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**Improving the Delivery of Smoking Cessation
Guidelines in Hospitalized Veterans**

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BACKGROUND/RATIONALE:

Although the majority of hospitalized VA smokers receive some form of cessation counseling during hospitalization, few receive outpatient cessation counseling and/or pharmacotherapy following discharge, which are key factors associated with long-term cessation. VA hospitals are challenged to find resources to implement and maintain the kind of high intensity cessation programs that have been shown to be effective in research studies. Controlled trials are needed to demonstrate the effectiveness of cessation interventions that combine brief inpatient counseling with sustained relapse prevention and pharmacotherapy in hospitalized smokers.

OBJECTIVE(S):

The primary objective is to determine whether a nurse-initiated intervention, which couples brief inpatient counseling and proactive telephone counseling by a centralized tobacco quitline, improves 6-month cessation rates in hospitalized VA smokers. Co-primary aims are to determine whether the intervention improves the prescription of recommended pharmacotherapy for smoking cessation and the referral of patients for telephone counseling (or other outpatient cessation counseling). Secondary objectives include: 1) identifying barriers and facilitators to implementation of smoking cessation guidelines in VA hospitals, and 2) determining whether the intervention changes the attitudes of ward nurses toward smoking cessation counseling.

METHODS:

We will perform a controlled before-after trial in hospitalized patients, aged 18 or older, who smoke at least one cigarette per day on average. The start date at each of 4 sites will be staggered such that the intervention will be administered at a later date to the sites that initially served as concurrent control sites. After a 6-month baseline period, we will implement the intervention and enroll a separate cohort of patients over the subsequent 6 months. The intervention will include: 1) nurse training in delivery of bedside cessation counseling, 2) use of CPRS-based practice tools (to streamline nursing assessment and documentation, to facilitate prescription of pharmacotherapy), 3) computerized referral of motivated inpatients for proactive telephone counseling, and 4) use of nursing peer leaders to provide coaching and performance feedback to ward nurses. Enrolled patients will be contacted by telephone at 3 and 6 months to assess 7-day point prevalence abstinence and prolonged abstinence (with biochemical confirmation of self-reported quitters at 6 months). To detect a 7% difference in quit rates at 12

months, our enrollment target is 500 patients in each period of the study (1000 total patients). For our main analysis, we will use hierarchical logistic regression to adjust for baseline differences in potentially confounding patient and nurse variables. We will identify barriers and facilitators to implementation by using clinician focus groups, and will assess attitudes of staff nurses toward cessation counseling by questionnaire. We will also conduct semi-structured interviews in a subsample of patients and nurses to assess perceptions of the intervention, and will use content analysis to interpret the data.

FINDINGS/RESULTS:

The intervention was successfully implemented at the Iowa City site, and included the following: 1) development of a modified charting tool in CPRS (for nurses to document smoking cessation counseling), 2) creation of "quick orders" for smoking cessation pharmacotherapy, 3) training of ward nurses in brief cessation counseling, 4) education and feedback meetings with internal medicine residents, 5) development of a patient education video for veterans, and 6) training of nurse facilitators on each study ward. Clinician performance was generally higher during the intervention phase compared with the pre-intervention phase. "Ask about smoking" increased from 90% to 97%; "Assess willingness to quit" increased from 79% to 85%; "Advise to quit" increased from 63% to 79%; "Assist in quitting" increased from 69% to 83%; and "Arrange follow-up" increased from 33% to 40%. A similar pattern was observed in both nurses and physicians. Pre- and post-intervention surveys of the nursing staff showed improvements in self-efficacy (38% rated themselves at least moderately effective post-intervention, up from 18%) and role satisfaction in smoking cessation counseling (53% reported being at least somewhat satisfied post-intervention, up from 34%). Analysis of cessation data will commence when follow-up is complete at all sites

IMPACT:

After all project sites complete recruitment, the research study will evaluate the effectiveness of the proposed intervention on quality of smoking cessation services and quit rates. Qualitative data from in-depth interviews of ward nurses and physicians will elucidate the clinicians' attitudes toward inpatient smoking cessation, as well as barriers and facilitators to implementation. If effective, this intervention will provide a practical strategy to enhance the adoption and implementation of recommended smoking cessation procedures in VA hospitals, including the use of quitlines to prevent relapse in hospitalized smokers following discharge from the hospital.

PUBLICATIONS:

Journal Articles

- Baldwin AS, Rothman AJ, Vander Weg MW, Christensen AJ. Examining Causal Components and a Mediating Process Underlying Self-Generated

Health Arguments for Exercise and Smoking Cessation. *Health psychology : official journal of the Division of Health Psychology, American Psychological Association*. 2012 Oct 1.

- Kamath AS, Vaughan Sarrazin M, Vander Weg MW, Cai X, Cullen J, Katz DA. Hospital costs associated with smoking in veterans undergoing general surgery. *Journal of the American College of Surgeons*. 2012 Jun 1; 214(6):901-8.e1.
- Katz DA, Tang F, Faseru B, Horwitz PA, Jones P, Spertus J. Prevalence and correlates of smoking cessation pharmacotherapy in hospitalized smokers with acute myocardial infarction. *American heart journal*. 2011 Jul 1; 162(1):74-80.
- Katz D, Vander Weg M, Fu S, Prochazka A, Grant K, Buchanan L, Tinkelman D, Reisinger HS, Brooks J, Hillis SL, Joseph A, Titler M. A before-after implementation trial of smoking cessation guidelines in hospitalized veterans. *Implementation Science*. 2009 Sep 10; 4::58.

Conference Presentations

- Katz DA, Fu S, Grant K, Prochazka A, Battaglia C, Johnson SR, Hillis SL, Titler M, Vander Weg MW, Buchanan L. Improving the Delivery of Smoking Cessation Guidelines in Hospitalized Veterans: Nurse Attitudes and Performance. Poster session presented at: VA HSR&D / QUERI National Meeting; 2012 Jul 16; National Harbor, MD.
- Kamath AS, Vander Weg MW, Fu S, Grant K, Prochazka A, Katz DA. Nicotine Withdrawal and Smoking Status in Hospitalized Veterans. Poster session presented at: Society of General Internal Medicine Annual Meeting; 2011 May 6; Phoenix, AZ.
- Kamath AS, Vaughan-Sarrazin MS, Vander Weg MW, Cullen J, Katz DA. Surgical Costs Associated with Smoking in Veterans Undergoing General Surgery. Poster session presented at: Society of General Internal Medicine Annual Meeting; 2011 May 6; Phoenix, AZ.
- Katz DA, Vander Weg MW, Holman JE, Nugent A, Baker L, Gillette M, Ono SS, Reisinger HS, Johnson SR, Titler M. Attitudes of Emergency Clinicians Toward the Delivery of Smoking Cessation Counseling. Poster session presented at: Society for Medical Decision Making Annual Meeting; 2010 Oct 24; Toronto, Canada.

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