nicotine addiction. The provider also assesses the patient's readiness to make a quit attempt using Prochaska's transtheoretical model of behavior change[16] (Assess). If the patient is ready to make a quit attempt, he or she gives written consent for a referral form to be faxed by the provider to the Helpline (Assist). This form is prepopulated with specific provider information, allowing for ease of faxing and enhanced tracking of Helpline referral outcomes. Patients are encouraged to follow up with their health providers within 2 weeks of discharge (Arrange).

Helpline Fax Referral Protocol

The Helpline fax referral program allows providers to link patients directly to the Helpline, a telephone-based counseling/coaching service that assists tobacco users in developing and carrying out a plan to quit tobacco use. Readiness to quit, participant preferences, and insurance status determine the level of intervention received from the Helpline. All uninsured tobacco users are eligible for the multiple call intervention and up to 8 weeks of nicotine-replacement therapy (NRT). Tobacco users with private insurance are eligible for only the single-call program and 2 weeks of NRT. When the Helpline receives the referral form, a Quit Coach attempts to call the patient within 48 hours. A minimum of three attempts is made over the next 5 days and a letter is sent to the patient if not reached by phone. Within 2 weeks of receiving a fax referral, the Helpline faxes an outcome report to the provider, indicating whether the patient was reached and accepted services, reached but declined services, already enrolled with the Helpline, or not reached at all. The outcome report includes information on the Helpline services received by the patient, including "materials only," "one call," "multiple call," "web only," and whether the patient is eligible for NRT from the Helpline. A fax referral creates an opportunity for the provider to take action with the tobacco user at the time of the patient encounter and eliminates the barrier of the patient having to initiate the first call to the Helpline. In addition to providing feedback to the providers, aggregate referral disposition data are provided to the OHA by the Oklahoma Tobacco Research Center, the external evaluator of the Oklahoma Tobacco Helpline. The OHA provides monthly aggregate outcome data reports to each hospital so they have current information by which they can make system improvements.

To evaluate one outcome of this initiative, this study analyzed Oklahoma Tobacco Helpline registration and service utilization data for tobacco users receiving a fax referral from participating OHA hospitals from July 2010 through March 2013 (funding began in July; fax referrals began in October). Prior to July 2010, a number of hospitals, clinics, and mental health facilities fax referred patients to the Helpline as a result of local, community-based efforts to promote the Helpline, which focused mainly on an unsystematic manner of fax referrals and did not include a sustainable system and process of providing the 5A's intervention for patients. According to Helpline data, only about 600 referrals were made from hospitals and clinics during the year prior to the implementation of the OHA initiative (July 2009–June 2010). The Helpline evaluation methodology, including the analysis of fax referral data, was approved by the University of Oklahoma Health Sciences Center IRB (No. 2616). Demographic characteristics, tobacco use patterns, and utilized Helpline services were compared between the 2,289 fax-referred registrants and the 82,009 registrants who proactively called the Helpline during this time, referred to as self-callers hereafter. Both fax-referred callers and self-callers experience the same registration and service delivery

processes from the Helpline. As a result, self-callers comprise an appropriate internal comparison group for the fax-referred participants. Contingency table chi-square tests were used to identify statistically significant differences between fax-referred registrants and self-callers. Data were collected in 2009–2013, and analyses were conducted in 2013 with SAS, version 9.2 (SAS Institute Inc., Cary NC). A two-sided p-value of <0.05 was considered statistically significant.

Results

Twenty-one hospitals and 12 clinics participated in the OHA initiative from October 2010 to March 2013, including a major statewide health system, INTEGRIS Health, with 12 hospitals. Ninety-two percent of all Helpline fax referrals were made by INTEGRIS Health.

During the first year of the OHA initiative, July 2010 to June 2011, fax referrals to the Helpline increased by >150% with 1,581 referrals from participating OHA hospitals and clinics (Figure 1). Nearly 5,600 fax referrals from OHA hospitals and clinics occurred during the study period, July 2010 through July 2013. About 42% of OHA fax referrals resulted in Helpline enrollment (n=2,289). When compared to self-callers (Table 1), OHA fax-referred tobacco users were more likely to be older (aged ≥65 years, 16.5% vs 5.9%, $p<0.0001$), and lighter smokers (57.3% smoked less than a pack a day vs 40.9% of self-callers, $p<0.0001$). OHA fax-referred participants were half as likely to have used the Helpline in the past (8.8% vs 17.3%, $p<0.0001$) but just as likely as self-callers to report two or more quit attempts in the past year (about 66%, p=0.1850). The percentage of OHA fax-referred participants without health insurance (23.0%) was half that reported by self-callers (47.5%, $p<0.0001$).

As a group, OHA fax-referred tobacco users received less intensive services from the Helpline as compared to self-callers. Because insurance status determines eligibility for Helpline services, OHA fax-referred participants were more likely to receive the single-call intervention than self-callers (54.0% vs 29.7%, $p<0.0001$, Table 2). Among fax-referred participants, another 3.8% requested information only, and 42.2% received the multiple-call program. By comparison, almost two thirds of self-callers received the multiple-call program. There was no difference in the number of intervention calls completed among multiple-call participants in both Helpline groups, with nearly three quarters receiving one or two calls. Because the amount of NRT available from the Helpline is also determined, in part, by insurance status and call program, OHA fax-referred tobacco users received less NRT from the Helpline than self-callers.

Discussion

This study supports research showing that sustainable, evidence-based tobacco treatment interventions imbedded in hospitals for inpatients can successfully identify tobacco users, provide them with cessation interventions, and fax refer them to the Helpline for quit coaching support.[1,3,6,12–14] Over the nearly 3 years included in this evaluation, the OHA effort focused on system changes within healthcare settings, building strong partnerships with providers, and providing intense technical assistance to prompt utilization of the program. Fax referrals to the Helpline offered a convenient and effective strategy for healthcare providers to assist their tobacco users to quit. As a result, tobacco users who were motivated to quit, most of whom had not previously contacted the Helpline, were connected to evidence-based tobacco-dependence treatment.

The evaluation of Helpline registration data revealed significant differences in OHA fax-referred participants who enrolled in Helpline services as compared to self-callers. It is important to note that the fax-referred

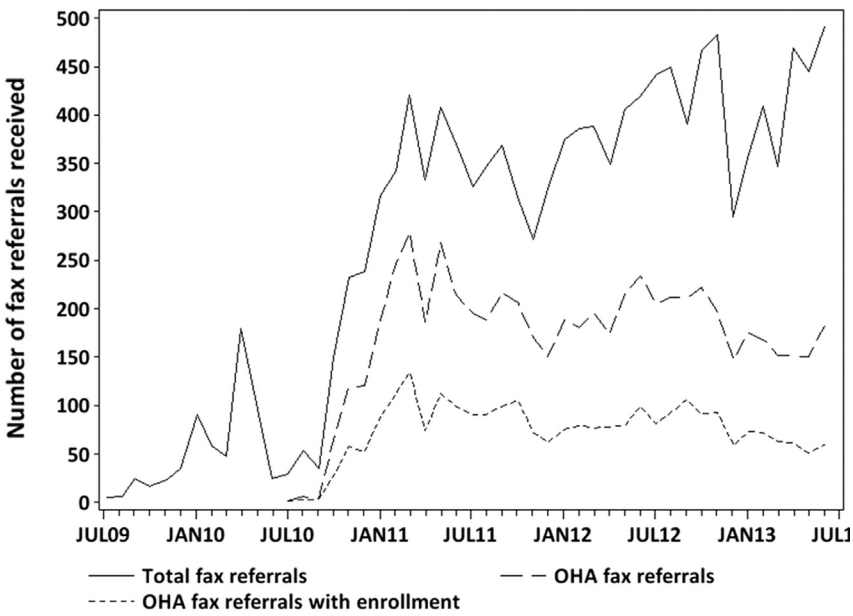

Figure 1. Number of Helpline fax referrals by month, total and from Oklahoma Hospital Association (OHA) sites, July 2009–July 2013.

Table 1. Characteristics of Helpline registrants, Oklahoma Hospital Association fax-referred registrants and self-callers, July 2010–July 2013, %[a]

	OHA fax referrals (*n*=2,289)	Self-callers (*n*=82,009)	*p*-value
Gender			**0.0004**
Male	40.9	39.7	
Female	59.1	59.7	
Age (years)			**<0.0001**
<35	19.9	36.0	
35–64	63.5	58.2	
≥65	16.5	5.9	
Education			**<0.0001**
<High school	22.3	21.3	
High school degree/GED	36.3	37.0	
Some college	27.6	30.4	
College degree	12.0	10.6	
Race			**<0.0001**
White	73.5	75.2	
Black	12.8	8.6	
American Indian	7.9	11.5	
Other	4.0	4.0	
Insurance status			**<0.0001**
Private	30.8	20.3	
Medicaid	20.7	16.3	
Medicare	22.1	12.4	
Uninsured	23.0	47.5	
Previous caller to Helpline	8.8	17.3	**<0.0001**
Time to first cigarette (minutes)			**<0.0001**
5	43.5	53.4	
6–30	32.8	28.7	
31–60	11.2	9.4	
>60	12.5	8.5	
Cigarettes per day (no. of packs)			**<0.0001**
<1	57.3	40.9	
1	25.3	31.7	
>1 but <2	10.4	15.9	
≥2	6.9	11.5	
Number of past quit attempts			0.1850
0	11.7	11.3	
1	22.2	23.4	
2–5	49.5	50.7	
≥6	16.6	14.6	

[a]Percentages may not sum to 100 because of rounding or missing values.
GED, General Educational Development test; OHA, Oklahoma Hospital Association.

participants in this analysis reflect the 42% of OHA fax referrals that resulted in Helpline enrollment. The majority of fax referrals from OHA clinics and hospitals (58%) were either not reached by the Helpline or declined services. This is typical of, if not slightly better than, most state quitline fax-referral programs.[17–19] For example, Willet et al.[17] reported that less than a quarter of fax referrals to the Ohio quitline resulted in enrollment.

OHA fax-referred participants reported lower levels of current tobacco use than self-callers. This may be related to behavior change already initiated as a result of an encounter with a healthcare provider or a lack of full disclosure about tobacco use at the time of Helpline enrollment. The differences between the OHA fax-referred participants and self-callers were also related to services received from the Helpline. OHA fax-referred participants were more likely to receive the single-call intervention and less likely to receive NRT from the Helpline. Both insurance status and contraindications for NRT could be driving the level of Helpline intervention that is received, along with the possibility that fax-referred participants, having a recent encounter with a hospital or clinic, may be receiving prescription pharmacotherapy, or may have already started NRT under the advice of their physician.

This analysis indicates that, through provider fax referrals, significant numbers of tobacco users received evidence-based cessation services and were proactively directed to the Helpline—tobacco users who had not had contact with such services. Also, health providers were educated about the evidence-based 5A's protocol, who, otherwise, may never have been. This study further contributes to and establishes evidence that health system changes contribute to tobacco-cessation improvement.

Table 2. Helpline services received, Oklahoma Hospital Association fax-referred registrants and self-callers, July 2010–July 2013, % unless otherwise noted[a]

	OHA fax referrals (*n*=2,289)	Self-callers (*n* =82,009)	*p*-value
Helpline call program			**<0.0001**
Single call	54.0	29.7	
Multiple call	42.2	65.2	
Materials only/general questions	3.8	5.0	
Helpline calls completed among multiple call participants			0.7492
1	48.1	49.3	
2	24.9	25.0	
3	13.7	12.6	
4	7.3	7.7	
≥5	6.0	5.4	
NRT from the Helpline (weeks)			**<0.0001**
0	22.7	6.9	
2	39.1	34.0	
4 or 6	26.9	39.2	
≥8	11.2	19.9	
	n=130	*n*=130	0.6943
30-day quit rates at 7 months post-registration (% [95% CI])	32.3% (24.3, 40.3)	35.4% (27.2, 43.6)	

[a]Percentages may not sum to 100 because of rounding or missing values.
NRT, nicotine replacement therapy; OHA, Oklahoma Hospital Association.

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