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ABSTRACT OF DISSERTATION

Karma Bryan Cassidy

The Graduate School
University of Kentucky
2010

HEALTH SYSTEM PROCESSES, CLINICIAN ATTITUDES,
AND REFERRALS TO TOBACCO TREATMENT PROGRAMS

ABSTRACT OF DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Nursing
at the University of Kentucky

By
Karma Bryan Cassidy

Lexington, Kentucky

Director: Dr. Ellen J. Hahn, Professor of Nursing

Lexington, Kentucky

2010

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ABSTRACT OF DISSERTATION

HEALTH SYSTEM PROCESSES, CLINICIAN ATTITUDES, AND REFERRALS TO TOBACCO TREATMENT COUNSELING PROGRAMS

Assisting smokers to quit and stay quit is the most important intervention clinicians can undertake to improve the length and quality of life of patients who use tobacco. The chronic, relapsing nature of tobacco dependence complicates tobacco treatment. Tobacco treatment counseling programs provide on-going support to help patients avoid relapse. Assistance with a referral increases the likelihood that patients will participate in counseling, but few clinicians regularly assist with referrals to tobacco treatment programs. This dissertation examined health system processes and clinician attitudes that influence the likelihood that clinicians will refer their patients for tobacco treatment counseling.

Three papers examined health system processes, clinician attitudes, and frequency of referrals. A systematic review of the literature was conducted to evaluate strategies to increase the frequency of clinician referrals and effects on quit rates in primary care. The most effective strategies were those that combined clinician education with integrated referral systems. Integrated referral systems include non-clinician staff and clinician and staff prompts with algorithms or protocols for referrals. The second paper reports the findings of a pilot study using qualitative methods to explore experiences and strategies used for tobacco treatment by clinician champions practicing in independent primary care practices. Tobacco champions ($N = 11$) described experiences counseling patients but not assistance with referrals. Themes identified were: *sources of knowledge and experience*, *understanding dependence*, *role perception*, and *treatment strategies*. The final paper reports the findings of a cross-sectional, non-experimental study to examine clinician attitudes toward counseling, health system processes that facilitate referrals, and referrals to tobacco treatment counseling. Attitudes about the efficacy of tobacco counseling and the presence of processes that facilitate referrals predicted referrals.

Clinicians sampled in these studies held favorable attitudes toward tobacco treatment but lacked confidence in the efficacy of community-based counseling for tobacco treatment. These findings have implications for health care policies to improve integration of processes that facilitate referrals and clinician education that includes

information about counseling resources to improve chronic care for the treatment of tobacco dependence.

KEYWORDS: Processes, Tobacco Treatment Counseling, Chronic, Relapsing, Tobacco Treatment Champions

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HEALTH SYSTEM PROCESSES, CLINICIAN ATTITUDES,
AND REFERRALS TO TOBACCO TREATMENT PROGRAMS

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CHAPTER ONE

Introduction

Tobacco use is the number one preventable cause of morbidity and mortality in the United States, resulting in 440,000 deaths and \$193 billion in health care costs and lost productivity annually (Centers for Disease Control and Prevention, 2008). Effective pharmacological and psychosocial clinical interventions for treating tobacco dependence are available and described in the Public Health Service (PHS) guideline (Fiore, et al, 2008). However, recent data show that while most tobacco users want to quit most cessation attempts are unsuccessful (Centers for Disease Control and Prevention, 2009a). From 2007 to 2008, the proportion of the U.S. population who used tobacco did not decline, even though 45% of current smokers reported having stopped smoking at least one day in the past 12 months.

Assisting smokers to quit and stay quit is the most important intervention clinicians can undertake to improve the length and quality of life of patients who use tobacco (Fiore, et al., 2008). Recommendations for brief interventions are described in a 5 A's acronym: Ask about tobacco use, Advise to quit, Assess willingness to quit, Assist in a cessation attempt, and Arrange follow-up. At a minimum, all smokers should be asked about current smoking status, advised to quit, and assessed regarding their readiness to change. For smokers willing to quit, two additional A's (Assist and Arrange follow-up) should be implemented; for smokers not willing to quit, a brief motivational intervention is recommended. The PHS guidelines also emphasize that tobacco treatment be approached as a chronic health condition (Fiore, et al., 2008).

Recognizing that improving tobacco treatment outcomes cannot be accomplished solely through the efforts of clinicians, PHS guideline recommendations are also directed toward health system administrators and policymakers to institutionalize chronic treatment of tobacco dependence (Curry, Orleans, Keller, & Fiore, 2006). The chronic care model (CCM) has been proposed as a template to guide system changes to improve on-going preventive services including tobacco treatment (Glasgow, Orleans, & Wagner, 2001). The CCM proposes six health system components that are associated with effective chronic and preventive care delivery. *Health systems and organization of care* refers to organizational values and health system policies that are supportive of quality

improvement. *Decision support* includes methods to increase clinician knowledge and skills and that promote integration of evidence-based treatments into practice for tobacco dependence (Hung & Shelley, 2009). *Delivery system designs* promote efficient and proactive interventions through clearly defined clinician roles, interdisciplinary care, and planned interventions (Bodenheimer, Lorig, Holman, & Grumbach, 2002). *Clinical information systems* provide real time access to patient and population data (Wagner et al., 2001). *Self-management support* provides patients with information and support to self-manage tobacco dependence and includes implementation of PHS guideline recommendations (Hung & Shelley, 2009). The final component, *Community resources* extends on-going care through, for example, referrals for tobacco treatment counseling.

Referrals to community resources for behavioral counseling and arranging follow up are recommended by the PHS for tobacco treatment (Alesci, Boyle, Davidson, Solberg, & Magnan, 2004). Behavioral counseling assists smokers to develop self-management strategies to avoid relapse and follow-up care provides the opportunity for clinicians to reassess the tobacco treatment plan. Participation in behavioral counseling significantly increases the likelihood that a smoker will be successful in quitting and avoid relapse (Lancaster & Stead, 2005 ; Stead, Perera, & Lancaster, 2006; Stead & Lancaster, 2005), but few smokers who try to quit participate in counseling (Cokkinides, Ward, Jemal, & Thun, 2005). The primary care clinic provides an opportune setting to recruit smokers for participation in behavioral counseling, but clinicians infrequently assist their patients with a referral (Schnoll, Rukstalis, Wileyto, & Shields, 2006). There are a number of barriers that complicate the clinician referral process including competing demands of treating patients' acute health problems, lack of familiarity with availability of programs, and clinician attitudes about tobacco treatment (Holtrop, Malouin, Weismantel, & Wadland, 2008).

A major research initiative, Addressing Tobacco in Managed Care, demonstrated that health system changes have the potential to improve outcomes but unless clinicians perceive these changes to be supportive of their efforts to provide tobacco treatment, health system initiatives may not be sufficient to bring about true reform (Revell & Schroeder, 2005). Research is needed to determine the processes that facilitate tobacco treatment in clinical practice, whether clinicians perceive processes as supportive in their

practice, to what extent clinician motivation influences adoption of health system processes, and how these factors influence clinician referrals. The purpose of this dissertation research was to examine health system and clinician attitudinal factors that influence patient referrals to community-based behavioral counseling programs for tobacco treatment,

In Chapter Two of this dissertation, a systematic literature review examined research conducted in ambulatory clinical settings to determine which health system processes are effective in either increasing clinician referrals for behavioral counseling or increasing rates of abstinence from tobacco use. This review found that interventions that were multi-component and included integrated referral systems, clinician decision support prompts, clinician education and those that leveraged non-clinician staff to assist with and coordinate referrals are most effective for increasing referrals and quit rates.

Chapter Three of this dissertation describes findings from an exploratory study of role perceptions and strategies used by primary care clinicians who were known to prioritize tobacco treatment. The extent to which interventions to improve system processes are successful in improving patient outcomes depend in part upon the extent to which clinicians who have been described as “tobacco treatment champions” are motivated to put them into practice (Alesci, et al., 2004). The concept of “tobacco treatment champion” refers to an individual who is highly motivated to engage in strategies to treat tobacco dependence (Bentz et al., 2007; Harper, Baker, & Reif, 2000). Using qualitative descriptive and ethnographic methodology (Marshall, 1996; Sorrell & Redmond, 1995), interviews were conducted with 11 clinicians who practice in private, primary care clinics and care processes were observed in a clinic setting. Findings were categorized into four major themes for tobacco treatment: *sources of knowledge and experience, understanding dependence, role perception, and treatment strategies*.

Chapter Four of this dissertation presents findings from a cross-sectional study conducted with primary care clinicians ($N = 197$) in Kentucky to examine relationships between clinician attitudes toward tobacco treatment, processes that facilitate treatment, and self-reported referrals to behavioral counseling programs. Processes that have been shown to facilitate referrals are not consistently implemented in practice and when in place, clinicians do not consistently access them to assist their patients with tobacco

treatment (Alesci, et al., 2004; Hung et al., 2007; McIlvain, Backer, Crabtree, & Lacy, 2002). Research applying self-determination has shown that both motivation, specifically perception of autonomous motivation, and the extent to which clinicians perceive aspects of the health system as supportive in their interventions with patients who use tobacco predicts time they spent counseling and their adherence to PHS recommended interventions (Williams, Levesque, Zeldman, Wright, & Deci, 2003). Results of this study suggest that clinician attitudes toward the efficacy of tobacco treatment counseling programs and health system processes independently contribute to the likelihood that clinicians refer their patients to tobacco treatment counseling programs. While previous research has demonstrated that perceived autonomous motivation predicts tobacco treatment behaviors, this study did not find that it mediated the relationship between processes and referrals.

Summary and conclusions from the studies in this dissertation are presented in Chapter Five including recommendations for policy change, education, and research. These findings emphasize the need for policies to encourage collaborative and chronic models of care to improve coordination of tobacco treatment within primary care practices and between primary care and community-based counseling programs and to facilitate on-going tobacco treatment. Medical and nursing education and continuing education requirements should include PHS guideline recommendations for chronic treatment of tobacco dependence. Further research examining clinician motivation for tobacco treatment is needed to aid in the development of effective methods for disseminating evidence-based tobacco treatment and to encourage clinicians to adopt health system processes that facilitate referrals.

CHAPTER TWO

Interventions That Facilitate Referrals to Tobacco Treatment Counseling Programs: A Systematic Review

Synopsis

Public Health Service (PHS) guidelines recommend the adoption of organizational strategies and health system policies that serve to institutionalize tobacco treatment into routine care. Among the strategies and policies that are most likely to prevent tobacco use relapse are those that facilitate referrals to tobacco treatment counseling. This paper reviewed 12 studies that examined health system processes that facilitate referrals to tobacco treatment counseling programs. Most studies examined multiple processes and strategies to implement changes. The most effective strategies for improving referrals and cessation outcomes were those that included integrated referral systems combined with clinician and non-clinician staff education. Integrated referrals systems included protocols for referrals that leveraged non-clinician staff to assist with and coordinate referrals, automated fax systems, clinician decision support prompts. Education paired with performance feedback and that combined PHS guideline recommendations with information on how to implement integrated systems was effective in increasing referrals.

Introduction

Despite considerable evidence that clinical interventions to assist patients to overcome tobacco dependence and remain abstinent are effective, there are gaps between evidence-based knowledge and routine practice (Fiore, et al, 2008). The greatest discrepancy between evidence- based knowledge and actual tobacco treatment practice is related to referrals for counseling programs (Schnoll, et al., 2006). A number of strategies designed to proactively recruit patients for counseling programs and facilitate referrals have been examined in the literature. These strategies and combinations of strategies include academic detailing, performance feedback, leveraging non-clinician staff, clinic pay-for-performance, computer-based tailored clinician prompts, and insurance benefits for counseling. The purpose of this paper is to critically review the research examining strategies implemented in the primary care setting to improve rates of

referrals to tobacco treatment counseling. Following a detailed description of each intervention, results from studies are compared based on quit rates, rates of referrals, and overall effectiveness of the interventional components.

Included in this systematic review are studies with adult patients published since 2000. Studies without control groups or pre-post comparisons, those that did not assess referrals to counseling or patient participation in counseling, and hospital-based interventions were excluded. One qualitative study that was a follow-up companion study to a randomized controlled trial was included. Articles were retrieved from a search of Ovid Medline, Ovid Psych, and Ebsco CINAHL (Cumulative Index to Nursing and Allied Health Literature), which yielded 12 studies that matched inclusion criteria (see Table 2.1). Key words and phrases included: tobacco, smoking, cessation, counseling, system changes, audit and feedback, incentives, AHRQ guideline implementation, tobacco registry, quit line, telephone counseling and behavioral counseling.

Most of the studies that were reviewed combined interventional components to improve tobacco treatment outcomes which complicates direct comparisons among studies. For example, most studies that implemented organizational changes also included clinician education to orient clinician and staff about the changes. For purposes of comparing effectiveness of interventions that utilized multiple components, studies were categorized by the interventional component that targeted assistance with referrals to counseling programs with discussion of how other components may have contributed to endpoints of the intervention. Endpoints of reviewed studies included clinician tobacco treatment behaviors, patient cessation behaviors including participation in counseling programs, and patient quit rates.

Academic Detailing

Academic detailing (AD) is an office-based method of interactive, educational outreach to deliver evidence-based information to clinicians (Soumerai & Avorn, 1990). The strategies of AD are similar to pharmaceutical sales approaches and based on research in adult learning, diffusion of innovations, and persuasive communication. These strategies include for example: assessment of motivation and learning needs, clearly defined educational and behavioral objectives, establishing credibility by

accessing leadership and presenting evidence-based rationale, interactive teaching, graphic educational materials, prolonged engagement and positive reinforcement.

In a statewide study conducted in Rhode Island, office practices in two of the five counties were targeted for an AD intervention (Goldstein et al., 2003) (see Table 2.1). Physicians practicing in the remaining three other counties and their patients served as control. The intervention included four or five office visits to intervention clinics over a 15 month period to provide education based on PHS guidelines and to introduce National Cancer Institute recommended office tools and strategies for tobacco treatment (Glynn & Manley, 1989). The outreach educational content was based on a baseline assessment of motivation for tobacco treatment, knowledge, and skills. An algorithm based on the Transtheoretical Model of Change (TTM) (DiClemente, 2003) was used to evaluate clinician readiness to address tobacco treatment with patients and to guide the AD intervention. If physicians were unwilling or unavailable to participate, the intervention facilitators met with office staff to provide education and resources. Resources included patient education materials, smoker identification and tracking materials and local sources for cessation programs. Patients in the intervention and control practices were surveyed ($N = 2346$) at 12, 18, and 24 months to determine receipt of tobacco treatment, stage of change (TTM), and quit rates. Differences between groups were not apparent until 18 months. Patients in both groups reported similar rates of receiving tobacco treatment, but patients of AD group physicians who reported that their physician addressed cessation had higher rates of cessation at 24 months. Patients who reported a visit with an AD intervention physician had significantly higher quit rates at 24 months compared to patients seen by a control group physician ($aOR= 1.8$, 95% CI.=1.16-2.75 $p=0.008$).

Patient recall of clinician tobacco treatment behaviors rather than quit rates was evaluated in an AD study with Australian family practice physicians (Young, D'Este, & Ward, 2002). This AD intervention included a total of three office visits focusing on tobacco treatment conducted by a medical peer over a four month period compared to a control group that received an identical AD on cervical screening. During the initial visit, clinicians were presented with performance feedback, an interactive skills training video, and scripts for patient counseling. Results from a baseline patient survey were used to

provide individual clinicians with feedback of their tobacco treatment performance relative to the group's performance. The purpose of the second outreach visit was to: reinforce the initial visit, introduce the use of medical record prompts, present Australian national guideline recommendations for tobacco treatment, and provide patient quit kits and Preventive Health Checklists for patients to fill out prior to the visit. Clinics received the quit kits, starter packs of nicotine replacement gum, and Preventive Health Checklists. Endpoints were assessed by patient recall of having received tobacco treatment as recommended by Australian national guidelines (National Health and Medical Research Council, 1996). The AD protocol was not associated with improved rates of referrals to cessation clinics. By patient recall, there were significant increases in tobacco treatment overall, including referral to a smoking clinic from baseline to six months post intervention in both intervention and control groups, with no significant group differences.

Besides differences in endpoints between these two studies examining an AD intervention, there were key differences in the AD protocols and length and intensity of the interventions (Goldstein, et al., 2003; Young, et al., 2002). Four to five office visits were conducted over a period of 15 months in the Rhode Island study compared to three visits over a four month period in the Australian study. The other distinguishing component of the studies was that performance feedback was included in the Australian protocol but not formalized in the Rhode Island protocol. The Rhode Island protocol included positive reinforcement which is consistent with AD principles (Soumerai & Avorn, 1990), but did not specify an audit of performance or formalized feedback.

Audit and Performance Feedback

Audit and performance are included in some AD protocols but the studies reviewed in this section did not include AD as a component of interventions. Audit and performance feedback (A&F) refers to methods of providing clinicians or administrative leaders with summaries of clinical performance with the intent to influence behaviors and improve quality of care (Hysong, 2009). Three studies tested the effectiveness of A&F to improve referrals to counseling programs (Andrews, Tingen, Waller, & Harper, 2001; Bentz, et al., 2007; Wadland et al., 2007). Also reviewed is a companion study that

examined individual clinician perceptions and counseling referral practices (Holtrop, et al., 2008) (see Table 2.1).

Innovations in computer software and automated systems for collecting, storing, and retrieving electronic patient data have made it possible to provide clinical performance feedback and reminders in nearly real time and on a more frequent basis compared to using manual abstraction of paper charts (McAfee, Grossman, Dacey, & McClure, 2002). Electronic health records (EHR) were used to audit performance and generate feedback for clinicians in ten primary care clinics to examine their compliance with documentation of ask, advise, assess, and assist (Fiore, et al., 2000) and to track referrals to the Oregon Tobacco Quit Line over a 12 month period (Bentz, et al., 2007). The EHR system was also designed to generate fax referrals that included informed consent documentation to be obtained by Quit Line staff. Clinicians in both intervention (N =10) and control clinics (N =9) received a 30-minute training session to review evidence-based tobacco treatment that included motivational counseling, pharmacotherapy, and process for referral to the state Quit Line. Only staff in intervention clinics received monthly feedback reports extracted from the EHR that summarized their documentation of 5As, referrals to the state Quit Line and/or information about the Quit Line. Each individual clinician's performance was compared to their clinic average and to the achievable benchmark of care. Achievable benchmark of care (ABC) refers to the average performance of the top 10% of all clinicians measured (Kiefe et al., 2001). Over the 12-month study period, documentation of 5As was significantly higher in intervention compared to control clinics (ask: 95% vs. 88%, $p=.05$; advise: 72 % vs. 53%, $p<.001$; assess: 66% vs. 66%, $p<.001$; assist: 20% vs.11%, $p<.001$). There were no differences in documentation of Quit Line by either fax or brochure referral between groups. When adjusting for the presence of a clinic champion and high case-mix (higher morbidity patient population) there were significant differences in rate of referrals between groups; the odds ratio for feedback was 1.53 (95% $CI=1.05-2.23$, $p <.001$). A clinic "champion" was defined as a manager or nurse leader who valued cessation and advocated for the fax-referral process was identified by structured interviews with clinic managers or nurse leaders at each clinic.

The effects of performance feedback on rates of clinician referrals to a telephone Quit Line were also evaluated in an intervention that compared quarterly feedback to general reminders (Wadland, et al., 2007). Intervention clinicians (N=163) received comparative quarterly feedback on their individual and overall clinic referrals and ABC feedback which compared their performance to the mean number of referrals for the top 10% of referring clinicians (Kiefe, et al., 2001). Clinicians in control clinics (N=145) received quarterly general reminders about Quit Line services. Audit was performed manually from telephone and fax referrals in the intervention practices and reports compared individual and clinic referrals to mean ABC over an 18 month period. The 12 month quit rate was estimated based on the level of quit-line referrals and the level of smoker participation in the Quit Line services. This method of estimated quit rates was based previously reported quit rates at various levels of quit line service (Stead, et al., 2006). If patients receive clinician advice alone the expected quit rate is 10%. If patients are recruited for Quit Line services and receive a brief intake call with information, the quit rate is 15%. If patients are enrolled in full service which requires smokers to set a quit date, the expected quit rate is 25% (Wadland, et al., 2007). The estimated number of quits = number of referrals \times estimated quit rate defined by level of participation in the Quit Line. Overall there were significantly more referrals among intervention clinicians compared to controls (484 vs. 220, $p < .001$) and more estimated quits among intervention patients compared to controls (66 vs. 36, χ^2 , $p < .001$). There were 66 estimated quits in intervention vs. 36 estimated quits in control. Referrals were more often made by fax but telephone referrals were significantly more likely to result in smoker enrollment in the service (77% vs. 42%, $p < .001$). However, the number of Quit Line referrals was small overall considering the volume of smokers seen by both the control and intervention clinicians during this time period. There were approximately 704 referrals from over 300 clinicians (2.3 per clinician) over the 18 month study period. Estimating that 10% to 20% of patients seen in primary care practices are willing to quit, there was the potential for 13,200 to 27,000 referrals during the study period.

In a companion study, clinicians (N = 308) in both intervention and control clinics were interviewed to determine successful practices used by top referring clinicians and the perceptions and barriers for referrals among both high-referring and non-referring

clinicians (Holtrop, et al., 2008). All interviewed clinicians were motivated to help their patients quit but high referring clinicians reported a feeling of importance and personal reasons for helping patients quit. High-referring clinicians relied upon the quit line as a primary source of referral and non-referring clinicians did their own counseling. Barriers to referrals included time constraints and lack of information about where to refer patients for counseling. Clinicians in the intervention clinics reported that while the feedback was an effective reminder, high referring clinicians preferred to know whether their patients participated and how many of their patients who enrolled in the quit line were able to quit smoking.

A study conducted at a Veteran's Administration Medical Center (VAMC) evaluated the effect of education and A&F on provision of 4As (ask, advise, assist, arrange) (Fiore, et.al., 1996) including referrals to a free, nurse managed smoking cessation clinic (Andrews, et al., 2001). Primary care teams with equal composition of physicians and advanced practice nurses were randomized to intervention or control. Chart reviews were conducted at baseline on a random sample of patients seen by both the intervention and control teams. Intervention teams received a 90 minute educational session on 4As and printed resources. The control team had access to the free smoking cessation clinic but did not receive the education or A&F. Audit was conducted again by chart review at about three months after education. The intervention team then received additional education and written feedback on individual and team performance comparing baseline to post-education audits. Two weeks later, the intervention team members also received a written reminder of 4As. Final written feedback was provided at about six months after initial education. A nested, repeated measures analysis of variance was conducted to determine differences between teams after education only, and after follow up education that included individual and team feedback. Rates of assistance were reported as combined assistance with medication and assistance with referrals to counseling. Education alone in the intervention team did not improve combined assistance with medication and referrals compared to control. After education only, the intervention team had lower rates of combined assisting with medication and referrals compared to control ($M=46.87$, $SD=2.85$ vs. $M=66.62$, $SD=13.61$, $p=.0013$). However, education combined with feedback by the intervention team improved rates of assisting

smokers to quit compared to controls ($M=89.26$, $SD=0.64$ vs. $M=41.99$, $SD=6.96$, $p=.0013$).

In the three studies that tested the effectiveness of A & F, there were increased rates of assistance with referrals to counseling (Andrews, et al., 2001; Bentz, et al., 2007; Wadland, et al., 2007), but one failed to demonstrate an increase compared to controls (Bentz, et al., 2007). Receiving feedback paired with evidence-based education in tobacco treatment significantly increased assistance compared to education only (Andrews, et al., 2001). Findings from the two studies that examined the effects of feedback on referrals to quit lines were mixed (Bentz, et al., 2007; Wadland, et al., 2007). In both studies, feedback was provided in written format and individual performance was compared to clinic average and to a benchmarked standard, but they differed in that the feedback was sent to clinic managers to be disbursed to clinicians in the study conducted Bentz and colleagues (Bentz, et al., 2007). Feedback was not associated with increased rates of referrals until the effects of a motivated staff person, or “clinic champion” were entered into analysis (Bentz, et al., 2007). Regardless of the A & F intervention, rates of referrals were low and most referrals came from a small minority of clinicians. Findings from interviews with clinicians suggest that feedback may be helpful if it is perceived by the clinician as supportive; that is, if it provides useful information about the patient’s quit status and if it serves as a reminder to intervene (Holtrop, et al., 2008).

Leveraging Non-Clinician Staff

Three studies leveraged non-clinician staff and/or teams to recruit patients into counseling and provide more accessible counseling either through a collaborative that employed lay coaches in neighborhoods (Fisher et al., 2005), intake nurse or nurse assistants (Katz, Muehlenbruch, Brown, Fiore, & Baker, 2004), or a trained counselor (Sherman, Estrada, Lanto, Framer, & Aldana, 2007) (See Table 2.1).

Teamwork to improve PHS guideline recommendations (Fiore, et al., 2000) was extended from the clinic into the community in a multidisciplinary, quality improvement initiative to implement the chronic care model (Fisher, et al., 2005). The chronic care model is a quality improvement framework that defines integrated health care system components that are predicted to improve outcomes for patients with chronic illness and to improve preventive care delivery (Glasgow, et al., 2001). The initiative was located in

the Grace Hill neighborhood served by two federally qualified health center clinics in an inner city, low-income, predominantly African American population. Two intervention clinics were compared to two federally qualified comparison clinics also serving predominantly African American clients that had usual care cessation programs. The intervention clinics were linked to community neighborhood cessation programs via neighborhood based, lay cessation coaches. Using a plan-do-study-act quality improvement process, a multi-disciplinary team led by a family practice physician included a nurse, health assistant, chief executive of the managed care organization, a pediatric nurse practitioner, dentist, computer expert, a cessation coordinator, and a representative from each of the networked health centers. The team planned, implemented and over a two year period evaluated improvements in access to neighborhood cessation programs through interviews with patients and clinician documentation of 5As through patient record audits. The intervention included hiring and training lay coaches from the local neighborhood who provided individual and group counseling and functioned as liaisons between the neighborhood and clinic (Fisher, et al., 2005). Smoking cessation was also integrated into community health education classes where incentives were given to neighborhood residents who received training and served to refer friends and neighbors to cessation coaches. To encourage clinician and team documentation of patient stage of change (Prochaska, 1983), performance feedback was provided to clinicians weekly early in the initiative and then quarterly as documentation of staging was more consistent (Fisher, et al., 2005). Feedback included individual and team progress in staging patients, handwritten personalized notes to encourage adoption of PHS guidelines and an offer of support from the team to improve treatment. The other feedback came from lay cessation coaches who worked in the neighborhood via patient progress reports to physicians through an automated tracking system. Interviews were conducted with samples of patients seen in intervention and control clinics to determine the extent to which patients received evidence-based tobacco treatment clinic services during medical encounters and their perceptions of access to neighborhood tobacco treatment counseling programs and services (Fisher, et al., 2005). These interviews were conducted at baseline, year one and in the last three months of the 24-month program. Positive responses to questions about whether clinicians or staff provided information

about programs or availability of resources in the neighborhoods increased significantly in the intervention compared to control clinics from baseline to year two (combined intervention clinic A and B from 50% to 107%; control clinic A and B from 34% to 77%, $p=.03$). There were a greater overall increase and significant interaction between year in group in access to smoking cessation programs in neighborhoods from patients in the two intervention clinics to control (combined intervention A and B clinics from 1.7 to 3.4; comparison A and B, from 1.7-3.1, $p =.0001$) (MANOVA, $F=8, 10, p=.0001$).

Another multi-component intervention leveraged non-clinician staff who performed patient intakes prior to office visits (Katz, Muehlenbruch, Brown, Fiore, & Baker, 2002; Katz, et al., 2004). The intervention included training and feedback for registered nurses, licensed practical nurses, and medical assistants and a vital sign stamp with stage-based physician prompts, free nicotine replacement products (NRT), and proactive quit-line counseling. A designated physician and nursing facilitator assisted in coordinating the protocol. Intake nurses were trained in the use of a treatment algorithm to provide brief counseling, assistance with written resources, free nicotine replacement, and/or referral to telephone counseling based on patients' readiness to quit. Real-time reminder vital signs stamps with messages tailored to stage of change (Prochaska, 1983) were applied to the patient' progress notes just prior to the office visit. Patients who were willing to set a quit date were offered NRT patches and/or access to proactive telephone counseling. Contact information for patients who were determined by stage of change to be appropriate for telephone counseling (i.e., willing to set quit date within 30 days) was faxed daily to the coordinating center. The referred patients received a call from a nurse counselor about 1 week after the quit date in anticipation of problems with relapse. A 10-15 minute follow-up session was conducted to discuss "slips", adverse events related to pharmacotherapy, and other patient concerns. Intake nurses and physicians at control clinics received PHS guideline education and received the intervention at the end of the study. Clinic staff received feedback at baseline and midway into the two month intervention on both the clinic's group performance and confidential individual feedback based on data from exit interviews with patients. Patients at intervention and control sites were interviewed in person at baseline immediately after an office visit and by telephone two and six months after baseline. Rates of referrals overall were not reported but there

was a high rate of participation in telephone counseling among patients who were eligible for referral from the intervention site: 148 (81%) completed at least one session of Quit Line counseling and 106 (58%) completed both sessions. By self-report, intervention site patients were more likely than control site patients to be abstinent for the prior seven days at both the two month (adjusted OR=3.3, 95% CI= 1.9 to 5.6, $p<.001$) and six month assessments (adjusted OR=1.7, CI= 1.2 to 2.6, $p= .009$) and continually abstinent at both assessments (adjusted OR=3.4, 95% CI=1.8 to 6.3, $p <.001$). There were incomplete returns in saliva samples from patients who self-reported abstinence (60 of 115) and equal rates of positive results in intervention and control patients. Differences in cotinine confirmed quit rates between treatment and control groups at six months were not significant (adjusted OR=1.4, 95% CI=0.8 to 2.5, $p=.30$).

The third study evaluated the effects of a Veterans Administrative Medical Center (VAMC) intervention involving an “on-call counselor” on referrals and attendance in counseling programs (Sherman, et al., 2007). The intervention also included academic detailing (AD), performance feedback, case management, an assigned opinion leader, and a clinician incentive of \$25 to the clinician who referred the most patients. The on-call tobacco treatment counselor provided brief counseling during the office visit and provided options for referral to either the on-site group counseling program or telephone Quit Line, and followed up with the patient by telephone for two months at two week intervals to provide support and coordinated pharmacotherapy. To orient clinicians to the case management and pharmacotherapy, the director and on-call counselors performed AD visits with clinicians monthly for three months to assess problems, encourage referrals, and offer candy to clinicians. Feedback to clinicians on use of the on-call counselor came in the form of a bar graph that was posted and listed the names of the clinicians. There was also a \$25 incentive presented to the highest referring clinician at the end of each month. The control team received usual care. Patients of the clinics were interviewed at baseline by phone and follow up surveys were sent by mail at six to eleven months (mid-intervention) and at 1-6 months after the end of the intervention period (12-18 months from baseline). By patient self report at six to eleven months (mid-intervention), the odds of being referred to a smoking cessation program were greater for patients seen by the intervention team than control team (38% vs. 23%, OR=2.1, 95%

CI= 1.2 to 3.6; and also greater for attending a program (11% vs. 4%, OR= 3.6, 95% CI, 1.2-10.5 respectively). At the end of the 12-month study period there were no group differences in rates of referral or patient participation in cessation programs. Overall, referrals from both the intervention and control team were low. During the 12-month study period, there were only 296 referrals from 62 clinicians in the two teams. Over half (52%) of the referrals were made by 12 of these clinicians (19%), and four of the clinicians (6%) generated 32% of all referrals.

All three of the studies that examined interventions to leverage non-clinician staff and/or teams to recruit patients into cessation programs or to provide cessation counseling training demonstrated improvements in patient access to cessation counseling (Fisher, et al., 2005; Katz, et al., 2004; Sherman, et al., 2007). Patient perception of access to counseling resources was improved through interdisciplinary planning and collaboration between clinics serving low income, predominantly African American clients in the St Louis, Grace Hill neighborhood (Fisher, et al., 2005). In the nurse intake intervention, patient participation in counseling programs and rates of cessation were improved when nurses and nurse assistants were trained in a specific referral protocol and were provided prompts for appropriate treatment, and received confidential feedback on their performance (Katz, et al., 2004). The intervention in the VAMC study was multifaceted including access to an on-call counselor and non-confidential posting of rates of referrals (Sherman, et al., 2007). Higher rates of referrals were attributed to this intervention, but referrals overall were low and most referrals to the on-call counselor were made by a minority of all the clinicians who had access to this service for their patients. Social marketing combined with non-confidential feedback and a payment incentive paid directly to clinicians did not encourage the majority of clinicians to access available counseling resources.

Pay-for-Performance Incentives

The payment of bonuses to individual clinicians and/or health care organizations is a strategy that originated with corporate purchasers of health plans and managed care organizations to improve delivery of preventive health services (Epstein, Lee, & Hamel, 2004). Two studies examined the effects of bonuses paid to clinics that were part of a

network of medical practices for increasing rates of referrals to quit lines (An et al., 2008; Roski et al., 2003).

Pay-for-performance bonuses were a part of a multifaceted intervention to improve referrals to two state telephone counseling quit lines (An, et al., 2008). A collaborative between health plans produced a unified fax referral system for the state of Minnesota with a single fax referral form, telephone number, and a central triage system for referral through electronic medical record systems. Primary care clinics within a multi-specialty medical group were randomized to usual care ($n = 25$) and pay-for-performance plus feedback ($n = 24$). All of the clinics had access to the centralized fax referral system and clinic administrators were informed about the study and the clinic's assignment to control or intervention. A \$5,000 bonus was distributed to intervention clinics referring 50 smokers; an additional \$25 bonus was made for each referral over 50. Clinic administrators in intervention clinics but not individual clinicians received emails monthly with feedback on their clinic's performance. The primary endpoint for analysis was the number of referrals per number of smokers seen in the clinic. Intervention clinics referred a mean of 11.4% (95% CI, 8.0%-14.9%) smokers seen in the clinic compared to 4.2% (95% CI, 1.5%-6/9%) in usual care clinics ($t_{47}=3.45; p=.001$).

In another study, financial incentives paid to clinics and access to a centralized smoker registry and telephone quit line were examined in a multi-specialty group practice (Roski, et al., 2003). Clinics were randomized to either control ($n = 15$), incentive ($n = 13$), or incentive plus registry and quit line ($n = 9$). The incentive only and incentive plus registry and quit line groups were eligible to receive a \$5,000 bonus for a pre-set rate of documentation related to asking about tobacco use and advising to quit. The rate was set at approximately 15 percentage points above the combined clinics average referrals assessed two years prior to the intervention. There was not an incentive for assistance with referrals. Clinics with the registry and quit line received weekly feedback in graph form comparing their clinic's rate of referral to the other nine registry clinics. Patients seen in the registry clinics (3.3%) used significantly more counseling for tobacco treatment than incentive clinics (1.3%) and control (1%) ($p < .001$). Referrals over the course of the intervention period increased initially but gradually declined after feedback and by the end of the 18 month intervention had declined to pre-intervention rates. Quit

rates did not differ significantly between treatment conditions. Self-reported 7-day sustained abstinence were 19% for controls, 22% for incentive-only, and 22% for registry plus quit line.

The two studies examining the effects of pay-for-performance were similar in that they were clinic-wide incentives and similar amounts were paid for pre-set targets, but there were important differences in other components of the intervention (An, et al., 2008; Roski, et al., 2003). The combined pay-for-performance plus feedback to clinic managers resulted in greater rates of referrals to quit lines compared to controls (An, et al., 2008). Pay-for-performance combined with weekly feedback to individual clinicians comparing clinic performance to other clinics in the treatment condition as well as an integrated counseling service and protocol for referral did not improve rates of referrals to the quit line compared to controls (Roski, et al., 2003).

Computer-based tailored clinician prompts

An effective strategy for assisting clinicians to routinely provide preventive services is a patient record prompt providing a reminder for clinicians to intervene (Hulscher, Wensig, van der Weijden, & Grol, 2001). One study evaluated a computerized expert system to generate prompts in the form of decision algorithms for clinicians and a simultaneous tobacco cessation message to patients based on a pre office visit assessment (Unrod, 2007). Physicians were randomly assigned to an intervention ($n = 35$) or usual care group ($n = 35$). Following an academic detailing approach, physicians in the intervention group received brief education on the 5As (Fiore, 2000) and use of the expert system report. Patients in both study groups were recruited prior to the office visit and received an initial assessment that measured self-efficacy for cessation, pros and cons of quitting, classified their stage of change using the TTM (DiClemente, 2003) and measured tobacco dependence using the Fagerstrom Test for Nicotine Dependence (Pomerleau, Carton, Lutzke, Flessland, & Pomerleau, 1994). The patients in the intervention group completed the assessment using a laptop computer in the office prior to their office visit and two reports were generated from the assessment. The physician's report that was attached to the patient's record had a decision support algorithm and stage of change that could be reviewed just before and/ or during the office visit. Patients and physicians in usual care did not receive reports. Patients were interviewed following the

visit to determine receipt of 5As from their physician and again at six months to determine 7-day point-prevalence abstinence, quit attempt, number of 24-hour quit attempts, and stage of change progression. Abstinence was saliva-cotinine confirmed in 35% of the self-reported quitters and of those, 88% were bioverified as abstinent. Generalized linear modeling showed that 23% of intervention patients received assistance with a referral compared to 4.5% of control (OR 6.48: 95% CI 3.11-13.49). More intervention patients had 24 hour quit attempts than controls (18.4 vs. 12.4, $p < .05$). Seven-day point prevalence abstinence was higher (12%) than controls (8%) but the association was not significant. A larger proportion of intervention patients demonstrated forward progression in stage of change than controls ($F_{465} = 3.84, p < .05$). This study provided sound evidence that computerized smoker assessments paired with clinician prompts that provide tailored information to guide tobacco treatment increase delivery of evidence-based tobacco treatment interventions and rates of abstinence.

Increased Insurance Benefits for Counseling

Only one study was reviewed that examined the effects of providing covered benefits for nicotine replacement therapy and behavioral counseling on quit rates among members of two health maintenance organizations (Schauffler et al., 2001). Recommended best practices for comprehensive tobacco control include reform in payment systems to reduce out-of-pocket expenses for smokers and reimburse clinicians for tobacco treatment (Abrams, Graham, Levy, Mabry, & Orleans, 2010; Fiore et al., 2008). Members enrolled in the two HMOs were recruited and randomized to control ($n=603$) to receive a self-help quit kit that included a video and pamphlet or to the experimental group ($n=601$) that received a self-help quit kit plus access to free nicotine gum or patch (NRT) for a year and four to seven TDT counseling sessions over two to four weeks. Participants were able to order the NRT delivered by mail and by calling a toll free phone number would receive a referral that would allow them to participate in American Lung Association counseling programs. Clinicians who participated in the two HMO networks were notified by mail to anticipate patient participation in the study. There was no difference in counseling participation between intervention and control groups ($p=0.8$). Only 21 participants in the experimental group (1.2%) requested a counseling referral during the benefit year compared to five smokers (1.1%) in the

control group. Rates of quit attempts over the past 12 months (18% vs. 13%, $p=.04$), having quit for seven days (55% vs. 48%, $p=0.3$), and use of NRT (25% vs. 14%, $p=.001$) were significantly higher in the experimental group over the 12 months. This study demonstrated that having free access to counseling is not an adequate incentive to increase participation in tobacco treatment counseling but access to pharmacotherapy is. It is now known what effects the covered benefits had on clinician tobacco treatment interventions.

Conclusions

Quit Rates

Quit rates as endpoints were reported in six of the 12 reviewed studies. Interventions associated with increased quit rates included academic detailing (Goldstein, et al., 2003), utilizing intake nurses to implement evidence-based recommendations (Katz, et al., 2004), computer-based tailored, physician prompts to intervene (Unrod, 2007) and covered benefits for nicotine replacement and counseling (Schauffler, et al., 2001). Differences in reported quit rates were non-significant in a study that provided financial incentives to clinics for performance and performance feedback on rates of referrals to clinics (Roski, et al., 2003). Higher estimated quit rates (not actual quit rates) were reported in a study that examined the effects of performance feedback on rates of referrals to a quit line compared to general reminders (Wadland, et al., 2007).

The AD intervention study that was associated with quit rates included four to five outreach visits over a 15-month period directed toward physicians and office staff that provided education including information about local resources for counseling and office tools to facilitate tobacco treatment (Goldstein, et al., 2003). Beyond the effects of the AD intervention, length of data collection was likely a factor that contributed to the reported increase in quit rates. Data collection occurred at baseline, 6, 12, 18, and 24 months, and not until 24 months did the group differences in quit rates reach statistical significance.

In the remaining studies examining quit rates, increased quit rates were reported at six months post-baseline (Katz, et al., 2004; Schauffler, et al., 2001; Unrod, 2007). The combined effects of training intake nurses using a PHS algorithm to assess patients' readiness to quit, proactive smoker recruitment into counseling, a vital sign prompt for

treatment, and confidential feedback to intake nurses on their performance were associated with increased quit rates (Katz, et al., 2004). Significantly higher referrals and increased quit attempts were associated with computer generated physician prompts and written patient education; both were generated from the same patient assessment and available in real time for the patient's' office visit (Unrod, 2007). Having a covered benefit for nicotine replacement without shared costs was also associated with significantly higher abstinence and quit attempts but there were few takers regardless of the offer of free counseling (Schauffler, et al., 2001).

Referrals

Six of the twelve studies reported proportion of referrals to tobacco treatment counseling programs (An, et al., 2008; Bentz, et al., 2007; Katz, et al., 2004; Unrod, 2007; Young, et al., 2002). The highest proportion of referrals (23%) was associated with a multi-faceted intervention that trained intake nurses to provide tobacco treatment (Katz, et al., 2004) and a computer generated stage-based algorithm prompt for clinicians to treat tobacco users (23% vs. 5%) (Unrod, 2007). The computer generated system also produced a report for the patient that individualized information about quitting. The intake nurse intervention included a stage-based protocol for referrals, a vital sign prompt to intervene, proactive telephone counseling, and intake nurse feedback (Katz, et al., 2004). Every smoker who was willing to set a quit date within 30 days was eligible for participation and automatically received a proactive enrollment call; 81% of eligible patients participated in one session and 58% in two sessions. Also associated with a high rate of referrals was an intervention that employed an on-call counselor, combined with case management, provider feedback, and a small financial incentive (\$25) (Sherman, et al., 2007). At mid-intervention there was a 47% referral rate compared to 23%, but this rate was not maintained post-intervention, declining to 36% vs. 29% with controls. An intervention that paired incentive with patient registry resulted in a 25-30% assisted to set quit date rate which led to automatic referrals (Roski, et al., 2003). A combined intervention of clinic bonuses for achieving a set rate of referrals and performance feedback sent to clinic managers resulted in an 11% referral rate compared to 4.2% in controls (An, et al., 2008). Receiving performance feedback comparing individual, clinic,

and a benchmarked standard was associated with a 3.9% referral rate vs. 3.6% for controls (Bentz, et al., 2007).

Discussion

Two common factors of the interventions that resulted in increased quit rates or rates of referrals were the presence of an integrated referral system to proactively support clinicians to assist with referrals and an educational component (Andrews, et al., 2001; Goldstein, et al., 2003; Katz, et al., 2004; Unrod, 2007). The one exception was a study that examined increased insurance benefits for free NRT and counseling. Clinicians were informed that their patients would be receiving benefits but there were no processes in place to encourage patient referrals to the program. Members were notified about free counseling but in the absence of clinician referrals few smokers took advantage of the free counseling benefit (Schauffler, et al., 2001). Integrated referral systems that included protocols for leveraging non-clinician staff demonstrated improvements in access to counseling programs (Fisher, et al., 2005; Katz, et al., 2004). All but one of these interventions included clinician education in varying forms to deliver PHS guideline recommendations and/or to orient the clinicians to treatment protocols (Schauffler, et al., 2001). Findings in one study demonstrated that pairing education with performance feedback is a more effective way to reinforce referral behaviors than feedback alone (Andrews, et al., 2001).

A number of these studies included feedback as a component of interventions (Bentz, et al., 2007; Fisher, et al., 2005; Katz, et al., 2004; Roski, et al., 2003; Sherman, et al., 2007). Interviews with clinicians who frequently referred found that performance feedback can be an effective strategy to if it is provided in such a way that clinicians perceive it to be supportive in their practice (Holtrop, et al., 2008). It appears to be most effective when it is presented in a confidential manner and combined with PHS guideline recommended information in how to intervene with patients who smoke (Andrews, et al., 2001; Fisher, et al., 2005; Katz, et al., 2004). This is consistent with previous research that found that the most effective feedback is non-punitive and paired with information for improvement (Hysong, 2009).

Findings from these studies suggest that integrated referral systems and clinician support in the form of education, feedback, compensation and decision support prompts

are most effective for increasing referrals to tobacco treatment counseling programs. There was a lack of consistent documentation of rate of referrals or proportion of patients who participated. Future studies should compare interventions based on the effects on rates of referrals and proportion of tobacco users who participate. Clinicians who are faced with multiple competing demands for providing appropriate care are best served by information on best practices and in how to implement integrated systems that assist them to provide evidence-based tobacco treatment.

Table 2.1 Characteristics of Reviewed Studies

Reference	Intervention	Frequency of referrals/ Contact	Participation	Quit Rates	Other relevant Findings/limitations
An, et al., 2008	Pay-for- performance compared to usual care. Clinics paid \$5,000 for referring 50 smokers to quit line (intervention clinics). A state-wide collaborative established a unified fax referral system. Communication and performance feedback (monthly by email) was with clinic administrators only.	Intervention clinics referred 11.4 % of smokers compared to 4.2% of smokers in usual care. Mean contact in intervention clinics (via state quit line counselor) was 60%.	50% of contacted smokers enrolled.	N/A	Clinic history of being very engaged in quality improvement referred 15% of smokers, engaged 7%, and less engaged 6%.
Andrews, et al., 2001	Compared education (90 minutes) combined with Performance feedback to control. Both control and intervention had access to a nurse managed free cessation clinic. Intervention team received written feedback on individual and team performance combined with education.	Education alone (90 minutes) was associated with lower referral rates compared to control Education plus feedback sig. increased assist rates compared to control	Not evaluated	Not evaluated	Assistance rates combined assistance with medications and with referrals.
Bentz, et al., 2007	Electronic health records used to audit, provide performance feedback for rate of referrals and generate fax forms for referrals. All clinicians received 30 minute education sessions. Intervention	3.6% of smokers in control were referred and 3.9% in feedback. 67% of referred were contacted.	90% of contacted patients participated	Not evaluated	Performance feedback was not predictive of quit rates until the effects of a clinic champion and level of patient

Table 2.1 (Continued)

	clinicians only received feedback comparing individual performance to clinic average and ABC.				morbidity were accounted for
Fisher, et al., 2005	Collaborative quality improvement/ neighborhood resources including training of non-clinician counselors	Not evaluated	Not evaluated	Not evaluated	Higher availability of resources for counseling in the neighborhood in intervention clinics
Goldstein, et al., 2003	Academic detailing (4-5 sessions over 15 months) including information about local counseling programs compared to control receiving NCI manual.	Not evaluated	Not evaluated	Higher quit rates among patients receiving counseling by physician in intervention 30% vs. 18% control ($p=.00$)	
Katz, et al., 2004	Intervention clinics trained (1 hr session) Non-clinician clinicians in a guideline algorithm to ask, assess, assist/ group and individual confidential performance feedback / vital sign stamp/proactive nurse telephone counseling and NRT	23% of intervention patients were assisted to set quit date (criteria for referral).	148 (81%)out of 183 eligible patients (willing to set quit date within 30 days) that were referred attended one session of quit line counseling, 106 (58%) attended both sessions	Being seen at intervention clinics was associated with sig higher rate of abstinence (7 day) at 2 months, 6 months and continuously from 2-6 months	Intake clinicians reported expanded perception of their role in tobacco treatment after intervention

Table 2.1 (Continued)

Roski, et al, 2003	Compared usual care (control) to financial incentive and incentive plus smoker registry and quit line	No differences in rates of referrals between usual care and incentive. 25-30% of target smokers (ready to quit in 30 days) in intervention clinics were referred. Of those 80% were contacted	Overall 1.6% of smokers participated in the counseling program. 1% of referred smokers from control clinics participated, 1.3% of incentive clinics, and 3.3% of registry plus quit line clinics participated. 83% of contacted smokers were enrolled.	Non-significant differences in self-reported 7-day quit rates between groups.	
Schauffler, et al., 2001	Compared control (self-help quit kit) to self-help kits plus covered benefits for NRT and group counseling program	21 in treatment group requested a referral for counseling.	No difference between treatment and control (1.2% of smokers with covered benefit and 1.1% of control participated)	Sig. higher rates of quits (previous 7 days) and quit attempts (for < one day in 12mths) in treatment group compared to control.	Covered benefit for counseling was limited to participation in the American Lung Association program.

Table 2.1 (Continued)

Sherman, et al., 2007	Compared usual care to access to on-call counselor combined with case management, medication management, social marketing, opinion leader, educ. outreach, provider feedback, and financial incentive	At 6-11 months sig greater intervention patients than control were referred (47% vs. 23%) At post intervention (36% vs. 29%, not sig)	72% of referred participated in either the in-house group program, state quit line, or telephone counseling with the on-call counselor	Not reported	No change in rates of referrals from mid-intervention to post intervention
Unrod, et al., 2007	Compared usual care to a computerized, stage based physician prompt combined with patient education material. Intervention physicians received 40 min. academic detailing training on 5As.	23% of intervention patients compared to 5% of control reported referral.	Not reported	Intervention patients had more quit days than control at 6 months but not sig more 24 hr. quit attempts	
Wadland, et al., 2007	Compared the effects of general reminders to performance feedback mailed quarterly in graph form comparing ABC* standards to individual, clinic group and study group rates of referrals. Control received postcard reminders mailed quarterly. All received a CD overview of PHS guidelines	More intervention than control (484 vs. 220) were referred	433 (62% of both groups referred) were enrolled	More estimated quits based on referrals in intervention compared to control (66 vs. 36)	

Table 2.1 (Continued)

Young, et al., 2002	Compared Academic detailing (3 sessions over 4 months) including audit and feedback compared to academic detailing audit and feedback on cervical screening for control.	4% of patients were referred from intervention clinics and 2% from control at posttest. No sig. change.	Not reported	N/A	
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*Achievable Benchmark of Care determined by top 10% of performers

CHAPTER THREE

Tobacco Treatment Champions in Primary Care

Synopsis

Tobacco dependence is a significant public health problem. Tobacco interventions in the clinic setting that include Ask, Advise, Assess, Assist, and Arrange follow-up are effective but rarely implemented in their entirety. Systems interventions based on the Chronic Care Model have been shown to improve delivery of tobacco treatment in integrated and managed care settings. This study utilized qualitative descriptive and ethnographic methods to describe the experiences and strategies employed in privately owned practices by a purposive sample of primary care clinicians referred to as “tobacco treatment champions.” These clinicians were motivated to counsel patients in the clinic setting but did not routinely follow up or refer patients to community-based treatment programs for on-going counseling. Participants described attitudes toward tobacco use, role perceptions, and counseling strategies. Data analysis resulted in the following categories of themes: *sources of knowledge and experience*, *understanding dependence*, *role perception*, and *treatment strategies*. Implications for research and practice are discussed

Introduction and Background

Tobacco use and dependence is the most prevalent cause of preventable morbidity and mortality (Centers for Disease Control and Prevention, 2008). More than 70% of smokers report that they want to quit and 44% try each year (Centers for Disease Control and Prevention, 2006) but only about 4-7% are successful (Hughes & Carpenter, 2005). Relapse is a common outcome of most quit attempts despite the availability of effective clinical interventions to treat tobacco dependence and prevent relapse.

Evidence-based recommendations for tobacco treatment are described in a Public Health Service (PHS) guideline as a 5A’s algorithm (M. Fiore, et al., 2008). Clinicians are recommended to *Ask* all patients about their tobacco use and *Advise* them to quit. Once patients have been identified as a tobacco user and have been advised to quit, clinicians should *Assess* their willingness to make a quit attempt. If the patient is willing

to quit they should be offered *Assistance* through development of a quit plan that includes providing information and guidance, recommendations for pharmacotherapy and on-going counseling and behavioral therapy. The final step in recommended tobacco treatment is to *Arrange* follow-up; ideally within a week of the planned quit date. The PHS guideline also offers system-level recommendations to institutionalize tobacco treatment. System interventions include tobacco-user identification processes; provision of education, resources and feedback for clinicians to promote consistent tobacco interventions; dedicated staff for tobacco treatment; institutional and third payer policies that support patient access to tobacco treatment therapies and clinician reimbursement for tobacco interventions. The gap between evidence-based recommendations and practice is most prominent for assistance with referrals to on-going counseling and arrangements for follow-up (Schnoll, et al., 2006). Improvements in organizational processes and health system strategies to support interventions are needed to better integrate tobacco treatment into routine care and to provide on-going treatment to prevent relapse.

There has been concerted effort to examine policies and processes to improve tobacco treatment delivery in managed care organizations (Curry, Fiore, Orleans, & Keller, 2002). Among these efforts was the development of the Chronic Care Model (CCM) that proposes health system components for improving chronic and preventive care (Glasgow, et al., 2001). The CCM components describe ways to create a health care environment that systematically supports and encourages chronic and preventive care delivery. These components applied to tobacco treatment include *health systems and organization of care* that reflect a quality improvement organizational culture for prioritizing tobacco treatment. *Clinical information systems* begin with tools for identifying tobacco users and may include methods of informing and prompting clinicians to perform recommended tobacco treatment interventions. The CCM recommends changes in *delivery system design* that promote team work. Non-clinician professionals are leveraged to extend delivery of tobacco treatment beyond brief interventions delivered by the physician. *Decision support* in the form of clinician prompts and reminders facilitate translation of evidence into practice. *Self-management support* refers to a collaborative process between the clinician and patient in tobacco treatment that includes for example, setting a quit date, identifying cues for smoking, and

identifying resources to assist with cessation and avoiding relapse. The CCM component, *Community resources* describes the links between clinical practice and community resources for behavioral counseling to improve patient access to these resources.

Much of the research examining health system factors to facilitate delivery of tobacco treatment has been conducted in integrated health care systems and/or managed care organizations. Less is known about tobacco treatment in small practices where most preventive care is delivered (Solberg, 2007). Clinicians who practice in privately owned, non-integrated clinics face specific challenges for delivering comprehensive tobacco treatment that differ than those in integrated medical practices which are likely to have access to multispecialty staff including behavioral counselors, resources such as clinical information systems designed to facilitate coordination of preventive service delivery, and administrative structures to support tobacco treatment (Hung, et al., 2007). Clinicians practicing in independently owned organizations may have the advantage of greater continuity of care with their patients in which to develop therapeutic relationships (Manning, Leibowitz, Goldberg, Rogers, & Newhouse, 1984). The purpose of this research was to explore the particular experiences and strategies for treating tobacco use dependence used by clinicians who practice in independent, non-integrated, primary care practices.

Methods

Design

Qualitative methods including qualitative description and ethnography were used to interview clinicians and to observe clinic procedures and office tools (Creswell, 2003; Sorrell & Redmond, 1995). Clinicians practicing in independently owned, primary care practices were asked to describe how they approach tobacco treatment with their patients, the office tools they use, and the health system resources they access to provide tobacco treatment.

Participants and Setting

Purposive, non-probability, sampling, was used to identify clinicians practicing in primary care who were known to champion tobacco treatment. Tobacco champions are motivated clinicians whose presence is associated with improved outcomes of tobacco treatment (Bentz et al., 2006; Harper, et al., 2000). Clinicians were identified through

networking with patients and other clinicians and nurses. Six physicians, three advance registered nurse practitioners, one physician assistant, and one registered nurse were interviewed (see Table 3.1). Six of the clinicians who were interviewed practiced in rural Kentucky counties including Powell, Owsley, Estill, Boyle, Bath and Breathitt Counties and the remaining five practiced in Fayette County. Nine out of eleven participants were either former tobacco users or had family members who smoked. Potential participants were contacted by phone to schedule a mutually agreeable location, date, and time for the interview. All but three of the semi-structured interviews were conducted in a private office in the clinics. Two interviews were conducted in clinicians' homes after hours and another in a private room at the University of Kentucky, College of Nursing. Interviews lasted approximately 45-60 minutes and were conducted in the summer of 2008. Follow-up interviews were scheduled with two participants, one by telephone and one by email to verify findings from the interviews. The study was reviewed and approved by the University of Kentucky Medical Institutional Review Board. All participants gave written informed consent prior to interviews.

Measure

An interview guide was developed to facilitate a consistent approach to each interview (See Table 3.2). Questions were predominantly open-ended to elicit personal perspectives of tobacco treatment and descriptions of practice attitudes and strategies. As the interviews were conducted, follow up prompts were added to clarify new information based on previous interviews (Creswell, 2003). All interviews were audio taped and field notes were recorded after each interview. Observations of office procedures and tools were guided by components of the chronic care model (Hung, et al., 2007) and recorded as field notes. Patient care procedures were observed to document specific strategies used by clinicians in this sample.

Data Analysis

A code book was compiled *a priori* from review of the literature (Hung, et al., 2007; Hung & Shelley, 2009) and to reflect PHS guidelines (Fiore, et al., 2008). The *a priori* codes that were components of the Chronic Care Model included, for example, a key person to coordinate tobacco cessation activities and manage a patient registry of tobacco users (Hung & Shelley, 2009). The recorded interviews were reviewed and

compared to transcriptions to check for errors and to obtain a general sense of meaning. A second reading was conducted to record initial impressions. A third reading was conducted to identify *priori codes* as well as topics that had the potential to be developed into codes with subsequent readings (Creswell, 2003). These were all color coded in the margins for reference. Topics that were consistent across interviews were developed into codes. The next readings were completed using a constant comparative method to confirm consistent codes and to exclude non-consistent codes. The resulting codes were compiled into categories defined or labeled by a descriptive term that in some cases included the actual language of the participant. To ensure reliability, the final analysis of interview data was compared again with the consistent list of codes that had been developed into categories. To verify the validity of the categories, one participant in the sample was briefly interviewed a second time by email.

Results

There was limited consistency with the *a priori* codes that had been identified based on evidence-based recommendations (Hung & Shelley, 2009). There was also limited consistency in methods used to treat tobacco dependence in this sample. In the absence of consistent strategies based on *a priori* data, codes were developed that reflected participants' ways of thinking about tobacco treatment, relationship and social structure codes (Creswell, 2003). Once there were consistent codes identified throughout the data in ways of thinking about tobacco treatment, relationship and social structure, strategies that actually fit the data were identified and were develop into the following categories: *sources of knowledge and experience, understanding dependence, role perception, and treatment strategies* (See Figure 3.1).

Sources of Knowledge and Experience

Participants reported that personal experiences as an active or passive smoker, cultural influences on smoking, dedicated self study and clinical experience were the primary sources of knowledge for treating tobacco dependence. Three of the clinicians had attended continuing education in tobacco treatment. All but one of the 11 participants had a history of using tobacco themselves or they had family members who were smokers.

“As soon as I quit [smoking] they quit being sick, I’m not proud of the fact that I made my kids sick.”

They also were keen observers of cultural influences on tobacco use.

“Well I guess growing up [in rural Kentucky] ... seeing so many people smoke, I had a good feel for.. the real world pathophysiology of cigarette smoking by seeing so many people end up on oxygen, ..and then in Hospice. I had a 20 year jump start on people who trained in places like Long Island.”

For the most part they were highly motivated to help their patients quit and many had developed strategies based on personal experiences, self study, and clinical experiences treating hardened smokers.

“The multi-packers, I (tell them), slap a patch on after they get out of the shower, it works better on wet skin.”

There were only two participants who had never smoked and had not been exposed to tobacco use growing up. One participant recognized how important empathy was for treating tobacco dependence.

“I’ve tried to understand it because in order for me to empathize with the patient, I have to somehow understand why they would pick up this..thing to smoke.”

Understanding dependence

Through cultural observation and based on their personal experiences as active smokers, having family members who smoked, or through self study, participants expressed an understanding that tobacco use is chronic and being successful at quitting takes more than willpower.

“My dad quit smoking without any aids but it was just the longest thing. I mean he probably smoked 1 or 2 cigarettes a day for like 2 or 3 years, after he was officially quit for..23 hours and it would reach 11:00 at night he’d watch the 11:00 news and he’d smoke a couple of cigarettes before he could go to sleep at night. So he really struggled with that...the COPD, he’s like, if I could just get a little more breath in there ...”

One participant who had recently finished residency, modeled interventions based on stages of change to which he had been introduced during medical training (DiClemente, 2003).

“If they aren’t ready I don’t waste my time, they have to be ready.”

Others modeled interventions on a broad view of dependence as a difficult emotional and physical journey.

“They go to a family reunion and everyone is smoking. They just can’t visualize life without smoking- that’s all they’ve ever known”.

Role Perception

Participants prioritized tobacco treatment in routine practice and most valued an independent role. Those who were independent in their approach did not value tobacco counseling programs for tobacco treatment.

“I have a very close personal relationship [with my patients]; I have a paternalistic approach...I don’t depend on anyone else to do my work. I think if you have a problem and you’re seeing me, I need to talk to you about it...you don’t need the delegation.”

“Because we are aware that smokers do want to quit,.... and if you ever ask them the right question at that particular time then you might just be saying the right thing at the right time and intervene. So it’s incumbent on the physician every time he sees a patient to ask them about it and offer help.”

Treatment strategies

Treatment strategies mirrored understanding of dependence and role perceptions. There were limited formalized processes for assisting with referrals or arranging follow up among the clinicians who were interviewed. Instead, they relied on therapeutic use of self to help their patients quit, innovation, and persistent reinforcement of the quit message. For the most part, they were motivated and confident in their ability to help their patients quit smoking and were innovative in their methods. One participant had received training in hypnotism but eventually realized it wasn’t effective. Another showed smokers their chest X-Rays to demonstrate changes. Another drew pictures of heart anatomy to show patients how nicotine affects heart arteries.

Cultural perceptions influenced treatment strategies. For example, one participant felt that patients living in rural areas would not be willing to participate in counseling programs. Few of the others reported assistance with referrals as a valued strategy, but they all assisted their patients with pharmacotherapy. An important strategy expressed by

most of the participants was their knowledge of the patient's history and how their relationship with the patients was an advantage for tobacco treatment.

"You know if you don't do this [quit smoking]...right now, your father is going to be at your funeral and I'm going to be really mad at you..."

"I celebrate (when they quit) and tell them to brag, brag to their friends

"I use their chest x-rays to show how there are physical changes even though they don't yet have symptoms."

"So you don't distinguish your message based on their state of desire to quit; you have the basic message that you always ask them."

"Mountain people... have an incredible understanding of human physiology if you talk to them about it and when you explain what nicotine does.."

Clinic Observation

Among the practices that were observed was a free clinic which was staffed by volunteers. A paper-based system for identifying smokers had been developed by one of the participants to overcome problems with the electronic patient record system but that process was not in place when the clinic was observed. Other participants reported that electronic record systems were installed in four out of the eleven clinician practices but they were not used to identify or assist patients with tobacco dependence. Most clinicians reported few formalized structures within their practice for tobacco treatment and none for referring patients to tobacco treatment counseling programs.

Discussion

The categories that consistently reflected the data in this analysis were: *Sources of knowledge and experience, understanding dependence, role perception and treatment strategies*. In the absence of consistent methods for tobacco treatment, the data reflected participants' ways of thinking about tobacco treatment, relationships and social structure (Creswell, 2003). Previous research conducted with primary care practices found that despite the efficacy of the Chronic Care Model for improving consistent delivery of tobacco interventions (Hung, et al., 2007; Hung & Shelley, 2009), components are infrequently implemented (Hung, et al., 2007; Tsai, Morton, Mangione, & Keeler, 2005).

Through personal experiences, cultural observations and self study participants had internalized the value of treating tobacco dependence and were motivated to provide brief counseling. Most described their understanding of tobacco dependence from the perspective of personal experiences as either an active or passive smoker. All but one of the study participants were natives of Kentucky and most were from rural counties where tobacco has traditionally been a major source of revenue (United States Department of Agriculture, 2007; Van Willigen & Eastwood, 1998). Several participants described how entrenched tobacco use is in their communities where crop has been grown for generations. They described how culture and family patterns of smoking made cessation difficult. Through cultural observation and personal experiences they understood that tobacco dependence was chronic but few had employed recommended strategies for ongoing treatment. Tobacco treatment was a priority and most saw their role as the independent provider of tobacco treatment.

In the absence of formalized methods and/or office procedures for tobacco treatment, clinicians in this sample relied upon therapeutic use of self and persistent reinforcement of the quit message. The concept “therapeutic use of self” has been described in the medical literature as a necessary component of psychosocial competence (Block, 1996) and in nursing as a skill for interpersonal communication (Kasch, 1984; Newshan, 1998). In this context it is used to describe empathic, clinician responses to patients who smoke as opposed to blaming them for their addiction. For the most part, respondents in this study were able to recall interactions with patients that resulted in patient decisions to quit but few were able to recall long-term outcomes from episodic brief interventions since follow-up was not routinely arranged. Respondents reported having long-term relationships with some of their patients through visits for illness care which allowed them to reinforce the quit message. Meta-analyses have shown that brief, consistent, and repeated quit messages provided by clinicians are more effective than self-help (Fiore, et al., 2008). But it is not known whether therapeutic use of self increases the efficacy of brief counseling.

Therapeutic use of self as a counseling strategy shares some similarities to motivational interviewing (MI) (Miller & Rollnick, 2002). Among the characteristics of MI are the assumptions that readiness to change is not a fixed client trait but a variable

outcome of interpersonal interaction and that the quality of interpersonal interaction between clinician and client has the potential to influence a client's decisions to change. While brief encounters of only 15 minutes using motivational interviewing strategies have been shown to be effective in studies examining counseling for weight loss, blood pressure treatment, and alcohol abuse, effects on tobacco dependence are mixed (Rubak, Sandbaek, Lauritzen, & Christensen, 2005). The quality of interpersonal interactions between clinician and patient may influence the success of motivational interviewing methods. More research is needed to better conceptualize therapeutic use of self, how effective it is in bringing about decisions to change, and the efficacy of brief interventions that combine therapeutic use of self with motivational interviewing methods.

These findings reported here also suggest the need for further research to examine how personal experience as an active or passive smoker and cultural patterns of tobacco use influence the quality of clinician motivation for tobacco treatment and the strategies that they use. This study used purposive sampling to describe experiences and strategies of clinicians who prioritized tobacco treatment in their practice. They described their personal experiences with tobacco as influential in how they approached tobacco treatment. They felt strongly that tobacco dependence was important and instead of blaming their patients for using tobacco, they were empathetic to the challenges of cessation. However, it is possible that clinicians may not feel empathetic based on their experiences with tobacco. If, for example, a clinician quit spontaneously without assistance they may be less likely to empathize with a patient who has difficulty overcoming tobacco dependence. More research is needed to examine how past experiences as an active or passive smoker influences empathy and how empathy impacts clinician attitudes, motivation, and tobacco treatment interventions.

The findings from this study are consistent with research showing that most clinicians endorse tobacco treatment as important to their role but do not consistently provide on-going treatment through follow-up and assistance with referrals for counseling (Schnoll, et al., 2006). This confirms the need for continuing education in chronic care treatment for tobacco dependence. The lack of a chronic care perspective among the clinicians in this sample likely reflects both insufficient professional training

in accessing community resources for chronic care delivery and inadequate health system processes to support chronic care delivery. In a survey of U.S. physicians, most reported that medical training had not prepared them for the demands of chronic care delivery (Darer, Hwang, Pham, Bass, & Anderson, 2004). For example, among the chronic care competencies that were examined, 65% of physicians reported that they had received inadequate training to coordinate community services (range 56-70%). In a study examining components of the CCM in primary care practices nationwide, health system processes that are associated with preventive care including tobacco treatment were infrequently implemented (Hung, et al., 2007).

To improve chronic care competencies for tobacco dependence treatment, physician, physician assistant and nursing curricula should emphasize PHS guidelines recommendations for treating tobacco dependence as a chronic condition and strategies for accessing community resources. For primary care clinicians already in practice, continuing education requirements should include PHS guidelines for tobacco dependence. Formal continuing education methods that include conferences and workshop formats do not consistently influence physician behaviors toward greater evidence-based patient care (Davis et al., 1999). A more promising strategy is outreach education or “academic detailing” which brings education to the clinic and has the potential for tailoring education and office tools to the needs and strengths of the clinician and practice. Other advantages of academic detailing methods are that by delivering continuing education on site, non-clinician staff can be included in the training and information about local resources for counseling and how to access these resources can be provided to staff and clinicians. To ensure that continuing education includes dissemination of evidence-based interventions for tobacco treatment, including chronic care, professional medical and nursing organizations should include this requirement for professional certification.

This study is limited by qualitative methods that prevent generalization of findings to a larger population. However findings from the interviews and practice observations provide valuable insights for future empirical study. Through personal experiences as an active or passage smoker, clinicians in this sample had internalized the value of counseling their patients which allowed them to empathize and personalize the

quit message. Interventions were limited to ask and advise (Fiore, et al., 2008) and there were few formalized office processes used to provide on-going treatment (Hung, et al., 2007). Research is needed to document attitudes related to tobacco treatment behaviors that reflect chronic care, namely assistance with referrals and arranging follow-up care (Alesci, et al., 2004).

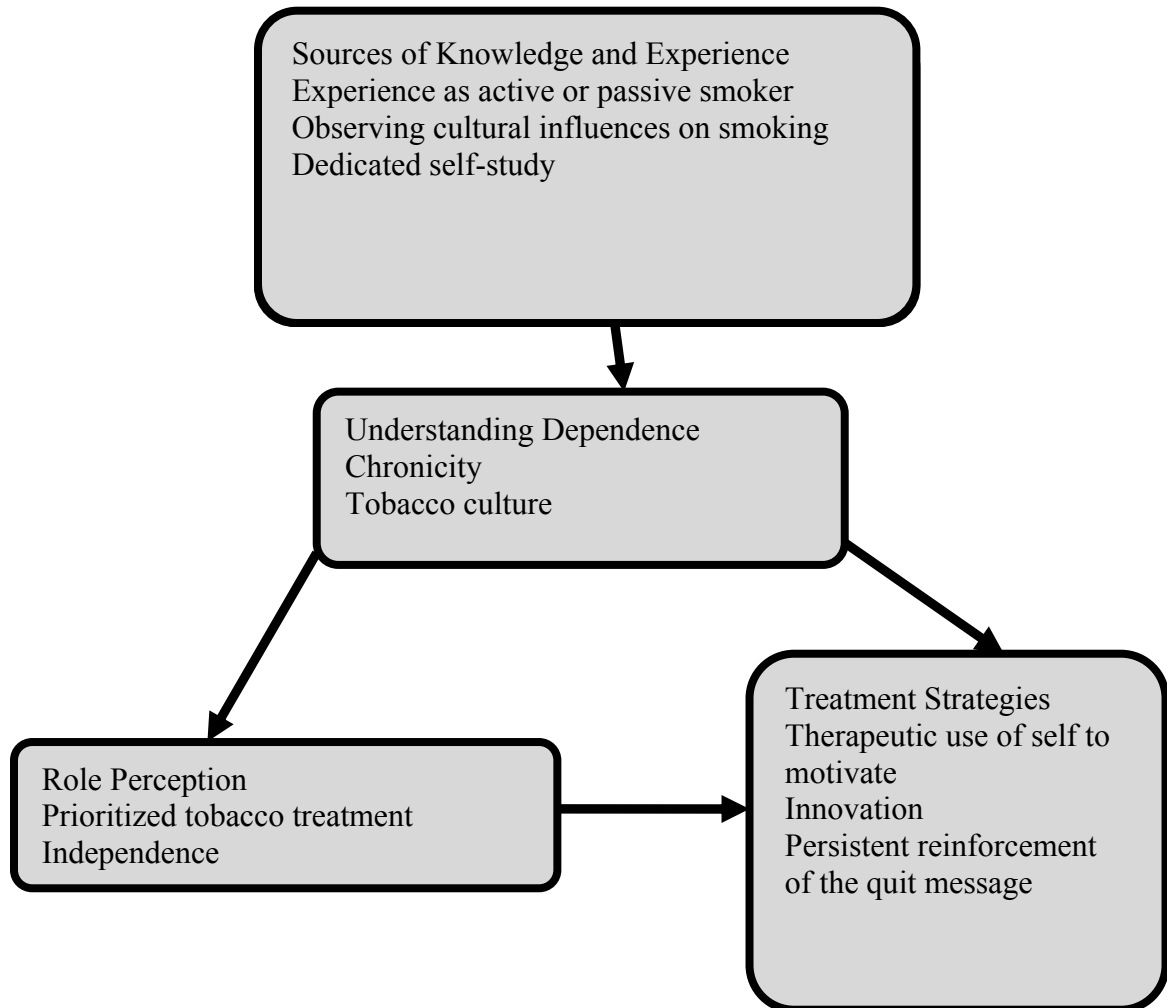
Table 3.1 Characteristics of Participants (N = 11)

<i>Characteristic</i>	<i>Number</i>	<i>Percent</i>
Male	5	45.5
Caucasian	10	91.0
Provider Type		
Physician	6	54.5
Nurse Practitioner	3	27.3
Physician Assistant	1	9.1
Registered Nurse	1	9.1
Practice Type		
Rural	9	81.8
Urban	2	18.2

Table 3.2 Interview Guide

1. Describe your practice.
 2. How many years have you been in practice?
 3. Approximately how many patients do you see in a typical day?
 4. Describe the administrative structure of your practice.
 5. Describe how administration supports your helping patients quit.
 6. Describe how office staff contributes to cessation treatment.
 7. Describe office procedures for identifying smokers.
 8. Describe office procedures for assisting with referrals.
 9. Tell me about your approach to helping patients quit.
 10. What would you say has contributed most to your understanding of how to help patients quit?
 11. Describe your experience with a patient that you've helped to quit using tobacco.
-

Figure 3.1 Themes Describing Clinicians' Experiences and Strategies Related to Tobacco Treatment



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CHAPTER FOUR

Health System Processes, Clinician Attitudes, and Referrals to Tobacco Treatment Programs

Synopsis

Participation in tobacco treatment counseling significantly increases the likelihood that smokers will be able to quit and avoid relapse. However, most smokers do not participate nor do clinicians routinely assist their patients with a referral. Using survey data, this study examines the specific clinician attitudinal factors that predict referrals, the presence of health system processes that facilitate referrals and self-reported clinician referrals to tobacco treatment counseling programs. Clinicians in counties with high participation in cessation programs were more likely to refer than clinicians in medium and low participation counties. Attitudes correlated with referrals were: perceived efficacy of counseling programs ($r = .42, p < .01$) perceived autonomy support ($r = .31, p < .01$), perceived barriers for counseling ($r = -.40, p < .01$), attitudes toward cessation counseling ($r = .39, p < .01$), perceived autonomous motivation ($r = .31, p < .01$), and perceived willingness of patients to participate ($r = .30, p < .01$). Controlling for demographic variables, practice variables, clinician tobacco use and county-level participation in cessation programs, perceived efficacy of counseling programs and health system processes that facilitate referrals predicted referrals. Implications for policy and practice are discussed.

Introduction

Tobacco dependence is a chronic, relapsing condition that often requires multiple quit attempts before the smoker is able to remain abstinent (Fiore, et al., 2008). Each year, 45% of smokers make an attempt to quit but only 5% are successful (Centers for Disease Control and Prevention, 2002). Smokers who make the decision to quit are challenged by their physical addiction to tobacco, environmental cues to smoke, and established behavioral responses to environmental and emotional stressors (Curry & McBride, 1994). Group and individual tobacco treatment counseling provides social support for abstinence and assists the smoker to develop cognitive and tobacco treatment

strategies to cope with situational cues, physical dependence and affective responses (Fiore, et al., 2008).

Tobacco treatment counseling programs are important adjuncts to a physician or nurse's brief advice to quit. There is a strong dose-response relationship between the intensity (amount of exposure to counseling) and effectiveness. Meta-analytic findings indicate that higher intensity counseling (> 10 minutes) increases abstinence rates 2.3 times compared to no contact (OR= 2.3; 95% CI= 2.0,2.7; n =43 studies) (Fiore, et al., 2000). Receiving individual tobacco treatment counseling by a trained therapist increases the odds of cessation (1.39, 95% CI, 1.24 to 1.57) compared to brief advice only (Lancaster & Stead, 2005). Attending a group tobacco treatment counseling program doubles the likelihood of quitting compared to receiving self-help materials (2.64; 95% CI, 1.95-3.56) (Stead & Lancaster, 2005). Individual and group tobacco treatment counseling are also often combined with pharmacotherapy which further increases efficacy. Combining counseling and medication increases the chances of quitting over counseling alone (22.1 vs. 14.6; 95% CI, 18.1-26.8) and medication alone (27.6 vs. 21.7; 95% CI, 25.0-30.3) (Fiore, et al., 2008). Effectiveness of these programs, however, is limited by problems recruiting patients (Roski, et al., 2003). Of the smokers who attempted to quit in 2000, only 1.3% of them participated in tobacco treatment counseling to help them quit (Cokkinides, et al., 2005).

An important resource for improving participation in tobacco treatment counseling and increasing quit rates is a clinician's assistance with a referral (Franke, Leistikow, Offord, Schmidt, & Hurt, 1995). At least 70% of patients who use tobacco see a primary care clinician each year and want to quit (Centers for Disease Control and Prevention, 2002). Patients expect that their physician will help them quit and most view their physician to be a credible health advisor (Solberg, Boyle, Davidson, Magnan, & Carlson, 2001). However, assistance with a referral from a clinician is an underutilized resource for helping smokers quit; only 10% of physicians report referring their patients to tobacco treatment experts for individual counseling, and 26% to group counseling programs "often or always" (Schnoll, et al., 2006). Failure to provide on-going tobacco treatment that includes assistance with referrals to counseling programs may be reflective

of clinicians' attitudes toward tobacco treatment and lack of health system support for chronic care.

The most recent edition of the Public Health Service (PHS) Clinical Practice guideline recommends adoption of a chronic care approach to tobacco treatment and changes in the health care system to more fully integrate tobacco treatment into routine patient care (Fiore, et al., 2008). The chronicity of tobacco dependence presents particular challenges for patients trying to quit and to stay quit and for clinicians who practice within health care delivery systems that traditionally prioritize acute care delivery (Hung, et al., 2007). Health system improvements that encourage adoption of chronic care processes and methods to coordinate care with community resources for tobacco treatment counseling are needed to improve rates of cessation and to prevent relapse. Studies conducted in the health care setting have investigated health system processes proposed to facilitate tobacco treatment with mixed results (Curry, Keller, Orleans, & Fiore, 2008; Keller, 2005). Health system processes include for example, clinician reminders and performance feedback. When these processes are implemented they are associated with greater clinician adherence to PHS guidelines for tobacco treatment (Hung & Shelley, 2009) but they are not consistently adopted by clinicians in practice (Alesci, et al., 2004; Hung, et al., 2007; McIlvain, et al., 2002). Clinician attitudes toward tobacco treatment may be more predictive of treatment behaviors than processes that facilitate referrals. For example, Bentz and colleagues found that receiving performance feedback was predictive of referrals to a state quit line only after including the presence of a clinic "champion" or person who was motivated to follow through with implementing the fax referral procedure (Bentz, et al., 2007).

Research guided by self-determination theory found that motivation, specifically, autonomous motivation for counseling patients about smoking predicts clinician adherence with PHS guideline recommendations for tobacco treatment (Williams, et al., 2003). Self-determination theory proposes that individuals are capable of superior performance, persistence in tasks, and creativity in their work if they have internalized the value of a behavior and act with a full sense of volition and choice as opposed to feeling controlled and pressured to engage in a behavior (Ryan & Deci, 2000).

Autonomous motivation for counseling patients about smoking reflects the extent to

which a clinician has internalized the value of helping patients to quit smoking (Williams, et al., 2003). In a study examining the effects of a continuing education workshop, clinicians' experience of an autonomy supportive learning environment and support from insurers for tobacco treatment was found to increase clinician perceived autonomous motivation for counseling patients about their smoking ($\beta = 0.27, p < .05$) and in turn, was associated with greater adherence to PHS guideline recommendations for tobacco treatment (Williams, et al., 2003). Autonomous motivation predicted time clinicians spent counseling ($\beta = 0.39, p < 0.05$) and adherence to PHS guideline recommendations for brief interventions ($\beta = 0.47, p < 0.05$) (Fiore, et al., 2000).

The success of efforts to improve the organizational processes that facilitate referrals may depend in part upon the extent to which clinicians perceive these processes as supportive in their practice and choose to use them to improve outcomes. When aspects of the work environment are perceived by the employee as autonomy supportive, employees are more likely to proactively adhere to organizational policies as opposed to an environment that is perceived as controlling which is likely to diminish employees' experiences of autonomy (Gagné & Dec, 2005). Williams, et al, found that clinician perceptions of clinicians' experience of an autonomy supportive learning environment and support from insurers for tobacco treatment predicted change in perceived autonomous motivation ($\beta = 0.27$) and perceived competence ($\beta = 0.18$) for tobacco dependence counseling ($p < .05$) (Williams, et al., 2003). Changes in perceived autonomous motivation and competence after receiving cessation education were associated with both increased use of brief interventions (Fiore, et al., 2000) ($\beta = .39$) and time spent counseling patients about smoking ($\beta = .47, p < .05$).

There are other attitudinal factors including perceived efficacy of interventions for tobacco treatment, availability of institutional resources for tobacco treatment, patient motivation to quit, time constraints, and competing demands of acute health problems that are associated with clinician tobacco treatment behaviors. Specific to assistance with referrals are attitudes about the efficacy of tobacco treatment counseling programs, and patients' willingness to participate in counseling programs that impact referrals (Cassidy, 2008). An increased understanding of the attitudinal factors that impact clinician proclivity to assist with referrals and to adopt processes that facilitate referrals may help

identify strategies that encourage greater integration of chronic treatment of tobacco dependence into practice. This is the first study to conduct a comprehensive assessment of attitudes and processes that facilitate referrals and the mediating role of perceived autonomous motivation in the relationship between processes and referrals.

The purpose of this study was to examine health system processes and clinician attitudes that facilitate referrals to tobacco treatment counseling programs. The specific aims were to: a) determine the associations among demographic variables, tobacco use, and practice variables and referrals; b) determine differences in referrals by county-level smoker participation in tobacco cessation programs; c) examine the associations among processes that facilitate referrals, clinicians' attitudes, county-level smoker participation in cessation programs and referrals; d) determine the extent to which processes that facilitate referrals, attitudes, and smoker participation in counseling programs are predictive of referrals to tobacco treatment counseling programs; and; e) determine whether clinician perceived autonomous motivation mediates the relationship between health system processes that facilitate referrals and self-reported frequency of referrals to tobacco treatment counseling programs.

Methods

This cross-sectional, descriptive, correlational study used survey methodology with a sample of physicians, doctors of osteopathy, nurse practitioners and physician assistants (clinicians) practicing in the Commonwealth of Kentucky to assess presence of health system processes in their organization and community, attitudes and self-reported frequency of clinician referrals for tobacco treatment counseling. An electronic list of licensed primary care clinicians including physicians, doctors of osteopathy, and physician assistants practicing internal medicine or family medicine was obtained from the Kentucky Board of Medical Licensure (KBML). A list of advanced registered nurse practitioners specializing in family practice was obtained from the Kentucky Board of Nursing (KBN). Clinicians engaged in full-time, hospital based practice were excluded.

To control for extraneous variables that may have contributed to clinician referrals to local tobacco treatment programs, a randomized block sampling design was used. Clinicians were sorted by level of adult participation in cessation counseling programs (per 10,000 smokers) in the county in which their practice was located. The top

third of clinicians in this ordered list formed the top tertile; the middle third formed the middle tertile; and the bottom third the lowest tertile. A total of 500 clinicians were randomly selected such that 166 or 167 were chosen from each tertile using a random sampling scheme generated by SAS statistical software (version 9.1). Data on level of tobacco cessation program participation were obtained from the 2009 Local Health Department Tobacco Cessation Survey (LHD) (Kentucky Tobacco Policy Research Program, 2009); rates of participation were determined per 10,000 smokers in the population and these were sorted from low to high to form the tertiles. The LHD survey is an annual survey conducted by the UK Tobacco Policy Research Program that collects data on tobacco cessation programs within health department service areas in Kentucky.

Five hundred health care providers were invited to participate in the study, with an anticipated 20% response rate. The questionnaire was sent by first class mail to potential participants with a personalized cover letter, a return, postage paid business envelope, and a \$2 bill as an incentive (Dillman, 1978). The cover letter explained the purpose of the study and invited the clinician to participate by completing a questionnaire. Approximately three weeks after the second mailing, a personalized letter and another questionnaire was sent to non-respondents to extend another invitation for participation in the study. Enrollment began in April 2010 and ended May 2010. The study was approved by the University of Kentucky Medical Institutional Review Board.

Measures

Self-administered surveys were used to collect data at the provider level. To determine the level of health system processes that facilitate referrals (*Processes*) (See Table 4.1) participants were asked to respond yes (1) or no (0) to 13 items to determine the presence of office procedures that reflect evidence-based recommendations for tobacco treatment (Fiore, et al., 2008; Hung & Shelley, 2009; McIlvain, et al., 2002)n. Example items included: “Is the state quit line listed for reference?” and “Are brochures from the local health department available?”

The remaining items measuring clinicians’ attitudes were assessed using six subscales with Likert items anchored by “strongly disagree” (1) and “strongly agree” (5) (See Table 4.2). First, to measure autonomous motivation, a published four-item scale (*Perceived AM*) was used to determine the extent to which clinicians have internalized

the value of tobacco treatment and regard it as personally important (Williams, et al., 2003). Example items include: “Assisting my patients to quit smoking is personally important to me in my practice” and “Helping my patients quit is the most important thing I can do for their health”. This scale demonstrated acceptable internal consistency with this sample ($\alpha=0.68$). In previous research, a Cronbach’s alpha of 0.67 was reported (Williams, et al., 2003). Second, two items measuring, perceived autonomy support (*Perceived AS*) were used to assess the extent to which clinicians perceive that assisting patients with referrals is supported by the health system (Deci & Ryan, 2002; Williams, et al., 2003). These items were: “I am encouraged and supported by clinic staff and administrators to help my patients quit smoking” and “I feel pressured to help my patients quit smoking” (reverse scored).

Third, nine items from an existing and tested scale, *Attitudes toward cessation counseling* ($\alpha = 0.65$) were used to assess clinician perceptions of patients’ willingness to quit, clinician perceived self-efficacy for counseling, perceived efficacy for tobacco treatment outcomes, barriers of competing demands and perception of availability of resources (Meredith, Yano, Hickey, & Sherman, 2005). Cronbach’s alpha for this sample was .74. Fourth, to determine clinician attitudes specific to referrals to counseling programs, five items were created to assess perceived barriers for patient participation (*Barriers*) ($\alpha = .71$), four items for perceived efficacy of tobacco counseling programs (*PECP*) ($\alpha = .60$), and four items for willingness of patients to participate in counseling (*PWPP*) ($\alpha = .71$). The higher the score, the lower the barriers... The newly developed items were based on findings from a pilot study conducted by the principle investigator with a sample of primary care clinicians (Cassidy, 2008). Content validity was assessed by a panel of tobacco treatment experts.

To measure the dependent variable, *referrals to counseling programs*, three items were used, with four possible responses to the question: I recommend or refer my patients to telephone quit line, individual counseling, or group counseling programs: never (1), sometimes (2), often (3), or always (4). A total score was obtained for the three types of counseling programs for all analyses except to determine differences in referrals by clinician types. To determine differences in rates of referrals by clinician type of licensure, the continuous variable for referrals was collapsed into two categories of “0”

for never or “1” if refer sometimes, often or always to either telephone quit line, individual or group counseling programs. Demographic variables including age, gender, race/ethnicity and practice characteristics including type of licensure, hours of practice per week, and years in practice were included in the questionnaire.

Statistical Analysis

Data analysis was conducted using SPSS Version 15 for Windows; an alpha level of .05 was used throughout. With at least 100 respondents, an alpha level of .05, and up to 10 predictors, the power of the multiple regression F test to detect an R-square as small as 0.15 was at least 80%. An R-square of this magnitude is approximately equal to a medium effect size as defined by Cohen (Cohen, 1988). The power estimate was determined prior to data collection using nQuery Advisor, v. 6 (Elashoff, 1995-2005). Survey data were summarized using univariate statistics including frequency distributions. Correlations between predictor variables and rates of referrals were examined using Pearson product-moment correlation coefficients. Chi-square test for independence was used to determine differences in referrals by type of healthcare provider. Differences in clinician referrals between low, medium, and high county participation in cessation programs was examined using analysis of variance (ANOVA). The distribution of scores on total referrals to tobacco treatment counseling programs was normal with minor positive skewness indicating low scores except for three outliers in the high range and positive kurtosis, indicating clustered central distribution. The distribution of scores on the predictor variables were normal. Standard multiple regression was used to determine the amount of variance in referral scores explained by scores on predictors and to determine which among the independent variables was the best predictor of referral rate. Preliminary analysis for multiple linear regressions showed no violations for assumptions of normality, linearity, homoscedasticity, or multicollinearity. Analysis of mediational effects was performed as described by Baron and Kenny (1986).

Results

Sample Description

The sample included 197 clinicians; two additional surveys received from clinicians practicing in non-primary care settings were omitted from the sample. The response rate was 39.6%, and was relatively equal by tertile. There were 62 respondents

from the low participation tertile, 62 from the medium tertile, and 72 from the high tertile. The participants were predominately Caucasian (85%), with approximately equal percentages of males (53%) and females (47%), and were diverse in age distribution (see Table 4.3). Over half of the participants were physicians (59%); 23% physician assistants, 9% nurse practitioners, 6% doctors of osteopathy (6%), and 2% certified nurse midwives.

Demographic variables, tobacco use, and practice variables and referrals

There were no significant differences in rates of referrals by gender (males: $M = 6.15$, $SD = 1.78$, females: $M = 5.88$, $SD = 1.85$; $t(180) = .06$). Neither age ($r = .02$, $p = .8$), number of years in practice ($r = -.009$, $p = .90$), nor patient care provided per week were significantly correlated with referrals ($r = .102$, $p = .2$). There were 16 (8%) clinicians who reported ever using tobacco in the past 30 days, six (3%) used tobacco on social occasions, 10 (5%) used tobacco occasionally, and only four (2%) of current tobacco users used tobacco every day (every day in the past 30 days). There was no difference in referrals by ever using tobacco in the past 30 days ($M = 5.64$, $SD = 1.46$) compared to those who never used tobacco in the past 30 days ($M = 6.04$, $SD = 1.85$).

Three cases with the option for type of license, “other” and four cases in the certified nurse midwife categories were removed to avoid violations in Chi-square test requirements for minimum expected cell frequency. Nearly three-fourths (73%) of osteopathic physicians ever referred patients for counseling of any kind, compared to 56% of ARNPs, 53% of physician assistants and 40% of physicians (see Table 4.4). Difference in referrals by type of license was not significant $\chi^2(3, n=192) = 1.61$, $p = .7$).

Differences in referrals by smoker participation in county-level cessation counseling programs

There was a statistically significant difference in referrals between groups: $F(df = 2, 193) = 6.5$, ($p = .002$) (See Table 4.5). The mean referrals for clinicians from low participation counties ($M = 5.74$, $SD = 1.51$) was significantly higher than that of clinicians from medium participation ($M = 5.61$, $SD = 1.63$) and significantly lower than those from high participation counties ($M = 6.61$, $SD = 2.10$). Clinicians from medium participation counties referred significantly less than those from high participation

counties. There was a medium between group effect size (eta square = .063) (Cohen, 1988).

Associations among processes that facilitate referrals, clinicians' attitudes, county-level smoker participation in cessation programs and referrals

There was a significant, positive correlation between processes that facilitate referrals and referrals ($r = .31, p < .01$) (See Table 4.6). The most frequent processes reported were: "smoking documented on progress records" ($M = .90, SD = .310$), "availability of patient education materials" ($M = .80, SD = .42$), "smoking documented with vital signs" ($M = .55, SD = .500$), "tobacco user identification system" ($M = .53, SD = .910$), and "brochures from the health department" ($M = .51, SD = .500$). Less frequently reported processes included, for example, "Is there someone in your office who is in charge of smoking cessation interventions?" and "Is the number of the state quit line listed for reference?" Overall, processes were infrequently reported by this sample ($M = 5.4, SD = 2.84$)

All attitude variables were positively correlated with frequency of referrals (See Figure 4.6). Attitudes most strongly correlated with referrals were perceived efficacy of counseling programs ($r = .42, p < .01$) and perceived autonomy support ($r = .42, p < .01$), followed by perceived barriers for counseling ($r = .40, p < .01$), attitudes toward cessation counseling ($r = .39, p < .01$), perceived autonomous motivation ($r = .31, p < .01$), and perceived willingness of patients to participate ($r = .30, p < .01$). Smoker participation in cessation programs was also positively associated with referrals ($r = .25, p < .01$). The only significant correlation between county-level participation in cessation programs and attitudes was for the barriers scale. Clinicians who practiced in high participating counties perceived low barriers for referrals ($r = -.24, p < .01$).

The extent to which attitudes and processes that facilitate referrals are predictive of referrals to tobacco treatment counseling programs

Multiple regression analysis was performed to assess the relative predictive power of demographics, practice variables, tobacco use, county-level program participation, attitudes, and processes variables for referrals (See Table 4.7). The model explained 41% ($F(14,165) = 8.0, p < .001$) of the variance in referrals. Processes ($\beta = .201, p = .01$) and perceived efficacy of counseling programs ($\beta = .266, p = .001$) were significant predictors

of referrals when controlling for other variables in the model. Perceived efficacy of counseling programs made the strongest contribution to the variance in referrals.

Mediation of health system processes that facilitate referrals and self-reported frequency of referrals to tobacco treatment counseling programs by autonomous motivation.

The outcome variable, referrals, was regressed on the predictor variable, processes that facilitate referrals, which showed a significant relationship ($\beta = .383, p < .005$) (see Figure 4a). For path A, the mediating variable, perceived autonomous motivation was regressed on the predictor variable, processes ($\beta = .204, p = .005$). For path B, referrals was regressed on perceived autonomous motivation ($\beta = .314, p < .001$). Referrals was simultaneously regressed on both processes and perceived autonomous motivation. Controlling for paths A and B, there was a slight increase in the beta coefficient for processes ($\beta = .333, p < .001$). Perceived autonomous motivation did not mediate the relationship between processes and referrals (see Table 4.8).

Discussion

This study provides further insight into the relationship between clinician attitudes and tobacco treatment behaviors by examining specific attitudinal factors that influence referrals, self-determination concepts, and health system processes that facilitate tobacco treatment. Controlling for demographics, practice factors, clinician tobacco use, smoker participation in cessation programs, perceived barriers, and perceived willingness of patients to participate; perceived efficacy of counseling programs and health system processes that facilitate referrals were positively and significantly associated with referrals. Other studies examining clinician attitudes have found that clinician expectations for outcomes of tobacco treatment, including their own self-efficacy for counseling predict their engagement in tobacco treatment (Meredith, et al., 2005; Orleans, George, Houpt, & Brodie, 1985). This study found that the likelihood that clinicians will assist their patients with a referral is highly dependent upon clinician expectations for a positive outcome from smoker participation in counseling. The efficacy of counseling programs for improving tobacco treatment outcomes has been well documented (Lancaster & Stead, 2005 ; Stead, et al., 2006; Stead & Lancaster, 2005), but evidence-based knowledge is not always well disseminated among clinicians in practice

(Cabana et al., 1999). In this study, perceived autonomy support and perceived autonomous motivation were significantly correlated with referrals and also with the presence of processes that facilitate referrals. Methods for disseminating evidence-based knowledge and implementing processes that are perceived as supportive are likely to succeed in helping clinicians to internalize the value of tobacco treatment and adopt evidence-based methods for treatment (Williams, et al., 2003). Overall, the presence of health system processes that facilitate referrals was associated with referrals but few health system processes that facilitate referrals were available in most clinics. Documenting the efficacy of local programs, marketing those results to local primary care clinicians, and providing support to implement processes that facilitate tobacco treatment would likely have a positive influence on clinician referral behaviors.

With the block randomization used to select clinicians from counties with high, medium, and low rates of participation in cessation programs, this study controlled for local factors that could potentially influence referrals including availability of programs. High participation in local programs was associated with clinician referral. This suggests that clinician behaviors may be more important than local factors for predicting participation in tobacco treatment counseling programs and confirms previous research finding that receiving a physician referral increases participation in counseling services (Franke, et al., 1995). Barriers found to influence decisions to refer included clinicians having information about cessation programs, perceptions about convenience for clinicians and for patients, patients' ability to afford counseling and having insurance for counseling. Lack of information as well as having too many sources for referrals to choose from were barriers to referral, consistent with previous research (Holtrop, et al., 2008). Both clinician education to create awareness of programs and health policies that reduce shared costs for smokers to participate are needed to improve the reach of tobacco treatment.

When examining differences in referrals between types of licenses, there were differences, though nonsignificant, with doctors of osteopathy being most frequent referrers, followed by nurse practitioners, physician assistants, and physicians. There are numerous likely factors that influence referrals by professional affiliation, one being the particular mission of the training program attended (Pikeville College School of

Osteopathic Medicine, 2010). Professional education that embraces community engagement and a prevention focus would be expected to graduate professionals who value tobacco treatment and are willing to utilize community resources to help their patients quit.

Even when health system processes such as office resources are available to access counseling programs, clinicians do not always take advantage of these resources (McIlvain, et al., 2002). This suggests that there are inherent motivational factors that mediate the relationship between processes and referrals. However, this study did not find that autonomous motivation mediates the relationship between health system processes and referrals. This finding may reflect inadequate conceptualization of autonomous motivation for the specific tobacco treatment intervention of assisting with referrals. Previous research found that perceived autonomous motivation predicts time that clinicians spend counseling their patients about smoking and interventions in general (Williams, et al., 2003). There may be inherent motivational mediators specific to referrals that reflect attitudes toward treating tobacco as a chronic medical condition that were not adequately assessed in this study. Another critical factor for assessing whether inherent motivation mediates the relationship between processes and rates of referrals that was not assessed in this study is the distinction between presence of health system processes in their practices and clinician use of processes. This study examined the presence of processes but did not specifically examine whether clinicians regularly used these processes to refer patients.

There are aspects of this study that limit generalizability of findings. Data were collected from self-reported survey responses which introduces the possibility of social desirability bias. Participants were assured that responses were confidential, but they may have replied to the questions in a manner perceived to be viewed as favorable by others, thus over reporting positive attitudes, presence of recommended processes, and rates of referrals, and underreporting smoking. This concern is somewhat mitigated by the fact that the surveys were self-report rather than the information provided in-person. The clinicians who chose to respond may have also held more favorable attitudes toward tobacco treatment. This sample represented clinicians who are licensed to practice in the Commonwealth of Kentucky which limits generalizability to the population of clinicians

in general. Kentucky is among the states with the highest adult tobacco use (Centers for Disease Control and Prevention, 2009b) and is a major tobacco growing state (United States Department of Agriculture, 2007) which in combination may influence clinicians' attitudes and use of resources for tobacco treatment.

Another limitation of this study is that it did not examine differences in processes and attitudes by size of practice or differences between independently owned practices and network or HMO practices. Clinicians in a solo practice or a small privately owned partnership may potentially have more control over the implementation of health system processes which has implications for perceptions of autonomy support and autonomous motivation for tobacco treatment. A final limitation is that the different measures of attitudes used in this study may have assessed similar constructs which limited the ability to distinguish which attitudes were more predictive of frequency of referral. A decision was made to examine attitudes specific to referrals because they are among the most neglected recommendations for comprehensive tobacco treatment (Alesci, et al., 2004). The distinction between attitudes about referring to tobacco treatment counseling programs and attitudes about more acute treatments including advising about smoking is important for developing policies to increase adherence to recommended chronic interventions and to improve primary care access to community-based counseling programs.

The findings of this study have implications for policy, practice, and the need for further research. There is ample evidence that participation in behavioral counseling improves tobacco treatment outcomes (Fiore, et al., 2008) and this research provides evidence that a clinician's referral influences participation. More effective means of disseminating evidence-based recommendations for chronic care interventions and collaborative models of care are needed to increase awareness of the efficacy of community-based counseling to primary care clinicians.

Collaborative models of care are needed to integrate tobacco treatment within and between the clinic and community resources for counseling. Clinicians are likely to be more motivated to refer their patients to community resources if they receive feedback about the patients' process in cessation.

Table 4.1 Processes That Facilitate Referrals

Is there someone in your office who is in charge of smoking cessation interventions?

Is there someone in your clinic who is responsible for distributing patient education materials as needed?

Do you have a written protocol or guideline for referring patients to counseling programs?

Is the number of the state quit line listed for reference?

Are brochures from the local health department available?

Has anyone on your staff attended continuing education in tobacco dependence treatment?

Is there a system for referring patients to cessation programs?

Is there a tobacco user identification system?

Is patient smoking status documented with vital signs?

Is smoking status documented on patient progress records?

Are patient tobacco education materials available?

Do you receive a payment bonus for documenting patient smoking treatments?

Do you receive feedback on how often you document tobacco treatments?

Table 4.2 Clinician Attitudes

<p>Perceived AM (four items) (Williams, et al., 2003)</p>	Assisting my patients to quit smoking is personally important to me in my practice.
	Helping my patients quit is the most important thing I can do for their health.
	Helping my patients quit smoking is a challenge I enjoy.
	Smoking cessation counseling just isn't as important as other things I do for my patients (reversed).
<p>Perceived AS (2 items)</p>	I am encouraged and supported by clinic staff and administrators to help my patients quit smoking.
	I feel pressured to help my patients quit smoking (reversed).
<p>Attitudes toward cessation counseling (nine items) (Meredith, et al., 2005)</p>	Patients are more likely to quit when counseled.
	Smokers are not likely to quit when counseled (reversed).
	I am comfortable counseling my smoking patients about quitting.
	Sometimes I do not have time to counsel my patients about quitting (reversed).
	My patients' acute health problems take precedence over tobacco treatment (reversed).
	I take time to counsel smokers about quitting at every visit.
	Even with more health care system resources, quit rates are not likely to improve.
	Most patients would quit smoking if counseled.
	Quit rates are so low that smoking cessation counseling is not a priority (reversed).
<p>Barriers (five items)</p>	Counseling programs are available and convenient for patients to attend (reversed).
	It is too time consuming to figure out where my patients can go for counseling.
	I am unaware of what cessation programs are available in the community.
	My patients cannot afford cessation counseling.

Table 4.2 (Continued)

	My patients do not have insurance coverage for cessation counseling.
PECP (four items)	My patients would be more likely to quit if they participate in:
	Group counseling programs
	Telephone quit line
	Individual counseling programs
	I am confident in the quality of counseling programs that are available in my community.
PWPP (four items)	My patients are willing to participate in:
	Group counseling programs
	Telephone quit line
	Individual counseling programs
	My patients are more likely to participate in counseling programs if I recommend they participate.

Table 4.3 Sample Characteristics (N = 197)

Characteristic	n	%
Age (years)		
≤37	49	25
38-48	49	25
49-57	47	24
> 58	46	23
Gender		
Male	103	53.1
Female	90	46.4
Race/Ethnicity		
Non-Hispanic white	165	85.1
African American	6	3.1
Hispanic	4	2.1
Asian/Pacific Islander	8	4.1
Other	8	4.1
Type of License		
Doctor of Medicine	115	59.3
Doctor of Osteopathy	11	5.7
Advanced Registered Nurse Practitioner	18	9.3
Physician Assistant	45	23.2
Certified Nurse Midwife	4	2.1
Other		
Tobacco Use in the past 30 days		
Occasional Use	10	5.2
Social Use	6	3.1
Days in the past 30 days	16	8.2

Table 4.4 Referrals by License

License	Ever Refer *		Never Refer		Total
	Count	% within type of license	Count	% within type of license	Count
Physician	71	40%	47	60%	118
Physician Assistant	24	53%	21	47%	45
Nurse Practitioner	10	56%	10	44%	18
Doctor of Osteopathy	8	73%	3	27%	11

*If responded “sometimes”, “often”, or “always”

Table 4.5 Analysis of Variance for Referrals by County Participation in Behavioral Counseling Programs

Source	N	Mean	Standard deviation
High Participation	72	6.60	.24
Medium Participation	62	5.61	.21
Low Participation	62	5.74	.19

Table 4.6 Pearson Correlations

	Means/ Standard Deviations	Referrals	Processes	Autonomy Support	Autonomous Motivation	Attitudes toward Cessation Counseling	Barriers	Perceived efficacy of counseling programs	Perceived willingness of patients to participate
Referrals	6.0/1.8								
Processes	5.0/2.8	.37**							
Autonomy Support	10/1.7	.31**	.43**						
Autonomous Motivation	14/2.5	.31**	.20**	.30**					
Attitudes toward Cessation Counseling	30/4.6	.39**	.20*	.30**	.52**				
Barriers	16/3.6	-.40**	-.28**	-.39**	-.23**	-.42**			
Perceived efficacy of counseling programs	13/2.4	.42**	.20*	.14*	.16*	.34**	-.40**		
Perceived willingness of patients to participate	12/2.6	.30**	.12	.10	.23**	.36**	-.18*	.40**	
Participation	.37/.50	.25**	.13	-.02	.11	.10	-.24**	.10	.08

Note: *Attitudes toward Cessation Counseling* (Meredith, et al., 2005)

* $p < .05$ (2-tailed)

** $p < .01$ (2-tailed)

Table 4.7 Summary of Regression Analysis for Variables predicting Rate of Referrals to Counseling Programs (N=196)

Variable	Standardized Beta coefficients	t-test	Sig.	Colinearity Diagnostics	
				Tolerance	VIF
Patient care hours/week	.032	.49	.62	.92	1.1
Number of years in practice	-.045	-.73	.46	.97	1.0
Ever used tobacco in past 30 days	.17	.27	.79	.92	1.1
High participation in programs	.130	1.7	.09	.66	1.5
Medium participation in programs	-.064	-.87	.38	.69	15
Processes that facilitate referrals	.189*	2.7	.008	.75	1.3
Perceived autonomy support	.100	1.1	.255	.66	1.5
Perceived autonomous motivation	.084	1.1	.26	.68	1.5
Attitudes toward tobacco cessation	.108	1.3	.18	.57	1.8
Barriers for referrals	-.094.	-1.2	.23	.62	1.6
Perceived efficacy of counseling Programs	.251*	3.5	.001	.70	1.4
Perceived willingness of patients to attend counseling programs	.076	1.1	.27	.77	1.3

$R^2=.38$

* $p<.05$

Table 4.8 Mediation Model

Predictor	Mediator	Dependent Variable	Standardized Beta	P value
Processes	Perceived Autonomous Motivation		.204	<.005
Processes		Rate of Referrals	.383	<.0005
	Perceived Autonomous Motivation	Rate of Referrals	.314	<.0005
Processes	Perceived Autonomous Motivation	Rate of Referrals	.333 (processes) .246 (perceived AM)	<.0005 (processes) <.0005 (perceived AM)

CHAPTER FIVE

Conclusions and Discussion

In this dissertation, a review of the literature and two studies are presented. A systematic review of the literature examined the effects of interventions designed to improve assistance with referral and participation in tobacco treatment counseling programs. An exploratory study using qualitative descriptive and ethnographic research methods examined attitudes toward tobacco treatment and strategies used to treat tobacco dependence in a sample of primary care clinicians who were tobacco treatment champions. A descriptive, correlational study examined attitudes and health system processes that facilitate referrals in a state-wide sample of primary care clinicians.

Interventions to implement health system processes to improve referrals to tobacco treatment counseling programs were reviewed in chapter two. The combination of integrated systems for referrals paired with clinician support were found to be the most effective for improving referrals to tobacco treatment counseling programs. Integrated systems for referrals included established protocols, automated prompts to intervene and leveraging non-clinician staff to implement protocols. Clinician support included education that provided evidence-based recommendations, feedback on performance, and information on how to implement system tools for facilitating referrals. Integrated systems for referrals were not present among the sample of clinicians who were interviewed for the study reported in Chapter Three. These clinicians lacked protocols, prompts, and staff to facilitate referrals. The conclusions from this literature review supported the results of the study reported in Chapter Four. Health system processes, for example having a dedicated staff person for tobacco treatment or a written protocol for referrals, were significantly correlated with clinician referrals ($r=.370, p<.01$).

Consistent and effective tobacco treatment in clinical practice requires motivated, knowledgeable clinicians and health system supports. Clinicians who are highly motivated to intervene and implement office tools to treat tobacco dependence have been referred to as tobacco treatment “champions.” Chapter three used qualitative descriptive and ethnographic research methods to describe the particular experiences and strategies used by tobacco treatment champion clinicians who practice in independent, primary care clinics. Findings were categorized into three major process themes for tobacco treatment:

Sources of Knowledge and Experience, Understanding Dependence, Role Perception, and Treatment Strategies. The sources of knowledge about tobacco treatment among these clinicians stemmed from their personal experience as a tobacco user or through exposure to secondhand smoke. Participants also related their observations of the tobacco culture as an impediment to cessation and a challenge for treatment of tobacco dependence. Few of these participants had participated in formal tobacco treatment education but because they were motivated to help their patients, they sought information through self-study. They described their role in tobacco treatment as a relational one in which they were able to empathize with their patients by knowing how difficult it is to quit. The most important strategy used was therapeutic use of self to provide brief counseling. Participants described their role as independent practitioners and they did not recommend community resources for behavioral counseling.

These findings are consistent with a national survey which found that the biggest gap between evidence-based treatment and usual care is assistance with referrals to behavioral counseling for tobacco treatment (Schnoll, et al., 2006). These findings highlight the need for medical and nursing education to include content on PHS recommendations for tobacco treatment, with an emphasis on providing patient access to on-going treatment through referrals to community resources for counseling. To ensure that recommended content is widely disseminated, professional organizations should require continuing education on the PHS guidelines emphasizing the clinician's role in assisting patients with access to community-based counseling. Continuing education that uses outreach methods or academic detailing has the potential to create awareness of the availability and efficacy of community resources and to assist primary care practices to develop integrative systems for referrals. Academic detailing utilizes methods similar to pharmaceutical sales by bringing evidence-based knowledge and methods to the clinician in the practice setting (Soumerai & Avorn, 1990).

These findings also suggest areas for further research to determine to what extent personal experience as an active or passive smoker contribute to clinician attitudes and motivation. The clinicians in this sample described personal experiences and cultural influences that informed their tobacco treatment interventions. They empathized with their patients who used tobacco and were motivated to counsel but it is not known

whether empathy is a universal consequence of exposure to the tobacco-growing culture .The concept of therapeutic use of self was used by study participants as a counseling strategy and it warrants further research to determine efficacy.

In Chapter Four clinician attitudes toward counseling programs and health system processes were examined to determine their influence on referrals to tobacco treatment programs. High participation in local cessation programs was associated with clinician referral. Low perceived barriers for both referrals and patient participation, perceived efficacy of counseling programs, perceived autonomy support, perceived autonomous motivation, and perceived willingness of patients to participate were significantly associated with referrals. Controlling for demographic variables, practice variables, clinician tobacco use and county-level participation in cessation programs, perceived efficacy of counseling programs and health system processes that facilitate referrals predicted referrals.

These findings suggest the need for public health policies to promote collaboration between clinicians and local health departments where most counseling programs are provided. Clinicians are likely to integrate the value of cessation programs as a resource and to institute processes that facilitate referrals if they receive feedback about their patient's progress when attending counseling programs. In a study comparing a tobacco treatment quality improvement initiative in federal qualified community clinics and the neighborhoods they serve, patients reports of having received information about neighborhood resources from clinicians and staff were greater among clinics with collaborative and feedback models of care (Fisher, et al., 2005). Greater collaboration and feedback have the potential to influence clinician motivation for referrals.

The influence of autonomous motivation on the relationship between processes and referrals was examined and found to not be a significant mediator. Research applying self-determination theory to tobacco dependence treatment has shown that the extent to which clinicians internalize the value of tobacco treatment predicts motivation, perceived efficacy and adherence to PHS guideline recommendations for tobacco treatment (Williams, et al., 2003). The findings in Chapter Three imply that clinicians internalize motivation for counseling through meaningful experiences with patients in brief interventions, but these clinicians did not consistently refer patients for community-based

counseling programs. They preferred to function independently and did not have processes in place for facilitating referrals. In the absence of collaborative models of care, clinicians may lack knowledge and experiences to internalize the value of referrals to other professionals for on-going tobacco treatment and the value of implementing process that facilitate referrals. Except for assumptions within self-determination (SDT) theory, independence and the related concept of individualism have been theoretically confounded with autonomy. Research applying SDT across cultures that vary in norms of individualism and independence has found that perceived autonomous motivation does not depend upon preferences for individualism or independence (Chirkov, Ryan, Kim, & Kaplan, 2003). Autonomous motivation according to SDT is consistent with collaboration and an individual's need for autonomy may be enhanced by functioning interdependently when goals of collaboration are valued (Ryan & Deci, 2000). The lack of mediation between processes that facilitate referrals and frequency of referrals may reflect either lack of education provided in a context that supports basic needs for autonomy, competence, and relatedness or a relative association with extrinsic aspirations. In SDT, extrinsic aspirations include wealth, fame and image and intrinsic aspirations include personal growth, meaningful aspirations, and community engagement (Vallerand, 2000). The pursuit of intrinsic life goals are also concerned with the experience of relatedness and satisfaction of other needs for autonomy and competence. Consistent with SDT, providers with a relative association with intrinsic motivation would be more likely to prefer relatedness with others to achieve shared goals for improving tobacco treatment outcomes. Providers associated with relative extrinsic aspirations would be more likely to prefer the expediency and reward benefits of acting independently. Research is needed to both demonstrate the distinction between autonomy and an independent role preference in the context of collaboration for tobacco treatment counseling and the extent to which a role preference for independence reflects lack of health care system support for clinician autonomy or clinician association with extrinsic aspiration. These conceptual distinctions and the relationship between role preferences and aspirations are needed so that educational institutions, health care organizations, and professional organizations can design curriculum and policies that support provider needs for autonomy, competence and relatedness. There is wealth of evidence documenting the

efficacy of processes that facilitate referrals (Hung & Shelley, 2009), but more research is needed to determine the best strategies for disseminating the information and skills primary care clinicians need to implement integrative tobacco treatment delivery systems and to determine the inherent mediating factors in the relationship between processes that facilitate referrals and clinician assistance with referrals

In conclusion, the results of these studies suggest that effective on-going treatment for tobacco dependence requires a synergy of informed, motivated clinicians of all disciplines and integrated systems to coordinate referrals and reduce barriers for participation in counseling programs. Assistance with referrals is an activity that, as with arranging follow-up, reflects a chronic care perspective for tobacco treatment. These findings have health care policy implications including the need for economic reforms to increase access to tobacco treatments and the need for change from current health care systems that favor acute care delivery to more chronic and collaborative models of care. In this study, barriers for referrals including patient costs and insurance coverage were found to have an inverse relationship with frequency of referrals and the presence of processes that facilitate referrals. Providing free nicotine replacement for smokers was associated with increased quit rates in a study that waived insurance member co-pays for nicotine replacement (Schauffler, et al., 2001). There are significant state-level disparities in access to Medicaid coverage for evidence-based interventions to treat tobacco dependence (Centers for Disease Control and Prevention, 2008). Dedicated health care resources to support tobacco treatment in primary care practice and to reduce patient care costs for tobacco treatments are cost effective in both health care dollars saved and deaths prevented (Cromwell, Bartosch, Fiore, Hasselblad, & Baker, 1997). The patient protection and affordable health care act signed into law by President Obama on March 23, 2010, includes reforms to fund preventive services and to disseminate evidence-based recommendations for preventive and chronic care (The Henry J. Kaiser Family Foundation, 2010). To carry out this national strategy for prevention, reforms that are addressed in this law include the elimination of cost sharing for prevention services in Medicare and Medicaid, the establishment of the National Prevention Health Promotion and Public Health council to develop a national strategy for improving delivery of evidence-based prevention, and a grant program to support delivery of community-based

prevention and wellness programs. These reform measures hold promise for improvements in access to tobacco treatment services particularly community-based counseling where it is most lacking.

The findings of this dissertation also have implications for policies in nursing practice and professional education that warrant further examination. Both advance-practice nurses and non-professional nurses play an important role in tobacco treatment (Rice & Stead, 2007). The most effective tobacco interventions are those that deliver a consistent and frequent quit message by a team of physicians and non-clinicians (Kottke, Battista, DeFriese, & Brekke, 1988). In an intervention that combined training, performance feedback and specific protocols for referrals for non-clinician intake staff, 81% of eligible tobacco user participated in tobacco treatment counseling (Katz, et al., 2004). However, curricula in tobacco treatment vary across undergraduate nursing programs nationwide (Wewers, Kidd, & Armbruster, 2004). A consistent policy for inclusion of tobacco treatment in nursing education is needed to improve delivery of effective tobacco treatment interventions and cessation outcomes.

The findings in this dissertation provide evidence for the need to institute changes in health policies to promote greater dissemination of evidence-based recommendations for chronic and collaborative models of care and research to examine clinician motivation for referrals. A systematic literature review found that integrated health care referral systems that include clinician and non-clinician protocols and clinician education are most effective for increasing referrals. Motivated “champions” who practiced in private, non integrated health systems valued tobacco treatment and provided brief interventions but did not routinely refer or provide follow-up. Results from a statewide survey of primary care clinicians showed that the most relevant factors influencing referrals to tobacco treatment counseling were the presence of processes for facilitating referrals and clinician perceptions about the efficacy of counseling. Participation in counseling at the county level was also found to be associated with how often clinicians refer. The quality of motivation, specifically autonomous motivation, has been shown in previous research to influence the likelihood that clinicians engage in tobacco treatment (Williams, et al., 2003), but did not mediate the relationship between processes that facilitate referrals and clinician referrals in the study reported here. To prevent and treat the common problem of

tobacco relapse, more research is needed to examine clinician motivation for chronic and collaborative models of tobacco treatment.

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VITA

Date of Birth: 12/05/1955

Place of Birth: Spearman, Texas

Educational Background

<u>Year</u>	<u>Degree</u>	<u>Institution</u>
1987	BSN	Texas Women's University
1998	MSN	University of Kentucky

Licensure

<u>Year</u>	<u>License</u>	<u>State</u>
1987-1990	RN Lic. # 540600	Texas
1990-present	RN Lic. #1067502	Kentucky

Professional Experience

<u>Year</u>	<u>Employer</u>	<u>Title</u>
1987-1989	Hermann Hospital/ Univ. Texas Med. School	Staff RN, Coronary Intensive Care
1989-1990	Hermann Hospital/ Univ. Texas Med. School	Clinical Director for Cardiac Rehabilitation
1991	Central Baptist Hospital	Consultant for Cardiac Rehabilitation
1998-2001	University of Kentucky College of Nursing	Clinical Instructor
1999-2000	University of Kentucky College of Nursing	Instructor
2000-present	CREDO Project	Health Faculty
2003-2005	St. Agnes House	Executive Director
2007	Health Care Service Delivery	Teaching Assistant
2010	University of Kentucky College of Nursing	Instructor

Research (Funded)

<u>Year</u>	<u>Title / Investigators</u>
1995-1998	“Quality of Life and Resource Use Among Congestive Heart Failure Patients Admitted to the Emergency Department.”(Welsh, J.D., Heiser, R.M., Schooler, M., Parshall, M.B., Brockopp, D.Y., Cassidy, K.B.)

Research (Funded)

<u>Year</u>	<u>Title / Investigators</u>
1998	“The Experience of Nurses Providing Spiritual Care.” (Cassidy, K.B., master’s thesis)
2008	“Tobacco Dependence Treatment Champions in Primary Care: Sources of Knowledge and Experience, Understanding Dependence, Role Perception and Treatment Strategies.” (Cassidy, K.B., dissertation pilot)

Honors and Professional Memberships

<u>Year</u>	<u>Honors</u>
1987	Graduated cum Laude, Texas Woman’s University, Houston, TX
1991-1992	Kentucky Nursing Association District #2 Legislative Committee
1992-1993	Kentucky Nursing Association District #2 Nominating Committee
1996	Induction: Delta Psi chapter of Sigma Theta Tau (National Honor Society of Nursing)
1996-1997	Eligibility and fundraising: Delta Psi chapter of Sigma Theta Tau
1997	Chair of Fundraising Committee of Delta Psi
1998-2002	Critical Care Clinical Nurse Specialist Certification
2002-2003	Steering Committee for Cardiac Interest Group, University of Kentucky, College of Nursing
2002-2003	Vice-President/Program Chair: Delta Psi chapter of Sigma Theta Tau
2009-present	Board membership: Mayor’s Alliance/Agency for Substance Abuse Policy-tobacco

Research Publications

- Welsh, J.D., Heiser, R.M., Schooler, M. Brockopp, D. Y., Cassidy, K.B., and Selah, U. (2002). Characteristics and treatment of heart failure patients in the emergency department. *Journal of Emergency Nursing*, 28, 126-31.
- Parshall, M.B., Welsh, J.D., Brockopp, D. Y., Heiser, R.M., Schooler, M., and Cassidy, K.B. (2001). Reliability and validity of dyspnea sensory quality descriptors in heart failure patients treated in an emergency department. *Heart & Lung*, 30(1), 57-65.
- Parshall, M.B., Welsh, J.D., Brockopp, D.Y., Heiser, R.M., Schooler, M.E., and Cassidy, K.B. (2001). Dyspnea duration, distress and intensity in emergency department visits for heart failure. *Heart & Lung*, 30(1), 47-55.
- Parshall, M.B., Welsh, J.D., Heiser, R.M., Cassidy, K.B., & Brockopp, D.A. (1998). Pilot testing a dyspnea descriptor checklist in emergency patients with heart failure. *American Journal Respiratory Critical Care*, 157, A867.

Presentations

<u>Year</u>	<u>Title /</u>
11/1987	Cassidy, K.B., “The Chronic Patient: Who Cares?” Nursing Grand Rounds- Hermann Hospital, University of Texas Medical School, Houston, TX
09/1989	Cassidy, K.B. Care of the Cardiac Patient on Hemopump”- Nursing Grand Rounds-Hermann Hospital Houston, TX
04/1998	Parshall, M.B., Welsh, J.D., Heiser, R.M., Schooler, M., Cassidy, K.B. & Brockopp, D.Y.. <u>Pilot-testing a Dyspnea Descriptor Checklist in Emergency Patients with Heart Failure.</u> . Poster presentation for American Lung Association/American Thoracic Society International Conference, Abstract accepted for poster presentation in Chicago, Illinois.
04/1998	Cassidy, K.B. (1998) <u>The Experience of Nurses Providing Spiritual Care</u> , Research Day for the Graduate Student Association, University of Kentucky, College of Nursing, Lexington, KY
11/2008	Cassidy, K.B (2008) <u>Nurses providing spiritual care.</u> Guest lecturer
10/2007	Cassidy, K.B. (2007) <u>A Chronic Care Model for Treating Tobacco Dependence.</u> Poster presentation: National Tobacco or Health Conference, in Minneapolis, Minnesota
11/2007	Cassidy, K.B. (2007) <u>Nursing’s Role in Tobacco Dependence Treatment?</u> Kentucky Nursing Association, District 2
6/2009	Cassidy, K.B. (2009) <u>Tobacco Treatment Champions in Primary Care.</u> Poster presentation: National Tobacco or Health Conference, in Phoenix, Arizona
11/04/2009	Cassidy, K.B. (2009) <u>Nursing Leadership in Non-profit Organizations.</u> Guest lecturer
03/31/2010	Cassidy, K.B. (2010) <u>Nursing Leadership in Non-profit Organizations.</u> Guest lecturer

Karma Bryan Cassidy

Signature