

## FEASIBILITY OF A SYSTEMS APPROACH TO TREAT COMMERCIAL TOBACCO DEPENDENCE WITHIN AMERICAN INDIAN HEALTH CLINICS

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*Abstract: American Indians and Alaska Natives (AI/ANs) have the highest smoking prevalence, smoking-related disease, and mortality rates of any racial or ethnic group. Three AI health clinics in Minnesota implemented an evidence-based tobacco dependence treatment intervention that included provider education and customized clinical system tools. A baseline assessment of each clinic facility guided the focus of the intervention and tailored the clinical system tools. Clinic staff were assessed with pre/post-training evaluations and annual assessments. Results indicated self-reported improvements in the rate of identifying smoking status (57% to 89%), documenting smoking status (from 60% to 80%), and providing evidence-based treatments such as pharmacotherapy (from 36% to 78%).*

### INTRODUCTION

Over the past 50 years, the prevalence of cigarette smoking has decreased dramatically in the United States from 43% to 15.1% (Jamal et al., 2016; U.S. Department of Health and Human Services [USDHHS], 2014). Unfortunately, this progress has not been equal across all subpopulations. American Indians and Alaska Natives (AI/ANs),<sup>1</sup> in particular, continue to smoke at a higher rate than any other racial or ethnic group in the U.S. with a 31.8% current cigarette smoking rate estimate among adults in 2016 (Jamal et al., 2018). Very high smoking rates also characterize AI/AN youth, ages 12-17, whose smoking rate is 13.6% compared to 10.2% for non-Hispanic whites (Garrett, Dube, Winder, & Caraballo, 2013) and AI/AN pregnant women, who report smoking during their last trimester more than any other racial group (26.0% vs. 14.3% for whites; Tong, Jones, Dietz, D'Angelo, & Bombard, 2009).

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<sup>1</sup> While most national datasets include samples of AI/ANs together, regional studies and interventions may target American Indians (AIs) only, such as the pilot study being described in this article. Both AI/AN and AI terms are used in this article to specify when appropriate.

Nationally aggregated data, however, fails to paint an accurate picture of the smoking prevalence in this population. Previous research has shown significant regional variation in cigarette smoking rates among AI adults, with highest rates in the Northern Plains (54%; Eichner, Wang, Zhang, Lee, & Welty, 2010) and lowest in the Southwest region (30.5%; Forster et al., 2016; Steele, Cardinez, Richardson, Tom-Orme, & Shaw, 2008). Included in the Northern Plains region, Minnesota's first statewide tribal tobacco use prevalence study (reported in 2013) revealed a 59% current cigarette smoking rate among AI adults, higher than any other racial or ethnic group in Minnesota, and more than four times the statewide adult cigarette smoking prevalence of 14.4% (ClearWay Minnesota & Minnesota Department of Health, 2015; Forster & Skjefte, 2013).

High cigarette smoking rates go hand-in-hand with higher prevalence of smoking-related disease and death. AI/ANs have substantially higher rates of lung cancer incidence and mortality (Foote, Strickland, Lucas-Pipkorn, Williamson, & Lamers, 2016; Plescia, Henley, Pate, Underwood, & Rhodes, 2014), as well as higher mortality rates for all the leading causes of smoking-related death (e.g., heart disease, cancer, stroke, chronic lung disease, and diabetes) compared to the general U.S. population (Great Lakes Inter-Tribal Epidemiology Center, 2011; Mowery et al., 2015; Zhang et al., 2015). Cancer incidence and mortality rates for AIs in Minnesota are twice the rate of AIs across the United States (Minnesota Cancer Surveillance System, 2012). These tremendous smoking-related health inequities experienced within the population makes reducing cigarette smoking an essential public health priority.

The relationship between AIs and tobacco is complex. For many AI tribes, traditional tobacco has held a central role in spirituality, ceremonies, and healing for generations. Tobacco that is used for cultural purposes, often a mixture of various plants and herbs gathered from the local environment, is different than the manufactured, commercial tobacco found in cigarettes that are sold in stores (Great Lakes Inter-Tribal Epidemiology Center, 2013). Unfortunately, the relationship between AIs and tobacco has been greatly influenced over the years by federal assimilation policies. These policies have resulted in a loss of culture regarding some traditional ceremonies and practices, ultimately contributing to an increased use of commercial tobacco in place of traditional tobacco (Goodkind et al., 2011). In addition, this population has long been targeted by the tobacco industry (Americans for Nonsmokers Rights & American Cancer Society, 2016; Campaign for Tobacco-Free Kids, 2018; USDHHS, 2014). There are many tribally-led efforts to reclaim and promote the traditional use of tobacco that is not consistent with commercial tobacco use and dependence (Boudreau et al., 2016). Literature on tobacco control efforts in this population suggest the need to understand and

acknowledge the role of traditional tobacco, as well as the fundamental difference between traditional and commercial tobacco when implementing interventions to address commercial tobacco dependence (D'Silva, Schillo, Sandman, Leonard, & Boyle, 2011; Daley et al., 2010; Filippi et al., 2013; Gryczynski et al., 2010; Margalit et al., 2013).

Studies examining tobacco and cessation beliefs in AI/AN communities have found that many current smokers would like to quit (Burgess et al., 2007; Forster & Skjefte, 2013; Forster, Rhodes, Poupart, Baker, & Davey, 2007; Fu et al., 2014). In the 2010-2012 Minnesota American Indian Adult Tobacco Survey, almost two-thirds (62%) of current AI adult smokers reported they would like to quit, and 50% reported that they tried to quit at least once in the previous year (Forster & Skjefte, 2013). Unfortunately, success in quitting remains lower than among other groups. Nationally, AI/ANs have lower quit ratios (i.e., the percentage of ever smokers who had quit smoking) compared to the general population (48.2% and 55.1%, respectively; USDHHS, 2014), demonstrating a need for better strategies to promote successful quit attempts. One reason why AI/ANs may be less successful in their quit attempts is limited awareness of effective forms of pharmacotherapy to aid smoking cessation (Daley et al., 2011).

Evidence of rigorously tested tobacco cessation interventions to reduce cigarette smoking in this population is limited. One intervention that has been well researched and documented is a culturally tailored smoking cessation program for AIs called All Nations Breath of Life. In a randomized trial, study participants receiving the intervention were given nine in-person group cessation sessions over a six-month period. The sessions were led by an AI facilitator and included brief telephone support calls between group sessions, culturally tailored materials, and cessation medications. Participants in the control group received nine individual cessation sessions over a six-month period (two in-person and seven by telephone) from a non-AI facilitator, non-tailored materials, and cessation medications. Results found statistically significant differences in self-reported intention-to-treat point prevalence abstinence rates at six months (20.1% in the intervention group and 12.0% in the control group; Choi et al., 2016). Another randomized control trial tested a culturally tailored treatment for AI smokers using counseling and varenicline, and reported a 20% abstinence rate at 6 months (Smith et al., 2014). A culturally tailored text messaging-based smoking cessation intervention for AI smokers is currently being tested in a randomized, single-blinded control trial in collaboration with state quit lines ("American Indians STOP smoking by Mobile Phone [AI STOMP]," 2015). Results from this study have yet to be published.

### Clinical Health Care Services as Optimal Intervention Setting

According to the Minnesota American Indian Adult Tobacco Survey, 74% of current cigarette smokers have seen a health care provider in the past year. This presents an exceptional opportunity to assist patients who are willing to make a quit attempt by applying an existing national guideline with substantial evidence of the effectiveness of addressing tobacco use at every health care visit. The Public Health Service Clinical Practice Guideline *Treating Tobacco Use and Dependence: 2008 Update* (USPHS guideline; Fiore et al., 2008) provides a framework for physicians to systematically address patients' tobacco dependence, recommending the use of the 5A's model as a method to ensure every patient is *Asked* about their current tobacco use, *Advised* to quit, *Assessed* for readiness to quit, *Assisted* in their quit attempt, and provided *Arrangements* for follow-up. The USPHS guideline also promotes the use of various tobacco interventions in clinical care settings, including the use of cessation medications, brief counseling by a provider, promoting the use of state or national quit lines, supplying provider trainings, and more intensive cessation counseling and support for patients. Subsequent population-based patient research on the effectiveness of the USPHS guideline has demonstrated the efficacy of these systematic interventions in treating tobacco dependence (Land et al., 2012). There is a knowledge gap, however, about the efficacy of the 5A's approach in health care settings that predominantly serve AIs.

Despite the existing USPHS guideline, many patients, including AI/ANs, report that they do not receive interventions from their provider during health care visits. This provides evidence that integration of these interventions into standards of care is lacking (Quinn et al., 2005; Rigotti, 2011; Stevens et al., 2005; Thorndike, Rigotti, Stafford, & Singer, 1998). While 95% of current AI smokers in Minnesota report they have seen a health care provider in the past year and were asked by their provider if they smoke, far fewer report being advised to quit (76%), recommended cessation prescriptions (39%), provided self-help materials (31%), referred to a cessation program (30%), or offered follow-up (22%; Forster & Skjefte, 2013). These data demonstrate a need to assess the feasibility of efforts designed to increase the provision of the 5A's in an AI clinical care setting.

The American Indian Systems for Tobacco Addiction Treatment (STAT) pilot study partnered with three clinics that primarily serve AIs in Minnesota. The goal of STAT was to systematically integrate tobacco dependence intervention into every health care visit based on the 5A's model. The intervention focused on two evidence-based strategies: 1) health care provider

training (Payne et al., 2014; Verbiest et al., 2014) and 2) the provision of customized clinical system tools to encourage and support clinic staff involvement in assessing patients' tobacco use status and treating tobacco dependence (Clayman, Gulbrandsen, & Morris, 2017; Holt, Thorogood, & Griffiths, 2012; Marcy, Skelly, Shiffman, & Flynn, 2005; Solberg, Maciosek, Edwards, Khanchandani, & Goodman, 2006). This pilot study only targeted interventions to address the use of commercial tobacco (typically cigarettes), as opposed to traditional tobacco (using tobacco as part of ceremonial activities, for example). The distinction between commercial and traditional tobacco was relevant to the educational materials presented to study participants (see Table 2, for example). Unless described as traditional tobacco, "tobacco" in this article refers to commercial tobacco.

The specific aims of the study were to: 1) assess baseline provider use of the 5A's and clinic system policies to address tobacco dependence, 2) develop and implement a tailored intervention consisting of provider education and customized clinical tools designed to increase provider use of the 5A's, and 3) evaluate the feasibility and outcomes of the intervention.

## **METHODS**

### **Clinic Recruitment**

The leadership of all 10 tribal, Indian Health Service (IHS), and urban clinics serving primarily AIs in Minnesota were mailed an invitation to participate in this study. The letter emphasized the aims of the research and highlighted the benefits of participation, which included support in meeting the Centers for Medicare and Medicaid Services "Meaningful Use" standards (Blumenthal & Tavenner, 2010), an annual stipend to the clinic, and CME credit for staff participation in on-site trainings. Six clinics responded with letters of interest to participate in the study. There were no obvious differences between the six clinics that agreed to participate and four clinics that did not. The pilot nature of the study restricted clinic inclusion to a convenience sample of three clinics that included differences in size and urban versus rural location: one urban clinic (Clinic A), one large tribal clinic (Clinic B), and one small tribal clinic (Clinic C). While each clinic receives funds from IHS, none of them are IHS clinics. Two clinics are run by tribal authorities on tribal land, while the third is run by a community agency as a Federally Qualified Health Center (FQHC) and designated as an AI clinic. Each participating clinic used an electronic health record (EHR) system, although the EHR platform varied across clinics. Typically, staff in

the clinics are not AI. The tenure of staff within the clinics ranged from months to decades. All clinics comply with federal and statewide tobacco regulations. There are tribal-specific smoke free air policies for most buildings and additional protections from secondhand smoke in businesses such as private, tribally licensed day care centers, and foster homes. IRB review and approval for the study was obtained from the University of Minnesota Human Research Protection Program and the Indian Health Service National IRB.

### **Intervention Components**

The intervention consisted of three phases, varying in length between six and 12 months, and began with provider training. Phase One included provider education training that was co-facilitated by study staff and a member of the local health staff, both trained instructors to deliver the “Basic Tobacco Intervention Skills Certification for Native Communities” curriculum, developed by the IHS Tobacco Control Task Force in partnership with the University of Arizona HealthCare Partnership (University of Arizona HealthCare Partnership, 2017). The content of the training included understanding the health consequences of commercial tobacco, tobacco dependence treatment, tobacco and culture, the 5A’s model for cessation interventions, follow-up interventions, motivational interviewing, and targeted role-play. All staff with direct patient contact in the medical clinic, public health/community health, pharmacy, dental, and behavioral health departments were invited to attend. The initial four-hour training was delivered at each clinic during the first year of the study and followed up annually by one-hour booster sessions on topics identified by clinic staff. The follow-up booster sessions (Phase Two and Three) included presentations from University of Minnesota faculty on findings from the Minnesota American Indian Adult Tobacco Survey, updates on cessation pharmacotherapy options, and a presentation by an AI healer on bridging Western and traditional medicine. A healthy meal and CME credit was provided at each training. All study staff that interacted with clinic staff during the intervention were AIs.

STAT provided each clinic with a menu of clinical system tools, such as tobacco dependence screening prompts and reminders, patient education and awareness materials, shared decision-making tools, and improved referral systems. Clinics were encouraged to form a working group with members from all positions within the clinic that actively participate in the treatment of tobacco dependence. The membership of the working groups varied by clinic, but generally included representation from clinicians, nurses, smoking cessation counselors, pharmacists, EHR

specialists, and sometimes other departments, such as dental and behavioral health. These internal work groups were encouraged to discuss clinic priorities and review and make the selection of tools from the provided menu.

### **Assessments**

Figure 1 (see Appendix) illustrates the phases of the intervention, the length of time that was spent in each phase, and the assessments that were administered. A situational analysis was conducted at study baseline, using an assessment adapted from the Maine Health Center for Tobacco Independence *Practice Profile: Patient Structure and Patient Panel Data* form (Partnership for a Tobacco Free Maine, 2008). This assessment provided insights into the current clinical cessation practices, available resources, and use of the EHR system to collect and report tobacco use treatment activities. It also served as a tool to highlight needs for tailoring the intervention at each clinic.

Evaluation surveys were administered to all clinic staff following STAT trainings. These assessed changes in self-efficacy to meet the training objectives and intent to change behaviors. Further data collection included annual assessments completed by clinicians and nurses to capture knowledge of the 5A's and self-reported behavior change regarding treating tobacco dependence.

Study staff documented additional activities that occurred at each clinic throughout the study by attending clinic meetings and update calls, holding conversations with clinic staff during trainings, and by making observations while on-site.

Descriptive statistics, primarily frequencies and percentages, were used to characterize the data. As a small sample, pilot study, making comparisons between groups using inferential statistics was inappropriate due to low power.

## **RESULTS**

### **Clinic Descriptions**

Table 1 describes the three participating STAT study clinics including setting type, number of primary medical providers, number of unique patients with outpatient visits, and percent of patients who identify as AI. All participating clinics operated medical, dental, behavioral, laboratory, and community health services. Two of the clinics also offered on-site pharmacy. One

of the clinics included optometry, telemedicine, and traditional healing services. The percentage of total patients who were AI served in these clinics ranged from 46-91%.

**Table 1  
Clinic Settings**

<b>AI Health Clinic</b>	<b>Type of Clinic</b>	<b># Primary Care Medical Providers</b>	<b># of Unique Patients with Visits in 2014</b>	<b>% Patient Population American Indian</b>
Clinic A	Urban	6	2,473	46%
Clinic B	Large Tribal	5	2,685	87%
Clinic C	Small Tribal	4	1,676	91%

**Baseline Facility Assessment**

At baseline, none of the clinics had a mission statement, written goals, policies, or a standard required tobacco cessation intervention specifically related to treating patient tobacco dependence. At baseline, two clinics reported that tobacco dependence was addressed and documented with patients at every visit. Nurses at all three clinics were responsible for asking about and documenting patients’ smoking status. None of the clinics could describe the prevalence of tobacco use among adult patients in their clinic, and none reported that their clinicians were systematically using the 5A’s of the USPHS guideline (Fiore et al., 2008). One clinic reported that clinicians delivered brief tobacco interventions with patients, while the other two clinics reported they were not sure how often this occurred. Two clinics reported that they sometimes recommended telephone counseling to patients, and one clinic occasionally referred patients to tobacco cessation programs outside of the clinic and faxed referrals to telephone quit lines. None of the clinics had a policy requiring clinic staff to be trained in tobacco cessation or a process for providing feedback to staff about their provision of tobacco dependence treatment.

**Training Evaluations**

A total of 24 of 32 (75%) providers and nurses and 12 additional clinic staff attended the Phase One training, 26 of 32 (81%) providers and nurses and 13 additional clinic staff attended the Phase Two training, and 24 of 32 (75%) providers and nurses and nine additional clinic staff attended the final Phase Three training. Only staff who had direct contact with patients were asked to complete training evaluations. Immediately after the training, clinic staff were asked to rate themselves with a five-point Likert scale on the extent to which they could meet the identified

training objectives, their self-perceived knowledge change, and their intention to change behaviors. Across all three trainings, 37% of staff respondents rated themselves as knowledgeable on the topics (at least a 4 on a 5-point scale) before the trainings. After the trainings, 90% rated themselves as knowledgeable. Seventy-four percent of staff respondents felt confident they could put this new knowledge into action and 88% felt it was likely they would change their behaviors as a result of the trainings. Further findings from the post-training evaluations are highlighted in Table 2.

**Table 2**  
**Post-training Staff Confidence in Ability to Meet USPHS Guideline Recommendations**

<b>Basic Tobacco Intervention Skills Training (Phase One)</b>	<b>Not at all 1</b>	<b>A little 2</b>	<b>Somewhat 3</b>	<b>Mostly 4</b>	<b>Completely 5</b>	<b>Total (n)</b>
Identify the core elements of The Integrated 5A's Model	0	0	4 (13%)	8 (27%)	18 (60%)	30
Practice the Integrated 5A's Model intervention with people who are willing and unwilling to quit	0	0	4 (14%)	11 (38%)	14 (48%)	29
Utilize the six basic elements of a Quit Plan	0	0	2 (7%)	13 (43%)	15 (50%)	30
Identify relapse and relapse prevention strategies	0	0	7 (23%)	8 (27%)	15 (50%)	30
Deliver an intervention for relapse	0	0	8 (27%)	10 (33%)	12 (40%)	30
Distinguish between traditional and commercial tobacco use	0	0	2 (7%)	8 (28%)	19 (66%)	29
Document your smoking cessation interventions	0	1 (3%)	6 (20%)	7 (23%)	16 (53%)	30
Looking back, how would you rate your knowledge of the subject before the training?	0	5 (17%)	14 (47%)	4 (13%)	7 (23%)	30
How likely is it that you will change your practice behavior as a result of this conference?	0	1 (3%)	3 (10%)	7 (23%)	19 (63%)	30
<b>Tobacco Use Prevalence and Cessation Pharmacotherapy Training (Phase Two)</b>	<b>Not at all 1</b>	<b>A little 2</b>	<b>Somewhat 3</b>	<b>Mostly 4</b>	<b>Completely 5</b>	<b>Total (n)</b>
Identify the prevalence of cigarette smoking and differences by age for American Indian adults	0	0	1 (4%)	12 (44%)	14 (52%)	27

continued on next page

**Table 2 Continued**  
**Post-training Staff Confidence in Ability to Meet USPHS Guideline Recommendations**

<b>Tobacco Use Prevalence and Cessation Pharmacotherapy Training (Phase Two)</b>	<b>Not at all 1</b>	<b>A little 2</b>	<b>Somewhat 3</b>	<b>Mostly 4</b>	<b>Completely 5</b>	<b>Total (n)</b>
Describe the rate of quitting cigarettes and some barriers to quitting among American Indians	0	0	3 (11%)	11 (41%)	13 (48%)	27
Implement action steps to reduce the prevalence of cigarette smoking among American Indians	0	1 (4%)	2 (8%)	12 (48%)	10 (40%)	25
Prescribe and counsel patients on the current FDA approved pharmacotherapy options for treating tobacco dependence	0	1 (4%)	5 (20%)	7 (28%)	12 (48%)	25
Distinguish between pharmacotherapy methods for tobacco dependence by understanding the various side effects, recommended use, cautions/warnings and other factors when prescribing or counseling patients on medication effectiveness and adherence	0	0	6 (24%)	8 (32%)	11 (44%)	25
Looking back, how would you rate your knowledge of the subject before the training?	1 (3%)	7 (18%)	15 (38%)	13 (33%)	3 (8%)	39
Now that you have attended the training, how do you rate your knowledge of the subject?	0	0	1 (3%)	27 (69%)	10 (26%)	38
How likely is it that you will change your practice behavior as a result of this conference?	0	0	1 (3%)	23 (59%)	14 (36%)	38
<b>Bridging Western and Traditional Medicine for Tobacco Addiction Treatment Training (Phase Three)</b>	<b>Not at all 1</b>	<b>A little 2</b>	<b>Somewhat 3</b>	<b>Mostly 4</b>	<b>Completely 5</b>	<b>Total (n)</b>
Characterize the history and traditional tobacco teachings and uses among American Indians in MN.	0	3 (13%)	3 (13%)	8 (33%)	10 (42%)	24
Identify ways in which traditional medicine can be used to overcome commercial tobacco addiction.	2 (9%)	4 (17%)	5 (22%)	3 (13%)	9 (39%)	23
Looking back, how would you rate your knowledge of the subject before the training?	2 (8%)	2 (8%)	13 (52%)	8 (32%)	0	25
Now that you have attended the training, how do you rate your knowledge of the subject?	0	0	4 (16%)	15 (60%)	6 (24%)	25
How likely is it that you will change your practice behavior as a result of this conference?	0	1 (4%)	5 (20%)	13 (52%)	6 (24%)	25

## Clinic Tools

Clinic tools were developed in response to the needs and priorities identified by each clinic's internal working group. In this way, each clinic developed a sense of ownership over the project. Clinic staff expressed interest in patient education tools that also served as reminders to provide brief tobacco dependence interventions to all patients at each visit. Eye-catching print materials were prominently placed in the clinic waiting areas to remind patients that someone would be asking about their cigarette smoking and offering assistance with quitting. The patient resources were designed to capture and reflect the reality of AI community members by including culturally-tailored imagery and messaging. They also included detailed information to encourage shared decision-making between patient and clinician (Cohen, 2017) by providing information for the patient to assess their level of tobacco dependence and learn details of pharmacotherapy options in the clinic exam rooms.

Once a tool was identified and developed for one clinic, it was made available to all three clinics. Each clinic reviewed and co-developed the following clinic tools: 1) poster with the FDA-approved smoking cessation pharmacotherapy options (see Figure 2 in Appendix); 2) table tents with the abbreviated Fagerstrom Nicotine Dependence Test (Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991; see Figure 3 in Appendix); 3) notecards with customized flow chart of the 5A's model (see Figure 4 in Appendix); 4) retractable banners for the clinic lobby (see Figure 5 in Appendix); and 5) culturally-targeted patient education materials, including posters with traditional tobacco use messages and Strength to Quit pocket guides (IHS & University of Arizona HealthCare Partnership, 2009). Clinics were also given the option to feature looped feeds of the CDC's "Tips from Former Smokers" campaign (CDC, 2013) for clinic lobby TV monitors, although only one clinic utilized this.

## Developing Infrastructure to Address Tobacco Use: Challenges and Successes

Outcomes from the intervention were specific to each clinic, reflecting the clinic setting, environment, staff capacity, and readiness to change. Debriefing telephone interviews conducted at the end of the project identified the unique successes and challenges during implementation of the intervention (see Table 3).

**Table 3**  
**Examples of Clinic Challenges/Clinic Successes**

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**Challenges**

- It made more economic sense for one clinic that received flat-rate reimbursements for each clinic visit to encourage tobacco dependent patients to schedule an additional visit for cessation on another date, rather than intervening during the regular medical visit.
- Without an EHR specialist on staff, needed improvements to the EHR system for the most up-to-date tobacco screen prompts and documentation were stalled.
- Clinics and tobacco cessation programs occasionally had limited communication, which reduced their ability to provide comprehensive services for tobacco dependent patients.
- Clinics with a small staff size and full workloads created barriers and time constraints to fully implement EHR and clinic policy changes.

**Successes**

- Nurses developed scripts to advise smokers to quit and assist patients to access intensive counseling through the tobacco cessation program.
  - Clinics improved their EHR-based clinician reminders and prompts to follow the 5A's by highlighting patients' tobacco status at the top of vital sheets.
  - Clinics identified the need to update the EHR to the most recent tobacco screen template in order to streamline documentation.
  - Customized cessation program referral forms with culturally-relevant imagery were created for clinic exam rooms and improved prescription and referral processes were developed with external pharmacy partners.
  - Clinics identified the need to establish consistent, clinic-wide policies and procedures, such as screening for cigarette smoking status at every visit and ensuring the dental department staff were trained in the 5A's and provided their own customized flow charts for exam rooms.
  - Clinic staff improved their knowledge of and enhanced communication with the tobacco cessation program, including establishing EHR access for the tobacco cessation counselor to receive direct referrals from clinic providers and document cessation activities directly in patients' medical charts.
  - One clinic created a new policy, through support from tribal leadership, to provide cessation medication to all patients interested in quitting, regardless of insurance.
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**Annual Assessments of Staff**

Nurses and providers (i.e., physicians, physician assistants, nurse practitioners) were asked at baseline, Phase One, and Phase Two of the study to report how often they participated in tobacco dependence intervention activities within the past month. “Providers” did not include nurses because of the distinct role that each position plays in asking and documenting patient cigarette smoking status and were reported separately. A combined total of 17 nurses and 15 providers were eligible for assessment during baseline (59% response rate), Phase One (69% response rate), and Phase Two (59% response rate). Table 4 highlights the percentage of nurses and providers who reported they “Often” or “Always” completed a set of evidence-based tasks for treating tobacco dependence.

Nurses and providers increased their self-reported behaviors to address tobacco dependence throughout the duration of the STAT study. Nurses reported increased documentation

of tobacco use status, and the percent of nurses who used the EHR to record tobacco use status increased from 60% at baseline to 80% by Phase Two (see Table 4). Providers reported being more likely to ask about tobacco use at each visit, advise about the importance of quitting, help those who are ready to quit make a quit plan, and make referrals to supportive services. In addition, more providers reported distributing self-help materials, providing follow-up for patients during their quit attempt, informing patients about pharmacotherapy options, prescribing cessation medication, and documenting tobacco interventions in the EHR system (see Table 4).

**Table 4**  
**Frequency of Respondents who Report They “Often” or “Always” Complete Tasks**

<b>Nurses</b>	<b>Baseline (n = 5 of 17)</b>	<b>Phase One (n = 10 of 17)</b>	<b>Phase Two (n = 10 of 17)</b>
Document the current tobacco use of your patient in the Electronic Health Record	60%	70%	80%
Document how much tobacco a patient is using (ex: ppd, pack-years, etc.).	60%	70%	80%
<b>Providers</b>	<b>Baseline (n = 14 of 15)</b>	<b>Phase One (n = 12 of 15)</b>	<b>Phase Two (n = 9 of 15)</b>
Ask about current use of commercial tobacco at each visit	57%	83%	89%
Advise about the importance of quitting with patients who use commercial tobacco	43%	83%	89%
Help those who are ready to make a quit attempt to set a date and to develop a quit plan	43%	58%	67%
Make referrals to suitable and intensive services to support quit attempts of patients who use commercial tobacco	29%	50%	56%
Distribute self-help quit materials to commercial tobacco users	14%	44%	50%
Provide follow-up support for commercial tobacco users during their quit attempt	36%	50%	67%
Inform commercial tobacco users about the use of pharmacotherapy for tobacco cessation	43%	67%	78%
Prescribe tobacco cessation medication for commercial tobacco users who are ready to set a quit date	36%	50%	78%
Document any intervention related to tobacco cessation for patients who use commercial tobacco.	25%	50%	67%

## DISCUSSION

The rate of tobacco use in AI/AN communities remains alarmingly high. The STAT study partnered with three AI clinics in Minnesota to address this challenge by implementing an intervention designed to integrate tobacco dependence treatment into clinic processes. The intervention consisted of clinic staff education and the provision of clinical system tools developed and tailored for each clinic. In addition, the clinics formed working groups that set the priorities of the intervention and made EHR and policy change recommendations for the clinic.

Literature on the implementation of systems change strategies to address tobacco dependence in primary care settings has promoted the important process of identifying a clinic champion to spearhead the work, forming tobacco work groups to support them, and utilizing EHRs to increase clinicians' tobacco dependence treatment behaviors (Boyle, Solberg, & Fiore, 2014; Jansen, Capesius, Lachter, Greenesid, & Keller, 2014; Land et al., 2012; Papadakis et al., 2014; USDHHS & Agency for Healthcare Research and Quality, 2008). Engaging clinic leadership was essential to the project. This resulted in various changes to clinic policy including edits to the EHR (for assessment and referral), new partnerships with tribal public health tobacco control efforts, and new investigations into opportunities for billing for cessation in the clinic. The STAT clinic working groups were provided with a menu of possible clinic system tools to develop, and they selected the strategies most relevant to their patient population. This strategy likely improved staff buy-in and satisfaction with the products. It also allowed the clinic to tailor their activities and materials to their own context and progress in a way that was most appropriate within their system. Providers involved in this study recognized the importance of treating tobacco dependence with their patients, but reported that they could not find the time to fit it into a regular office visit or the clinic lacked the policies and clinical systems needed to support consistent intervention. Being external to the clinic, STAT project staff were uniquely situated to convene clinic staff on a regular basis for training and provide them the opportunity to discuss challenges and improvement strategies. Project staff provided technical assistance, expertise, and facilitation so that these important conversations could take place within the clinic.

A number of clinic actions might create more consistent tobacco dependence treatment within AI clinics. Efforts are needed to develop stronger management buy-in to the importance of addressing tobacco dependence. Providing treatment such as the 5A's should be integrated into clinic care processes. The EHR can prompt the provision of cessation counseling. Clinic and tribal policy should remove barriers, such as deductibles and co-pays, to receiving FDA-approved

cessation medications. Finally, staff turnover in the clinics is high. Re-training will have to be addressed to sustain the provision of tobacco dependence treatment.

This study has some limitations. First, we did not collect outcome data such as quit attempts and cessation, making it hard to document long-term impacts related to patient behavior change. Second, the study included only three clinics. Results may not generalize to other AI health clinics in Minnesota or elsewhere. Third, because this study utilized a multi-component intervention, it is not possible to examine the effects of each intervention component separately. Doing so in future research will be important. Fourth, staff behavior change was assessed by self-report and may be subject to social desirability bias. Fifth, as a pilot study involving only three clinics, it is not possible to compare results across clinics statistically. Finally, it was impossible to assess the impact of secular trends, such as Minnesota's and the CDC's public service campaigns to promote cessation (e.g., Quitplan and "Tips from Former Smokers").

## CONCLUSION

This study yielded promising results in establishing the feasibility of a systems change intervention addressing tobacco dependence—a vital health concern in the AI/AN population. Further, the intervention yielded positive results regarding increased provider knowledge, skills, and self-efficacy as well as increased identification of smokers in need of treatment. Our findings are consistent with other studies that have shown system-level interventions in medical clinics improve preventive service delivery and rates of referrals for cessation services (Bentz et al., 2007; Holt et al., 2012; Land et al., 2012). In addition, this study offered valuable lessons to guide future research, namely the importance of forming a clinic-based working group/committee that tailors approaches and materials to its unique clinical environment. These lessons can be used to inform a larger scale study designed to increase the provision of the tobacco cessation 5A's in health clinics serving AIs. More research and evaluation is needed to fully understand the extent to which providers in AI clinics are implementing the USPHS guideline, as well as barriers and facilitators to their implementation, and impacts on quit attempts and cessation.

## REFERENCES

- American Indians STOP smoking by Mobile Phone (AI STOMP). (2015). Retrieved from <https://clinicaltrials.gov/ct2/show/NCT03168451> (Identification No. NCT03168451)
- Americans for Nonsmokers Rights, & American Cancer Society. (2016). *Manipulating a sacred tradition: An investigation of commercial tobacco marketing and sales strategies on the Navajo Nation and other Native tribes*. Retrieved from [http://action.acscan.org/site/DocServer/Industry\\_Influence-Indian\\_Lands-Indian\\_Gaming.pdf?docID=8902](http://action.acscan.org/site/DocServer/Industry_Influence-Indian_Lands-Indian_Gaming.pdf?docID=8902)
- Bentz, C. J., Bayley, B. K., Bonin, K. E., Fleming, L., Hollis, J. F., Hunt, J. S., . . . Siemienczuk, J. (2007). Provider feedback to improve 5A's tobacco cessation in primary care: A cluster randomized clinical trial. *Nicotine & Tobacco Research*, 9(3), 341-349. <http://dx.doi.org/10.1080/14622200701188828>
- Blumenthal, D., & Tavenner, M. (2010). The "meaningful use" regulation for electronic health records. *New England Journal of Medicine*, 363(6), 501-504. <http://dx.doi.org/10.1056/NEJMp1006114>
- Boudreau, G., Hernandez, C., Hoffer, D., Preuss, K. S., Tibbetts-Barto, L., Villaluz, N. T., & Scott, S. (2016). Why the world will never be tobacco-free: Reframing "tobacco control" into a traditional tobacco movement. *American Journal of Public Health*, 106(7), 1188-1195. <http://dx.doi.org/10.2105/AJPH.2016.303125>
- Boyle, R., Solberg, L., & Fiore, M. (2014). Use of electronic health records to support smoking cessation. *Cochrane Database of Systematic Reviews* (12), CD008743. <http://dx.doi.org/10.1002/14651858.CD008743.pub3>
- Burgess, D., Fu, S. S., Joseph, A. M., Hatsukami, D. K., Solomon, J., & van Ryn, M. (2007). Beliefs and experiences regarding smoking cessation among American Indians. *Nicotine & Tobacco Research*, 9(Suppl 1), S19-28. <http://dx.doi.org/10.1080/14622200601083426>
- Campaign for Tobacco-Free Kids. (2018). *American Indian/Alaska Natives and tobacco use*. Retrieved from <https://www.tobaccofreekids.org/assets/factsheets/0251.pdf>
- Centers for Disease Control and Prevention [CDC]. (2013). *Tips from former smokers*. Retrieved from <http://www.cdc.gov/tobacco/campaign/tips/>
- Choi, W. S., Beebe, L. A., Nazir, N., Kaur, B., Hopkins, M., Talawyma, M., . . . Daley, C. M. (2016). All Nations Breath of Life: A randomized trial of smoking cessation for American Indians. *American Journal of Preventive Medicine*, 51(5), 743-751. <http://dx.doi.org/10.1016/j.amepre.2016.05.021>
- Clayman, M. L., Gulbrandsen, P., & Morris, M. A. (2017). A patient in the clinic; A person in the world. Why shared decision making needs to center on the person rather than the medical encounter. *Patient Education and Counseling*, 100(3), 600-604. <http://dx.doi.org/10.1016/j.pec.2016.10.016>

- ClearWay Minnesota, & Minnesota Department of Health. (2015). *Tobacco use in Minnesota: Minnesota Adult Tobacco Survey*. Retrieved from <http://clearwaymn.org/wpcontent/uploads/2015/01/MATS-Fact-Sheet-2014.pdf>
- Cohen, M. D. (2017). Engaging patients in understanding and using evidence to inform shared decision making. *Patient Education and Counseling*, 100(1), 2-3. <http://dx.doi.org/10.1016/j.pec.2016.11.013>
- D'Silva, J., Schillo, B. A., Sandman, N. R., Leonard, T. L., & Boyle, R. G. (2011). Evaluation of a tailored approach for tobacco dependence treatment for American Indians. *American Journal of Health Promotion*, 25(S5), S66-S69. <http://dx.doi.org/10.4278/ajhp.100611-QUAN-180>
- Daley, C. M., Faseru, B., Nazir, N., Solomon, C., Greiner, K. A., Ahluwalia, J. S., & Choi, W. S. (2011). Influence of traditional tobacco use on smoking cessation among American Indians. *Addiction*, 106(5), 1003-1009. <http://dx.doi.org/10.1111/j.1360-0443.2011.03391.x>
- Daley, C. M., Greiner, K. A., Nazir, N., Daley, S. M., Solomon, C. L., Braiuca, S. L., . . . Choi, W. S. (2010). All Nations Breath of Life: Using community-based participatory research to address health disparities in cigarette smoking among American Indians. *Ethnicity and Disease*, 20(4), 334-338. Retrieved from <https://www.ethndis.org/priorarchives/ethn-20-04-334.pdf>
- Eichner, J. E., Wang, W., Zhang, Y., Lee, E. T., & Welty, T. K. (2010). Tobacco use and cardiovascular disease among American Indians: The strong heart study. *International Journal of Environmental Research and Public Health*, 7(10), 3816-3830. <http://dx.doi.org/10.3390/ijerph7103816>
- Filippi, M. K., McCloskey, C., Williams, C., Bull, J. W., Choi, W. S., Greiner, K. A., & Daley, C. M. (2013). Perceptions, barriers, and suggestions for creation of a tobacco and health website among American Indian/Alaska Native college students. *Journal of Community Health*, 38(3), 486-491. <http://dx.doi.org/10.1007/s10900-012-9634-0>
- Fiore, M. C., Jaen, C. R., Baker, T. B., Bailey, W. C., Benowitz, N., Curry, S. J., . . . Wewers, M. E. (2008). *Treating tobacco use and dependence: 2008 update*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service.
- Foote, M., Strickland, R., Lucas-Pipkorn, S., Williamson, A., & Lamers, L. (2016). The high burden of cancer among American Indians/Alaska Natives in Wisconsin. *Wisconsin Medical Journal*, 115(1), 11-16. Retrieved from <http://www.wisconsinmedicalsociety.org/WMS/publications/wmj/pdf/115/1/11.pdf>
- Forster, J. L., Poupart, J., Rhodes, K., Peterson-Hickey, M., Lamont, G., D'Silva, J., & Erickson, D. (2016). Cigarette smoking among urban American Indian adults - Hennepin and Ramsey Counties, Minnesota, 2011. *Morbidity and Mortality Weekly Report*, 65(21), 534-537. <http://dx.doi.org/10.15585/mmwr.mm6521a2>

- Forster, J. L., & Skjefte, L. (2013). *Tribal Tobacco Use Project survey report 2013*. American Indian Community Tobacco Projects. Retrieved from <https://www.minnpost.com/sites/default/files/attachments/TTUPrpt.pdf>
- Forster, J. L., Rhodes, K. L., Poupart, J., Baker, L. O., & Davey, C. (2007). Patterns of tobacco use in a sample of American Indians in Minneapolis-St. Paul. *Nicotine & Tobacco Research*, 9(Suppl 1), S29-37. <http://dx.doi.org/10.1080/14622200601083434>
- Fu, S. S., Rhodes, K. L., Robert, C., Widome, R., Forster, J. L., & Joseph, A. M. (2014). Designing and evaluating culturally specific smoking cessation interventions for American Indian communities. *Nicotine & Tobacco Research*, 16(1), 42-49. <http://dx.doi.org/10.1093/ntr/ntt111>
- Garrett, B. E., Dube, S. R., Winder, C., & Caraballo, R. S. (2013). Cigarette smoking - United States, 2006-2008 and 2009-2010. *Morbidity and Mortality Weekly Report*, 62(3), 81-84. Retrieved from <https://www.cdc.gov/mmwr/preview/mmwrhtml/su6203a14.htm>
- Goodkind, J. R., Ross-Toledo, K., John, S., Lee Hall, J., Ross, L., Freeland, L., . . . Becenti-Fundark, T. (2011). Rebuilding TRUST: A community, multi-agency, state, and university partnership to improve behavioral health care for American Indian youth, their families, and communities. *Journal of Community Psychology*, 39(4), 452-477. <http://dx.doi.org/10.1002/jcop.20446>
- Great Lakes Inter-Tribal Epidemiology Center. (2011). *Community health data profile: Michigan, Minnesota, and Wisconsin Tribal communities, 2010*. Great Lakes Inter-Tribal Council, Inc. Retrieved from <http://www.glitc.org/forms/epi/profiles/Final%202010%20CHP.pdf>
- Great Lakes Inter-Tribal Epidemiology Center. (2013). *Walking toward the sacred: Our Great Lakes tobacco story*. In I. Brokenleg & E. Tornes (Eds.). Retrieved from <http://www.glitc.org/forms/Tabacco/tabacco-booklet-web-.pdf>
- Gryczynski, J., Feldman, R., Carter-Pokras, O., Kanamori, M., Chen, L., & Roth, S. (2010). Contexts of tobacco use and perspectives on smoking cessation among a sample of urban American Indians. *Journal of Health Care for the Poor and Underserved*, 21(2), 544-558. <http://dx.doi.org/10.1353/hpu.0.0276>
- Heatherton, T. F., Kozlowski, L. T., Frecker, R. C., & Fagerstrom, K. O. (1991). The Fagerstrom Test for Nicotine Dependence: A revision of the Fagerstrom Tolerance Questionnaire. *British Journal of Addiction*, 86(9), 1119-1127. Retrieved from <https://www.ncbi.nlm.nih.gov/labs/journals/br-j-addict/>
- Holt, T. A., Thorogood, M., & Griffiths, F. (2012). Changing clinical practice through patient specific reminders available at the time of the clinical encounter: Systematic review and meta-analysis. *Journal of General Internal Medicine*, 27(8), 974-984. <http://dx.doi.org/10.1007/s11606-012-2025-5>

- Indian Health Service, & University of Arizona HealthCare Partnership. (2009). *Strength to Quit*. Retrieved from <http://www.nativeamericanprograms.org/downloads/IHS%20Pocket%20Guide9.75x3.5.pdf>
- Jamal, A., King, B. A., Neff, L. J., Whitmill, J., Babb, S. D., & Graffunder, C. M. (2016). Current cigarette smoking among adults - United States, 2005-2015. *Morbidity and Mortality Weekly Report*, 65(44), 1205-1211. <http://dx.doi.org/10.15585/mmwr.mm6544a2>
- Jamal, A., Phillips, E., Gentzke, A. S., Homa, D. M., Babb, S. D., King, B. A., & Neff, L. J. (2018). Current cigarette smoking among adults - United States, 2016. *Morbidity and Mortality Weekly Report*, 67(2), 53-59. <http://dx.doi.org/10.15585/mmwr.mm6702a1>
- Jansen, A. L., Capesius, T. R., Lachter, R., Greenesid, L. O., & Keller, P. A. (2014). Facilitators of health systems change for tobacco dependence treatment: A qualitative study of stakeholders' perceptions. *BMC Health Services Research*, 14, 575. <http://dx.doi.org/10.1186/s12913-014-0575-4>
- Land, T. G., Rigotti, N. A., Levy, D. E., Schilling, T., Warner, D., & Li, W. (2012). The effect of systematic clinical interventions with cigarette smokers on quit status and the rates of smoking-related primary care office visits. *PLoS ONE*, 7(7), e41649. <http://dx.doi.org/10.1371/journal.pone.0041649>
- Marcy, T. W., Skelly, J., Shiffman, R. N., & Flynn, B. S. (2005). Facilitating adherence to the tobacco use treatment guideline with computer-mediated decision support systems: physician and clinic office manager perspectives. *Preventive Medicine*, 41(2), 479-487. <http://dx.doi.org/10.1016/j.yjmed.2004.11.026>
- Margalit, R., Watanabe-Galloway, S., Kennedy, F., Lacy, N., Red Shirt, K., Vinson, L., & Kills Small, J. (2013). Lakota elders' views on traditional versus commercial/addictive tobacco use; Oral history depicting a fundamental distinction. *Journal of Community Health*, 38(3), 538-545. <http://dx.doi.org/10.1007/s10900-012-9648-7>
- Minnesota Cancer Surveillance System. (2012). *Cancer in Minnesota, 1988 - 2009*. St. Paul, MN: Minnesota Department of Health. Retrieved from <http://www.health.state.mn.us/divs/hpcd/cdee/mcss/documents/cancerinmndec2012.pdf>
- Mowery, P. D., Dube, S. R., Thorne, S. L., Garrett, B. E., Homa, D. M., & Nez Henderson, P. (2015). Disparities in smoking-related mortality among American Indians/Alaska Natives. *American Journal of Preventive Medicine*, 49(5), 738-744. <http://dx.doi.org/10.1016/j.amepre.2015.05.002>
- Papadakis, S., Gharib, M., Hambleton, J., Reid, R. D., Assi, R., & Pipe, A. L. (2014). Delivering evidence-based smoking cessation treatment in primary care practice: Experience of Ontario family health teams. *Canadian Family Physician*, 60(7), e362-371. Retrieved from <http://www.cfpc.ca/CanadianFamilyPhysician/>

- Partnership for a Tobacco Free Maine. (2008). Practice profile: Patient structure and patient panel data [form]. Retrieved from [https://c.ymcdn.com/sites/www.naquitline.org/resource/resmgr/conference2012\\_presentations/akazurapresentationhandouts.pdf](https://c.ymcdn.com/sites/www.naquitline.org/resource/resmgr/conference2012_presentations/akazurapresentationhandouts.pdf)
- Partnership for Prevention. (2008). *Healthcare provider reminder systems, provider education, and patient education. Working with healthcare delivery systems to improve the delivery of tobacco use treatment to patients – An action guide*. Washington, D.C.: Partnership for Prevention.
- Payne, T. J., Gaughf, N. W., Sutton, M. J., Sheffer, C. E., Elci, O. U., Cropsey, K. L., . . . Crews, K. M. (2014). The impact of brief tobacco treatment training on practice behaviours, self-efficacy and attitudes among healthcare providers. *International Journal of Clinical Practice*, 68(7), 882-889. <http://dx.doi.org/10.1111/ijcp.12386>
- Plescica, M., Henley, S. J., Pate, A., Underwood, J. M., & Rhodes, K. (2014). Lung cancer deaths among American Indians and Alaska Natives, 1990-2009. *American Journal of Public Health*, 104(Suppl 3), S388-395. <http://dx.doi.org/10.2105/AJPH.2013.301609>
- Quinn, V. P., Stevens, V. J., Hollis, J. F., Rigotti, N. A., Solberg, L. I., Gordon, N., . . . Zapka, J. (2005). Tobacco-cessation services and patient satisfaction in nine nonprofit HMOs. *American Journal of Preventive Medicine*, 29(2), 77-84. <http://dx.doi.org/10.1016/j.amepre.2005.04.006>
- Rigotti, N. A. (2011). Integrating comprehensive tobacco treatment into the evolving US health care system: It's time to act: Comment on "A randomized trial of internet and telephone treatment for smoking cessation". *Archives of Internal Medicine*, 171(1), 53-55. <http://dx.doi.org/10.1001/archinternmed.2010.491>
- Smith, S. S., Rouse, L. M., Caskey, M., Fossum, J., Strickland, R., Culhane, J. K., & Waukau, J. (2014). Culturally-tailored smoking cessation for adult American Indian smokers: A clinical trial. *Counseling Psychology*, 42(6), 852-886. <http://dx.doi.org/10.1177/0011000014542601>
- Solberg, L. I., Maciosek, M. V., Edwards, N. M., Khanchandani, H. S., & Goodman, M. J. (2006). Repeated tobacco-use screening and intervention in clinical practice: Health impact and cost effectiveness. *American Journal of Preventive Medicine*, 31(1), 62-71. <http://dx.doi.org/10.1016/j.amepre.2006.03.013>
- Steele, C. B., Cardinez, C. J., Richardson, L. C., Tom-Orme, L., & Shaw, K. M. (2008). Surveillance for health behaviors of American Indians and Alaska Natives—Findings from the Behavioral Risk Factor Surveillance System, 2000-2006. *Cancer*, 113(Suppl 5), 1131-1141. <http://dx.doi.org/10.1002/cncr.23727>
- Stevens, V. J., Solberg, L. I., Quinn, V. P., Rigotti, N. A., Hollis, J. A., Smith, K. S., . . . Boyle, R. G. (2005). Relationship between tobacco control policies and the delivery of smoking cessation services in nonprofit HMOs. *Journal of the National Cancer Institute Monographs*, 35(1), 75-80. <http://dx.doi.org/10.1093/jncimonographs/lgi042>

- Thorndike, A. N., Rigotti, N. A., Stafford, R. S., & Singer, D. E. (1998). National patterns in the treatment of smokers by physicians. *Journal of the American Medical Association*, 279(8), 604-608. <http://dx.doi.org/10.1001/jama.279.8.604>
- Tong, V. T., Jones, J. R., Dietz, P. M., D'Angelo, D., & Bombard, J. M. (2009). Trends in smoking before, during, and after pregnancy - Pregnancy Risk Assessment Monitoring System (PRAMS), United States, 31 sites, 2000-2005. *MMWR Surveillance Summaries*, 58(4), 1-29. Retrieved from <https://www.cdc.gov/mmwr/preview/mmwrhtml/ss5804a1.htm>
- U.S. Department of Health and Human Services [USDHHS]. (2014). *The health consequences of smoking - 50 years of progress: A report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.
- University of Arizona HealthCare Partnership. (2017). Basic Tobacco Intervention Skills Certification for Native Communities. Retrieved from <http://www.healthcarepartnership.org/form-guide.html>
- Verbiest, M. E., Crone, M. R., Scharloo, M., Chavannes, N. H., van der Meer, V., Kaptein, A. A., & Assendelft, W. J. (2014). One-hour training for general practitioners in reducing the implementation gap of smoking cessation care: a cluster-randomized controlled trial. *Nicotine & Tobacco Research*, 16(1), 1-10. <http://dx.doi.org/10.1093/ntr/ntt100>
- Zhang, M., An, Q., Yeh, F., Zhang, Y., Howard, B. V., Lee, E. T., & Zhao, J. (2015). Smoking-attributable mortality in American Indians: Findings from the Strong Heart Study. *European Journal of Epidemiology*, 30(7), 553-561. <http://dx.doi.org/10.1007/s10654-015-0031-8>

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**APPENDIX**

**Figure A1. Phases of the Intervention and Assessments**

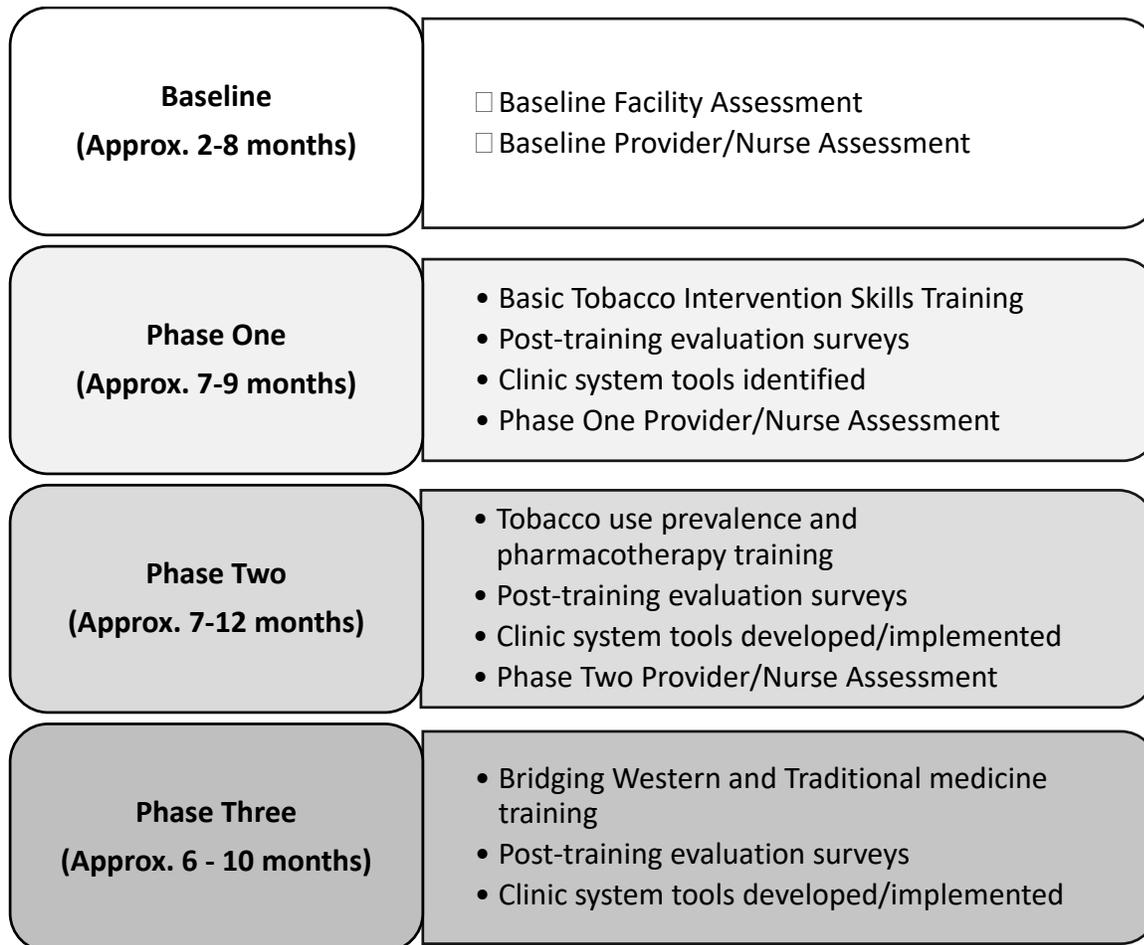


Figure A2. FDA-Approved Pharmacotherapy Options Poster

# Want to quit? Let's Talk.



Medications can help you manage your withdrawal symptoms so you can quit for good.

NICOTINE REPLACEMENT THERAPIES (OFTEN REFERRED TO AS NRTS)				
MEDICATION	DOSAGE	USE	POTENTIAL SIDE EFFECTS	CAUTIONS
<b>Nicotine Gum</b> (2 mg or 4 mg)  Over the Counter Only: • Generic • Nicorette	<ul style="list-style-type: none"> <li>• 1 piece every 1 to 2 hours</li> <li>• 6-15 pieces per day</li> <li>• If smoke &gt; 30 mins after waking: 2 mg</li> <li>• If smoke ≤ 30 mins after waking: 4 mg</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-quit: Up to 6 months before quit date with smoking reduction</li> <li>• Post-quit: Up to 12 weeks</li> </ul>	<ul style="list-style-type: none"> <li>• Mouth soreness</li> <li>• Stomach ache</li> </ul>	<ul style="list-style-type: none"> <li>• Caution with dentures</li> <li>• Do not eat or drink 15 minutes before or during use</li> </ul>
<b>Nicotine Patch</b> (7 mg, 14 mg or 21 mg)  Over the Counter or Prescription: • Generic • Nicoderm CQ • Nicotrol	<ul style="list-style-type: none"> <li>• One patch per day</li> <li>• If ≥ 10 cigs/day: 21 mg 4 weeks, 14 mg 2-4 weeks, 7 mgs 2-4 weeks</li> <li>• If &lt; 10 cigs/day: 14 mg 4 weeks, then 7 mg 4 weeks</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-quit: Up to 6 months before quit date with smoking reduction</li> <li>• Post-quit: 12 weeks</li> </ul>	<ul style="list-style-type: none"> <li>• Local skin reaction</li> <li>• Insomnia</li> </ul>	<ul style="list-style-type: none"> <li>• Do not use if you have severe eczema or psoriasis</li> </ul>
<b>Nicotine Lozenge</b> (2 mg or 4 mg)  Over the Counter Only: • Generic • Commit	<ul style="list-style-type: none"> <li>• If smoke/chew &gt; 30 minutes after waking: 2 mg</li> <li>• If smoke/chew ≤ 30 minutes after waking: 4 mg</li> <li>• Weeks 1-6: 1 every 2 hours</li> <li>• Weeks 7-9: 1 every 2-4 hours</li> <li>• Weeks 10-12: 1 every 4-8 hours</li> </ul>	<ul style="list-style-type: none"> <li>• 3-6 months</li> </ul>	<ul style="list-style-type: none"> <li>• Hiccups</li> <li>• Coughs</li> <li>• Heartburn</li> </ul>	<ul style="list-style-type: none"> <li>• Do not eat or drink 15 minutes before or during use</li> <li>• One lozenge at a time</li> <li>• Limit 20 in 24 hours</li> </ul>
<b>Nicotine Inhaler</b>  Prescription Only: • Nicotrol Inhaler	<ul style="list-style-type: none"> <li>• 6-16 cartridges/day</li> <li>• Inhale 80 times/ cartridge</li> <li>• May save partially-used cartridge for next day</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-quit: Up to 6 months before quit date with smoking reduction</li> <li>• Post-quit: Up to 6 months; taper at end</li> </ul>	<ul style="list-style-type: none"> <li>• Local irritation of mouth &amp; throat</li> </ul>	<ul style="list-style-type: none"> <li>• May irritate mouth/throat at first (improves with use)</li> </ul>
<b>Nicotine Nasal Spray</b>  Prescription Only: • Nicotrol NS	<ul style="list-style-type: none"> <li>• 1 "dose" = 1 squirt per nostril</li> <li>• 1-2 doses per hour</li> <li>• 8-40 doses per day</li> <li>• Do NOT inhale</li> </ul>	<ul style="list-style-type: none"> <li>• 3-6 months; taper at end</li> </ul>	<ul style="list-style-type: none"> <li>• Nasal irritation</li> </ul>	<ul style="list-style-type: none"> <li>• Not for patients with asthma</li> <li>• May irritate nose (improves over time)</li> <li>• May cause dependence</li> </ul>

SMOKING CESSATION MEDICATION OPTIONS				
MEDICATION	DOSAGE	USE	POTENTIAL SIDE EFFECTS	CAUTIONS
<b>Bupropion SR 150</b>  Prescription Only: • Generic • Zyban • Wellbutrin SR	<ul style="list-style-type: none"> <li>• Days 1-3: 150 mg each morning</li> <li>• Days 4-end: 150 mg twice daily</li> </ul>	<ul style="list-style-type: none"> <li>• Start 1-2 weeks before quit date; use 2-6 months</li> </ul>	<ul style="list-style-type: none"> <li>• Insomnia</li> <li>• Dry mouth</li> </ul>	Not for use if you: <ul style="list-style-type: none"> <li>• Use monoamine oxidase (MAO) inhibitor</li> <li>• Use bupropion in an other form</li> <li>• Have a history of seizures</li> <li>• Have a history of eating disorders</li> <li>• See FDA package insert warning regarding suicidality and antidepressant drugs when used in children, adolescents, and young adults.</li> </ul>
<b>Varenicline</b>  Prescription Only: • Chantix	<ul style="list-style-type: none"> <li>• Days 1-3: 0.5 mg every morning</li> <li>• Days 4-7: 0.5 mg twice daily</li> <li>• Day 8-end: 1 mg twice daily</li> </ul>	<ul style="list-style-type: none"> <li>• Start 1 week before quit date and use 3-6 months</li> <li>• Alternatively: Begin medication then quit between day 8 and 35.</li> </ul>	<ul style="list-style-type: none"> <li>• Nausea</li> <li>• Insomnia</li> <li>• Abnormal strange dreams</li> </ul>	Use with caution in patients: <ul style="list-style-type: none"> <li>• With significant renal impairment</li> <li>• With serious psychiatric illness</li> <li>• Undergoing dialysis</li> <li>• FDA Warning: Varenicline patients have reported depressed mood, agitation, changes in behavior, suicidal ideation, and suicide.</li> <li>• See <a href="http://www.fda.gov">www.fda.gov</a> for further updates regarding recommended safe use of Varenicline.</li> </ul>

COMBINATION OPTIONS (NRT + MEDICATION)				
MEDICATION	DOSAGE	USE	POTENTIAL SIDE EFFECTS	CAUTIONS
1) Patch + bupropion 2) Patch + gum 3) Patch + lozenge 4) Patch + inhaler  See above for availability.	See above.	See above.	See individual medications above.	<ul style="list-style-type: none"> <li>• Only patch + bupropion is currently FDA-approved</li> <li>• Follow instructions for individual medications.</li> </ul>

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See the full text for additional details and references, including safety protocols.

Figure A3. Abbreviated Fagerstrom Nicotine Dependence Test

## Ready to quit?

Knowing how addicted you are to nicotine can help you quit for good.

**1. How soon after you wake up do you smoke your first cigarette?**

ANSWER	SCORE
Within 5 minutes	3
6-30 minutes	2
31-60 minutes	1
After 60 minutes	0

**2. On average, how many cigarettes do you smoke per day?**

ANSWER	SCORE
10 or less	0
11-20	1
21-30	2
31 or more	3

*Abbreviated Fagerström Test for Nicotine Dependence. Adapted from Heatherton TF, Kozlowski LT, Frecker RC, Fagerström KD. The Fagerström Test for Nicotine Dependence: a revision of the Fagerström Tolerance Questionnaire. Br J Addict 1991;86:1119-27.*

**Scoring**

NICOTINE ADDICTION LEVEL	TOTAL SCORE
Very low	0-2
Low	3
Medium	4
High	5
Very High	6

**Based on your score, work with your doctor on a quit plan that's best for you.**

- Pick a quit date.
- Find people for support.
- Come up with ideas that help you resist the urge to smoke.
- Go over medications that make dealing with cravings a lot easier.
- Take some informational materials home.
- Make an appointment for cessation counseling.

**You're not alone. Your clinic is here to help.**



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Figure A4. 5A's Clinical Flow Chart

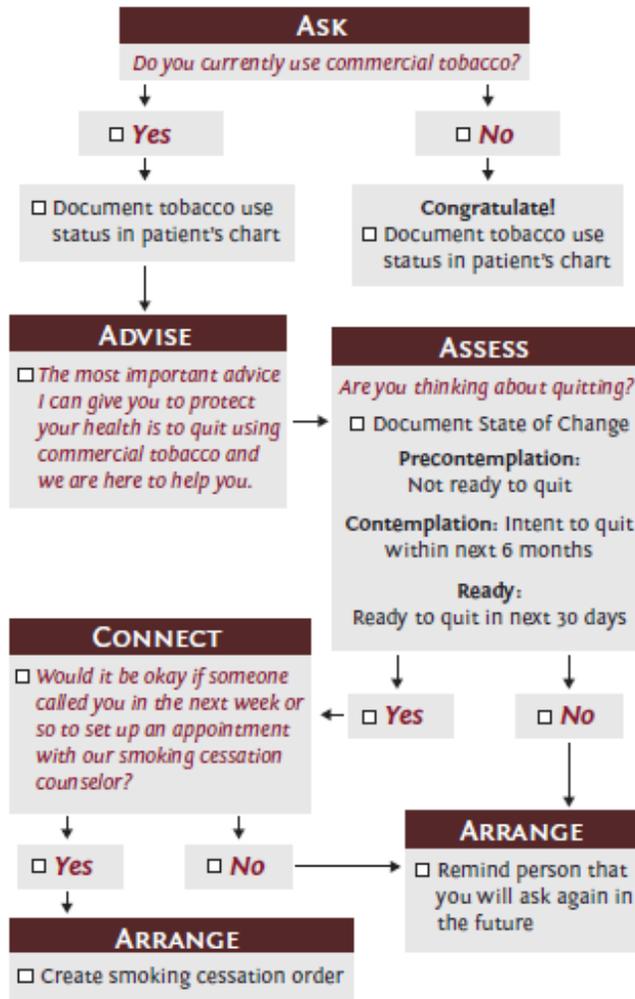


Figure A5. Clinic Lobby Banner



**Want to quit?  
Let's talk.**

