National Overview of Medication-Assisted Treatment for American Indians and Alaska Natives With Substance Use Disorders

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Objective: American Indians and Alaska Natives (AI/ANs) experience higher rates of substance use disorders and less access to high-quality care compared with other racial-ethnic groups. The objective of this study was to better understand the use of medication-assisted treatment (MAT) of substance use disorders for AI/ANs and barriers to broader implementation.

Methods: Representatives of 192 substance abuse treatment programs completed a survey about their use of MAT. On the basis of implementation science frameworks, the authors examined survey items about program structure, workforce, and other services provided in order to develop logistic regression models that explored significant associations between workforce and program characteristics and use of MAT.

Results: Of the 192 programs, 28% reported implementing MAT. Multivariate logistic regression models indicated that

programs with staff that perceived MAT to be consistent with their program's treatment approach and philosophy and programs reporting that MAT fit with staff expertise and training were more likely to implement MAT. Programs with nurses on staff and those reporting a perceived gap in the use of evidence-based treatments (EBTs) were less likely to implement MAT.

Conclusions: Low rates of MAT implementation suggest racial disparities in access to MAT among AI/ANs, a population with historically high rates of substance use disorders. Study findings also highlight the important role of treatment culture and organizational fit in the implementation of MAT in treatment programs serving AI/AN populations. Results also speak to the importance of adapting existing EBTs in a culturally competent way to best serve the needs of the AI/AN community.

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Although medication-assisted treatment (MAT) is well documented as an effective treatment for substance use disorders, the extent to which it has been adopted among American Indians and Alaska Natives (AI/ANs) is unknown. A previous study, which used the data analyzed in this study, found that greater engagement in evidence-based treatment (EBT) was associated with program and staff characteristics (1). Building on this work, this study focused on the implementation of MATs rather than on analyzing levels of engagement (awareness of, attitudes toward, and actual use) with types of EBTs. Thus this study investigated adoption and implementation of MAT (disulfiram, acamprosate, naltrexone, methadone, combination buprenorphine and naloxone, and buprenorphine) in programs serving AI/ANs, factors that affect implementation, and potential avenues to encourage greater adoption among this historically underserved group.

Rates of substance use disorders are greater among AI/ANs than in the general population (2). Compared with Caucasian Americans, almost three times as many AI/ANs

were diagnosed as having substance dependence or abuse (8.7% and 22.8%, respectively) (3), and the percentage of AI/ANs requiring treatment for alcohol or illicit drug use is almost twice that of other racial and ethnic groups in the United States (17.5% and 9.3%, respectively) (2). AI/ANs also have the highest rate of alcohol-related deaths (4,5), with age-adjusted rates three times greater than among Caucasians (6). These problems are not only individually devastating but also crippling to AI/AN communities that struggle with lingering historic cultural trauma, high rates of poverty (7), greater prevalence of chronic mental and general medical disorders (8), and limited access to high-quality health care (9).

Economic pressures, both in terms of individual access to care (coverage, transportation, and time) and systems-level resources and infrastructure (providers, clinics, and services), are treatment barriers for many AI/ANs. Despite complex historical and social challenges that limit access for AI/ANs, research in this area is scarce, and MAT use among AI/ANs with substance use problems has received limited

attention. There is a clear need for additional research related to substance abuse treatment and disparities in access to high-quality care for AI/ANs.

A number of medications are available to help patients achieve abstinence and prevent relapse (10–15). Policy documents (16,17) and treatment guidelines (18–20) emphasize the importance of providing access to MAT for individuals in substance abuse treatment. Despite evidence that MAT is an efficacious treatment for substance dependence (21,22), utilization in AI/AN populations and in the general U.S. population is limited by stigma and resistance to its use (23). Family, friends, caregivers, and even medical providers are potential sources of stigmatization (24).

Some physicians hold negative views of MAT because of their specialty training or their perceptions about efficacy (25). In such cases, patients might not receive information regarding MAT from their providers (26). A recent analysis of treatment programs indicated that fewer than half offer MAT (27). Physicians' personal attitudes, their background, and organizational factors also play a role. Research suggests that members of the counseling staff who attain higher education levels (master's degree or higher) are more supportive of MAT (28,29). Although the limited uptake of MAT is partially attributed to stigma and physicians' attitudes, it is also attributed to the lack of qualified physicians and highly trained substance abuse professionals in treatment programs (27).

Research findings are mixed on whether organizational factors influence adoption of innovative treatment practices such as MAT. For example, some studies suggest that organizations with 12-step treatment philosophies are more resistant to MAT (30). However, other studies suggest that a 12-step treatment orientation may not be a barrier to MAT adoption (27,31).

Barriers that limit uptake of MAT are likely even more difficult to overcome in programs serving AI/ANs (32,33). The sole randomized controlled trial on treatment of alcohol use disorders in this population found that compared with a placebo, naltrexone resulted in substantially higher total abstinence (35% versus 12%) (34). Yet the availability of these treatments in programs serving AI/ANs is unknown. Using data from a national study of substance abuse treatment programs serving AI/ANs, this study examined awareness of, attitudes toward, and implementation of MAT.

METHODS

Data for these analyses came from the Centers for American Indian and Alaska Native Health's Evidence-Based Practices and Substance Abuse Treatment for Native Americans project, May 15, 2008–February 28, 2012. Focused on how providers in substance abuse treatment programs serving AI/ANs use and perceive EBTs, we examined how they design, implement, and assess their services as well as how they incorporate cultural and evidence-based concepts and healing techniques. An advisory board supported this project. Members included administrators, service providers, evaluators from the AI/AN substance abuse treatment community, and researchers with expertise in AI/AN substance abuse treatment and dissemination research.

This project had three phases: expert advisory board review, qualitative program case studies, and a national survey of AI/AN substance abuse treatment programs. More details regarding this project and its earlier phases are described elsewhere (9,35–38) and on the project's Web site (http://www.ucdenver.edu/academics/colleges/PublicHealth/research/centers/CAIANH/EBP/Pages/ebp.aspx). Analyses utilized data from the national survey that explored AI/AN substance abuse treatment programs' use of EBTs, including medications for relapse prevention and factors that might affect EBT use (for example, attitudes and resources) (37). The advisory board designed the survey by drawing on other surveys of substance abuse treatment programs (25,39–41) as well as the results of qualitative interviews and focus groups conducted during the project's second phase.

Participants and Study Procedures
Participants were clinical administrators or other senior clinical staff from 192 substance abuse treatment programs serving AI/ANs. The research team identified these programs by using a variety of approaches as described by Novins and colleagues (37). Similarly, we used a stratified sampling approach and a replicate strategy to concentrate recruitment efforts on a manageable number of potential participants while ensuring broad representation in the recruited sample (37).

Following procedures outlined in earlier publications (1,38), we contacted potential participants at 305 programs and gave them the choice of completing the survey online or by telephone. Overall participation for the study was strong, with 192 (63%) responses.

Study procedures were approved by the Colorado Multiple Institutional Review Board, which classified the study as exempt, and Oregon Health and Science University's Institutional Review Board, which classified the study as expedited. The Indian Health Service Institutional Review Board classified the study as not human subjects research.

Dependent Variable
A dependent variable measuring implementation of MAT was computed from survey sections examining how programs used MAT. Participants were asked to rate their program's experience with MAT on the following scale: 0, unfamiliar with MAT; 1, not interested in MAT; 2, considered MAT but "see many pros and cons"; 3, planning on using MAT but have not used it yet; 4, using MAT but not a permanent part of the program; 5, MAT is a permanent part of the program; and 6, used MAT in the past but don't use it currently. If the response to this inquiry was ≥4, the dependent variable was coded as MAT implementer (value=1). When the response was <4, the dependent variable was coded as MAT nonimplementer (value=0).

Independent Variables

Potential independent variables associated with MAT implementation were drawn from three domains: respondent and staff characteristics; program characteristics, including assessment and evaluation procedures; and knowledge of and attitudes toward EBTs. Independent variables for EBT attitudes were drawn from scores on two subscales of Aarons' Evidence-Based Practices Attitudes Scale (EBPAS), which measures mental health providers' attitudes toward adoption of EBTs and was validated in studies of programs providing mental health services to non-AI/AN children and adolescents and their families (42). The advisory board, after reviewing literature regarding dissemination and implementation of MAT, provided guidance on the selection of independent variables. Independent variables identified as being potentially important for programs serving AI/ANs were included; each was hypothesized to either facilitate or impede programs' capabilities to prescribe medications to treat substance use disorders.

Four groupings of independent variables were created: respondent and staff characteristics, including gender, race-ethnicity, education, whether nursing or medicine-psychiatry disciplines were represented among staff, and scores on two subscales of Aarons' EBPAS (openness and divergence; α=.86 and .66, respectively); program characteristics, including program location (rural versus urban-suburban), type (tribal, tribal consortium, Indian Health Service/federal, independent nonprofit, or for profit), level of American Society of Addiction Medicine care provided, perceived program gaps in the use of EBTs, program accreditation (Commission on Accreditation of Rehabilitation Facilities, Joint Commission, state organization or single state authority, and Accreditation Association for Ambulatory Health Care), continuing education funding availability, and whether the program was required to use EBTs or participated in a research or program evaluation study; respondents' perceptions of MAT (consistent with treatment approach and philosophy, culturally appropriate, existing research base proves its effectiveness, fit with staff expertise and training, and billable service); and methods of learning about MAT (school; seminar, conference, or workshop; journal articles; Internet; consultant; colleagues; clinical supervisor; or training program). Groupings were based on prominent theoretical frameworks for understanding the dissemination and implementation of EBTs in health care (43–45).

Analytic Plan

We first examined univariate relationships between the four groups of independent variables and MAT implementation. We then developed four logistic regression models to explore the relationships between these independent variables and MAT implementation. Seven variables were included in the respondent–staff characteristics model, 11 in the program characteristics model, five in the MAT perceptions model, and three in the model exploring how respondents learned about MAT. In developing these multivariate models, we first selected variables for the multiple regressions that had univariate associations with MAT implementation at p<.25 (46). A single model with 26 independent variables and a sample size of 192 would have resulted in too few observations per independent variable; thus we constructed four models rather than one to prevent model overfitting (47).

Next, we used backward elimination to remove variables from each model until remaining variables were either themselves significant at p<.05 or belonged to a set of related variables with at least one association significant at p<.05.

We constructed a final multivariate logistic regression model by including all the variables from each of the four preceding models. Our aim was to estimate MAT implementation after controlling for as many sources of variation as possible while minimizing inflation of the type 1 error rate. Thus the final model contained all covariates found significant in the four previous models and was not restricted by backward elimination.

RESULTS

One respondent from each of the 192 programs completed the survey. Most were either program directors (N=111, 58%) or clinical directors (N=42, 21%); others included lead clinicians (N=13, 7%), program psychologists (N=4, 2%), substance abuse counselors or chemical dependency counselors (N=19, 10%), and behavioral health directors (N=3, 2%). Fifty-three programs (28%) reported including MAT in the services they provided.

In Table 1, respondent and staff characteristics of MAT implementers and nonimplementers are compared. Eleven variables were tested, and seven met our criteria for inclusion in the final logistic regression model (gender, race-ethnicity, years of education, nursing and medicine or psychiatry disciplines represented on staff, and the scores on Aarons' EBPAS openness and divergence subscales). Tables 2, 3, and 4 present results of analyses of program characteristics, clinician perceptions, and MAT learning methods, respectively. One program variable (perceived gap in the use of EBTs), two perception variables (MAT is consistent with treatment approach and philosophy and MAT fits with staff expertise and training), and one education variable (learned about MAT by working with a consultant), met our criteria for the final model.

After the analysis controlled for variables that were included in the final logistic regression model, four showed significant relationships with MAT implementation (Table 5). Respondents from programs reporting that MAT was consistent with their treatment approach and philosophy were more likely to implement MAT (odds ratio [OR]=5.94), as were programs that reported MAT fit with their staff expertise and training (OR=4.00). Programs with the nursing discipline represented on staff (OR=.24) and programs that reported a

TABLE 1. Characteristics of respondents and staff at 192 substance abuse treatment programs serving American Indians and Alaska Natives, by implementation of medication-assisted treatment[a]

Characteristic	Nonimplementers (N=86)		Implementers (N=53)		p[b]		Multivariate logistic regression	
	N	%	N	%	Univariate	Multivariate	OR	95% CI
% of staff that are female								
0	2	2	5	9			2.79	.43–17.89
1%–50% (reference)	20	23	22	42	.02			
>50%	64	74	26	49	.01	.02	.37	.17–.84
% of staff that are AI/AN								
0	11	13	8	15			.39	.12–1.27
1%–50% (reference)	35	41	31	59	.04			
>50%	40	47	14	26	.02	.01	.32	.14–.76
Years of staff education (M±SD)	16.30±1.48		16.70±1.47					
Disciplines represented on staff[c]								
Nursing	24	28	5	9	.01	.01	.19	.06–.62
Medicine or psychiatry	28	33	18	34			1.44	.62–3.34
EBPAS openness score (M±SD)[d]	3.34±.73		3.26±.68					
EBPAS divergence score (M±SD)[d]	2.49±.73		2.43±.71					

[a] Number of respondents do not sum to 192 because 53 program directors were not familiar with medication assisted treatment and thus skipped the survey section asking about implementation.
[b] Only values for significant differences are reported.
[c] No reference group because categories are not mutually exclusive
[d] Evidence-Based Practices Attitudes Scale. Possible scores on each subscale range from 0 to 4, with higher scores indicating greater perceived openness to evidence-based practices or greater perceived divergence between current and new evidence-based or mandated practices

perceived gap in the use of EBTs (OR=.22) were less likely to implement MAT.

We closely examined the finding that MAT implementers were less likely to have nurses on staff. We hypothesized that

because nearly one-quarter of programs with a physician (medical doctor or psychiatrist) on staff did not have a nurse present, there was potential for an interaction between the two disciplines. However, when we tested this interaction

TABLE 2. Program characteristics of 192 substance abuse treatment programs serving American Indians and Alaska Natives, by implementation of medication-assisted treatment

Characteristic	Nonimplementers (N=86)		Implementers (N=53)		p[a]		Multivariate logistic regression	
	N	%	N	%	Univariate	Multivariate	OR	95% CI
Rural location	63	73	39	74				
Type of program								
Tribal	46	54	25	47				
Tribal consortium	5	6	7	13				
Indian Health Service or federal	44	51	29	55				
Independent nonprofit	19	22	12	23				
For profit	1	1	3	6				
ASAM level of care provided[b]								
.5	56	65	36	68				
1	75	87	49	93				
2	27	31	22	42				
3	16	19	10	19				
4	2	2	2	4				
Perceived gap in use of evidence-based treatments (EBTs) (reference: no perceived gap)	25	29	6	11	.02	.02	.31	.12–.82
Program is accredited	20	23	14	26				
Funding for continuing education is provided to staff	76	88	51	96				
Staff are required to use EBTs	40	47	27	51				
Program participated in research or evaluation study	32	38	17	33				

[a] Only values for significant differences are reported.
[b] The American Society of Addiction Medicine (ASAM) criteria define a continuum of care, from .5, early intervention, to 4, medically managed inpatient services.

TABLE 3. Respondents' perceptions of medication-assisted treatment (MAT) in 192 substance abuse treatment programs serving American Indians and Alaska Natives, by implementation of MAT[a]

Perception	Nonimplementers (N=86)		Implementers (N=53)		p[b]		Multivariate logistic regression	
	N	%	N	%	Univariate	Multivariate	OR	95% CI
Consistent with treatment approach and philosophy	12	14	31	59	<.001	<.001	5.11	2.10–12.46
Culturally appropriate	3	4	10	19	.01			
Existing research base proves its effectiveness	36	42	33	62	.02			
Fits with staff expertise and training	6	7	24	45	<.001	.001	5.75	1.96–16.86
Billable service	4	5	14	26	<.001			

[a] Reference category for each variable: not a respondent's perception of MAT
[b] Only values for significant differences are reported.

term, nursing discipline × medicine-psychiatry discipline, in the trimmed model, it was not significant. We further examined how MAT implementation was related to how programs were able to provide prescribed medications. In the survey completed by the 53 MAT implementers we asked, "What type of provider do/did you use to include MAT in your program?" We found that 74% (N=39) of MAT implementers used a psychiatrist to prescribe MAT, 72% (N=38) used another physician, 40% (N=21) used an advanced practice nurse or nurse practitioner, and 25% (N=13) used a physician assistant. Just over 58% (N=31) of programs implementing MAT indicated that their prescribing authority was a member of their staff, and 42% (N=22) used an outside consultant.

DISCUSSION

The research team examined implementation of MAT in substance abuse treatment programs serving AI/ANs. Results indicated that only a quarter of programs reported MAT implementation, a rate substantially lower than in programs treating the general population (>50%) (31,48). This finding suggests racial disparities in access to MAT among AI/ANs, a population with historically high rates of substance use disorders (8).

Although prior research shows mixed results regarding the impact of treatment approach and philosophy (27,49), these were important factors in MAT implementation among AI/AN providers. Similarly, programs that reported that MAT fit with staff expertise and training were more likely to implement MAT. Together these findings highlight the importance of treatment culture and organizational fit as identified by Rogers (50), Aarons and colleagues (44), and Damschroder and Hagedorn (51). Among treatment programs that serve AI/ANs, alignment between culturally relevant interventions and community and organizational perspectives and norms that support specific services may be critical for successful implementation of EBTs. This may be particularly important for MAT, which requires access to a prescriber and overall comfort with use of MAT among frontline clinical staff and program administration (25,52).

Of note, programs with the nursing discipline represented on staff were less likely to implement MAT than those without such representation. This finding raises a number of interesting hypotheses regarding the role of nurses in influencing use of MAT. Our first hypothesis—and the only one that we could test with these data—was that nurses might be less supportive of MAT if they worked in a program without a physician (general medical doctor or psychiatrist) because they would be dispensing medications

TABLE 4. Respondents' reported methods of learning about medication-assisted treatment (MAT) in 192 substance abuse treatment programs serving American Indians and Alaska Natives, by implementation of MAT[a]

Method	Nonimplementers (N=86)		Implementers (N=53)		p[b]		Multivariate logistic regression	
	N	%	N	%	Univariate	Multivariate	OR	95% CI
In school	42	49	23	43				
Attending a seminar, conference, or workshop	61	71	34	64				
Reading journal articles	50	58	29	55				
Finding information on the Internet	37	43	25	47				
Working with a consultant	39	45	21	40	.01	.01	2.53	1.24–5.16
Discussing with colleagues	57	66	43	81				
Through clinical supervisor or training program	25	29	27	51	.01			

[a] Reference category for each variable: not a method of learning about MAT
[b] Only values for significant differences are reported.

prescribed by an outside physician with whom they may not have a strong working relationship and that this would result in less confidence in the use of MATs. However, we did not find a significant interaction between the number of physicians and number of nurses on staff. A second hypothesis arises from the fact that only advanced practice nurses (not registered nurses or licensed practical nurses) may prescribe medications (nurse practitioners have only recently become eligible to apply for a waiver to prescribe buprenorphine). Thus it is likely that nurses employed in

TABLE 5. Multivariate logistic regression model of covariates significantly associated with medication-assisted treatment (MAT) implementation

Variable	OR	95% CI	p[a]
% of staff that are female (reference: 1%–50%)			
0	1.7	.17–16.64	
>50%	.43	.17–1.13	
% of staff that are American Indians or Alaska Natives (reference: 1%–50%)			
0	.46	.11–2.07	
>50%	.38	.14–1.05	
Nursing discipline represented on staff (reference: no)	.24	.06–.86	.03
Perceived gap in use of evidence-based treatments (reference: no perceived gap)	.22	.06–.76	.02
Consistent with treatment approach and philosophy (reference: not a respondent perception of MAT)	5.94	2.08–16.98	.001
Fits with staff expertise and training (reference: not a respondent perception of MAT)	4.00	1.16–13.76	.03
Learned about MAT by working with a consultant (reference: not a method of learning about MAT)	2.29	.91–5.76	

[a] Only values for significant differences are reported.

these programs do not prescribe MAT, may have no MAT training, and may even hold negative attitudes toward use of MAT. Because nurses are often the only medical providers in these programs, they may have a particularly strong influence on decisions to use (or not to use) MAT. Further exploration of prescribing privileges, MAT training, and attitudes and beliefs about MAT among nurses working in substance abuse treatment programs serving AI/ANs is clearly warranted.

Access to physicians is particularly important for MAT use because most insurance companies will not reimburse for services that are not overseen by a licensed physician (53). Although 59% (N=31) of programs providing MAT reported having a staff member with prescribing authority (physician, advanced practice nurse, nurse practitioner, or physician assistant), the remaining 42% (N=22) relied on an outside provider. This finding underscores the critical role that outside providers play in MAT services and suggests that there is more than one avenue to accessing medical expertise. Without access to prescribers, treatment programs serving AI/ANs will continue to experience disparities in access to high-quality substance abuse treatment.

Finally, programs reporting a perceived gap in EBT use were less likely to implement MAT, which may suggest a lack of readiness to implement (42,44,51). Lack of readiness may be related to structural barriers (for example, lack of a staff physician) or cultural barriers (for example, negative attitudes about MAT among staff) to MAT adoption and implementation. Although some barriers are likely similar to those in programs serving the general population (for example, lack of staff physicians and perceived lack of fit with treatment philosophy), other barriers are unique to programs serving AI/ANs (for example, the perception that MAT is not culturally appropriate.)

This study represents a first step in identifying and developing strategies to encourage adoption and implementation of MAT in AI/AN communities. However, because of the cross-sectional design, it is not possible to confirm that these factors preceded the implementation of MAT. For example, programs that implemented MAT were more likely to report that MAT fits with staff expertise and training, but this may have been an outcome of implementation rather than a factor in deciding to implement.

CONCLUSIONS

Our survey yielded important insights into how to encourage greater MAT adoption. Limited resources in rural communities, a history of marginalization, and lack of culturally relevant interventions for treating substance use disorders serve as access barriers to EBTs. We identified characteristics of treatment programs and staff associated with overcoming barriers to MAT. Rather than force EBTs on programs, it may be more effective to encourage the development of program traits identified here and then allow programs to embrace MAT voluntarily, leading to a sense of ownership rather than resentment. Models of implementation that emphasize adapting interventions to better fit program resources and values may be particularly useful in addressing these issues (54). Such an approach also provides an opportunity to implement MAT and modify EBTs to match the unique character of the AI/AN community. The Substance Abuse and Mental Health Services Administration and Indian Health Service encourage just such an adaptation process. Findings suggest a need for additional research to further examine what may be underlying the disparities and to advance implementation of MAT in treatment programs serving AI/ANs.

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