Perceptions of pharmacogenetic research to guide tobacco cessation by patients, providers and leaders in a tribal healthcare setting

Aim: Describe patients', providers' and healthcare system leaders' perceptions of pharmacogenetic research to guide tobacco cessation treatment in an American Indian/Alaska Native primary care setting. **Materials & methods:** This qualitative study used semistructured interviews with 20 American Indian/Alaska Native current or former tobacco users, 12 healthcare providers and nine healthcare system leaders. **Results:** Participants supported pharmacogenetic research to guide tobacco cessation treatment provided that a community-based participatory research approach be employed, research closely coordinate with existing tobacco cessation services and access to pharmacogenetic test results be restricted to providers involved in tobacco cessation. **Conclusion:** Despite a history of mistrust toward genetic research in tribal communities, participants expressed willingness to support pharmacogenetic research to guide tobacco cessation treatment.

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Keywords: academic–community partnership • American Indian/Alaska Native • community-based participatory research • genetic research • pharmacogenetics • tobacco cessation

Tobacco use is a major public health problem among the American Indian and Alaska Native (AI/AN) population. In 2013, the prevalence of tobacco use among AI/AN was 40.1%, while the average tobacco use rate of all other races combined was 23.5% [1]. Tobacco use is directly related to the two leading causes of death among the AI/AN population – heart disease and cancer [2–4]. Many AN people are exposed to tobacco in utero, the rate of smoking during pregnancy being twice the rate of smoking during pregnancy of the non-AN population in Alaska [5,6].

Of the few culturally specific tobacco cessation interventions targeting AI/AN populations in existence, none incorporates pharmacogenetic testing [7–11]. Use of pharmacogenetic testing to guide or personalize tobacco cessation therapy may improve patient outcomes [12–18]. Wide pharmaco-

genetic variation across racial and ethnic groups contributes to interindividual differences in drug metabolism, with implications for drug dosing, medication response and toxicity [19]. Particular genetic variants of *CYP2A6*, *CYP2B6*, *CHRNA5-A3-B4*, *CHRNA2*, *CHRNA5*, *CHRNA4* as well as nicotine metabolic ratio, a genetically informed biomarker, have been found to predict successful smoking cessation and response to pharmacotherapy (e.g., nicotine replacement therapy, varenicline, bupropion) [15–18,20,21]. AI/AN people have been historically underrepresented in medical research and may be less likely to benefit from current pharmacogenetic research and recommendations [19,22–24]. A pharmacogenetic study among the Confederated Salish and Kootenai tribes in Montana found strikingly different allele frequencies in *CYP450* genes, which account for a majority of drug

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metabolism, when compared with those of indigenous populations in Canada and Central/South America [19].

A history of unethical research conduct in AI/AN communities has negatively affected attitudes toward pharmacogenetic testing [23–25]. Examples of research misconduct include the Barrow alcohol study and the experiences of the Nuu-chah-nulth peoples of British Columbia and the Havasupai Tribe of Arizona with genetic research [26–31]. The Navajo Nation currently has a moratorium on genetic research in an attempt to protect their tribe from similar abuses [28]. Shaw *et al.* found that AN people viewed pharmacogenetic research as carrying both risks (e.g., healthcare rationing, misuse of information and stigma to individuals and the AN community) and rewards (e.g., decreased healthcare costs, improved clinical outcomes). A community-based participatory research (CBPR) approach has been shown to be a successful method in bridging the gap between science and practice through community engagement, particularly in AI/AN populations [32–34].

In preparation for pursuing ethical, community-based pharmacogenetic research within the AI/AN population, our research team engaged stakeholders—patients, providers and healthcare system leaders—at a tribal health organization to determine existing views and preferences about pharmacogenetic research, and the needs within the urban, primary care, tribal health community that should be addressed prior to initiating research activities. This paper details the perceptions of risks and benefits for pharmacogenetic research, capacity and necessary process identified for success and specific preferences for pharmacogenetic research of tobacco cessation.

Materials & methods

Study design

Within this paper we describe the results of qualitative, semistructured interviews with patients, providers and healthcare system leaders to characterize perceptions of pharmacogenetic testing to guide tobacco cessation at Southcentral Foundation's (SCF) Anchorage Native Primary Care Center (Anchorage, AK, USA). This method of using community-based qualitative results to make decisions, also known as exploratory sequential mixed-method design, is crucial to CBPR [35,36]; the qualitative results are presented here for use in future quantitative research.

The Anchorage Native Primary Care Center is operated by the tribally-owned SCF and provides comprehensive health services for more than 65,000 AI/AN people who reside in a service area covering more than 100,000 square miles [37]. SCF provides healthcare through a prepaid, patient-centered medical home model in which integrated care teams provide primary care, behavioral health services and referrals

to colocated specialty healthcare and health education services [38,39]. In 2006, SCF founded a Research Department to respond to the health needs of the community, report directly to the organization and receive oversight from a research oversight committee, executive committee and board of directors.

Study sample

The sample consisted of three stakeholder groups: adult AI/AN patients with a current or past history of tobacco use; healthcare providers (i.e., physicians, nurses, pharmacists, behavioral health consultants, tobacco treatment specialists, health educators and dental hygienists) serving within the Anchorage Native Primary Care Center and healthcare system leaders (i.e., administrators, departmental managers, clinical supervisors and program coordinators) involved in operating the Anchorage Native Primary Care Center. It should be noted that 55% of the total SCF employee population, of which healthcare providers and healthcare system leaders are a part, are of AI/AN heritage and receive services within the tribal health system.

Data collection

Patients were recruited from the lobby of the Anchorage Native Primary Care Center and via posted recruitment flyers. Recruits were screened to ensure eligibility requirements were met. Anchorage-based healthcare providers and institutional leaders were recruited from a list supplied by a project coinvestigator (Vanessa Y Hiratsuka). Participants were recruited and interviewed until theoretical saturation of thematic categories was achieved within each sample [40]. Development of the semistructured interview guide was informed by collaboration with a medical ethicist, a counseling psychologist and an institutional research oversight committee (Table 1). The interview guide was designed to elicit rich descriptions of perceptions and practices related to tobacco use and tobacco cessation, including perceptions of pharmacogenetic research to guide tobacco cessation treatment. To foster honesty and open communication, participant protections were clearly described during the informed consent process. Interviews were conducted in administrative and clinical buildings on the tribal healthcare campus between October 2013 and January 2014 by researchers with specialized training in qualitative research methods. Interviews were digitally audiorecorded, transcribed and deidentified by a third party. Interview recordings were issued a unique research ID number at collection, which were passed on to transcripts prior to analysis. A brief demographic questionnaire was administered immediately following each interview. Demographic characteristics are reported in aggregate to avoid risk of

Table 1. Interview guide.			
Interview questions	Patients	Leaders	Providers
Views on tobacco use, consequences and cessation			
1. When did you start smoking or chewing? Has your tobacco use changed over time?	X	–	–
2. Why do people use tobacco, in your view?	X	X	X
3. How does using tobacco affect a person's health and well being, for better or worse?	X	X	X
4. What are the advantages and disadvantages of quitting tobacco?	X	X	X
Experience with tobacco use and cessation at SCF			
5. Could you share your personal tobacco story with me?	X	–	–
6. What is your experience with quitting tobacco?	X	–	–
7. Can you tell me how SCF currently approaches tobacco use and cessation with customer-owners?	–	X	X
8. In your experience, which tobacco cessation approaches are most useful/successful? Why do you think that is?	–	–	X
9. How do you approach tobacco use and tobacco cessation with customer-owners?	–	–	X
10. What questions do customer-owners tend to ask about tobacco cessation?	–	–	X
Views on using pharmacogenetic testing for tobacco cessation at SCF			
11. What comes to mind when you think about the phrase 'genetic testing'?	X	X	–
12. How do you feel about the use of genetic tests in your practice?	–	–	X
13. Let us say SCF wanted to participant in research that included genetic tests to understand how people respond differently to medications used for quitting tobacco – what would you think about that?	X	X	X
14. If SCF did this kind of research, would you participate? Why or why not? What questions would you have about it? What would you want to know about it?	X	–	–
15. If SCF did this kind of research, how would you feel about your customer-owners participating?	–	–	X
16. What would you like your customers to know about genetic testing?	–	X	X
17. If a genetic test became available to help people choose the best medication for quitting tobacco, should SCF offer it? Why or why not?	X	X	X
18. If you had a customer-owner that was trying to quit tobacco and SCF offered a genetic test to guide your medication choice, would you order the test?	–	–	X
Note: Many questions reworded to suite the role of the participant. SCF: Southcentral foundation.			

Table 1. Interview guide (cont.).			
Interview questions	Patients	Leaders	Providers
Views on using pharmacogenetic testing for tobacco cessation at SCF (cont.)			
19. If you were trying to quit tobacco and SCF offered a genetic test to guide your medication choice, would you want to have the test? Why or why not? What other information would help you decide?	X	–	–
20. How do you think customer-owners would respond to the use of genetic testing at SCF to guide tobacco cessation treatment?	–	–	X
Concluding remarks			
21. What else should we know about this topic?	X	X	X
22. How was this interview for you?	X	X	X
Note: Many questions reworded to suite the role of the participant. SCF: Southcentral foundation.			

participant identification. Interviews lasted an average of 30 min. Participants received a \$25 gift card for their participation. Alaska Area Institutional Review Board approval and community approval from the relevant tribal review bodies were sought and granted prior to data collection. Results were reviewed by the SCF Research Oversight Committee and tribal leadership before submission to peer-reviewed journals.

Data analysis

We conducted a thematic analysis of the interview data through an iterative and inductive process [41]. A three-person coding team began the analytical process by individually reviewing one sentinel interview from each participant subgroup, noting salient constructs. These initial constructs formed the basis of the team’s consensus codebook of 20 codes. Using ATLAS.ti 7.1.8 (Scientific Software Development GmbH, Berlin, Germany), the team coded a subset of the remaining interview transcripts weekly, meeting at the end of the week to re-establish a consensus of code definitions, resolve discrepancies and expand or collapse code structure or definitions. This process continued until all transcripts were coded and/or recoded as necessary. Demographic information was joined with the transcripts to allow for theme comparisons by provider type, age, gender, education, smoking history and history of genetic testing. Primary codes included tobacco initiation, drivers of cessation success and failure, use benefits and harms, perceived harms and benefits of pharmacogenetic research and clinical testing and health communication.

Results

The sample consisted of 20 AI/AN patients, 12 health-care providers and nine healthcare system leaders. The majority of participants were women (79%), over

40 years of age (58%), who had at least some college education (84%), had not participated in genetics research (85%) and had attempted to quit tobacco at some time in their lives (65%). Of AI/AN patients, 80% had tried to quit.

As the purpose of this qualitative analysis was to inform subsequent quantitative phases of pharmacogenetic research activities, results have been presented (Table 2) according to general impressions of genetics and pharmacogenetics, perceptions of capacity for future tobacco pharmacogenetics research and preferences for local tobacco pharmacogenetics research and program implementation.

Impressions of genetic & pharmacogenetic research

Participants’ baseline expectations about the use of genetics in healthcare did not include pharmacogenetics or pharmacogenetics research. Rather, impressions regarding use of genetics in healthcare included prenatal screening, metabolic screening at birth (i.e., newborn screening) and identifying individual predisposition for health conditions such as cancer, autoimmune disease, rare genetic disorders and dental disease. Non-clinical participants were unfamiliar with the concept of pharmacogenetics compared with predictive and diagnostic uses of genotyping. All participant groups expected genetic testing to involve blood draws or tissue samples. Medical providers were aware of less invasive biospecimen collection methods (i.e., buccal swabs or saliva sampling).

Many participants had vague notions about genetic testing, especially in relation to tobacco cessation. Some participants assumed a genetic study related to tobacco use would investigate genes that predispose an individual to tobacco addiction. A smaller portion of

Table 2. Perceptions of patients, providers and leaders regarding pharmacogenetic research to guide tobacco cessation presented by domain and theme.

Domain	Theme	Perception	Sample		
			Patients	Providers	Leaders
Impressions of genetic and pharmacogenetic research	Genetic research	Used for peri- and post-natal disease screening	X	X	X
		Blood draws or tissue samples	X	X	X
		Saliva or buccal swabs	–	X	–
		Vague notions of addiction predisposition or gene therapy	X	X	–
	Pharmacogenetic research	Optimism to enhance existing interventions, despite being ‘big scary word’	X	X	X
		Willingness to support; ‘anything we can do’	X	X	X
	Potential benefits	Individual utility to increase treatment efficacy, ‘game changer’	X	X	X
	Potential harms	Loss of privacy, misuse of information, discrimination and typecasting	X	X	X
		Waste of time, effort, money with benefit	X	X	X
		Current or future research misconduct	–	X	X
Perceptions of pharmacogenetic research capacity	Trust, buy-in and infrastructure investment	Doing research right will be a difficult challenge	X	X	X
		Continue to build upon existing trust and buy-in	–	–	X
	Organizational in-reach and coordination	Significant laboratory and personnel required	X	–	X
		Preresearch intraorganizational educational campaign	–	–	X
		Coordination with all stakeholders, especially existing tobacco cessation services providers	–	X	X
Pharmacogenetic research preferences and needs	Ethical procedures and study safeguards	Oversight needed and/or clarified	–	–	X
		No conflict of interest	X	–	–
		Secure blood sample collection and testing	X	–	–
		Restrict access of genetic results to providers with role in tobacco cessation	X	X	X
		Community level dissemination of study results	X	–	–

Table 2. Perceptions of patients, providers and leaders regarding pharmacogenetic research to guide tobacco cessation presented by domain and theme (cont.).					
Domain	Theme	Perception	Sample		
			Patients	Providers	Leaders
Pharmacogenetic research preferences and needs (cont.)	Program communication	Transparent communication at individual and community level	X	-	X
		Educational and public relations campaigns that build upon existing knowledge	X	X	-
	Individual communication	Clear communication of need, purpose and procedures for informed consent	X	X	-

participants assumed the treatment under investigation was gene therapy for tobacco cessation or addiction.

Participants viewed the use of genetics in health-care favorably. A number of participants felt that since tobacco use is harmful and so many people have been struggling to quit tobacco, anything that could optimize the cessation process would be beneficial. Provider and leader participants coupled this sentiment with views that although tobacco cessation services were underutilized, the efficacy of existing interventions had plateaued. Patients and leaders were supportive of research to increase treatment efficacy, whereas providers described this as tailoring treatment. As one provider stated, “I think that anything that we can do to streamline the process and to provide better healthcare – more effective healthcare, save costs, ultimately. I think we should do it.” One patient suggested, “genetic exploration could lead to something ... provides knowledge, and therefore, assistance to a great number of people and their families.”

Most participants considered use of genetics in research to involve a moderate degree of risk and frequently reported concerns about the potential for a loss of privacy, misuse of information, discrimination, research misconduct and wasted resources. Participants from all sample groups worried that genetic information in the wrong hands could be used to control and discriminate against people (e.g., genetic information could be used to deny insurance or employment). A prevailing perception was that though these risks were unlikely, their magnitude was immense. Patients did not want employers or insurers to know detailed and personal genetic information. In contrast to the risk of misuse by others, many participants felt that a significant risk to individuals of genetic information could be discovering unanticipated information about cultural heritage which may result in tribal affiliation changes. Fewer participants felt that individuals may misuse genetic information to rationalize ongoing personal tobacco use.

A vocal minority of participants from each sample expressed concern that research would incur significant expenses and expose patients to unnecessary risk without clear benefits. Basic research and bench science, as compared with applied research further along the translational research cycle, were not seen as worth potential costs and risks with this AI/AN patient population, as one patient participant stated: “And yet that information could lead to controls and consequences for people who participate that don’t benefit the individual or their families but are some pseudo-benefit to science because of the exploration.”

Others were concerned that this research, while interesting, would be unlikely to actually improve tobacco treatment any time soon.

To a lesser degree, participants showed concern about gross research misconduct such as financial conflict of interest, misuse of genetic data and exploitation of patients. These risks were not limited to current research misconduct, but also extended to future efforts that may stem from data collected – “ethical stuff that might happen down the road, in future.” Providers and leaders were certain that patients remembered cases of past research misconduct among AI/AN populations. Indeed, some participants mentioned personal knowledge or stories shared by family about the history of experimentation, exploitative research and research misconduct that AI/AN communities have faced. Providers posited that younger patients may be more willing to participate in research, as older patients may more easily recall examples of past detrimental research practices.

Perceptions of pharmacogenetic research capacity

Participants shared their views on the necessary conditions and capacities needed for successful pharmacogenetics research in the case of tobacco cessation. The prevailing sentiment among all participant groups was that pharmacogenetic research would be ‘hard to do right’ – a challenging albeit worthwhile pursuit. Project success clearly required capacity building that fell into two broad areas: support and investment in infrastructure and coordination within the healthcare system. Leaders understood pharmacogenetic research to be a sensitive issue; any study would need support from providers and trust from patients. All participant groups saw SCF as a feasible setting for this sensitive topic. The relationship between AI/AN community and the SCF research department was recognized as having established trust through earlier research initiatives.

Financial burden was of concern for many participants. Leaders noted that the organization would need to invest in staffing and physical space for sample collection, laboratory space for processing and researchers to analyze data; and were unclear on the anticipated return on such investments. A minority of patients felt that the expected costs may be too high and must be thoroughly investigated and detailed to ensure cost-effectiveness and sustainability of tobacco cessation treatment guided by pharmacogenetics.

Engaging both patients and their clinical providers would require a preresearch intraorganizational educational campaign and close coordination with existing tobacco cessation efforts. Providers and leaders were aware of existing tobacco cessation program offerings, but were uncertain of details beyond the referral process. One leader stated, “they (clinical staff) know that there is a program available, but as far as

details about – about the program, I don’t think we’re informed, you know, about how to approach it or how to sell it, basically to the (patient).”

Participants assumed that providers who remained underinformed about the existing tobacco cessation services would be unable to integrate recruitment-relevant study information into communication with their patients.

Pharmacogenetic research preferences & needs

Identified research preferences and needs fell into three areas: ethical procedures and safeguards, transparent program communication and individual information requests and consent. Although participants did not describe explicit knowledge of existing research oversight infrastructure, they were adamant that any research be ethical and have significant oversight. Research transparency was considered sacrosanct. Participants felt that researchers should have no stake in, or relationships with, any corporate interests (e.g., pharmaceutical manufacturers, tobacco industry actors). To protect against the ‘prying eyes of powerful influences’, samples should be collected and stored securely, and access to results of pharmacogenetic tests should be restricted to providers with specific roles in tobacco cessation. Patients desired that results of the overall study be disseminated to the community in a manner that would mitigate community-level stigma. Lastly, patients and medical providers alike felt that the method of testing was important, as biospecimen collection using venipuncture could be a deterrent to participation.

Participants suggested that all information regarding pharmacogenetics be communicated in a clear and succinct manner by providing a transparent description of individual and community level risks and benefits. Participants described the need for educational campaigns through the organization’s public relations department to shape a clear project message in the context of the emerging body of pharmacogenetic work with other medications.

Each stakeholder group articulated interest in simple descriptions of genetic testing and pharmacogenetics for public relations campaigns, program communication and the informed consent process. Participants suggested simple descriptions for pharmacogenetics, such as “it is really based on your genetics whether the medication works or not,” and genetic testing.

Participants suggested, given that most people are familiar with individual variation in medication response, researchers should consider using the idea of interpersonal medication variation as a bridge into what pharmacogenetics is looking for and how it can be used to enhance treatment. For example, one participant said, “how your body processes the medi-

Box 1. Paraphrased questions relevant to informed consent for pharmacogenetic research.

- How would the research staff collect the genetic material from the participant?
- How would the lab actually do the genetic testing?
- What would the study cost and how may the study improve medical expenditures in the future?
- How would the study respond to the organization's whole health philosophy?
- How exactly would the information guide healthcare decisions?
- What is the history of previous pharmacogenetic research at the organization?
- On what medications has pharmacogenetic research already been conducted?
- How would the genetic information from the study be shared?
- Would the results be included in the electronic health record and who can see the results?
- What protections of genetic information are in place?

cation maybe, or this will help us better understand (if) this treatment can help you the best.”

Participants encouraged description of study-related processes during the consent process. Items to be covered included the process of genetic material data collection, laboratory testing of samples, return of testing results to the individual, placement of test results in the medical record and current and future use of test results in individual and population level healthcare. Participants recommended the use of a question-and-answer format for the informed consent as a way to increase speed of administration. We have included a list of questions participants wanted researchers to communicate to potential pharmacogenetic research participants during the informed consent process (Box 1).

Discussion

These results indicate meaningful support for pharmacogenetic research of tobacco cessation in AI/AN populations where the institution and community trust the research faculty. Research support appears to be the result of expectations that pharmacogenetic testing can improve the effectiveness of tobacco cessation treatment. These expectations may exceed the evidence supported by the present literature. It should be noted the use of pharmacogenetic testing as well as nicotine metabolic ratio has only just begun to predict successful smoking cessation in general [15–18,20,21], and has yet to be shown to do so in the AI/AN population specifically. However, the few concrete examples of pharmacogenetic testing altering clinical outcomes offer promise to cessation treatment adherence [16,17,42].

Provider and leader participants favored the use of genetics in healthcare, felt that existing tobacco cessation services had plateaued and believed tobacco cessation guided by pharmacogenetic testing as a worthwhile endeavor to advance patient outcomes. However, participants were somewhat unsure about important practicalities of tobacco pharmacogenetic research and were vigilant to the risk of genetics used in healthcare. Limiting genetic research to the genes under investigation was seen as necessary for ethical research.

Clear description of the procedures of the destruction of biospecimen samples after data analysis is completed is important for researchers to outline to maintain trust of participants. Overall, the level of detail in the informed consent process such as gene alleles, medication contraindications, treatment decisions, the location in the record or a combination thereof will need to be matched to community preferences.

These results may generalize to other populations that prioritize research topics of tobacco cessation, pharmacogenetics or personalized medicine, but have experienced a history of research misconduct. The results of the present study are consistent with perceptions that genetic research is viewed as a ‘double-edged sword’ [22], research must address health priorities and have appropriate tribal oversight to be supported [25], researchers must be trustworthy partners throughout the research process, and that CBPR is a model for that engagement [33]. Participants’ desire to know the history of previous pharmacogenetic research done at the organization and with the partners is consistent with the notion that long-term partnerships on community priorities were an important consideration of participants [23].

The current findings further support the ideas that a gap may exist between what patients expect and the practical benefits from pharmacogenetics [43] and that younger patients may be most hopeful about usefulness [44]. Additionally, descriptions of ongoing positive research may help to ameliorate concerns and provide knowledge about existing efforts involving other medications. However, where other studies found modest support for tobacco pharmacogenetic research when compared with that for cancer and cardiovascular disease [22], the current study found majority support for clinical tobacco pharmacogenetics research when presented alone or in contrast to existing treatment. Reciprocal academic–community partnerships in tribal health settings should be leveraged to the field of pharmacogenetics to study and/or address other community-identified research questions. When planning pharmacogenetics research in tribal health settings in which genetic studies of cancer have occurred,

researchers should be clear if a research study does not involve cancer risk or does not return individual results as there are expectations of both.

Although some research has explored attitudes toward tobacco use and dependence interventions among AI/AN people [45–47], very limited data exist on perceptions of applied research of pharmacogenetics for tobacco cessation. Whereas previous literature addressed large overarching views and perceptions pertaining to the use of genetics and pharmacogenetics in research, the strength of this study was detailed feedback, from multiple stakeholder perspectives, to guide the operationalization of tobacco pharmacogenetic research. As an exploratory study, this project had a relatively small sample size, which is not unusual for qualitative research but may limit the generalizability of results in other settings. The trusting relationship between researchers and providers and leaders in the SCF setting, which we believe is a strength of the study overall, may have led to some degree of social desirability bias (i.e., telling researchers what they want to hear).

Conclusion

This tribal organization's research department has provided the AI/AN community a consistent and responsive presence that has laid a foundation of trust allowing for engagement in the community with pharmacogenetic research to guide tobacco cessation treatment. Where trust has been built and pharmacogenetics is a community priority, researchers should move forward and expand academic–community partnerships. Such partnerships are possible even in communities that possess a history of research mistrust when there is willingness to support pharmacogenetic research to guide tobacco cessation treatment.

Future perspective

Academic–community partnerships will play an increasing role in ensuring research is done with under-

served and minority populations. A gradual rise of successful academic–community partnerships rooted in CBPR within tribal communities promises corrective recapitulation of the relationship between academic and tribal communities, thereby jointly improving health of these populations.

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No writing assistance was utilized in the production of this manuscript.

Ethical conduct of research

The authors state that they have obtained appropriate institutional review board approval or have followed the princi-

Executive summary

- This American Indian and Alaska Native population and tribal health community supported tobacco pharmacogenetic research when a community-based participatory research approach is employed.
- Pharmacogenetic research in healthcare settings should closely collaborate with existing tobacco cessation program offerings.
- Researchers may acknowledge past improprieties of other researchers in the development of clinical and community ties.
- Informed consent documents used in research enhance each patient's power of choice. Plain language in a question and answer format was preferred by participants for pharmacogenetics studies. Researchers may include information in the informed consent that outlines what happens to researchers that violate the trust of participants.
- This American Indian and Alaska Native population preferred to that access to pharmacogenetic test results be limited to providers involved in tobacco cessation.
- Researcher's decisions regarding return of results are at two levels – individual and community.

ples outlined in the Declaration of Helsinki for all human or animal experimental investigations. In addition, for investigations

involving human subjects, informed consent has been obtained from the participants involved.

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