2018

Implementing National Tobacco Cessation Guidelines in Primary Care: A Practice Improvement Project

Hillary Jenson

Implementing National Tobacco Cessation Guidelines in Primary Care: A Practice Improvement Project

Hillary Jenson

The University of Portland

Abstract

Background and Purpose: National guidelines recommend tobacco cessation counseling at every clinic visit using the 5 A's, defined as *asking* about status, *advising* to quit, *assessing* readiness to quit, *assisting* in quitting, and *arranging* for follow-up after quitting. However, providers cite barriers such as lack of time and personal discomfort with the subject as reasons conversations are not held. This practice improvement focuses on overcoming these barriers through an evidence-based intervention in a small, urban, primary care clinic.

Methods: A onetime staff education session about guidelines paired with a protocol algorithm and enhanced patient resources was trialed to determine its effect on the frequency of charted cessation conversations. An electronic health record documentation template, or dot phrase, measured the frequency of 5 A use in clinic visits for identified tobacco users. Providers received performance feedback twice during eight weeks of data collection. An attitude survey, administered before implementation and upon completion of data collection, determined the effect of the intervention on provider attitudes toward discussing tobacco use.

Conclusions: The average frequency of use of the dot phrase was above the goal of 50% during the data collection period. Frequency of charting of all 5 A's was higher during the data collection period than at baseline. Provider attitudes about discussing cessation demonstrated no significant changes, based on baseline and post-implementation survey responses.

Implications for Practice: Education and enhanced resources to facilitate tobacco cessation conversations have a positive impact on the frequency that clinic providers document tobacco cessation conversations with identified tobacco users.

Introduction

Problem Description

Tobacco use is the largest preventable cause of death and disease in the United States (Office of Disease Prevention and Health Promotion, 2014). In addition to contributing to multiple cancers, tobacco use also plays a role in the development of heart and lung disease and affects existing conditions, such as Type-2 diabetes (Office of Disease Prevention and Health Promotion, 2014). National guidelines advise providers to query all adult patients about their current level of tobacco use, recommend cessation, and provide behavioral and pharmacological interventions at every clinic visit (U.S. Preventive Services Task Force, 2015). The Agency for Healthcare Research and Quality (AHRQ) provides evidence based guidelines that recommend utilizing the first three of the "5A's" on all tobacco users; defined as *asking* about smoking status, *advising* to quit smoking and *assessing* the patient's willingness to quit (AHRQ, 2008). If the patient is ready to quit, the additional two A's of *assisting* the patient in quitting and *arranging* for follow-up within a week of the patient's determined quit date are required (AHRQ, 2008). Unfortunately, despite these guidelines providers frequently fail to assess and intervene consistently with tobacco users (U.S. Department of Health and Human Services, 2008).

Enhancing the ability of staff to deliver effective tobacco cessation counseling is a goal among providers at a small, primary care clinic in the Northwest region of the United States serving Medicaid and uninsured adult African American patients. Prior to implementation of the intervention, the clinic's standard practice was to ask all patients about current tobacco use on intake with further cessation conversations left up to the discretion of the provider. Barriers to providing quality tobacco cessation identified by clinic staff include lack of time, reduced prioritization and low level of patient readiness to quit. Additionally, staff identified inadequate

clinical cessation intervention skills as a barrier, defined by the staff as an inability to know how to effectively direct cessation conversations.

Available Knowledge

The barriers identified by staff are not isolated to this clinic, but are echoed in a qualitative study by Blumenthal (2007) among providers caring for underserved communities. Additionally, Meredith, Yano, Hickey, and Sherman (2005) found that providers with more favorable attitudes towards smoking cessation have higher rates of patient-reported smoking cessation behaviors. Therefore, working through barriers faced by providers may improve their attitude towards discussing tobacco use with patients and, in turn, increase quit rates by patients.

While evidence-based guidelines for tobacco cessation exist, many patients are not screened to determine tobacco use or provided with assistance quitting (Linder, Rigotti, Schneider, Kelley, Brawarsky, & Haas, 2009). Previous studies have demonstrated that less than 30% of smokers seen for primary care visits are offered evidence-based assistance in quitting (Bentz et al., 2007). When tobacco dependence is understood as a chronic disease requiring multiple interventions and quit attempts (US Department of Health, 2008), the importance of provider identification and documentation of tobacco use, and subsequent counseling, is underscored. Further support of this is the frequency with which smokers cite a provider's advice to quit as an important motivator for cessation (US Department of Health, 2008). In a review of 42 studies conducted between 1972 and 2012, Stead et al. (2013) concluded that a brief cessation discussion by providers significantly increases the likelihood that someone who uses tobacco will quit and be free of use for at least 12 months. More intensive discussions, advice, and follow-up support further increase the likelihood that someone will quit tobacco products (Stead et al., 2013). This highlights the importance of ensuring providers are adequately trained to

identify tobacco use among their patients, start and continue the dialogue surrounding cessation, and support patients through the challenges of quitting.

Previous studies demonstrate the efficacy of provider education about the 5 A's on the rates of documented cessation conversations. Caplan, Stout and Blumenthal (2010) utilized an intervention at a clinic serving predominately African American patients in the state of Georgia that consisted of provider education and patient provision of *Pathways to Freedom*, a culturally sensitive educational brochure. Comparing the frequency of 5 A's use pre- and post-intervention, with 308 identified tobacco users in each group, Caplan, Stout and Blumenthal (2010) found statistically significant increases ($p < 0.0001$) in the frequency of provider charted advising (89 post v. 37 pre), assessing (73 post v. 16 pre), assisting (65 post v. 19 pre) and arranging (53 post v. 18 pre). Gordon, Andrews, Crews, Payne and Severson (2007) compared a control group to a group of providers educated on using the 3 A's (ask, advise, and assess) to a group using 5 A's (ask, advise, assess, assist, and arrange) among dental office staff and found significant data for higher levels of quit rates among those receiving 3 or 5 A's compared to the control who received neither (χ^2 (1, n=1381) =3.37, $p<0.05$). The data from this study indicates that even partial completion of the 5 A's produces significant results for quit rates compared to usual care.

In addition to the effect of provider education on behavior change, other studies demonstrate the impact that enhanced resources can provide on the frequency of appropriately utilizing the 5 A's. Katz, Muchlenbruch, Brown, Fiore and Baker (2002) added a real-time alert in the electronic health record (EHR), performance feedback reports, and an algorithm guideline for clinic staff in addition to AHRQ guidelines about tobacco cessation. Compared to a group who only received AHRQ guidelines with no additional prompts or resources, Katz et al. (2002) found that the intervention group had significantly greater ($p \leq 0.05$) rates of providers asking

about smoking status (71% intervention v. 58% control), advising to quit (50% intervention v. 19% control), asking about willingness to quit (66% intervention v. 14% control), providing quit literature (30% intervention v. 0.01% control), setting a quit date (28% intervention v. 0.001% control) and discussing pharmacotherapy (36% intervention v. 0.02% control). The effect of provider feedback on performance was also demonstrated by Bentz et al. (2006) who report significantly ($p < 0.001$) higher rates of advising (71.6% intervention v. 52.7% control), assessing (65.5% intervention v. 40.1% control) and assisting (20.1% intervention v. 10.5% control) implementation among providers receiving individual performance feedback.

Rationale

The primary theory guiding the practice improvement is the Theory of Reasoned Action. Using this theory, behavior is believed to be influenced by an individual's attitude about the behavior and by his or her subjective norms, defined as the individual's perception of other's opinion of the behavior (White, 2012b). This theory assumes that individuals are rational beings and that to successfully change behaviors, the individual must have a positive attitude towards the change, feel they have control over the change, and perceive the change as positive by their social group (White, 2012b). An individual's attitude towards a behavior is influenced by his or her beliefs about the outcome of the behavior and his or her evaluation of the expected outcomes (White, 2012b). For this practice improvement, addressing the common barriers to provider provision of smoking cessation can help the individual providers at the clinic develop a more favorable attitude towards performing the intervention. Furthermore, informing the providers of the evidence-based nature of the intervention, and its success in similar practice environments, can help to foster positive attitudes about the practice change. Under the Theory of Reasoned Action, an individual's subjective norm is believed to be influenced by the perceived

expectations and approval of important referent individuals (Montano & Kasprzyk, 2008). The subjective norms are additionally influenced by the individual's motivation to comply with a behavior change (White, 2012b). Early adoption of the practice change by key stakeholders, such as the medical director and staff, is critical in modifying clinic practice norms. By keeping communication with key stakeholders open and dynamic, the intervention was customized for needs, environment and goals identified by the clinic.

The Ottawa Model of Research Use (Ottawa Model) is also incorporated into the planning and development of the practice improvement intervention. The Ottawa Model is a planned change theory that aims to effect change at a systems level and utilizes a six-step approach to implementing an innovation into practice (National Collaborating Centre for Methods and Tools, 2010). The six steps include developing the evidence-based innovation, assessing potential adopters, assessing the practice environment, developing implementation intervention strategies, monitoring adoption of the innovation, and evaluating outcomes (National Collaborating Centre for Methods and Tools, 2010). This model was chosen for its view of research implementation as dynamic, with the underlying focus on existing knowledge that is ready to be disseminated (White, 2012a). To enhance communication and smooth the transition process while implementing the change, Bridges and Bridges' Theory of Change Management is also incorporated based on its utilization of three phases of change and its promotion of clear communication throughout each phase (Bridges & Bridges, 2009).

Specific Aims

The primary goal of the practice improvement was achieving 50% usage of a custom EHR based cessation conversation template, also known as a dot phrase, which allowed for documentation of the use of the 5 A's for identified tobacco users. The primary outcome for this

intervention is to increase the frequency and quality of documented tobacco cessation conversations between providers and their patients. A secondary outcome is to increase clinic staff's comfort with and attitudes towards engaging their patients in tobacco cessation discussions. Additional aims of the intervention are to reduce identified barriers in discussing cessation, enhance the available culturally sensitive educational resources for patients, and ease the process of documenting provider conversations in the EHR.

Methods

Context

The clinic implementing the practice change is a small primary care clinic with a staff composed of one full time physician, one part-time nurse practitioner, one part-time physician, one medical assistant and two community health workers who primarily conduct blood pressure checks in the community and in the clinic. The clinic is currently a hybrid clinic, meaning the clinic sees both patients without insurance and those with Medicaid (15% and 85% of the patients seen, respectively). African-American's make up 62% of the clinic's total patients and the dominant age range of all patients seen at the clinic are those between 25 and 54.

A thorough microsystem assessment was conducted of the clinic environment and staff dynamics before finalizing the planned intervention. Clinic specific strengths and barriers were considered when designing an intervention that would not only be effective but appropriate for both staff and patient needs.

Intervention

The intervention consisted of three separate components: staff education, increased staff resources, and the addition of a tobacco cessation dot phrase in the EHR. Staff education consisted of one half-hour session during a weekly staff meeting. Staff were informed of the

AHRQ guidelines, examples of how to incorporate each of the 5 A's into a cessation conversation, and the provision of the cessation algorithm, modified from the algorithm used by Katz et al. (2002). Staff were provided with pocket reference cards of the 5 A's obtained from the Centers for Disease control (CDC). Clinic materials were updated to incorporate the CDC published *Pathways to Freedom,* a culturally competent booklet for African American patients, and the CDC printed Quit Line notepad, which includes space for the provider to write out a plan as well as the national Quit Line phone number. Lastly, to facilitate provider documentation and tracking of cessation conversations a dot phrase was added to the EHR that provided short yes or no prompts for each of the 5 A's.

This intervention is aimed at addressing the three staff identified barriers to tobacco cessation conversations by providers: lack of time, lack of patient readiness, and inadequate cessation skills as defined by the staff. The 5 A's algorithm was created with the understanding that time spent on asking the questions should be brief, only taking about two to three minutes (Katz et al., 2002). By incorporating assessments of patient readiness to quit into the algorithm and subsequent EHR dot phrase, providers have a quick and simple way to measure and track patient readiness with each subsequent interaction. Lastly, the use of staff education and multiple resources that reinforced the skills learned from the education aims to overcome the barrier of inadequate cessation skills in conducting evidence based cessation conversations.

Study of the Intervention

To assess the success of the intervention, a staff survey and chart audits were used. The survey measured staff attitudes towards smoking cessation counseling and was a modified version of the survey used by Meredith et al. (2005). Administered at the start and end of

implementation, the survey contains eight questions pertaining to individual attitude towards smoking cessation. Answers to the questions are on a five point scale ranging from strongly disagree to strongly agree. The mode responses for each question at baseline and follow-up were compared to evaluate the effect of the intervention on provider attitudes. Second, chart audits occurred on 50 random charts of identified tobacco users at baseline and weekly for eight weeks following implementation of the intervention. A standardized chart audit tool developed for this study measures the frequency of the 5 A's at baseline and during the eight weeks of data collection. This chart audit tool also incorporates the ability to determine the frequency of use of the dot phrase developed for the EHR in the post-intervention data collection period, as this tool was not available at baseline.

Existing literature and the Ottawa Model, which encourages monitoring the intervention and its degree of use via implementation and adoption of the intervention (White, 2012a), provided guidance on selecting process measures. The literature review shows that provider feedback on individual and overall clinic performance in adoption of the intervention helps maintain motivation and adherence to use of the 5 A's (Bentz et al., 2006). Providers participating in this practice improvement received individual and clinic-wide performance feedback at four and eight weeks of data collection. To augment this feedback, weekly check-ins with staff to assess barriers and successes in implementation occurred to further enhance monitoring of the intervention usage. Additionally, the staff had an opportunity to submit anonymous, written feedback and suggestions about the implementation process upon completion of the study.

Ethical Considerations

Approval for this practice improvement from both the clinic's Medical Director and the Institutional Review Board of an accredited university occurred prior to implementation of the intervention or start of data collection.

Results

Outcome Data

During the eight weeks of data collection post-intervention, the actual use of the EHR dot phrase was over the established goal of 50% usage, with an overall usage of 65.8%. Figure 1 in Appendix A demonstrates weekly breakdown of dot phrase usage over the eight weeks of data collection. Compared to baseline, the rates of asking, advising and assessing are higher every week of data collection. The rates of providing patients not ready to quit with appropriate educational resources is higher than the baseline, except for week five. The rates of providing patients ready to quit with appropriate cessation resources and arranging for follow-up after their quit date is increased compared to baseline, except for weeks four and six.

Process Data

The attitudes survey does not demonstrate a change in staff attitude when looking at results from the baseline and follow-up administration. The largest improvement in attitude is demonstrated in response to the question "I take time to counsel smokers about quitting at each visit," which had mode responses of disagree and strongly disagree at baseline and a mode answer of agree upon completion. The remaining questions either had no change or only slight improvements in the mode answer reported. Table 1 in Appendix B displays the full set of questions and mode responses.

Staff performance feedback at four and eight weeks of data collection provided no change in individual performance. Of the three providers documenting in the EHR, one provider

used the dot phrase with every visit, one provider used the dot phrase 80% of the time, and one provider never used the dot phrase either before or after performance feedback was given.

During weekly check-ins with staff, feedback was largely positive regarding the intervention's ability to increase awareness around the issue and the ease of use with implementing the intervention. Staff took additional steps to modify the physical environment by having the medical assistant place a *Pathways to Freedom* booklet in the clinic room of identified tobacco users while rooming the patient to enhance provider compliance with the intervention. The anonymous feedback provided after the intervention was positive, including the statement that "the book was a very helpful visual that our patients could relate to." Negative feedback was limited to one response that, "the dot phrase was a little clunky."

Discussion

Summary and Interpretation

The measurements collected demonstrate achievement of greater than 50% use of the dot phrase with every clinic visit for identified tobacco users. Additionally, documentation of all 5 A's improved during the data collection period when compared to baseline documentation rates. This demonstrates that staff education and provision of appropriate resources has a positive impact on adherence to national guidelines. Additionally, this indicates that education and enhanced resources work to overcome barriers that prevent the staff from following national guidelines. This reinforces findings from previous studies with similar intervention approaches to improving rates of use of the 5 A's among identified tobacco users.

While the intervention was designed to improve staff attitudes by reducing barriers to tobacco cessation conversations, results from the attitudes survey were not significantly changed to support this underlying aim. However, staff reported positive responses to the intervention

both during data collection and upon anonymous feedback at the end of data collection. Staff excitement for the intervention additionally translated into modifications in the physical environment to enhance provider success in discussing cessation with patients and documenting accordingly. The discrepancy in reported attitudes from the survey and staff feedback indicates that the attitudes survey does not appropriately measure or capture staff attitudes towards tobacco cessation conversations.

Contrary to findings from previous studies, individual performance feedback during data collection has no impact on changing performance in subsequent data collection periods. This indicates that individual performance feedback is not a motivator for the staff member who had the lowest performance scores during data collection and perhaps other methods of affecting individual change would have been better employed. This goes against the results from Bentz et al. (2006) which found individual performance feedback to enhance rates of 5 A's use and adoption. The study conducted by Katz, Muchlenbruch, Brown, Fiore and Baker (2002) used performance feedback, a decision tree algorithm and real-time EHR prompts to demonstrate significant improvement in practice outcomes over just provision of the national guidelines. Unlike Katz, Muchlenbruch, Brown, Fiore and Baker's (2002) study, this practice improvement project did not use real-time EHR prompts but did use feedback and the same decision tree algorithm. It could be argued that the incorporation of real-time EHR prompts could also impact or improve staff performance during data collection, especially for the provider who did not use the EHR dot phrase.

Limitations

The aims of this study are to measure a change in behavior among staff at a small, primary care clinic specializing in culturally competent care for a specific demographic. While

the results of the study cannot be generalized to determine the efficacy of the intervention on patient behavior or among other patient demographics, the use of a multidisciplinary team demonstrates that the effect of the intervention on staff behavior is generalizable to staff commonly found in the primary care setting.

The largest threat to internal validity of this study is the Hawthorne effect, or the positive effect on the measured outcomes seen when participants of a study know that a study is taking place. Participants knew they were part of a study and, subsequently, performance during the data collection period may have been impacted. To reduce the impact of the Hawthorne effect on the results, implementation of practices that could be sustained upon completion of the study occurred. These included performance feedback, modifying educational materials and changing documentation within the EHR. Additionally, given the short duration of the study, performance during the eight week collection period may not adequately reflect what is considered normal performance. Longer duration studies would need to be conducted to truly assess the impact of the intervention on changing behavior beyond the short period in which this study was conducted.

Conclusions

This study demonstrates that educating staff, enhancing available resources, and modifying the EHR can result in higher frequencies of charted tobacco cessations utilizing the 5 A's that comply with national guidelines. Future studies should focus on longer data collection periods to better capture trends in behavior changes over time. Additionally, studies conducted during periods when tobacco users may be more likely to utilize clinic services, such as cold and flu season, may better determine the intervention's efficacy at changing provider behavior. The

intervention was free of cost to implement, therefore making this intervention accessible to multiple practice environments in the primary care setting.

This study is unable to demonstrate a relationship between the intervention and clinic staff attitude towards tobacco cessation conversations. Moving forward, recommendations include working towards improving staff attitude towards cessation and reinforcing behavior change to ultimately make routine cessation conversations a regular part of clinic protocol. This may be achieved through random chart audits, educational campaigns for the staff and continued modifications to the intervention to best satisfy the needs of the clinic.

Tobacco use is the leading cause of preventable disease and death in the United States and while rates of smoking are declining, primary care providers are in a powerful position to effect change and further the downward trend of use (Centers for Disease Control, 2016). The effect of simple environmental modifications and staff education have been demonstrated in existing literature to enhance adherence to evidence-based guidelines and improve patient outcomes. This practice improvement reinforced these findings by demonstrating that education and simple environmental modifications can empower staff to routinely discuss tobacco cessation with vulnerable populations.

References

Agency for Healthcare Quality and Research. (2008). Treating tobacco use and dependence: 2008 update. Retrieved from http://www.ncbi.nlm.nih.gov/books/NBK63956/

Bentz, C., Bayley, B., Bonin, K., Fleming, L., Hollis, J., Hunt, J., … & Siemienczuk. (2006). Provider feedback to improve 5A's tobacco cessation in primary care: A cluster randomized clinical trial. *Nicotine & Tobacco Research, 9* (3), 341-349.

Blumenthal, D. (2007). Barriers to the provision of smoking cessation services reported by clinicians in underserved communities. *Journal of the American Board of Family Medicine, 20* (3), 272-279.

Bridges, W., & Bridges, S. (2009). *Managing transitions: Making the most of change* (3rd ed.). Philadelphia, PA: Da Capo Press.

Caplan, L., Stout, C., & Blumenthal, D. (2010). Training physicians to do office-based smoking cessation increases adherence to PHS guidelines. *Journal of Community Health, 36,* 238-243.

Centers for Disease Control. (2016). Current cigarette smoking among adults in the United States. Retrieved from https://www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking/.

Gordon, J., Andrews, J., Crews, K., Payne, T., & Severson, H. (2007). The 5A's vs 3A's plus proactive quitline referral in private practice dental offices: preliminary results. *Tobacco Control, 16,* 285-288.

Katz, D., Muehlenbruch, D., Brown, R., Fiore, M., & Baker, T. (2002). Effectiveness of a clinic-based strategy for implementing the AHRQ smoking cessation guideline in primary care. *Preventive Medicine, 35,* 293-302.

Linder, J., Rigotti, N., Schneider, L., Kelley, J., Brawarsky, P., & Haas, J. (2009). An electronic health record-based intervention to improve tobacco treatment in primary care. *Archives of Internal Medicine, 169* (8), 781-787.

Meredith, L., Yano, E., Hickey, S., & Sherman, S. (2005). Primary care provider attitudes are associated with smoking cessation counseling and referral. *Medical Care, 43* (9), 929-934.

Montano, D., & Kasprzyk, D. (2008). Theory of reasoned action, theory of planned behavior, and the integrated behavioral model. In K. Glanz, B. Rimer, & K. Viswanath (Eds.), *Health Behavior and Health Education: Theory, Research and Practice* (4th Ed.) (pp. 67-92). San Francisco, CA: Jossey-Bass

National Collaborating Centre for Methods and Tools. (2010). Ottawa model of research use: A framework for adopting innovations. Retrieved from http://www.nccmt.ca/registry/resource/pdf/65.pdf

Office of Disease Prevention and Health Promotion. (2014). Tobacco use. Retrieved from https://www.healthypeople.gov/2020/topics-objectives/topic/tobacco-use

Stead, L., Buitrago, D., Preciado, N., Sanchez, G., Hartmann-Boyce, J., & Lancaster, T. (2013). Physician advice for smoking cessation: Review. *Cochrane Database of Systematic Reviews, 5.*

U.S. Department of Health and Human Services. (2008). Treating tobacco use and dependence: 2008 update. Retrieved from http://www.ncbi.nlm.nih.gov/books/NBK63952/

U.S. Preventive Services Task Force. (2015). Final recommendation statement: Tobacco smoking cessation in adults, including pregnant women: Behavioral and pharmacotherapy interventions. Retrieved from

http://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/tobacco-use-in-adults-and-pregnant-women-counseling-and-interventions1

White, K. (2012a). The science of translation and major frameworks. In K. White and S. Dudley-Brown (Eds.) *Translation of evidence into nursing and health care practice* (23-48). New York, NY: Springer Publishing Company

White, K.M. (2012b). Change theory and models: Framework for translation. In K. White & S. Dudley-Brown (Eds.), *Translation of evidence into nursing and health care practice* (pp. 49-60). New York, NY: Springer Publishing Co.

Appendix A

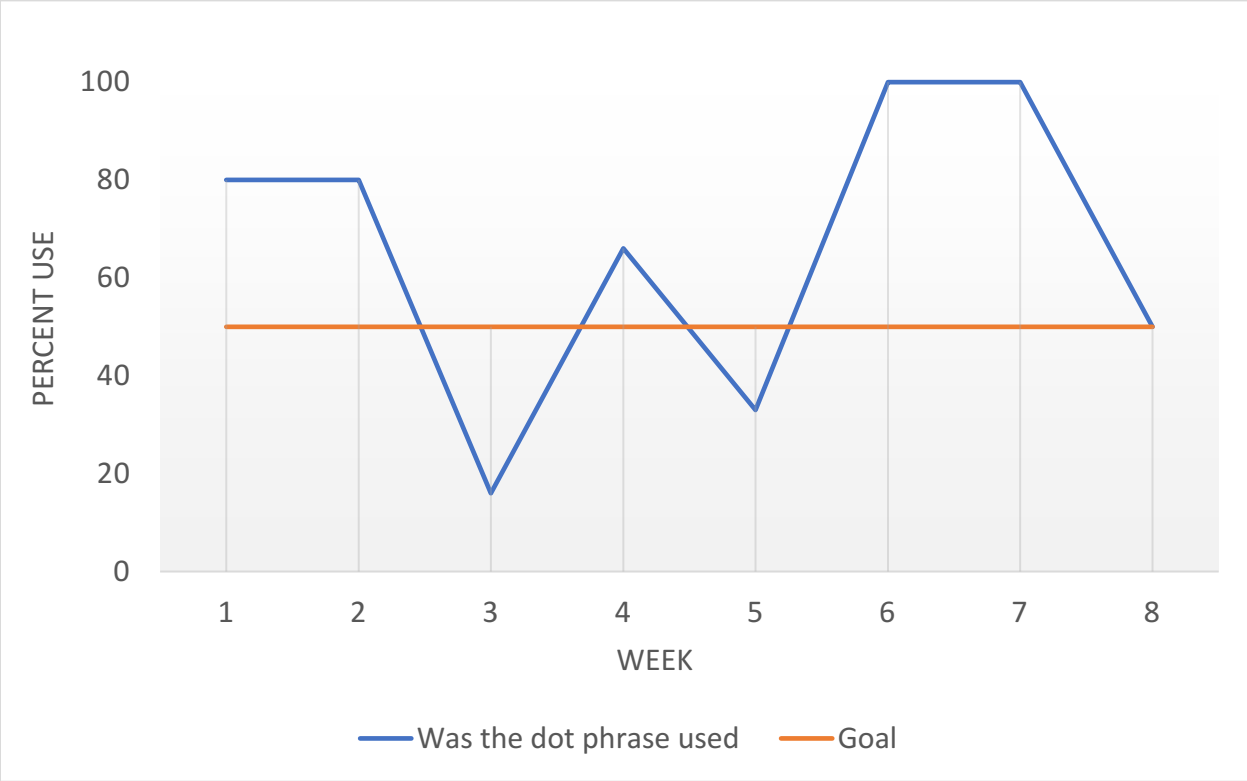

Figure 1. Process Data: Frequency of Dot Phrase Use During Data Collection

Appendix B

Table 1

Attitudes Survey Mode Responses and Change

Question	Baseline Mode	Follow-Up Mode	Change
I am uncomfortable with counseling my smoking patients about quitting	S. Disagree	S. Agree, S. Disagree	
I sometimes do not have time to counsel my smoking patients about quitting	S. Agree, Neutral	Neutral	Minor Improvement
My patients' acute health problems take precedence over smoking cessation counseling	Neutral	Agree	Minor Worsening
Most patients would quit smoking if counseled	Neutral	Neutral	No Change
Even with more institutional resources quit rates are not likely to improve	Disagree	S. Disagree	Minor Improvement
I take time to counsel smokers about quitting at each visit	Disagree, S. Disagree	Agree	Improvement
Quit rates are so low that smoking cessation counseling is no longer a priority	S. Disagree	S. Disagree	No change