

## INTEGRATED CARE WITH INDIGENOUS POPULATIONS: A SYSTEMATIC REVIEW OF THE LITERATURE

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*Abstract:* **Introduction:** *The integration of behavioral health into medical care is related to positive results including improved patient health outcomes, provider satisfaction, and cost-offset. Indigenous people suffer from the highest health disparities in the nation and disproportionately experience barriers to health care; yet it is unknown if integrated care is effective for this population.* **Methods:** *A systematic literature review was completed on the state of integrated care at Indigenous-serving health care sites in 2014 and was updated in 2016. Three databases were selected (Eric, Medline, and PsycInfo) and keywords pertaining to an Indigenous population and integrated care services (e.g., Native American, American Indian, or First Nations with integrated care, primary care, or family medicine) were used. After inclusion and exclusion criteria were applied, nine articles were selected out of the 2,889 articles found. Five additional articles were added in the 2016-update search. The selected articles were then evaluated using standards of integrated care.* **Results:** *The selected articles demonstrated wide-ranging and positive results including improved physical and mental health symptoms, reduced substance use, improvements in education and employment status, as well as a decreased involvement with the criminal justice system. It appears that interventions that additionally integrated culturally relevant health beliefs and practices experienced the largest gains in health outcomes.* **Discussion:** *Integrated care appears to be an intervention that can ameliorate these disparities by reducing stigma for those seeking care and providing coordinated care to prevent or reduce health care disparities in this population. While integrated care appears to be an effective system of care for Indigenous people, it must be noted that integration of local Indigenous health beliefs and practices is equally necessary.*

## INTRODUCTION

Indigenous communities of North America<sup>1</sup> suffer from both physical and mental health risks and diagnoses at rates higher than non-Indigenous people (Indian Health Services [IHS], 2015). Indigenous people suffer disproportionately from alcoholism, diabetes, unintentional injuries, homicide, and suicide (Center for Disease Control [CDC], 2011; 2014; IHS, 2015). Furthermore, the comorbidity of chronic health conditions, mental health issues, and substance use disorders among Indigenous people has a profound impact on the wellbeing of individuals, families, and communities (IHS, 2015). Inadequate education, disproportionate poverty, access to and discrimination in the delivery of health services, and cultural differences have been linked to lower life expectancy and disproportionate disease burden among Indigenous people (CDC, 2011; 2014; IHS, 2015).

Integrated care refers to the multidisciplinary approach to health care service delivery, specifically the integration of behavioral health into medical care that has been related to numerous positive health outcomes, health care systems improvements, and reduced provider burnout (Bodenheimer, 2007; Funk & Ivbijaro, 2008; Willard & Bodenheimer, 2012). A leader in integrated care service and research, the Substance Abuse and Mental Health Services Administration (SAMHSA, 2017) defines integrated care as “the systematic coordination of general and behavioral healthcare” which “produces the best outcomes and proves the most effective approach to caring for people with multiple healthcare needs” (p. 1). The Agency for Healthcare Research and Quality (AHRQ) released a lexicon for integrated care providers to improve collaboration (Peek, 2013) and defined integrated care as:

a practice team of primary care and behavioral health clinicians working together with patients and families, using a systematic and cost-effective approach to provide patient-centered care for a defined population. This care may address mental health and substance abuse conditions, health behaviors (including their

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<sup>1</sup> We use the term *Indigenous* to refer to the Native people of North America (United States or Canada; otherwise known as First Nations, American Indian, Native American, Alaska Native, and Native Hawaiian). We understand the complexity and political implications for the use of labels and do not wish to perpetuate insensitivity of many of these labels and recommend that local and regional terms be used when possible. In addition, the word *Indigenous* will be capitalized to indicate that it is representing a distinct sub-group.

contribution to chronic medical illnesses), life stressors and crises, stress-related physical symptoms, and ineffective patterns of health care utilization (Peek, 2013, p. 15).

Integrated care may be a structured model or can be used more loosely to define a coordinated approach to managing one's health (SAMHSA, 2017). Integrated care is based in the biopsychosocial-spiritual model that requires providers to consider a patient's health holistically, gathering information regarding the biological, psychological, social, cultural, and spiritual influences on the individual, couple, or family while using a systemic lens. In other words, integrated care examines multiple vertical and horizontal systems all the way from microsystems, such as cells and atoms, to the person, and up to the society and the biosphere, with the assumption that these systems interact with one another dynamically (McDaniel, Doherty, & Hepworth, 2013; Engel, 1977; SAMHSA, 2017). This complicated and nonlinear assessment process requires competent and fluid collaboration between a variety of experts.

The purpose of this project was to conduct a systematic review of integrated care interventions with Indigenous patients. The goals of this review was to highlight published, peer-reviewed, primary research studies of interventions that have potential to positively impact quality of health care delivery and health-related outcomes, thereby reducing the disproportionate health burden in Indigenous communities. More specifically, we assessed how health care organizations and providers are conceptualizing and enacting integrated care with Indigenous populations and the successes and challenges of carrying out these interventions with this population.

## METHODS

We gathered published, peer-reviewed, primary articles using three highly respected databases (Eric, Medline, and PsycInfo [Appendix A]) to select articles, applying meta-analytic techniques to guide the data collection for this systematic review (Cooper, 2010; Wampler, Reifman, & Serovich, 2005). The initial search was completed in 2014, and to update the results, an additional search was conducted in 2016 that added 25 unique articles to the pool of all eligible articles. To critically evaluate the state of integrated care interventions being carried out at Indigenous-serving health care organizations, we followed a series of steps including a key

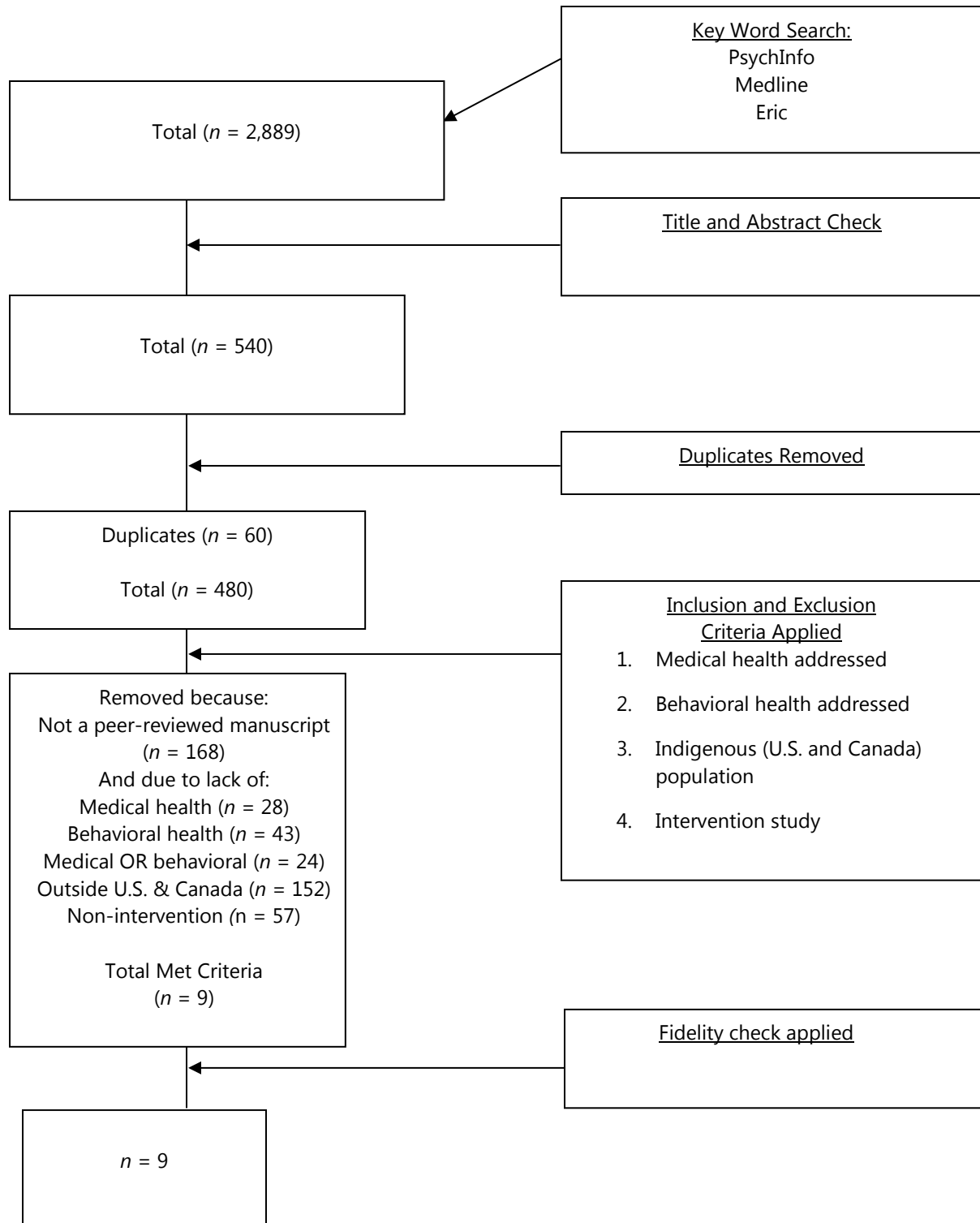
word search (see Figure 1), data filtering, and fidelity checks (Cooper, Hedges, & Valentine, 2009). Next, titles and abstracts were evaluated to ensure that the articles in fact addressed a) both behavioral and medical aspects of health and b) included Indigenous populations. Of the 2,889 articles identified, only nine articles met the inclusion criteria.

**Figure 1**  
**Key Word Search**

| Database                      | Search Terms   |
|-------------------------------|--|
| PsycInfo,<br>Medline,<br>Eric | <ol style="list-style-type: none"> <li>1. Native American + Integrated Care</li> <li>2. Native American + Primary Care</li> <li>3. Native American + Family Medicine</li> <li>4. Native American + Behavioral Health +Medical</li> <li>5. Native American + Mental Health +Medical</li> <br/> <li>6. American Indian + Integrated Care</li> <li>7. American Indian + Primary Care</li> <li>8. American Indian + Family Medicine</li> <li>9. American Indian + Behavioral Health +Medical</li> <li>10. American Indian + Mental Health +Medical</li> <br/> <li>11. First Nations + Integrated Care</li> <li>12. First Nations + Primary Care</li> <li>13. First Nations + Family Medicine</li> <li>14. First Nations + Behavioral Health +Medical</li> <li>15. First Nations + Mental Health +Medical</li> <br/> <li>16. Indigenous + Integrated Care</li> <li>17. Indigenous + Primary Care</li> <li>18. Indigenous + Family Medicine</li> <li>19. Indigenous + Behavioral Health +Medical</li> <li>20. Indigenous + Mental Health +Medical</li> </ol> |

All article selection steps were completed by researchers 1 and 2 collaboratively. To ensure reliability of selected articles, researcher 3 (research assistant) independently completed random fidelity checks covering 10% of all a) search results, b) abstract and title checks, and c) criteria checks. The research assistant was blinded to the initial article selection of researcher 1 and 2. Search results and abstract checks yielded the same selected articles at each stage. The criteria check resulted in the same nine article selections. Therefore, no articles were included or excluded due to this step to ensure reliability amongst researchers (see Figure 2). Finally, a table was created to view and compare selected articles’ sections and results (see Table 1).

**Figure 2**  
**Literature Synthesis Methodology**



## RESULTS

The results of this systematic review are organized into the following sections: We start with *motivation for integration*, which provides the reasoning that each site uses to shift their clinic to an integrated care model based on arguments that they present in their literature review sections. Next, we will *describe the interventions* themselves. Then, *evaluation and outcomes* of integrated care interventions will be presented detailing the health outcomes of patients. Finally, limitations of the selected articles will be presented.

### **Motivation for Integration**

The rationale for use of integrated care with Indigenous patients is important because it provides a better understanding why such interventions may or may not be a good fit for this population. In Table 2 we compare each selected article based on key principles and outcomes of integrated care (Doherty et al., 1996; Patterson, Peek, Heinrich, Bischoff, & Scherger, 2002; Peek, 2013; SAMHSA, 2017; Seaburn, Lorenz, Gunn, Gawinski, & Mauksch, 1996). Rationale was usually found in the introduction or conclusion sections of the article, a place where the author explained their reasoning for utilizing an integrated care intervention with this population. The reasons to integrate were: 1) the high prevalence of health disparities (eight of nine); 2) the discord between how treatment is delivered and what is culturally needed for Indigenous people (seven of nine); 3) financial barriers to accessing health care (six of nine); 4) problems with standard care (four of nine); and 5) effectiveness of integrated care (four of nine; see Table 2).

### **High Prevalence of Health Disparities**

The high prevalence of health disparities, both mental and physical health, was listed as the number one motivation to integrate behavioral health into medical care. The high comorbidity of mental health and substance use burden (Davis, Morse, Landa, & O'Brien, 1989; Fenn, Beiergrohslein, & Ambrosio, 2007; Maar et al., 2009; Parker et al., 1997; Saylor, 2003) and public health concerns (Duran et al., 2010; Mendenhall, Seal, Greencrow, Littlewalker, & Brownl, 2012; Mehl-Madrona, 2000) in Indigenous communities necessitated behavioral health interventions. For example, the high prevalence of diabetes and related complications, such as comorbid heart disease and depression, has had devastating effects on Indigenous families and communities (Mendenhall et al., 2012).

### **Discord Between Treatment Delivery and Culturally Appropriate Care**

The need for culturally appropriate care to decrease health disparities was one of the strongest reasons to integrate (Davis, Deen, Bryant-Bedell, Tate, & Fortney, 2011; Maar et al., 2009; Mendenhall et al., 2012; Mehl-Madrona, 2000; Parker et al., 1997; Saylor, 2003). According to critiques by Indigenous peoples, current medical care models address somatic complaints or symptoms instead of getting at the root of the problem: the relationship of historical experiences resulting from colonial genocidal policies and practices (Davis et al., 1989; Duran et al., 2010; Maar et al., 2009; Mendenhall et al., 2012; Parker et al., 1997). Duran and colleagues (2010) cited the Colonial Health Deficit as a theory that explains how the cumulative effects of colonization (e.g., loss of land and healthful food options) have created devastating health vulnerability and outcomes for Indigenous people (e.g., diabetes).

Strong familial networks and cultural, spiritual, and language practices related to health care are not currently being incorporated into services in a standard way (Davis et al., 2011; Duran et al., 2010; Maar et al., 2009; Mendenhall et al., 2012). Examples include, welcoming family members into treatment planning and eliciting and incorporating cultural and spiritual beliefs and practices into care regime. The values of Indigenous families and communities do not fit well within the Western medical system. For example, offering the assistance of a traditional healer is not standard practice in the Western medical system (Davis et al., 2011; Duran et al., 2010; Maar et al., 2009; Mehl-Madrona, 2000; Mendenhall et al., 2012; Parker et al., 1997; Saylor, 2003). Duran and colleagues (2010) say, “traditional teachings prescribe wellness, balance, and harmony and provide a mental framework for (HIV/AIDS) patient wellness” (p. 113).

### **Financial Barriers to Health Care**

Six studies listed financial or poverty-related barriers to health care as reason to integrate, specifically related to travel (Davis et al., 1989; 2011; Duran et al., 2010; Maar et al., 2009) and health insurance (Davis et al., 1989; 2011; Duran et al., 2010; Fenn et al., 2007; Saylor, 2003; Maar et al., 2009). Without adequate insurance coverage and access to affordable care options, health needs go unmet (Davis et al., 2011; Fenn et al., 2007). Health care centers may be difficult to reach due to remote locations and/or a patient’s lack of transportation (Davis et al., 2011; Duran et al., 2010; Maar et al., 2009). Furthermore, there is a shortage of mental health and substance abuse services (Davis et al., 2011; Duran et al., 2005), due in part to the difficulty

recruiting mental health professionals to rural areas or other areas where funds are lacking (Maar et al., 2009).

### **Problems with Standard Care**

The problems with standard care or service gaps were a common motivator to integrate (Davis et al., 1989; 2011; Duran et al., 2010; Parker et al., 1997). Specifically, standard care or evidence-based treatments have been found to be less effective with this population (Davis et al., 1989; 2011; Duran et al., 2010; Parker et al., 1997). Ethnic minorities who received evidence-based care were twice as likely to re-experience depression symptoms and more likely to discontinue treatment, have fewer clinic visits, experience more problematic and severe side effects, and have negative feelings about the use of medication (Davis et al., 2011). Additionally, ethnic minorities are less likely to seek mental health treatment compared to White patients (Davis et al., 2011) and, in some cases, due to lack of trust of the health care system (Davis et al., 1989; Duran et al., 2010). Concerns arise when the use of these evidence-based interventions are mandated without time and resources to evaluate and make cultural adaptations (Duran et al., 2010). While there is concern around discordance between the kind of care that is delivered versus care needed in ethnic and racial minority populations, for many Indigenous patients, they have significantly less access to many health care services compared to non-Indigenous patients. For instance, there are not enough mental health and substance use services at clinics frequented by Indigenous people to provide sufficient care for the needs of this population (Duran et al., 2010).

### **Effectiveness of Integrated Care**

Three of the studies were motivated by evidence that integrated care may better fit the needs and fill the gaps in services for Indigenous patients (Davis et al., 2011; Duran et al., 2010; Maar et al., 2009; Mendenhall et al., 2012). The researchers observed improvements in health outcomes with the use of integrated care and sought to assess its utility with Indigenous populations. For example, the use of collaborative care was linked to lower rates of probable depression than with usual care among other ethnic minority groups (Davis et al., 2011). Maar and colleagues (2009) listed anecdotal evidence of the success of integrated care with Indigenous populations including improved access to mental health services, increasing continuity of care, improved cultural safety, integration of clinical and traditional Indigenous care, and low attrition rates among interdisciplinary teams.



## Description of Interventions

Community versus clinic interventions requires different resources, methods, and techniques, so they are grouped for ease of access for the reader. The description of the interventions from the selected articles is presented first, followed by their results in the next section.

### Clinic-Based Intervention

The Four Corners American Indian Circle of Services Collaborative (Duran et al., 2010) provided HIV/AIDS care to the rural patients of the Navajo Nation. Patients received medical care at an IHS infectious disease clinic, mental health services from an IHS psychiatrist, culturally-tailored substance abuse treatment at Hiina'ah Bits'os Society, and cultural services through a traditional healer. Navajo AIDS Network (NAN) case managers provided psychosocial and cultural support and had monthly case consultation with IHS providers. Traditional Navajo approaches were combined with Western methods of health assessment, resource assessment, and health care delivery.

An Aboriginal health framework and traditional healers were central to the integrated health care system in rural northern Ontario (Maar et al., 2009), which addressed mental, physical, and spiritual wellbeing. The clinic used a shared intake form and care coordination services. The mental health services, Knaw Chi Ge Win, were accessed through provider- or self-referral. Administrative and financial barriers were addressed by implementing an hourly rate versus fee-for-service to encourage collaboration. Case managers had training in nursing, as well as traditional healing and offered both pharmacological and herbal medicines for their patients. Peer feedback, supervision, and consultation were used.

The Women's Circle of the Native American Health Centers of San Francisco Bay Area and Oakland (Saylors, 2003) offered a broad range of services including access to traditional healers. The program included a coed substance abuse treatment facility and individual and group counseling. Nurse case managers completed medical assessments and referred to medical, mental, dental, or social services as needed. They also served as liaisons between residential and outpatient services.

Fenn and colleagues (2007) evaluated a program that assessed and intervened in regard to tobacco use within a primary care clinic serving Alaska Native patients. A certified medical assistant assessed patients for tobacco use, readiness to change, and treatment adherence at every

appointment and over the phone. The health educator was matched with a medical provider to collaborate on these cases.

At Albuquerque Indian Hospital (Parker et al., 1997) primary care physicians and nurses were trained to use a standardized brief screening tool to help identify mental health conditions. Nurses administered and scored the screen directly before visit. Physicians made referrals according to the screen instructions. A new referral was made for mental health treatment for 70% of patients that were previously undiagnosed (Parker et al., 1997).

To reach rural patients, a telemedicine approach (Davis et al., 2011) was paired with a community health clinic at one of seven locations. The depression care team consisted of off-site nurses, pharmacists, and psychiatrists and on-site primary care providers. A registered nurse functioned as a care manager for the telemedicine patients and addressed treatment barriers. A pharmacist and psychiatrist called or used interactive video to follow up with patients based on the recommendation of the care manager.

### **Community-Based Intervention**

Mendenhall and colleagues' (2012) informal, educational, and community-based intervention addressed diabetes among urban Indigenous people. Physicians, nurses, mental health providers, and content experts, such as nutritionists, met with community members weekly. All members of the group completed measures of height, weight, blood sugars, and foot checks at every meeting. Educational resources around exercise, food, and stress management were provided. The groups opened with prayer and a traditional meal.

Mehl-Madrona (2000) created and evaluated an intervention for pregnant women and their partners consisting of a series of talking circles with several health care providers aimed at reduction of alcohol, tobacco, and drug use during pregnancy. Lakota principles informed the talking circles and smudging ceremonies. Additional goals of the group included stress reduction, increase social support, and provide psychoeducation on birthing and parenting.

The integrated care system at the Acoma-Canoncito-Laguna (Davis et al., 1989) aimed to provide health education and promotion services to adolescents on the topics of mental and physical health, substance abuse, and family planning. This program was housed at the Laguna Pueblo high school in New Mexico (50 miles from Albuquerque); however, it was also linked to services within the community and IHS.

## Evaluation and Outcomes of Integrated Care Interventions

Integrated care interventions were analyzed by pulling the following content from the selected article: target problem, population, facility, intervention, study limitations, and study results (see Table 1). Interventions were carried out at diverse facility types and with varying patient populations from the Southwest, Midwest, and Alaskan regions of the United States, as well as Canada. Interventions will be described in relation to their results and in relation to both improved health care systems delivery techniques and improved health status of patients—both critical components of integrated care service delivery. Integrated care requires changes to the delivery of care in hopes of improving patient populations' health, so we parsed these two results out for the reader so that they could assess both changes to systems and individuals.

### Improved Health Status

As one might expect, improvements in health status were a central outcome, with seven of the nine interventions demonstrating health gains. Four interventions boasted improvements in physical health outcomes (Saylor, 2003; Marr et al., 2009; Mehl-Madrona, 2000; Mendenhall et al., 2012), three in substance use disorders outcomes (Fenn et al., 2008; Mehl-Madrona, 2000; Saylor, 2003), and two with improvements in mental health (Davis et al., 2011; 1989).

Physical health outcomes were measured or reported by claims of good health (Saylor, 2003); decreased health complications during and after delivery for mother and baby (Mehl-Madrona, 2000); improved blood pressure, A1C, and weight loss (Mendenhall et al., 2012); and decreased admissions to psychiatric hospitals and recidivism (Marr et al., 2009). Two of these four interventions also had decreased substance use behaviors, for a total of three out of nine interventions showing improvement in the area of substance use (Fenn et al., 2008; Mehl-Madrona, 2000; Saylor, 2003). Two of the nine interventions improved mental health status, specifically behaviors and attitudes (Davis et al., 1989), and reduced depression symptoms among the Indigenous veteran population, more so than among White veterans (Davis et al., 2011).

One intervention led to a decline in patient involvement with the criminal justice system (Saylor, 2003). Patients showed improvement in their functioning by obtaining housing (Duran et al., 2010), education, and employment (Saylor, 2003). In one intervention patients with HIV were able to address discrimination and resistance with their families and providers (Duran et al., 2010). The collaborations allowed for an increased ability to help families in need, which

included household and clothing items, transportation, and financial assistance (Duran et al., 2010).

### **Improved Care**

By taking steps toward integrated care, all of the nine interventions were able to demonstrate improvements in patient care. The improvements included increased access (Davis et al., 2011; 1989; Duran et al., 2010; Parker et al., 1997), leading to decreased need for services later (Duran et al., 2010); increased screening (Parker et al., 1997) and retention (Davis et al., 1989; Mehl-Madrona, 2000); awareness of risk and protective factors and adherence to medical regime (Duran et al., 2010); increased support (Mehl-Madrona, 2000); more strategies or options for managing their health and life (Fenn et al., 2007); and decreased utilization of acute services, thus off-setting high cost care (Mehl-Madrona, 2000). Four interventions highlighted the significance and success of their cultural component for improving patient care (Duran et al., 2010; Maar et al., 2009; Mendenhall et al., 2012; Saylor, 2003).

Four studies linked their improved care to enhancing providers' knowledge, ability, and confidence to deliver high quality care (Duran et al., 2010; Fenn et al., 2007; Maar et al., 2009), like more accurate diagnosing (Parker et al., 1997). With multiple disciplines, patients, and community members working in collaboration, providers were able to benefit from sharing knowledge and experiences, which translated into enhanced care. The sharing of knowledge between rural satellite sites allowed for improvement in protocols (Maar et al., 2009). Furthermore, newly hired providers were able to work at full capacity sooner due to decreased provider isolation, ongoing education for care teams, and solidified care teams and mentorship (Maar et al., 2009). Additionally, gaining cultural knowledge and training allowed providers to better relate to their patients and preserve cultural safety (Duran et al., 2010; Maar et al., 2009).

### **Limitations of Selected Articles**

It would be remiss not to mention the limitations of the selected articles, some of which were also identified within the articles themselves. The most common limitation was that all but two sampled the clinic population only, as opposed to community-based (Davis et al. 1989; Mendenhall et al., 2012). Only one study utilized telemedicine (Davis et al., 2011), despite other interventions serving both urban and rural communities (Duran et al., 2010; Maar et al., 2009; Parker et al., 1997). Of the studies, only two were true experimental designs (Davis et al., 2011;

Parker et al., 1997), and six were quasi-experimental designs (Duran et al., 2010; Fenn et al., 2007; Maar et al., 2009; Mehl-Madrona, 2000; Mendenhall et al., 2012; Saylor, 2003). Three of the studies had small sample sizes (Duran et al., 2010; Maar et al., 2009; Mendenhall et al., 2012), and one study had more women participants (Mendenhall et al., 2012). Only two studies completed data collection at a follow-up period (Fenn et al., 2007; Parker et al., 1997). Furthermore, replication of these interventions with subpopulations or samples is necessary due to the heterogeneity of the overall population.

## **DISCUSSION**

Integrated care is the integration of medical and behavioral health providers into a team of collaborative health professionals using a biopsychosocial model to assess, treat, and prevent both physical and mental health disorders. Through a systematic literature review, this paper sought to discover the effects of integrated care implementation for Indigenous patients in the areas of physical and mental health. Integrated care models and techniques can be broad and vary by the needs of the clinic, the providers, and the patients (SAMHSA, 2017). The behavioral health integration strategies used in the selected articles ranged from assessments, coaching calls, care coordination, talking circles, and one-on-one discussions with behavioral health providers. Further, integrated care can either be targeted or non-targeted. Targeted services “have the advantage of increased patient acceptance because they can be presented as fitting the patient’s (population) specific needs, as opposed to being a general service that should be added because the patient is psychologically troubled in some way” (Blount, 2003, p.125). Our results demonstrate that targeted integrated care for Indigenous patients resulted in positive health and systems outcomes in the reviewed articles.

All reviewed articles demonstrated improvement in at least one of the following areas: physical health, mental health, substance use, or overall well being. Out of nine articles, six demonstrated improvements in the area of mental health and substance abuse; three noted physical health improvements; and two noted gains in social, vocational, or environmental well being. In one intervention, depression even improved more so than with the White population (Davis et al., 2011). Integrated care implementation also resulted in system-wide changes including increased mental health assessment, access, medication adherence, patient retention, and care strategies. The diversity among integrated care intervention settings indicates that this

model is feasible in a variety of settings including those that are busy and resource-stressed.

The integration of behavioral health services into general health care for Indigenous populations appears to be a promising systems-level intervention to prevent and treat a number of chronic health needs based on the reviewed articles in this study. However, it is important to next determine if there is a significant improvement in health outcomes with the integration of behavioral health into medical care beyond literature review methodology. If results continue to remain significant in future research, it will be valuable to determine what components of integrated care interventions create positive change in this population. Integrated care interventions typically have many moving parts (e.g., behavioral health consultant, tribal patient navigator, diabetes consultant), and it is important to determine how much the model, versus individual providers, versus cultural tailoring relates to the positive health outcomes we noted in this study.

Trends that emerged in this project may shed light on resolving these questions. In assessing the rationale that each study used to integrate care services we discovered that *fit of services to population needs and symptoms* was most important. In other words, integrated care teams typically assess and treat patients using a broader lens and, therefore, are more likely to pick up psychological and social needs, in addition to the medical needs of patients. Indigenous patients are more likely than non-Indigenous patients to suffer from comorbid and multimorbid health issues requiring multiple, coordinated health care experts.

The second most popular reason to integrate care was to *provide health care that is more congruent with the health beliefs of Indigenous people*. The interventions that added cultural and social interventions (four out of nine articles) proved to be successful in affecting change in other areas of health and well being in addition to physical and mental health (e.g., general functioning, ecological improvements; Saylor, 2003). These results of cultural tailoring fall into the category of social determinants of health, which increasingly has been noted as the key to eliminate health disparities (Liburd, Jack, Williams, & Tucker, 2005). Our findings suggest the need to prioritize patients' cultural beliefs and practices in health care.

## Limitations

The limitations of this systematic review include location (U.S. and Canadian tribes only), the use of databases rather than unpublished practice-base evidence, and use of specific

keyword searches, which may result in missing research projects that could have added information to the study including potentially successful grassroots interventions that are not published (Whitbeck, Walls, & Welch, 2012). Future reviews may include closer evaluation of interventions studies that were ruled out due to not meeting strict criteria of this review, for example, practice-based evidence.

## **CONCLUSION**

Health care systems that serve Indigenous people currently underperform in the areas of prevention, assessment, and treatment (CDC, 2015; Lewis & Myhra, 2016), especially in the area of mental health; therefore, these systems must immediately be targeted for renovation to reduce health inequity and health disparities (Chapa, 2012; Hasnain-Wynia et al., 2010; Prince et al., 2007; Rodriguez, von Glahn, Grembowski, Rogers, & Safran, 2008). Prince et al. (2007) recommends that mental health be at the forefront of health care service delivery, health system development, and health and social policy, and integrated care may be one of the most effective models to accomplish this.

Study results can help guide other Indigenous-serving organizations and providers as they integrate mental health services into their health care systems to meet patient, family, and community needs. Specifically, culturally and regionally tailored integrated care for Indigenous patients is a promising form of health care delivery based on the results of this study. This targeted form of integrated care requires tribal and community collaboration to 1) increase medical providers' education on the community and their health beliefs, while 2) simultaneously revitalizing and prioritizing regional and tribal health beliefs in the clinic setting. A providers' tenure with a community alone does not equate to culturally appropriate care. It is important for providers to understand that their health knowledge, attitudes, and behaviors are embedded in a history of colonization. This awareness can help to shift care from, what can be, a judgmental experience to a healing and stigma-free experience for patients. Instead, ongoing training and community engagement is key to providing culturally appropriate care. Training for providers should focus on building knowledge, understanding, and empathy for Indigenous populations (Lewis, Hartwell, & Myhra, 2016). Specifically, understanding the impact of historical trauma and related intergenerational patterns of substance abuse and psychological trauma is critical in this population (Myhra, 2011; Myhra & Wieling, 2014).

The integration of cultural, spiritual, and traditional knowledge and practices into health care can help to build a foundation for healing and prevention. Community-based initiatives show promise for organization or intervention longevity and for true collaboration between provider-patient and health care organization-community to take place. Health care administrators may consider developing a patient and community advisory board in order to establish an ongoing dialogue and collaborative relationship that puts Indigenous values and beliefs at the forefront of agency policies and practices. Likewise, drawing on strong familial and community ties which are critical to maintain health and well being in Indigenous communities can serve to enhance prevention and treatment efforts. The next steps in this work are to continue to determine the effectiveness of integrated care in Indigenous communities, identify and learn from successful grassroots programs, evaluate practice-base evidence, and disseminate these best practices within Indigenous health care systems.

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**Table 1**  
**Results of Systematic Review of Integrated Care in Indigenous-Serving Health Care Sites**

| Study               | Target Problem          | Population   | Facility  | Intervention  | Study Limitations                            | Results  |
|---------------------|-------------------------|--|---|---|--|--|
| Davis et al. (2011) | Depression              | "Minority" veterans  | 7 community-based out-patient, which were Veteran Health Service satellite facilities | Telemedicine-based collaborative care model to address depression in a rural population                           | Non-generalizability                         | IMPROVED HEALTH STATUS: Improvements in mental health. Reduced depression symptoms among Native veteran population, more so than the White population.   |
| Davis et al. (1989) | General health of teens | Native American teenagers from urban New Mexico              | Indian Health Service and school  | School-based medical and mental health services tied to IHS services  | Non-generalizability                         | IMPROVED CARE: Increased access to care and retention. IMPROVED HEALTH STATUS: Improved mental health status including improved behaviors and attitudes.   |
| Duran et al. (2010) | HIV/AIDS                | Adult American Indians residing on or near the Navajo Nation | Indian Health Service   | Integrative HIV/AIDS care for rural patients on the Navajo Nation   | Small sample size; Quasi-experimental design | IMPROVED CARE: Increased access and later a decreased need for services. Increased awareness of risk and protective factors, and adherence to medical regime. Enhanced provider knowledge, ability, and confidence to deliver high quality care. Enhanced provider knowledge and training around cultural allowed providers to better relate to their patients and preserve cultural safety. Significant success found for the cultural component. IMPROVED HEALTH STATUS: Improved in their functioning by obtaining housing. Address discrimination and resistance among families and providers. Aided families in need with household and clothing items, transportation, and financial assistance. |
| Fenn et al. (2007)  | Tobacco use             | Urban Alaska   | Indian Health Service   | Health educator assesses tobacco use and readiness to change at every appointment and collaborated with physician | Quasi-experimental design                    | IMPROVED CARE: Increased care strategies/options. IMPROVED HEALTH STATUS: Decreased substance use behaviors.   |

continued on next page

**Table 1 Continued**  
**Results of Systematic Review of Integrated Care in Indigenous-Serving Health Care Sites**

|                          |  |  |                        |  |   |  |
|--------------------------|--|--|------------------------|--|---|--|
| Maar et al. (2009)       | Mental health                          | First Nations people of Canada   | Community-based        | Care coordination services and case management services  | Quasi-experimental design                         | IMPROVED CARE: The sharing of knowledge between rural satellite sites allowed for improvement protocols. Newly hired providers were able to work at full capacity sooner due to decreased provider isolation, ongoing education for care teams, and solidified care teams and mentorship. Enhanced provider knowledge and training around cultural allowed providers to better relate to their patients and preserve cultural safety. Significant success found for the cultural component. Enhanced provider knowledge, ability, and confidence to deliver high quality care.<br>IMPROVED HEALTH STATUS: Improvement in physical health outcomes. Decreased admissions to psychiatric hospitals and recidivism. |
| Mehl-Madrona (2000)      | Alcohol, drug, tobacco use, stress     | Native Americans of the Albuquerque and Tucson area, Hispanic peoples of this region | Primary care clinic    | Talking circles to reduce alcohol, tobacco, and drug use during pregnancy                          | Quasi-experimental design                         | IMPROVED CARE: Improved retention and support; decreased utilization of acute services thus off setting high cost care.<br>IMPROVED HEALTH STATUS: Improvement in physical health outcomes. Positive substance use disorders outcomes. Decreased health complications during and after delivery for mother and baby; reduced the risk of cesarean delivery, and improved infant Apgar scores. Decreased substance use behaviors.   |
| Mendenhall et al. (2012) | Diabetes                               | Midwestern urban community occupied heavily by the Ojibwe, Dakota & Hocak peoples    | Community-based        | Informal talking circles around diabetes with physicians, nurses, and mental health professionals  | Quasi-experimental design                         | IMPROVED CARE: Significant success found for the cultural component.<br>IMPROVED HEALTH STATUS: Improvement in physical health outcomes. Improved blood pressure, A1C, and weight loss.  |
| Parker et al. (1997)     | Mental health                          | Urban and rural Pueblo tribes and rural Navajo Nation tribes                         | Indian Health Services | Primary care physicians and nurses implement a mental health screening tool at clinic appointments | Follow-up barriers                                | IMPROVED CARE: Increased access to care and screening. More accurate diagnosing.   |
| Saylor (2003)            | Substance Abuse; woman's health issues | Anchorage, Alaska Natives  | Primary care clinic    | Nurse case mangers complete medical and mental health assessment and refer as necessary            | Limited to self-report; Quasi-experimental design | IMPROVED CARE: Significant success found for the cultural component.<br>IMPROVED HEALTH STATUS: Improvement in physical health outcomes. Decreased substance use behaviors. Physical health outcomes were measured or reported by claims of good health. Decline in patient involvement with the criminal justice system. Improved in their functioning in education and employment.   |

**Table 2**  
**Motivation for Integration**

| Study                    | Health disparities    |                    | Discord between care and needs |                  |  |   | Problems with standard of care         |                              |                                     |   |  | Financial/poverty barriers |                    | Effective-ness of integrated care   |
|--------------------------|-----------------------|--------------------|--------------------------------|------------------|--|---|--|------------------------------|-------------------------------------|---|--|----------------------------|--------------------|---|
|                          | High MH/SA prevalence | High PH prevalence | HT related to MH               | HT related to PH | Treatment discordant with cultural beliefs; Treatment lacks cultural context | NA cultural, spiritual, social strengths that can be utilized in BPS care | IHS/ Primary care see many MH symptoms | Stigma of seeing MH provider | Mistrust of physician and/or system | Standard of care/ EBT is less effective | Lack of HC resources (treatment, medication, or providers) | Travel barriers            | Insurance barriers | Evidence that IC is validated as an effective MH, SA, & PH intervention for NA people |
| Davis et al. (2011)      |                       |                    |                                |                  | ✓  | ✓   | ✓                                      | ✓                            | ✓                                   | ✓                                       |  | ✓                          | ✓                  | ✓   |
| Davis et al. (1989)      | ✓                     |                    |                                |                  |  |   |  |                              | ✓                                   | ✓                                       | ✓  | ✓                          | ✓                  |   |
| Duran et al. (2010)      |                       | ✓                  |                                | ✓                |  | ✓   |  | ✓                            | ✓                                   | ✓                                       | ✓  | ✓                          | ✓                  | ✓   |
| Fenn et al. (2007)       | ✓                     |                    |                                |                  |  |   |  |                              |                                     |   |  |                            | ✓                  |   |
| Maar et al. (2009)       | ✓                     |                    | ✓                              | ✓                | ✓  | ✓   |  |                              |                                     |   |  | ✓                          | ✓                  | ✓   |
| Mehl-Madrona (2000)      |                       | ✓                  |                                |                  | ✓  |   |  |                              |                                     |   |  |                            |                    |   |
| Mendenhall et al. (2012) |                       | ✓                  |                                | ✓                | ✓  | ✓   |  |                              |                                     |   |  |                            |                    | ✓   |
| Parker et al. (1997)     | ✓                     |                    | ✓                              | ✓                | ✓  |   | ✓                                      | ✓                            |                                     | ✓                                       |  |                            |                    |   |
| Saylor (2003)            | ✓                     |                    |                                |                  | ✓  |   |  |                              |                                     |   |  |                            | ✓                  |   |
| Total by Article         | 5                     | 3                  | 2                              | 4                | 6  | 4   | 2                                      | 3                            | 3                                   | 4                                       | 2  | 4                          | 6                  | 4   |
| Total by Category        | 8                     |                    | 7                              |                  |  |   | 4                                      |                              |                                     |   |  | 6                          |                    | 4   |