Referring Hospitalized Smokers to Outpatient Quit Services

A Randomized Trial

Jeffrey L. Fellows, PhD,[1] Richard A. Mularski, MD,[1] Michael C. Leo, PhD,[1] Charles J. Bentz, MD,[2] Lisa A. Waiwaiole, MS,[1] Melanie C. Francisco, PhD,[1] Kimberly Funkhouser, BS,[1] Catherine M. Stoney, PhD[3]

Introduction: Linking outpatient cessation services to bedside counseling for hospitalized smokers can improve long-run quit rates. Adding an assisted referral (AR) offer to a tobacco treatment specialist consult service fits the team approach to care in U.S. hospitals.

Design: A two-arm patient-randomized trial tested the effectiveness of adding an AR offer to outpatient smoking-cessation services and interactive voice recognition (AR+IVR) follow-up to a usual care (UC) tobacco-cessation consult for hospitalized smokers.

Setting/participants: Over 24 months (November 2011–November 2013), 898 hospitalized adult smokers interested in quitting smoking were recruited from three large hospitals in the Portland, Oregon, area: an integrated group model HMO (n=622), a community hospital (n=195), and an academic health center (n=81).

Intervention: Tobacco treatment specialists identified smokers and provided an intensive bedside tobacco use assessment and cessation consultation (UC). AR+IVR recipients also received proactive ARs to available outpatient counseling programs and medications, and linked patients to a tailored IVR telephone follow-up system.

Main outcome measures: The primary outcome was self-reported 30-day abstinence at 6-month follow-up. Secondary outcomes included self-reported and continuous abstinence and biochemically confirmed 7-day abstinence at 6 months. Follow-up was completed in September 2014; data were analyzed in 2015.

Results: A total of 597 and 301 hospitalized smokers were randomized to AR+IVR and UC, respectively. AR+IVR and UC recipients received 19.3 and 17.0 minutes of bedside counseling (p=0.372), respectively. Most (58%) AR+IVR patients accepted referrals for counseling, 43% accepted medications, and 28% accepted both. Self-reported 30-day abstinence for AR+IVR (17.9%) and UC (17.3%) were not statistically significant (p=0.569). Differences in 7-day, continuous, and biochemically confirmed abstinence by treatment group also were insignificant, overall and adjusting for site.

Conclusions: Adding an AR to outpatient counseling and medications did not increase cigarette abstinence at 6 months compared to UC alone.

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From the [1]Kaiser Permanente Center for Health Research, Portland, Oregon; [2]Tobacco Cessation and Prevention, Legacy Health System, Portland, Oregon; and [3]Division of Cardiovascular Sciences, National Heart, Lung, and Blood Institute, NIH, Bethesda, Maryland

Address correspondence to: Jeffrey L. Fellows, PhD, Center for Health Research, Kaiser Permanente Northwest, 3800 N Interstate Ave., Portland OR 97227. E-mail: jeffrey.fellows@kpchr.org.

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Introduction

Cigarette smoking is the leading cause of preventable death and disease in the U.S., resulting in 480,000 deaths and more than $170 billion in excess medical care expenditures per year.[1,2] Although smoking rates have declined substantially since the late 1990s,[1,3] more needs to be done. Counseling programs to

help smokers quit are effective and highly cost effective, particularly when combined with cessation medications.[3–5]

The forced abstinence associated with a hospital stay, particularly in smoke-free facilities, represents an opportunity to initiate professional treatment and link patients with multiple intervention contacts after discharge. This approach can lead to significant increases in quit rates.[3,6–12] In 2012, the Joint Commission recognized the importance of treating tobacco dependence for all hospitalized smokers by broadening the requirements for effective treatment to include referral to outpatient services and follow-up.[13,14]

Creating an integrated clinical pathway—from inpatient assistance to outpatient cessation services—is challenging for any healthcare delivery system, even integrated organizations that also provide outpatient and behavioral health services. An effective model includes in-hospital treatment by trained professionals whose primary responsibility is tobacco cessation[15] and a hospital-managed follow-up program for continuity of care.[16] Integrating inpatient and outpatient cessation services is much more daunting for free-standing community and academic hospitals that serve patients who are potentially covered by dozens of health insurance plans. Typically, insurance plans cover inpatient services, but prior authorization is needed for outpatient coverage.

In 2010, NIH funded seven clinical trials to evaluate the effectiveness and cost effectiveness of hospital-based smoking-cessation programs that linked smokers to post-discharge outpatient interventions.[16] Investigators from each study and NIH formed the Consortium of Hospitals Advancing Research on Tobacco to create common data elements that would enable data pooling and analyses across studies. This study presents data from the Inpatient Technology-Supported Assisted Referral study (U01 HL105231; clinical trials registration, NCT01236079), a patient-randomized clinical effectiveness trial. Each participant received a comprehensive bedside tobacco-cessation consult as part of usual care (UC), delivered by a trained tobacco treatment specialist (TTS): a physician assistant, research registered nurse, or health educator, depending on the study site. Patients also received information about outpatient cessation programs and medications. Patients randomized to the study treatment also received ARs for post-discharge tobacco-cessation services (counseling and medications) plus interactive voice recognition support (AR+IVR). IVR was used to provide efficient post-discharge follow-up for treatment plans initiated during hospitalization.[17–19]

The Inpatient Technology-Supported Assisted Referral study tested the hypothesis that adding an AR to outpatient quit services and IVR follow-up to a bedside smoking-cessation consultation would significantly increase self-reported 30-day abstinence at 6-month follow-up compared to the bedside consult service only. The overall goal of the study was to demonstrate that combining tobacco treatment expertise with electronic health systems technology could effectively link in-hospital tobacco dependence treatment to cost-effective outpatient follow-up care, thus increasing patient's use of outpatient quit programs and medications compared to UC. A detailed description of the study protocol is available elsewhere.[20]

Methods

A randomized controlled clinical effectiveness trial was conducted with 900 patients who had been admitted to one of three large hospitals. All study participants received bedside tobacco-cessation consults as part of UC, and 597 patients were randomly selected to receive a TTS-delivered AR+IVR. Participants completed baseline and 6-month follow-up assessments, with a $50 incentive for completing follow-up. Blinded study staff arranged and conducted the assessments. Intervention fidelity was monitored by tracking inpatient cessation service delivery, documented ARs to outpatient counseling services and medication prescriptions, and notifications to primary care providers. The study was approved by the IRB of each institution and the Consortium of Hospitals Advancing Research on Tobacco Data Safety Monitoring Board. All participants provided written informed consent and were monitored for adverse events.

Setting and Population

Participating hospitals included:

1. an inpatient facility for an integrated, group model HMO that provides and coordinates the entire scope of care, including access to a range of tobacco-cessation services through its Health Education Services (HES) Department;
2. a large community hospital serving a diverse urban population; and
3. an academic health center with specialty tertiary healthcare services.

All hospitals have comprehensive electronic medical record systems and are located on tobacco-free campuses. The community and academic hospitals offer inpatient tobacco-cessation consult services for smokers referred by hospital staff. The consults were provided by dedicated TTSs, who formed the basis for the UC intervention described below. The HMO hospital implemented a dedicated nurse-delivered tobacco consult service for the study.

The study population comprised adult patients (aged $\geq$18 years) who had been admitted to one of the hospitals and reported having smoked a cigarette (even a puff) within the previous 30 days, spoke English, had a working telephone, and were interested