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Abstract

While substantial practical, empirical, and theoretical contributions have been made toward the implementation of healthcare innovations, significantly less attention has been directed towards the sustainability of these interventions. For this reason, many healthcare innovations become unsustainable over time—yielding few long-term improvements, causing stakeholder disenchantment, and wasting valuable resources. The use of tobacco products is a leading cause of preventable death and disease in the United States that is disproportionately prevalent among individuals with severe mental illness, making the development and sustainment of evidence-based tobacco control programs imperative to alleviating this public health burden. As a final project in Grand Valley's Doctor of Nursing Practice program, a tobacco control program was implemented at a local community mental health organization with limited funding, utilizing the EPIS framework to promote the long-term sustainability of these clinics. Furthermore, while this programming is projected to become a sustainable healthcare innovation within the designated community mental health organization, low attendance, high drop out and attrition, and the COVID-19 pandemic severely limited this project's findings.

Keywords: sustainability, evidence-based, tobacco control, community mental health, serious mental illness

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Despite significant advances in dissemination and implementation science, the sustainability of evidence-based healthcare innovations and programming remains a dynamic challenge for primary care and public health institutions (Hailemariam et al., 2019). Specifically, while substantial practical, empirical, and theoretical contributions have been made toward the implementation of healthcare innovations, significantly less attention has been directed towards the sustainability of these interventions. For this reason, many healthcare innovations become unsustainable over time—yielding few long-term improvements, causing stakeholder disenchantment, and wasting valuable resources (Fleiszer, Semenic, Ritchie, Richer, & Denis, 2015). These failed innovations negatively impact the opinions of the public, patients, and organizational staff while decreasing their enthusiasm to engage in future improvement efforts (Lennox, Maher, & Reed, 2018).

Currently, our understanding of sustainability is limited due to conflicting conceptual definitions and inconsistent reporting in the existing literature; therefore, the implementation processes necessary for delivering sustainable healthcare innovations in primary and public health settings remains unclear (Hailemariam et al., 2019). In fact, much of the existing literature on sustainability is still theoretical, offering little guidance on how to sustain evidence-based healthcare innovations, deliver healthcare innovations, implement healthcare innovations, and measure innovation outcomes—which is why approximately 40 percent of programs become unsustainable after two years of initial funding (Moore, Mascarenhas, Bain, & Straus, 2017; Vitale et al., 2018). For these reasons reason, I sought to identify frameworks, models, tools, and implementation strategies that have shown to support sustainability efforts to guide the

implementation and long-term sustainability of an evidence-based, tobacco control program in a local community mental health organization with limited funding; this programming is in accordance with the facility's mission and strategic plan for 2019-2021 as well as the World Health Organization's 2019 "Tobacco Free Initiative" supporting tobacco control (Kandel & Kandel, 2014). The implementation and integration of this program within the identified organization will be conducted as my final project in Grand Valley's Doctor of Nursing Practice program.

Background

Tobacco Control Programming

In 2013, 42.1 million (one in five) United States adults used tobacco products, resulting in the leading cause of preventable deaths estimated at 480,000 deaths every year (Vitale et al., 2018). In fact, if tobacco products continue to be used at this rate, the Center for Disease Control and Prevention (CDC) predicts that the economic cost of smoking will eventually exceed $300 billion per year, resulting in the premature deaths of over five million American youth due to tobacco-related diseases (United States Department of Health and Human Services, 2014). Furthermore, while smoking rates within the general population have declined since the U.S. Surgeon General's 1964 report, smoking is still highly prevalent among those with severe mental illness (SMI) as this population consumes approximately 50 percent of all cigarettes sold within the United States (Prochaska, Das, & Young-Wolff, 2017). Given this burden, it becomes imperative that quality, evidence-based tobacco control (TC) programs are developed and sustained to improve smoking-related health outcomes.

Freedom From Smoking Program

In 1975, the American Lung Association's (ALA) leadership team sought to develop a TC program that was medically and ethnically sound, cost-effective, evidence-based, and easily replicable (American Lung Association, 2018). The resulting program, known as the Freedom from Smoking (FFS) program, has helped over one million smokers quit since its nationwide introduction in 1981, emphasizing improved lifestyle habits while providing participants with strategies to positively change their behaviors (American Lung Association, 2018). According to the FFS facilitator guidebook, this program has been redesigned and is regularly updated to ensure the quality of interventions and program activities, utilizing the Three-Link Chain of Addiction Model as a guiding framework. This program is flexible in its design as it can be facilitated in both open (community enrollment) and closed (organization enrollment) formats as the ALA provides the trained facilitator with life-long access to recruitment materials at no cost (American Lung Association, 2018).

Organizational Setting

The chosen TC programming will be implemented at an urban, Midwestern, private non-profit community mental health organization (CMHO) that is dedicated to the collaborative delivery of evidence-based mental health and substance abuse treatments. The organization of interest has been operating since 1991, functioning under a Board of Directors compromised of community leaders. The clients served at this organization are primarily of low socioeconomic status and insured under Medicaid—having as little as $40 per month to spend on food and other essential items (M. Barnes, personal communication, August 1, 2019). Currently, the organization does not offer any structured TC programming, although prescribers and organizational staff are dedicated to their shared goal of providing this service.

A previous Doctor of Nursing Practice student sparked this initial interest with a novel program encompassing the findings from her final project; however, while this novel program had a positive return on investment, it was ultimately unsustainable due to the program's inability to provide on-going training and support to organizational staff, the continued burden to ensure the program's quality over time, and the disproportionate amount of time required to prepare supplies for individual clinics. For these reasons, the ALA's FFS program was chosen to replace this novel programming as it directly addresses these concerns, providing facilitators with on-going training and support, the organization with a professional partnership that will ensure the program's quality over time, and the organization's staff with professional materials that require no assembly.

Organizational Assessment

The IOA Model

The Institutional Organizational Assessment (IOA) model provides a way of systematically collecting data that allows for the understanding of an organization—including the organization's success, performance, and the factors that promote its performance (Canadian International Development Agency, 2006). Specifically, this framework suggests that key forces drive an organization's performance, seen as a function of the organization's external environment (administrative and legal, political, social/cultural, geographic, stakeholder, and economic factors), motivation (history, mission, culture, and incentive factors), and the ability to use internal capacities (strategic leadership, structure, human resources management, financial management, program/process management, etc.) to achieve results (effectiveness, efficiency, relevance, and financial viability). This framework was chosen because it provides a framework of analysis, a common language, and systematic tools which can be used to achieve results while

ensuring that information needs are both relevant and critical (Canadian International Development Agency, 2006). This framework was used successfully when creating and implementing the previous tobacco control group at this organization. See Appendix A for a diagram of the IOA Model.

External environment. Because organizations are considered open systems, the external environments in which they function are important to consider if they are to perform well (Canadian International Development Agency, 2006). Therefore, when performing an organizational assessment, the following factors must be evaluated: administrative and legal, political, social/cultural, geographic, stakeholder, and economic conditions.

Administrative and legal. The advocacy for effective laws and stakeholder engagement to reduce tobacco consumption aligns with the World Health Organization's 2019 "Tobacco Free Initiative," fighting for increased awareness and regulations that promote TC (Kandel & Kandel, 2014). These control measures are expressed as laws, regulations, and administrative decisions, providing a framework for governments to reduce the heavy burden of disease and death that is attributable to tobacco use and exposure (Kandel & Kandel, 2014). Administrators to consider in the State of Michigan include the following: Michigan Senator Debbie Stabenow, State Governor Gretchen Whitmer, Secretary of State Jocelyn Benson, and Attorney General Dana Nessel (Kent County Administration, 2019). Organization administrators, on the other hand, include the agency's Chief Clinical Officer and Services Director.

Political. Tobacco smoking first became a public health concern after the U.S. Surgeon General made a public service announcement that attributed tobacco use as a risk factor in the development of lung cancer and other health disparities in 1964 (Breslau, Novak, & Kessler, 2004). Shortly after, the advertising of tobacco products was banned on both television and radio

stations with the passing of the Public Health Cigarette Smoking Act in 1971 (Breslau et al., 2004). Then, in the attempt to further regulate these products, the federal government increased the taxation of cigarettes in the 1980s and passed the Family Smoking Prevention and Tobacco Control Act in 2009; this act gave the Food and Drug Administration (FDA) the authority to regulate the manufacturing, marketing, and sale of tobacco products (Breslau et al., 2004; Marr & Huang, 2014). Currently, there is a global movement promoting the right to "smoke-free" air and prohibiting the use of tobacco products in workplaces, restaurants, and bars; Michigan is one of 25 states that have enacted this smoke-free law (Campaign for Tobacco-Free Kids, 2018). Furthermore, while there are few Federal laws regulating the advertisement of e-cigarettes and vape shops, Michigan State Senator Gretchen Whitmer is working to ban the sale of flavored nicotine vaping products in response to their increased use among targeted youths (Mensah et al., 2004; Smith, 2019).

Social/cultural. As previously stated, tobacco smoking is disproportionately prevalent among those with SMI as this population consumes 50 percent of all cigarettes sold in the U.S. and account for 200,000 of the annual 520,000 smoking-related deaths (Colton & Manderschied, 2006). In 2011, 23.3 percent of Michigan adults aged 18 and older smoked cigarettes; furthermore, in 2013, Michigan's percentage of SMI among adults was 4.4 percent (n = 336,000)—which is similar to the national average of 4.2 percent (Centers for Disease Control and Prevention, 2014; Substance Abuse and Mental Health Services Administration, 2015). In other words, less than 19 percent of Michigan adults with SMI are accounting for 50 percent of all cigarettes smoked. See Tables 1 and 2 for this organization's client demographics by race and ethnicity.

Geographic. This organization is situated in an urban community in midwestern Michigan that is divided into four quadrants (northeast, northwest, southeast, and southwest). Currently, there is limited TC programming within the state of Michigan, with the closest TC program being 2.5 hours away.

Stakeholder. Organizational stakeholders include the following: adult community members that use tobacco products, community healthcare organizations, and community mental health organizations. Program stakeholders, however, include the following: clients with SMI that are served by the designated community mental health organization and use tobacco products, facility prescribers, assertive community treatment (ACT) teams, and managerial staff members.

Economic. In 2016, the cost of smoking-related illness amounted to approximately $300 billion U.S. dollars per year, including $170 billion in direct medical care for adults and $156 in lost productivity (American Lung Association, n.d.; Centers for Disease Control and Prevention, 2018; Centers for Disease Control and Prevention, 2019). Subsequently, the annual healthcare costs in Michigan attributable to smoking are approximately $4.59 billion, and the average annual productivity losses are $4.78 billion (Campaign for Tobacco Free Kids, 2019). The average annual out-of-pocket cost of smoking in Michigan is approximately $2,376, and the average annual healthcare cost per smoker is $3,082 (McCann, 2019). Finally, the average annual income loss per smoker in Michigan is $4,213 (McCann, 2019).

Motivation. Despite having limited resources, several organizations are able to perform well because of the organization's motivation and personality traits (Canadian International Development Agency, 2006). To adequately assess motivation, the following factors must be evaluated: history, mission, culture, and incentives and rewards.

History. Historically, this community mental health organization was developed in 1991, offering a wide range of services that are used either individually or in combination to partner with clients in achieving their personal goals. These services currently include the following: Assertive Community Treatment (ACT), a Community Treatment Team (CTT), Action Employment Services (AES), Dialectical Behavior Therapy (DBT), Substance Abuse Services (not including TC), Community Payee Services, a peer-run Wellness Center, and the organization's Navigate program. A group TC program was first introduced to this organization by a previous DNP student who focused on participant motivation, self-efficacy to quit, the prescription of nicotine replacement therapies (NRT), and number of cigarettes smoked.

Mission. This organization's mission is to deliver "collaborative" and "evidence-supported" mental health and substance abuse treatments that "foster hope and wellness." Within the last year, organizational staff members have adopted the shared goal of developing and implementing an evidence-based group TC program that improves the smoking treatment services within the organization, provides a supportive environment that fosters participants' capacity confidence to quit, and that is finically viable given their limited resources.

Culture. While clients are asked about smoking practices during the organization's intake process, they are not questioned about their interest in quitting as there are currently no TC services available. Furthermore, while prescribers received education on the federally approved cessation agents and NRTs available during the previous student's project implementation process, these pharmacotherapies are rarely discussed or offered by facility prescribers as these medications have the most success when combined with cessation cognitive behavioral therapies.

Incentives/rewards. Because TC programming is line with the organization's mission to offer services and treatments that foster hope and wellness, the development of a sustainable TC

program may be viewed as an incentive as it would help to achieve this goal. Additionally, the organization would receive $34.40 per participant/group session attended in Medicaid reimbursements for providing this programming.

Capacity. Organizational capacity is defined as the organization's ability to use available resources to perform well (Canadian International Development Agency, 2006). To adequately assess capacity, the following factors must be evaluated: strategic leadership, structure, human resources management, financial management, infrastructure, technology, program/process management, and inter-organizational linkages.

Strategic leadership. As previously stated, the designated community mental health organization operates under the direction of a Board of Directors made up of community leaders. The strategic leadership team for this TC programming include an advisory committee comprised of two Grand Valley State University faculty, an organizational site mentor and prescriber, and the organization's Chief Clinical Officer and Site Director.

Structure. Clients served at this community mental health organization are assigned to an ACT team—including registered nurses, social workers, a psychiatrist, and a prescribing provider—who oversee and manage their care. Furthermore, while the organization offers substance abuse services for co-occurring disorders (including individual therapy, skills groups, care coordination, and recovery support services), these services do not extend to include tobacco products.

Human resources management. This community mental health organization is served by Human Resource Specialist who is responsible for the organization's workforce and handling employee relations, benefits, payroll, and training.

Financial management. This organization receives the majority of its program funding through Medicaid reimbursements, and has been receiving less funding for some critical services provided over the last couple of years. The organization's expenses for substance abuse services in the years 2016-2017 were $403,277 per year, with the difference between total agency revenue and expenses being $21,214. See Appendix B for a diagram of the organization's most recent financial report.

Infrastructure. While not stationed on a local bus line, this community mental health organization is well-stationed within the community, having access to other external resources (programs) and only being a few miles away from acute mental health treatment facilities. Roads and sidewalks are well maintained, well-lit, and not congested with automobile traffic. Additionally, the functional space of this facility is conducive and supportive of group therapy sessions.

Technology. This organization uses the Streamline electronic health record to effectively plan and coordinate the care of its clients; computers and appropriate technologies/software is readily available to aid in group therapy sessions and meetings. The previous DNP student also provided this facility with a Smokerlyzer to measure participants' expired carbon monoxide (CO) which is supported by the ALA FFS program.

Program/process management. As previously stated, there is currently no TC programming within this organization. Additionally, while staff have been trained in CBT and are capable of leading group therapy sessions, none have been specifically trained on how to deliver group TC interventions.

Inter-organizational linkages. While this community mental health organization contracts with multiple insurance sources and mental health agencies within the surrounding

community, this facility does not currently have any inter-organizational linkages with agencies specialized in TC programming.

Performance. Finally, to perform well, organizations must operate both effectively and efficiently, accounting for the organization's external environment, motivation, and capacity (Canadian International Development Agency, 2006). Therefore, to adequately assess performance, the following factors must be evaluated: effectiveness, efficiency, relevance, and financial viability.

Effectiveness. The organization is not currently effective in the management and treatment of their clients who use tobacco products as there is no programming available to support cessation efforts. See Appendix C for a diagram of the organization's outcomes by services provided for the years 2016-2017.

Efficiency. This organization currently has an efficient process in place for referring clients for substance abuse programming; this process does not, however, include TC interventions or programming.

Relevance. In addition to the facts already stated, individuals with SMI account for nearly half of the smoking-related deaths in the U.S., living on average 25 years less than the general population due to the adverse effects that smoking has on health. Despite this, many individuals with SMI want to quit and are capable of quitting with proper support—including CBT and approved pharmacotherapies delivered in group settings. Additionally, both client and staff interest in TC programming is in alignment with the organization's mission and strategic plan for 2019-2021.

Financial viability. This community mental health organization has outlined their need to increase grant/donor contributions while diversifying funding sources in their strategic mission

for 2018-2021. Specifically, the availability of small grants such as Grand Valley State University's Presidential Grant provided a solution to this goal. The previous student's program was found to have a positive return on investment, delivering $1.26 for every $1.00 spent to provide this programming. A comprehensive SWOT analysis was performed to evaluate this need, exploring potential strengths, weaknesses, opportunities, and threats to the proposed programming.

SWOT Analysis

A SWOT analysis includes internal and external analyses to better understand an organization's strengths, weaknesses, opportunities, and threats. Strengths and weaknesses are internal, affecting the organization in the present; opportunities and threats are external, affecting the organization in the future. See Table 3 for a visual representation of a SWOT analysis based on the organizational assessment.

Strengths. Present strengths of this organization to provide the described TC programming include the following: alignment with the organization's mission/strategic plan for 2018/2021, provider experience with behavioral health populations and approved cessation agents and NRTs, provider availability to prescribe cessation agents and NRTs, the functional space of the facility to provide group therapy sessions, employee commitment to the provision of quality care to clients served, and staff and client buy-in.

Weaknesses. Present weaknesses of this organization to provide the described TC programming include the facility's limited resources (staffing, financial, etc.) impacting the sustainability of the program and its reliance on the state for Medicaid funding and reimbursements.

Opportunities. Future opportunities for this organization to provide the described TC programming include the following: the need for TC programming in West Michigan, the prevalence of tobacco use and dependence among the organization's clients, the billable opportunities for cessation counseling, acupuncture therapy, and transportation time rendered, and client interest in smoking cessation programming.

Threats. Future threats that this organization faces with the implementation of the described TC programming include the potential for exacerbated SMI (which would impede participants' ability to participate in therapy sessions) and the current tobacco regulation guidelines allowing for the advertisement of newer products.

Stakeholders

As previously mentioned, organizational stakeholders for this programming include the following: adult community members that use tobacco products, community healthcare organizations, and community mental health organizations; program stakeholders, on the other hand, include clients with SMI that are served by the community mental health organization and use tobacco products, facility prescribers, ACT teams, and managerial staff members. The next section will describe the methods, results, and characteristics of the literature review performed to evaluate the concept of sustainability.

Literature Review

The purpose of this review is to report on the existing frameworks, models, and tools that can be used to evaluate/measure the sustainability of evidence-based programs and innovations, and to determine which factors/interventions facilitate the sustainability of those programs and innovations over time. This review, therefore, aims to answer the following questions:

1. Are there existing frameworks/models/tools that can be used to evaluate the sustainability of evidence-based programs and innovations?
2. What factors facilitate the sustainability of evidence-based programs and innovations?
3. What factors hinder the sustainability of evidence-based programs and innovations?
4. How has sustainability been measured?

The findings of this review could help to guide the implementation and long-term sustainability of the FFS TC program within the dedicated community mental health organization with limited funding.

Methods

Search methods. To better understand this phenomenon, a literature synthesis was performed including systematic reviews, quantitative and qualitative studies, theory, and grey literature in the English language between 2014 to 2019 as appropriate to the current, theoretical state of this clinical problem. See Appendix D for diagram depicting the identification, screening, eligibility, and inclusion of identified publications that was adapted from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher, Liberati, Tetzlaff, Altman, & PRISMA Group, 2009). The selection of search terms, strategy, and databases were supported by a liaison librarian for the university's professional programs and Center for Health Sciences to ensure the overall coverage and quality of review.

The database search was conducted through MEDLINE (ISI), PsychINFO, Academic Search Ultimate, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), the Cochrane Library, Health Source, and PubMed, using the terms "sustainability," "routinization," "implementation," "long-term implementation," "institutionalization," "durability," "capacity building," and "program capacity." Truncated forms and alternative spellings of these terms were

included in the search; boolean operators (OR, AND) were used to expand the search to include all relevant publications (e.g. “sustainability AND routinization AND implementation”). A snowballing approach was also used in which references from included publications were analyzed and retrieved when applicable. Finally, the following journals were searched individually for publications on implementation and sustainability: *Implementation Science, Journal of Health Organization and Management, Journal of Advanced Nursing, BMC Health Services Research, Annual Review of Public Health, Journal of Public Health Management, Addiction Science & Clinical Practice, Journal of Behavioral Health Services and Research, Journal of Nursing Administration, Academy of Management Review, American Journal of Public Health, Administrative Science Quarterly, Administration and Policy in Mental Health and Mental Health Services Research, American Journal of Evaluation, Health Services Research.*

The search was initially conducted in June 2019, and a follow-up search was performed prior to submission in July 2019. Publications were included if they identified or described a sustainability framework, focused on primary/public health interventions conducted in a United States healthcare setting, or if they contained clear implementation and sustainability strategies. Publications were excluded if they only provided commentaries or narrative accounts, focused on adolescent/child populations, or if they were performed in acute care or hospital settings.

Search outcomes. The search yielded 77 publications from MEDLINE (ISI), 25 publications from PsychINFO, 35 publications from Academic Search Ultimate, 10 publications from CINAHL, 9 publications from the Cochrane Library, 3 publications from Health Source, and 12 publications from PubMed for a total of 171 articles. An additional 17 publications were identified by searching through the reference sections of included publications. A total of 85

duplicates were found. After removing duplicates, the titles and abstracts of 103 publications were screened and 78 were excluded. The remaining 25 articles were chosen for full-text reviews; of these, 16 articles were excluded because they were not conducted in a public health/primary care setting (2), were not on implementation or sustainability (2), did not provide sufficient information on implementation (4), did not address sustainability (3), only included a narrative account (1) or commentary (3), were written as a study protocol for future reviews (1). The remaining 9 publications were included in this review, including four systematic reviews, one qualitative, randomized controlled trial (RCT), two theoretical articles, and two concept analyses.

Results

Quantitative. Four systematic reviews met inclusion criteria and were included in this review (Hailemariam et al., 2019; Hodge & Turner, 2016; Lennox et al., 2018; Moullin, Dickson, Stadnick, Rabin, & Aarons, 2019). Of these, Three sought to identify and summarize existing sustainability strategies in accordance with PRISMA guidelines (Hailemariam, 2019; Lennox et al., 2018); one sought to examine and evaluate the application of the exploration, preparation, implementation, sustainment (EPIS) framework in accordance with PRISMA guidelines (Moullin et al., 2019).

Qualitative. One qualitative, RCT met inclusion criteria and was included in this review (Vitale et al., 2018). This trial was a group randomized, multi-phase study that evaluated a sustainability action planning training curriculum to determine its impact on sustainability outcomes in 24 state TC programs (12 intervention, 12 comparison) using the sustainability theory of change conceptual model.

Theoretical. Because much of the research on this topic is still theoretical in nature—and because this review sought to understand and describe the existing sustainability frameworks, models, and tools—two theoretical articles met inclusion criteria and were included in this review (Meissner, 2018; Persaud, 2014). These articles provided practical frameworks from which to operationalize sustainable healthcare innovations, including the leadership, alignment, data, demonstration, evaluation, replication, and sustainability (LADDERS) and the enhancing learning, innovation, adaptation, and sustainability (ELIAS) frameworks (Meissner, 2018; Persaud, 2014). Finally, two concept analyses met inclusion criteria and were included in this review (Fleiszer et al. 2015; Shelton et al., 2018). The purpose of this analyses were to provide a report on the concept of healthcare innovation sustainability, identifying sustainability characteristics, preconditions, outcomes, and boundaries to better understand the application of this concept.

Characteristics

Sustainability definition. Because there is no clear consensus on how to define "sustainability," the included concept analyses and three of the systematic reviews sought to identify how this term has been described in existing literature (Fleiszer et al., 2015; Hailemariam et al., 2019; Hodge & Turner, 2016; Lennox et al., 2018; Shelton et al., 2018). Of these publications, three concluded that more than half of their reviewed articles did not include/provide an explicit definition of sustainment (Hailemariam et al., 2019; Hodge & Turner, 2016; Fleiszer et al., 2015). Only one systematic review concluded that more than half (76 percent) of their reviewed publications included an explicit definition of this term (Lennox et al., 2018). Of the articles that did not include definitions, sustainability was either inadequately defined, conceptualized, or missing altogether. Of the definitions offered, the following were the

most frequently reported: “after a defined period of time, the program, clinical intervention, and/or implementation strategies continue to be delivered,” “continued or discontinued practice/project/activity,” and “continued programme activities,” (Hailemariam et al., 2019, pp. 6; Hodge & Turner, 2016, pp. 196”; Lennox et al., 2018, pp. 4). One concept analysis stated that up to 65 percent of definitions of sustainability are newly created by study authors (Shelton et al., 2018). The other concluded by giving recommendations, stating that definitions of sustainability should include elements of beneficence, persistence, and development over time (Fleiszer et al., 2015).

Theoretical perspectives. Of the systematic reviews included, two concluded that less than half (19 and 39%, respectively) of their reviewed articles reported using theoretical frameworks or theory to guide their sustainment efforts (Hailemariam et al., 2019; Hodge & Turner, 2016). Only one systematic review found that the majority (63%) of their reviewed articles reported an explicit link to theory with 15 different theoretical approaches observed (Lennox et al., 2018). Both concept analyses and the included randomized controlled trial identified and described applicable theoretical frameworks, including the Integrated Sustainability Framework, the Preconditions of Sustainability Model, and the Sustainability Theory of Change Conceptual Model (Fleiszer et al., 2015; Shelton et al., 2018; Vitale et al., 2018).

Collectively, the theories reported in included publications were as follows: Diffusion of Innovations Theory, Complexity Theory/Complex Systems Theory, Ecological Theory, General Systems Theory, Open Systems Theory, and the Normalization Process Theory (Hodge & Turner, 2016; Lennox et al., 2018). Alternatively, the theoretical frameworks, models, and tools explicitly reported in included publications were as follows: the EPIS Framework, Integrated

Sustainability Framework, ELIAS Performance Management Framework, the LADDERS paradigm, the guidelines developed by the World Health Organization (WHO), the Ministry of Health's Institutionalization Change Package, the University Research Company's (URC) Institutionalization Model, the PROSPER model, Preconditions of Sustainability Model, the Program Sustainability Assessment Tool (PSAT), and the frameworks developed by the authors of individual studies (Fleiszer et al., 2015; Hailemariam et al., 2019; Hodge & Turner, 2016; Meissner, 2018; Moullin et al., 2019; Persaud, 2014; Shelton et al., 2018; Vitale et al., 2018).

Of the included publications that provided descriptions of specific frameworks and models (including the EPIS, ELIAS, and Integrated Sustainability frameworks, the LADDERS diagram, and the Theory of Change and Preconditions of Sustainability models), all included process factors (Fleiszer et al., 2015; Meissner, 2018; Moullin et al., 2019; Persaud, 2014; Shelton et al., 2018; Vitale et al., 2018), three included both contextual and intervention factors (Fleiszer et al., 2015; Moullin et al., 2019; Shelton et al., 2018), and three included other factors which could not be placed into these categories (Fleiszer et al., 2015, Moullin et al., 2019; Shelton et al., 2018). The Theory of Change model, Preconditions of Sustainability model, and the LADDERS paradigm only included process factors as they solely focused on the processes involved in producing sustainable healthcare innovations (Fleiszer et al., 2015; Meissner, 2018; Vitale et al., 2018). See Tables 4, 5, 6, and 7 for a comparison of these frameworks and models.

Sustainability approaches. Of the publications reviewed, three systematic reviews and one concept analysis discussed specific sustainability approaches (Hailemariam et al., 2019; Hodge & Turner, 2016; Lennox et al., 2018; Shelton et al., 2018). Of these, two reviews reported the on the approaches most frequently observed in the existing literature, including the following: funding/contracting for the continued use of healthcare innovations,

continued/adequate training, supervision, feedback, program familiarity, perceived competence, staff mobility, workplace support, and ongoing technical assistance (Hailemariam et al., 2019; Hodge & Turner, 2016). These reviews also recognized the importance of theory and models to guide long-term implementation efforts (Hailemariam et al., 2019; Hodge & Turner, 20116). The third review differentiated between intervention-specific and system's sustainability and prospective and retrospective approaches, suggesting approaches according to these foci and analyses (Lennox et al., 2018). See Tables 8 and 9 for a comparison of these approaches according to level of use and assessment time. The concept analysis concluded that sustainment strategies present methodological challenges due to the validity and reliability of existing tools and outcome measures; this analysis also recognized the importance of theory to guide long-term implementation efforts (Shelton et al., 2018).

Facilitating and hindering factors. Three systematic reviews reported similar facilitating factors of sustainability, including innovation characteristics/initiation design and delivery, capacity/resources, and process and interaction factors/organizational setting (Hailemarian et al., 2019; Hodge & Turner, 2016; Lennox et al., 2018). Two reviews also included context as a sustainment factor, including the internal and external environments (Hailemarian et al., 2019; Lennox et al., 2018). One review included negotiating initiative processes and people as facilitative factors (Lennox et al., 2018). All three of these reviews included subcomponents for each facilitative factor identified; see Tables 10, 11, 12, 13, 14, and 15 for a comparison of these facilitative factors and subcomponents as well as the frequency of sustainability constructs observed in reviewed studies (Hailemariam et al., 2019; Hodge & Turner, 2016; Lennox et al., 2018). Of these reviews, Lennox et al. (2018) detected the highest

frequency of sustainability factors, with six factors being demonstrated in 75 percent of the observed sustainability approaches.

The included concept analyses also discussed emerging facilitative factors for sustainability, including process factors, intervention/innovation characteristics, and contextual factors (Fleiszer et al., 2015; Shelton et al., 2018). One analysis included leadership factors as a precondition of sustainability and provided definitions of identified sustainability factors (Fleiszer et al., 2015). The other analysis included implementer and population characteristics as emerging sustainability factors and described the settings in which these have been observed, including communities, coalitions, schools, whole systems, clinical/social service settings, and global settings (Shelton et al., 2018). See Tables 16, 17, 18, and 19 depicting these facilitative factors and subcomponents.

Of the included publications, only one systematic review explicitly identified hindering factors of sustainability (Hailemariam et al., 2019). According to this review, the sustainability of healthcare innovations can be hindered by capacity, contextual, process, innovation, and other factors; these factors are further categorized into subcomponents (Hailemariam et al., 2019). See Table 20 for a depiction of these hindering factors and subcomponents as well as the frequency of hindering constructs observed in reviewed studies. One systematic review explained how sustainability factors may become hindering factors in their discussion of these constructs (Hodge & Turner, 2016). See Tables 21, 22, and 23 for a depiction of the relationships between these identified facilitating and hindering constructs.

Measures. Measures of sustainability were found to be as diverse as the implementation approaches reviewed, including interviews, observations, self-report measures, program adherence assessments, prospective and retrospective assessments, and record reviews (Hodge &

Turner, 2016; Lennox et al., 2018; Vitale et al., 2018). One systematic review included an analysis of assessment processes, including the incidence of measures used by percent, and concluding that the measures/instruments used to evaluate sustainability are often unclear with unreported validity and reliability (Hodge & Turner, 2016). One concept analysis gave a similar report, stating that there is currently no consensus on how to measure sustainability and that psychometric properties are rarely reported for the measurements that are used (Shelton et al., 2018). One systematic review and one concept analysis did not include discussions of measurement (Fleiszer et al., 2015; Hailemariam et al., 2019).

Outcomes. Of the included publications, one systematic review, the RCT, and one concept analysis explicitly discussed sustainability outcomes (Hailemariam et al., 2019; Shelton et al., 2018; Vitale et al., 2018). First, the systematic review grouped sustainability into two categories, including those related to the implementation process and those related to the healthcare innovation (Hailemariam et al., 2019). Outcomes related to the implementation process included moderating leadership styles, program tracking to promote continued use, high rates of initial and continued use of program/innovation activities, and institutionalization (Hailemariam et al., 2019). Conversely, outcomes related to the healthcare innovation included usage of innovation components over time and individual-level outcomes (Hailemariam et al., 2019). The RCT also outlined specific, individual and population-level outcomes according to the provided TC programming, including program institutionalization and health impact; health impact was measured through observations of decreased tobacco use and decreased chronic disease and cancer (Vitale et al., 2018). Finally, the concept analysis concluded that sustainability outcomes are challenging to measure due to the variability of individual interventions and program components (Shelton et al., 2018). The authors did, however, report

on the conceptualization of sustainability outcomes, including the following: continued/improved health outcomes or benefits at the individual level, the maintenance of organizational policies, practices, and procedures, the maintenance of community coalitions and/or partnerships and capacity for collaboration, and continued program/innovation activities (Shelton et al., 2018).

While other included publications did not directly discuss outcomes, sustainability outcomes were indirectly addressed in one systematic review and one concept analysis (Fleiszer et al., 2015; Hodge & Turner, 2016). This systematic review concluded that valid and reliable measures, instruments, and psychometric properties need to be developed in order to adequately assess and understand sustainability (Hodge & Turner, 2016). The concept analysis, on the other hand, reported that outcomes of sustainability ("high" and "nil") are dependent on determined preconditions of sustainability, including routinization/institutionalization, benefits, and development (Fleiszer et al., 2015).

Summary

As the current state of sustainability research and literature is largely theoretical, our understanding of this concept—including the development of sustainable healthcare programs and innovations—presents many challenges. First, the evaluation of sustainable healthcare innovations is fundamentally lacking due to inadequate, incomplete, and missing definitions of this term. In fact, current definitions of sustainability are novel and subject to bias, failing to address and explain the concept of time as an outcome and process indicator; this is an important component to consider as sustainability cannot solely be understood as the continuation of innovation activities, but as the continuation of innovation activities *over time*. Therefore, not only would the development of a comprehensive and standardized definition of sustainability aid in the manufacturing of applicable theoretical frameworks and models to guide sustainability

efforts, but it would provide a foundation from which appropriate evaluation tools, measures, and instruments with high reliability and validity could be developed and tested.

Second, from the literature it is unclear as to which factors/approaches facilitate and/or hinder sustainability efforts, the extent that these factors/approaches impact sustainability efforts, and whether these factors/approaches should differ according systems and intervention-level foci. The included systematic reviews seemingly presented a comprehensive report on which factors and approaches have been used to produce sustainable healthcare innovations, but it is still unclear as to whether these factors and approaches produce desired results. These reports do, however, provide a workable foundation from which future research should build upon, as focusing on these identified factors/approaches may have very practical implications for producing sustainable healthcare innovations. Specifically, the analysis of innovation, contextual, process, and capacity factors as suggested in these reviews should garner greater attention as they were the most widely reported and evaluated in accordance with their suggested impact on sustainability.

Finally, it remains unclear as to which guiding frameworks and models should be used when developing and planning a new healthcare innovation—despite the fact that the majority of the included publications recommended the use of theory to guide sustainment efforts. This is largely attributable to the theoretical state of this clinical problem and the novelty of the existing frameworks and models available. Of the frameworks and models presented in this review, however, the EPIS framework was found to be the most widely used and highly cited implementation framework, including “sustainment” as a key component in the implementation process (Moullin et al., 2019, pp. 2). This framework, therefore, could serve as a broad, context-

sensitive, and multilevel framework from which to guide sustainability research and practice to better understand this dynamic and evolving concept.

Limitations

This review has several limitations, including the current theoretical state of sustainability, the lack of a definitive/comprehensive definition of sustainability, the largely untested outcome and evaluation measures to aid in our understanding of this concept, and the underreporting of sustainability approaches and outcomes. For this reason, theoretical articles and concept analyses were included in this review even though they are more susceptible to bias and more likely to be influenced by opinions, beliefs, and politics. Limitations of included publications, on the other hand, are the following: exclusion of grant-funded studies and grey literature (Hailemariam et al., 2019; Moullin et al., 2019), the use of novel frameworks and models (Fleiszer et al., 2015; Lennox et al., 2018; Meissner, 2018), single-author data extraction (Lennox et al., 2018; Meissner, 2018; Persaud, 2014), risk for bias (Fleiszer et al., 2015; Lennox et al., 2018; Meisner, 2018; Persaud, 2014), the inability to use quality assessment tools to measure the value and accuracy of findings (Hailemariam et al., 2019; Hodge & Turner, 2016; Lennox et al., 2018), and the risk for state drop-out and staff turnover (Vitale et al., 2018). In addition, one publication did not overtly share disclosures, including funding/financial holdings, approval, affiliations, or competing interests that could affect objectivity (Persuad, 2014).

Relevance to Practice

Dissemination and implementation science has become an emerging priority in public health institutions throughout the United States, with the National Academy of Medicine, the WHO, and the National Institutes of Health making efforts to mitigate the barriers between translating what we know into how we practice (Brownson, Colditz, & Proctor, 2017; Shelton et

al., 2018). However, while the implementation of evidenced-based healthcare innovations is conceptually appealing, the delivery of unsustainable programs and practices wastes valuable time and limited resources. Sustainability, therefore, is an important component to consider within this evolving field, helping to address widespread and complex public health issues to positively impact the effectiveness of evidence-based healthcare innovations over time. This is relevant to the practice of the advanced practice nurse as this gap between research and practice results in suboptimal care delivery, excessive healthcare and opportunity costs, and avoidable harm (Hailemariam et al., 2019).

Clinical Practice Question

This community mental health organization serves clients who are disproportionately burdened by tobacco use and this leading cause of preventable death and disease. Furthermore, after conducting an organizational assessment to determine whether the described FFS TC program would be a sustainable healthcare innovation within this practice setting, I believe its development to be detrimental to the treatment of tobacco use among its clients. For this reason, the following clinical practice question was created to guide this program's development: *Is the design and implementation of the American Lung Association's Freedom From Smoking, group TC program sustainable within the designated community mental health organization when using the EPIS model as a guiding framework as evidenced by a decrease in smoking rates, positive facilitator training feedback, and a positive return on investment?*

Model to Examine Phenomenon

The EPIS Framework

Of the frameworks reviewed during my literary synthesis, the EPIS framework was found to be the most widely used and highly cited implementation model, including "sustainment" as a

key component in the implementation process (Moullin et al., 2019, pp. 2). The use of a guiding framework to direct the implementation of this evidence-based healthcare innovation is consistent with the suggestions made in recent literature, recognizing the importance of theory to guide long-term implementation efforts (Hailemariam et al., 2019; Hodge & Turner, 2016; Lennox et al., 2018; Shelton, Cooper, & Stirman, 2018). Specifically, the EPIS framework includes four phases (exploration, preparation, implementation, and sustainment) that describe the implementation process, including the identification of contextual, innovation, and bridging factors. Collaboratively, the inclusion of these phases into the implementation process have shown to serve as a broad, context-sensitive, and multilevel framework from which to guide sustainability and practice to better facilitate the longevity of evidence-based healthcare innovations. For this reason, this project will encompass these phases within the implementation of the FFS TC program at the designated community mental health organization.

Exploration. During the exploration phase of the EPIS framework, the organization considers emerging and/or existing health needs and identifies healthcare innovations that may address this need; furthermore, the exploration phase ends once the organization decides to adopt the identified innovation(s) (Moullin et al., 2019). For this project, both the prior student's and the identified FFS TC program were presented to the organization's leadership team to help determine which innovation would best fit the organization's need. Given this organization's need for training, limited time available to prepare program materials, and limited time available to ensure the program's quality over time, the ALA's FFS TC program was chosen for adoption.

Preparation. In the preparation phase, objectives include identifying potential facilitators and barriers affecting implementation, assessing the needs for adaptation, and developing a comprehensive implementation plan that capitalizes on identified facilitators (Moullin et al.,

2019). It is also important to identify implementation supports during this phase (including coaching, training, feedback, and auditing) that will facilitate the chosen innovation during the following phases. As the organization has limited financial resources, the cost to train two staff members to provide this programming was identified as an immediate barrier. To compensate for this need, the student will be applying for grand funding to be made available in January 2020 to support the innovation during the implementation and sustainment phases.

Implementation. During the implementation phase, the chosen innovation is initiated and monitored within the organization (Moullin et al., 2019). After collaborating with the organization's leadership team, it was decided that the first FFS clinic would take place during January 2020 and be run in accordance with ALA guidelines. This will include eight, 90-minute sessions over the course of seven seeks following the program plan as originally designed by the ALA.

Sustainment. Finally, during the sustainment phase, identified supports continue to ensure that the innovation is delivered over time with appropriate adaptations as necessary (Moullin et al. 2019). As a result of this continued support, the organization may realize the innovation's impact on public health. To ensure that this programming continues to be delivered over time, two organizational staff members have been chosen to lead subsequent FFS clinics after the resolution of this project in April 2020. These staff members will undergo appropriate training as offered by the ALA to become competent in the program's topics and receive updated course materials as the program evolves over time. Refresher courses and materials will be provided to these trained staff members at no additional cost to the organization.

Project Plan

Purpose of Project and Objectives

The purpose of this project was to implement the ALA's FFS program into the designated community mental health organization and to answer the following question: Is the FFS program sustainable within the designated organization as evidenced by a decrease in participants' smoking rates, positive facilitator training feedback, and a positive return on investment? Main objectives of this project included the following: the completion of a cost analysis of the FFS program based on the prior student's findings, securement of grant funding to cover the initial costs of staff training and program materials, creation of comprehensive evaluation and sustainability plans, and the successful introduction of this project plan during my proposal defense which took place on October 31, 2019.

Project Design

The design of this project included the implementation of the FFS TC program, which was to be delivered to a minimum of five and a maximum of 16 registered participants by a trained FFS facilitator over eight, 90-minute sessions. These sessions were held over the course of seven weeks starting on January 15, 2020, with two sessions being held during week four. Weeks one through three prepared participants for their supported quit attempt, which took place during the first session of week four; weeks five through eight were designed to help participants maintain abstinence from tobacco products by equipping them with the strategies and tools required to facilitate recovery. See Appendix E for a table depicting the schedule of this first clinic. Reminder calls to participants and emails staff were performed one to two days before each clinic session to facilitate attendance and participant transportation.

The organization's director approved two staff members who have a background in cognitive behavioral therapy to become trained FFS facilitators—directly addressing the organization's initial concern that staff were not prepared or trained to continue this programming without a Grand Valley Doctor of Nursing Practice student present. Both staff members were encouraged to attend clinic sessions to promote learning and familiarity with program activities; one facilitator attend seven sessions and the other attended one due to limited availability. Finally, group acupuncture therapies designed to relieve withdrawal symptoms and cravings were proposed to be provided to interested participants starting the second session during week four; an organizational staff member who was certified to perform this treatment and bill under the correct CPT medical code for group acupuncture therapies would have provided this service if not for an unexpected maternity leave of essential staff.

Setting

This project was implemented at the designated community mental health organization with clinics being held in one of their large meeting rooms used for group therapy sessions. This room was reserved for the first clinic to be held starting January 15, 2020 and ending on February 26, 2020. This room provided ample space for the group size as recommended by the ALA and access to the technologies required to facilitate this clinic.

Participants

This first clinic was closed, only including the organization's existing clients as research suggests that sustainability may be hindered when efforts are extended too rapidly and/or are beyond the capacity of trained personnel (Hailemariam et al., 2019). However, as the organization's functional space was conducive and supportive of group therapy sessions, they plan on holding separate, open clinics for the community in the future according to the

facilitators' ability to lead these groups. These open clinics will ultimately make this healthcare innovation self-sufficient, supporting the sustainability of closed clinics by delivering the funding necessary to provide their Medicaid clients with program materials; the price of open clinics will reflect current ALA recommendations and offered at $60-$150 per participant per clinic. Participants for closed clinics will be recruited by their assigned ACT team; participants for open clinics will be recruited through the organization's professional partnerships within the community and by utilizing the recruitment materials provided by the ALA.

Justification of Sample Size

According to the FFS facilitator guidebook, this program is best facilitated with a group size of five to sixteen participants as this allows for a strong, supportive, and diverse environment. As it is not uncommon for participants to exit the program as priorities shift, this suggested group size ensures that the remaining members and sessions are not negatively impacted by attrition. If 17 or more participants were to register for the program, the ALA suggests that the organization form two clinics by dividing the participants evenly (American Lung Association, 2018). The decision to train two staff members was made to be able to meet this need should the occasion arise.

Kotter's Eight Step Plan for Implementing Change

In accordance with current evidence supporting the use of theory to guide sustainment efforts, Kotter's Eight Step Plan for Implementing Change (Appendix F) was used as framework to support the design and implementation of this project. Specifically, the following theoretical concepts were incorporated into this TC programming: creating a sense of urgency, building a guiding coalition, forming a strategic vision and initiatives, enabling action by removing barriers, generating short-term wins, and sustaining acceleration (Kotter International, 2018).

Create a sense of urgency. A sense of urgency was instilled in organizational staff after the implementation of previous student's project, addressing clients' need for TC programming and the organization's desire to provide evidence-based substance abuse treatments. To further this sense of urgency, meetings with providers, staff, and the organization's leadership team continued to emphasize the importance of providing TC programming while promoting the ALA's FFS program. As the previous program was found to have a positive return on investment, this programming sought to improve on this return by incorporating the facility's ability to provide billable group acupuncture therapies.

Build a guiding coalition. While there are many ways to build a guiding coalition, its members must be multidisciplinary—from multiple layers of the organization's leadership hierarchy—as this allows the coalition to perform varying functions while synthesizing information from all levels into diverse and effective ways of working (Kotter International, 2018). Implementation strategies that supported the formation of this coalition included the following: interviews with the organization's leadership team and staff members, group educational sessions that promoted learning and staff engagement, and the involvement of organizational staff in program sessions and activities. See Appendix G for a depiction of this program's guiding coalition by leadership hierarchy.

Form a strategic vision and initiatives. Forming a strategic vision and initiatives involves designing coordinated and targeted activities that are desirable, communicable, flexible, feasible, imaginable, and simple (Kotter International, 2018). The ALA's FFS program incorporated all of these characteristics, providing desirable programming that aligned with the organization's mission and needs, communicable program activities and ideas, flexible scheduling and enrollment, financial feasibility, imaginable teaching approaches, and a simple

program design. Program initiatives also provided a clear vision and action plan as outlined in provided facilitator materials, recruitment forms, and program questionnaires, which will contribute to the sustainment of program activities and initiatives over time.

Enable action by removing barriers. To ensure the sustainability of the FFS program within the designated community mental health organization, it was important to first identify the barriers that prevented the initial TC program's adoption. As previously stated, these barriers included the inability to provide on-going training and support to organizational staff, the continued burden to ensure program currency, and the disproportionate amount of time required to prepare program supplies for individual clinics. The ALA's FFS program was chosen to replace this previous programming as it removed these barriers, providing facilitators with on-going training and support, the organization with a professional partnership that will ensure the program's quality over time, and the organization's staff with professional materials that require no assembly.

Generate short-term wins. According to this framework, a "win" is defined as any meaningful change that energizes and drives improvement efforts, being visible, replicable, and adaptable. This project's outcome measures were chosen as they provided this meaning to the organization's staff members and clients, increasing the facility's Medicaid reimbursements while decreasing the prevalence of tobacco addiction among its clients. These "wins" were communicated and shared with the entire organization during the DNP student's final defense in April 2020.

Sustaining acceleration. To sustain program activities and accomplishments over time, two organizational staff members were chosen by the facility's leadership team to provide FFS programming after the first clinic was completed in February 2020. These staff members were

chosen as they have a background in CBT and because they are dedicated to the provision of this programming. They will ultimately be responsible for revisiting and recreating urgency, removing additional barriers, and using the momentum of short-term "wins" to ensure that program initiatives are adopted and sustained.

Implementation Steps and Strategies

The following implementation steps and strategies were used to successfully integrate this TC programming into the designated community mental health organization:

1. Educational meetings with the organization's individual ACT teams which took place on October 9, 2019, providing all members with appropriate forms and flyers to facilitate participant recruitment.
2. Recruitment of identified participants by the organization's ACT team members which occurred between October 10, 2019 and December 31, 2019.
3. The defense of this project's Project Proposal which took place on October 31, 2019.
4. Reminder calls/emails to participants and staff on January 13, 2020.
5. The DNP student led FFS Session 1, "Thinking About Quitting" on January 15, 2020.
6. Reminder calls/emails to participants and staff on January 20, 2020.
7. The DNP student led FFS Session 2, "On the Road to Freedom" on January 22, 2020.
8. Reminder calls/emails to participants and staff on January 27, 2020.
9. The DNP student led FFS Session 3, "Wanting to Quit" on January 29, 2020.
10. Reminder calls/emails to participants and staff on February 3, 2020.
11. The DNP student led FFS Session 4, "Quit Day" on February 5, 2020.
12. Reminder calls/emails to participants and staff on February 6, 2020.
13. The DNP student led FFS Session 5, "Winning Strategies" on February 7, 2020.

14. Reminder calls/emails to participants and staff on February 10, 2020.
15. The DNP student led FFS Session 6, “The New You” on February 12, 2020.
16. Reminder calls/emails to participants and staff on February 17, 2020.
17. The DNP student led FFS Session 7, “Staying Off” on February 19, 2020.
18. Reminder calls/emails to participants and staff on February 24, 2020.
19. The DNP student led FFS Session 8, “Celebration” on February 26, 2020.
20. The securement of grant funding via Grand Valley State University’s Presidential Grant which ensured the training of identified staff members to undergo FFS facilitator training on February 24, 2020.
21. The provision of transportation for chosen facilitators to and from training as provided by the ALA on February 24, 2020.
22. The final defense of this project which took place on April 20, 2020.

Evaluation and Measures

Data collection. Data was collected by the DNP student between January 15, 2020 and February 26, 2020 and included the following in accordance with ALA guidelines and the prior student’s project: participant attendance, amount of time between cigarettes, number of cigarettes smoked per day, nicotine dependence utilizing the Fagerstrom Test for Nicotine Dependence (Appendix H), self-efficacy utilizing the Smoking Abstinence Self-Efficacy Questionnaire (Appendix I), participant readiness to quit, use of NRTs, facilitator training evaluations (Appendix J), cessation rate, and return on investment. The Fagerstrom Test for Nicotine Dependence (FTND) was chosen as it has acceptable discriminative validity (OR = 0.699), reliability ($\alpha = 0.61$), and homogeneity (Hock et al., 2016); the Smoking Abstinence Self-Efficacy Questionnaire (SASEQ) was chosen as it was used by the previous DNP student and

because it has high internal consistency ($\alpha = 0.89$), good predictive validity (OR = 1.83), and good discriminant validity (Spec et al., 2013). The Covita™ piCO™ + Smokerlyzer® was also utilized to measure participants exhaled carbon monoxide (CO) levels for motivational purposes; this information was not tracked or recorded within this project's outcomes. See Table 24 for a depiction of this data collection process.

Data management. The DNP student was responsible for all data management including: patient names, birthdates, contact information, and medical record numbers. All data obtained was de-identified, transferred into an excel spreadsheet, and stored on a computer provided by the organization.

Data analysis. All collected and de-identified data was analyzed by a university statistician, including the following: average participant attendance by session, pre and post analyses of the amount of time between cigarettes, number of cigarettes smoked, nicotine dependence, self-efficacy, and readiness to quit, and post clinic analyses of cessation rate and return on investment. Facilitator training evaluations were analyzed after the designated staff members chosen to facilitate subsequent clinics were trained on February 24, 2020. Return on investment accounts for the salaries of these staff members as well as Medicaid reimbursements for intensive group tobacco cessation counseling.

Resources and Budget

To successfully implement this program, $1,500 was requested and secured from Grand Valley State University's Presidential Grant allowance, covering the following costs: facilitator training for two staff members competent in CBT, participant workbooks for two closed clinics, and healthy beverages and snacks to curb nicotine cravings for two closed clinics. See Table 25 for a budget table depicting the need for this funding. As participant workbooks

were determined unnecessary by the organization's staff and snacks were readily available, only $800 covering staff training was utilized. Securement of this grant was obtained on December 10, 2019; see Appendix K for the decision letter for the submitted Presidential Grant application.

Training. The FFS facilitator courses are held year-round as a hybrid training curriculum with a one-time associated cost of $400 per person; the training and certification of the two staff members chosen by the organization, therefore, cost $800. The decision to have two organizational staff members trained and certified was made to ensure that the facility has an adequate workforce to provide both closed, open, and multiple group clinics depending on the number of registered participants.

Participant workbooks. To register for this program, the ALA suggests a nonrefundable enrollment fee of at least $60 per participant, with standard enrollment fees ranging from $75 to $150 per participant. This fee includes the $25 cost of the FFS participant workbook as well as a digital "Relaxation Exercises for Better Breathing" MP3 code (American Lung Association, 2018). While this cost would be appropriate for the participants who are enrolled in the organization's open clinics to incur, this cost would have severely exceeded their existing clients' limited financial resources. Therefore, as this enrollment fee was not mandatory to the program, the organization has decided to offer this programming to its clients at no cost with the plans to use the funding from future open clinics to purchase program supplies for closed groups in the future.

As previously stated, the previous student's program was found to have a positive return on investment ($1.26 for every $1 spent) when utilizing the CPT medical code for intensive group tobacco cessation counseling (American Lung Association, 2017; Magnuson, 2019). Specifically, the organization received $34.40 per participant per group session attended

totaling $1,204.00 in Medicaid reimbursements for this initial TC clinic; this return on investment did not include the reimbursements that will be received from the group acupuncture sessions provided in future clinics. However, as the organization will not be offering open clinics until two closed clinics have been performed, funding was requested to account for the cost of participant workbooks for two closed clinics prior to receiving the enrollment fees from planned open clinics. Open clinics will be offered after the completion of two closed clinics as this will provide sufficient time for training and program adoption (trained staff co-facilitated during the first clinic and will be leading during the second). If these clinics reached capacity (16 participants per clinic) $800 would have been needed to supply each participant with a workbook. While workbooks are not mandatory to the program, they are recommended and greatly facilitate learning, positive behavior change, and positive program outcomes (American Lung Association, 2018).

Program supplies. Finally, as enrollment within the program required participants to comply with the ALA's policy that the use of tobacco products be prohibited during sessions, healthy beverages and snacks were provided each week to curb cravings while receiving counseling (American Lung Association, 2018). Snacks that were provided included the following: water, coffee, popcorn, pretzels, and cut vegetables and fruits. The cost of these refreshments per session totaled approximately $10, or $160 for two closed clinics.

Project Timeline

As previously stated, the first FFS TC clinic was held at the designated community mental health organization starting on January 15, 2020, including a total of eight sessions held over seven weeks and ending on February 26, 2020. Sessions were held at one-week intervals, with the only variance from this schedule occurring during week four as designed to provide

extra intra-treatment support to participants immediately following their quit attempt. The DNP student met with the organization's ACT teams on October 9, 2019 to distribute clinic flyers (Appendix L), calendars, and registration forms; after this meeting, individual ACT team members began recruiting participants for this clinic as appropriate. Participant recruitment continued until December 31, 2019. The DNP student then initiated phone contact with potential participants on January 8, 2020 to establish rapport and facilitate trust. Clinic flyers and utilized registration forms were supplied by the ALA, collecting contact, demographic, sexual orientation, and smoking history data. See Appendix M for a timeline of program activities.

Results

Participant Demographics

A total of seven participants registered for this programming between December 1, 2019 and January 15, 2020. These participants were recruited through flyers provided by the ALA which were then distributed by the organization's ACT team members. The mean age of participants was 45 years, and the average onset of tobacco use was 20 years. Five participants (71.43 percent) identified as Caucasian, and two (28.57 percent) identified as African American. The majority of participants were male (71.43%), and six participants reported gender identities consistent with their assigned sex at birth; one participant did not describe their chosen gender identity. Of the six participants who reported their gender identity, 100 percent described their sexual orientation as "straight." The setting in which participants reported most often smoking was with others while at home (85.71 percent), and all participants identified on person who they believed would support their quit attempt.

All participants suffered from a severe mental illness in addition to their tobacco use disorder, including: schizophrenia (42.86 percent), bipolar 1 disorder (28.57 percent),

generalized anxiety disorder (28.57 percent), schizoaffective disorder (14.29 percent), manic episodes (14.29 percent), and borderline personality disorder (14.29 percent). In addition to having a tobacco use disorder, five participants (71.43 percent) also suffered from the disordered use of other substances, including cannabis (57.14 percent), alcohol (28.57 percent), and cocaine (28.57 percent). All participants smoked combustible cigarettes and three participants (42.86 percent) also reported the use of other tobacco products, including: cigars (28.57 percent), e-cigarettes (28.57 percent), pipe (14.29 percent), and chewing tobacco (14.29 percent).

Attendance

Despite the ability for staff to transport participants to and from sessions, program attendance for this initial clinic was low. Three participants dropped out prior to the first session on January 15 for unknown reasons, and one participant was unreachable by telephone communication throughout the entirety of the clinic. Session one had the highest attendance rate with three participants attending, while sessions two, five, seven, and eight only had one attending participant. One participant attended seven of the eight sessions. See Table 26 for a depiction of participant attendance by session.

Readiness to Quit

Participants' readiness to quit was measured pre- and post- clinic using a questionnaire provided by the ALA, in which the patient is ready to quit if they answer "yes" to at least four of the eight questions; in other words, a participant is considered ready to quit if they score 4 or higher. It is unknown if higher scores indicate a higher level of readiness. This form was provided during sessions one and eight to the attending participants. The average readiness score of the three participants attending session one was 6.33, and the readiness score of the single participant attending session eight was 6 (improved from 5 during session one). This form has

unknown validity and reliability, but was instead provided as a way for the facilitator to gauge whether or not participants were ready to participate in program activities. This form was not provided to avoid violation of copyright laws.

Preparedness to Quit

Participants' preparedness to quit was described both pre- and post- clinic using another questionnaire provided by the ALA, in which participants' skills, techniques, and attitudes towards quitting are assessed. This questionnaire is not scored, but includes 11 "yes" or "no" questions for which the facilitator may then gauge how to best prepare participants too quit throughout the program. This form has unknown validity and reliability and it is unknown whether higher scores indicate a higher level of preparedness. This questionnaire was also provided during sessions one and eight, whereas the mean preparedness of the three participants attending session one was 8 and the preparedness of the single participant attending session eight was 10 (improved from 9 during session one). This form was not provided to avoid violation of copyright laws.

Time Between Cigarettes

Time between cigarettes was assessed both pre- and post- clinic through verbal communication prior to starting session activities. This measure was not suggested by the ALA, but was instead provided for continuity purposes as it was evaluated by the previous DNP student. Only one participant was present for both sessions one and eight, reporting a time between cigarettes of 2 hours prior to clinic activities and 12 hours post clinic activities. This participant's change in time between cigarettes represents a large effect (83% change).

Cigarettes Per Day

Cigarettes smoked per day was assessed both pre- and post- clinic (sessions one and eight) through verbal communication prior to starting session activities. Prior to session one, the mean number of combustible cigarettes participants (n = 7) smoked per day was 22.14; the minimum reported number of cigarettes smoked per day was 10 and the maximum reported number of cigarettes smoked per day was 40. Only one participant attended sessions one and eight, reporting the use of 10 cigarettes per day pre- clinic and 2 cigarettes per day post- clinic; this participant's change in cigarettes smoked per day represents a large effect (80% change).

Nicotine Dependence

The measurement of nicotine dependence is supported by this programming, but was measured using the Fagerstrom Test for Nicotine Dependence rather than the form provided by the ALA as it had unknown validity and reliability. The Fagerstrom Test for Nicotine Dependence is a six-item form modified from the Fagerstrom Tolerance Questionnaire that is widely used due to its simplicity, non-invasiveness, and easiness to understand (Hock et al., 2016). This form was chosen as it has acceptable discriminative validity (OR = 0.699), reliability ($\alpha = 0.61$), and homogeneity (Hock et al., 2016). Nicotine dependence was assessed during sessions two and eight, in which only one participant was present for both pre- and post-analysis. This individual's degree of nicotine dependence was considered "moderate" during session two (score of 5) and "low" during session eight (score of 2); this participant's change in nicotine dependence represents a medium effect (60% change).

Self-Efficacy

Self-efficacy to quit smoking was measured pre- and post- clinic utilizing the Smoking Abstinence Self-Efficacy Questionnaire (SASEQ) during sessions one and eight. This measure

was not indicated by the ALA, but was chosen for continuity purposes as this form was used by the previous DNP student. This form has high internal consistency ($\alpha = 0.89$), good predictive validity (OR = 1.83), and good discriminant validity, whereas self-efficacy is defined as the "confidence" an individual has in their ability to "perform and sustain" a chosen behavior (Spec et al., 2013, p. 444). The SASEQ is a six-item form evaluated on a five-point Likert scale (0-4), whereas higher scores are associated with higher levels of self-efficacy to quit smoking; the range for this scale is 0-24. The mean score of the three participants attending session one was 15.33, and the scores of the single participant attending both sessions was 17 (unimproved from session one).

Use of Approved Medications

Use of FDA approved cessation agents, including NRTs, varenicline (Chantix®), and bupropion (Zyban®), was assessed through verbal communication throughout the clinic—on sessions one, four, five, six, seven, and eight. Only one participant reported the use of nicotine patches during session four. Although medication education was provided on each of these sessions, the following reasons were given for avoiding these agents: fear of side-effect profiles, not wanting to take another medication, not having time to make an appointment with their prescribing provider, and not having sufficient funds to purchase over-the-counter agents.

Cessation Rate

Cessation rate was assessed post program through verbal communication. As only one participant attended the clinic's final session and had not yet ceased their use of combustible cigarettes, this measure was not able to be adequately assessed. All other participants were unavailable via telephone communication immediately post-program.

End of Program Evaluation

An end of program evaluation was assessed post program through the use of the participant assessment form provided by the ALA. As only one participant attended this clinic's final session, only one program evaluation was obtained. This participant found the relaxation exercises to be the most helpful activity provided in the clinic, and would improve the clinic by getting "more people to come." See Table 27 for this participant's full evaluation.

Return on Investment

Due to the restrictions enacted during the COVID-19 pandemic, return on investment information could not be obtained.

Facilitator Training Evaluations

Facilitator training evaluations were assessed post- the facilitator training session provided by the ALA on February 24, 2020. This form is novel with unknown validity and reliability, created by the DNP student to assess the perceived value of the training provided and whether staff believed the knowledge gained to be applicable. This is a nine-item form evaluated on a five-point Likert scale (0-4); the range for this scale is 0-36. It is unknown whether higher scores are associated with higher levels of training satisfaction. Staff scores on this form were 29 and 35, respectively, whereas one staff member rated this training overall as "excellent" and the other rated the training overall as "good."

Debrief Discussion

Due to this clinic's high attrition rate and low attendance, four organizational staff members (two trained program facilitators, one prescribing provider, and the CMHO site director) were interviewed utilizing the following questions:

1. *When considering the existing health needs of your organization's clients who use tobacco products, do you believe the American Lung Association's Freedom From Smoking program to be the best evidence-based practice to address those needs?*

   Three of the staff members interviewed answered "yes" to question one, while one acknowledged that they are "not well versed" in the evidence behind this programming; they did, however, state that the clients served by this organization have benefitted from participating in the clinic.

2. *What potential barriers should facilitators consider when planning and preparing for future Freedom From Smoking group clinics?*

   Staff members offered a variety of factors to consider when preparing for future clinics, including: the attention span of clients served, client resources, the diversity of client populations served, unexpected hospitalizations (exacerbated SMI or physical illness), clients' readiness to change, and program marketing to increase participant recruitment.

3. *What feedback do you have regarding the existing structures, processes, and supports within this organization to continue to endorse the delivery of this programming over time?*

   Two staff members did not have any feedback to provide regarding organizational supports and/or the endorsement of this programming over time, and one believed the existing structures, processes, and supports to be sufficient to sustain this programming. The final staff member voiced concern over the funding required to train another staff member if the chosen facilitators become unavailable.

Discussion

Considering this program's low attendance, high drop-out and attrition, and the restrictions enacted due to the COVID-19 pandemic, it is not possible at this time to determine

whether the ALA's Freedom From Smoking program is a sustainable healthcare innovation at this organization. While one participant did demonstrate a decreased rate of smoking after attending seven sessions, more evidence is required before this can be directly attributed to this programming. Similarly, while the programming did receive positive facilitator training feedback, the COVID-19 pandemic impeded assessments of this program's financial sustainability as demonstrated by a positive return on investment. Therefore, according to the measures identified, the Freedom From Smoking program's long-term sustainability at the designated CMHO remains unknown. For this reason, subsequent clinics should continue to be evaluated for significance, including measures of nicotine dependence, smoking and cessation rates, staff and client satisfaction, and financial viability.

Limitations

This project has many limitations, including: the reliance on organizational ACT team members to incorporate discussions about this programming with clients during scheduled home visits, exacerbated SMI and physical illness, high drop-out prior to the initiation of program activities, participants' resources and limited availability for telephone communication, low attendance/high attrition, the unplanned unavailability of the facility's acupuncturist to provide group acupuncture therapies as initially proposed, and the COVID-19 pandemic limiting the DNP student's ability to remain on site within the organization.

Comprehensively, the high drop-out and attrition rate negatively affected group activities by limiting participant interactions and discussion, making it impossible to determine the efficacy of this programming. Additionally, organizational staff decided to forego the purchase of participant workbooks due to limited client resources and previous unsuccessful attempts to use similar materials in other group settings. Instead, the DNP student prepared PowerPoint

slides covering session topics as outlined by the ALA—a format that has not been evaluated for efficacy. Finally, the student was unable to increase on the previous student's return by utilizing a trained staff member and acupuncturist to provide group acupuncture therapies as planned.

Implications for Practice

Participant recruitment. Participants were recruited between October 10, 2019 and December 31, 2019 by the facility's ACT team members; program flyers and enrollment forms were distributed on October 9, 2019. The DNP initiated contact with enrolled participants on January 8, 2020, and provided reminder calls and emails to participants and staff one to two days prior to each scheduled clinic session. Despite these efforts, this programming suffered from low enrollment and high drop-out and attrition. For this reason, other recruitment strategies may be necessarily to improve the success of this programming, including increased contact between program facilitators and participants during the enrollment period and the use of other recruitment materials such as the brochures provided by the ALA.

Program materials. In addition to incorporating additional recruitment materials, organizational staff suggested the use of "hands-on" supplies as these have been successfully used to facilitate engagement and reduce anxiety in other therapy groups. Provided examples of these supplies included topical coloring pages, widget spinners, and stress balls. Trained facilitators also suggested the use of small, motivational prizes for chosen participant achievements (decreased exhaled CO, decreased use of combustible cigarettes, etc.) to foster participant success and encourage changed behavior.

Session length. Scheduled sessions for this clinic lasted approximately one hour, with noticeable participant disengagement after 30-45 minutes. The ALA acknowledge that this program is adaptable to be delivered in different formats depending on the attending participants'

needs, but with unknown efficacy. Given that this organization is delivering this programming to a population of clients all suffering from SMI, it is possible that they may benefit from shorter sessions over a longer period as suggested in the literature (Prochaska et al., 2017). While the session PowerPoints have been formatted to correlate with the designed structure of this programming, they will also be provided to the organization's trained facilitators as topical presentations lasting 10-15 minutes each.

Guest/rotating speakers. While the ALA encourages the use of guest speakers to promote participant engagement, this was unable to be accomplished due to client privacy concerns and the unavailability of additional organizational staff. While the organization's trained facilitators may seek to provide guest speakers in the future, it may also be beneficial to divide the sessions among the facilitators on a rotating schedule. This strategy would lessen the responsibilities of both facilitators while exposing program participants to different perspectives and teaching strategies.

Budget analysis. As stated, this clinic's return on investment was unable to be assessed due to the restrictions enacted during the COVID-19 pandemic. Despite this limitation, this provides an additional DNP student the opportunity of developing a viable business plan as a final project. This project should include a detailed program analysis and a comprehensive assessment for improving this programming's return on investment.

Sustainability

The sustainability of this programming was guided by the EPIS framework and prioritization of interventions according to level of use (intervention focus), prospective, and retrospective analyses, including evaluations of the following facilitating factors as appropriate and suggested by the literature: innovation characteristics, negotiating initiative process,

capacity/resource, organizational setting, and contextual factors (Hailemariam et al., 2019; Hodge & Turner, 2016; Lennox et al., 2018; Moullin et al., 2019).

Level of use. Implemented interventions were prioritized according to level of use, focusing on the intervention of group TC CBT and addressing the following: general resources, demonstrating effectiveness, monitoring of progress over time, integration with existing programs and policies, training and capacity building, stakeholder participation, intervention adaptation and receptivity, leadership and champions, organizational values and culture, and funding (Lennox et al., 2018). For example, the organization's limited financial resources available for staff training and programming was addressed by securing grant funding, the FFS program was chosen as it has demonstrated superior effectiveness when compared to 100 other TC programs, and an academic partnership with the ALA was established to ensure that the program's progress is monitored over time (Lennox et al., 2018). See Table 28 for a description of implemented interventions according to intervention focus level of use.

Retrospective analysis. Interventions were similarly analyzed according to assessment time, including both retrospective analyses of the previous programming and prospective analyses to guide the implementation of Freedom From Smoking clinics (Lennox et al., 2018). Retrospectively, the previous student's implemented interventions were prioritized lower in terms of sustainability, encompassing only the organization's vision and belief in the initiative. It is possible, therefore, to ascertain this programming's unsustainability to be attributable to the failure to incorporate the following, higher-prioritized interventions: demonstrating effectiveness as this initial programming was novel, the generation of general resources, development of leadership and program champions, and the establishment of roles and responsibilities prior to

the project's conclusion. See Table 29 for a depiction of this project's implemented interventions according to the retrospective analysis performed.

Prospective analysis. Interventions were then prospectively analyzed to guide the implementation of the chosen TC programming (Lennox et al., 2018). Prospectively, the Freedom From Smoking program would appear to be a sustainable healthcare innovation at the designated CMHO, incorporating the following, high-priority interventions: generation of financial resources through the securement of grant funding, incorporation of an established TC program with known efficacy, establishment of an academic partnership with the ALA, encouragement of staff participation through the provision of future acupuncture therapies and participant recruitment, and the delivery of program facilitator training to two staff members. See Table 30 for a depiction of implemented interventions according to the prospective analysis performed.

Program continuation. The continuation of program activities is ultimately dependent on the organization's leadership team and the staff members chosen to lead future clinics. Due to the restrictions enacted in response to the COVID-19 pandemic, the next Freedom From Smoking clinic is projected to take place in the fall of 2020. This clinic will be closed and facilitated by the organization's trained staff members. Subsequently, a third DNP student has been chosen to facilitate the development of a viable business plan and comprehensive budget analysis as her final project in GVSU's DNP program.

Ethical Considerations

Prior to this program's implementation, ethical considerations were reviewed by Grand Valley State University's Institutional Review Board (IRB) and Human Research Review Committee. The purpose of this project was limited to the development of the identified FFS TC

program within the designated organization. Safeguards to protect participants' protected health information (PHI) aligned with the Health Insurance Portability and Accountability Act (HIPAA). Within the scope of this program development project, there were no identified social, physical, legal, or economic threats to program participants. To ensure the protection of participants' identities, PHI was only accessed at the identified organization and did not leave this site. Collected data was de-identified prior to being shared with a university statistician. Upon IRB approval, this project was implemented at the identified community mental health organization. See Appendix N for Grand Valley State University's IRB and Human Research Review Committee's approval letter which became effective on December 2, 2019.

Conclusion

The concept of sustainability is dynamic and complex, incorporating many contextual, innovation, process, and resource factors that may facilitate and/or hinder the success of healthcare innovations over time. While the described TC programming was projected to become a sustainable healthcare innovation within the designated CMHO, low attendance, high drop out and attrition, and the COVID-19 pandemic severely limited this project's findings. Therefore, to better understand and apply this concept, a comprehensive definition and standardized language for sustainability should be developed to facilitate the development of applicable frameworks, models, and evaluation measures. While this project attempted to address this concept by utilizing the EPIS framework, incorporating the hindering/facilitating factors as identified in recent literature, more evidence is required before the ALA's Freedom From Smoking program can be deemed a sustainable healthcare innovation.

Dissemination of Outcomes

The results of the FFS program have been disseminated to the organization's stakeholders—including the student's site mentor, the organization's site director, and the organization's staff members. This project will also be presented in the student's final defense on April 20, 2020. This event will be open to both organization and university members and present the project's outcomes, limitations, and recommendations based on current literature and the project's findings.

Reflections on DNP Essentials

Essential I: Scientific Underpinnings for Practice

This first DNP Essential, "Scientific Underpinnings for Practice," involves the use of a literature review and framework and the selection of evidence-based interventions; it forms the foundation for enacting the Essentials through the DNP project (American Association of Colleges of Nursing [AACN], 2006). This essential was achieved by performing a literature synthesis on program sustainability, and by applying the knowledge gained to support continued project activities over time. Theories utilized within this DNP project include the following: the IOA Model, the EPIS Framework, and Kotter's Eight Step Plan for Implementing Change.

Essential II: Organizational and System Leadership

The second DNP Essential, "Organizational and System Leadership for Quality Improvement and Systems Thinking," provides direction to develop the DNP student as a leader while meeting the needs of the populations served (AACN, 2006). This Essential was achieved by performing a comprehensive organizational needs assessment guided by the IOA Model, by accounting for population sensitive characteristics to improve the feasibility, acceptability, and

sustainability of the project within the designated organization, and by improving the quality of care provided while safeguarding patient safety.

Leadership and interprofessional communication skills were demonstrated when meeting with organizational stakeholders and leaders, when assessing the barriers and facilitators impacting the sustainability of the chosen FFS programming, when performing a budget analysis and securing outside funding, and while working with staff to encourage engagement and project implementation. A project proposal was also submitted to the organization and Grand Valley's IRB and Human Research Review Committee and was determined to be a non-research, quality improvement project.

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

The third DNP Essential, "Clinical Scholarship and Analytical Methods for Evidence-Based Practice," involves the translation of research into practice (AACN, 2006). This involves an understanding of the clinical problem and the appraisal of opportunities for improvement, and an analysis of the project's results to determine if clinician knowledge, patient outcomes, system structures, workflow, processes, or policies improved. This Essential was achieved by evaluating the literature for sustainability interventions, by training designated staff to ensure continued project activities over time, through the establishment of a guiding coalition and leadership hierarchy, and through the provision of ongoing training and support through the relationship established with the ALA.

Essential IV: Information Systems Technology

The fourth DNP Essential, "Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care," involves the ability to use information systems and technology to improve and support patients and healthcare systems, and

to provide effective leadership within this context (AACN, 2006). This Essential was accomplished through the use of the organization's electronic health record (Streamline) and electronic communication service provider (Outlook). Program sessions were effectively documented as group and individual client notes to communicate participant progress and to ensure program reimbursement; weekly updates were communicated via email to the organization's stakeholders during implementation. Excel programming was also used to organize de-identified data prior to analysis by a GVSU statistician.

Essential V: Advocacy for Health Care Policy

The fifth DNP Essential, "Health Care Policy for Advocacy in Health Care," involves the ability to proactively engage in the development and implementation of healthcare policy at the international, federal, regional, state, local, and institutional level (AACN, 2006). While this project was not involved in policy change, the organization's existing policies regarding substance abuse management and documentation were evaluated prior to implementation. This Essential was achieved by attending the Michigan Council of Nurse Practitioners' Advocacy Day on October 15, 2019 and the National DNP Conference in Washington, D.C. on August 7, 2019.

Essential VI: Interprofessional Collaboration

The sixth DNP Essential, "Interprofessional Collaboration for Improving Patient and Population Health Outcomes," involves employing effective collaborative skills and communication when leading and consulting the organization's interprofessional team to analyze and solve complex practice issues (AACN, 2006). This Essential was achieved by actively engaging and collaborating with organizational stakeholders and leaders, including: the CMHO Site Director, Chief Clinical Officer, facility prescribers, psychiatrists, registered nurses, social workers, information technology, and human resources. This communication occurred through

in-person individual and group conversations, educational meetings, and e-mail, and provided constructive feedback while encouraging understanding of current practice, required change, and project barriers and facilitators.

Essential VII: Clinical Prevention and Population Health

The seventh DNP Essential, "Clinical Prevention and Population Health for Improving the Nation's Health," involves the analysis of scientific data to improve individual, population, or systems health (AACN, 2006). This Essential was achieved by analyzing the relationship between mental health and tobacco use, implementing evidence-supported interventions including group CBT for tobacco control, and by incorporating a sustainability framework into this project's implementation to improve the physical and mental health of this organization's patient population and surrounding community.

Essential VIII: Advanced Nursing Practice

Finally, the eighth DNP Essential, "Advanced Nursing Practice," involves the embodiment of the advanced nursing practice role and demonstration of advanced leadership and clinical judgement in complex situations to improve patient and system outcomes (AACN, 2006). This Essential was achieved by conducting systematic and comprehensive assessments, by designing, implementing, and evaluating interventions, and by educating organizational staff through this transition to provide group tobacco cessation counseling; relationships with the identified guiding coalition and leadership team were both established and sustained.

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Table 1. Percent of population served by gender at the designated CMHO.

Male (%)	Female (%)
45	55

Table 2. Diversity of organizational clients served by race.

Race	Percent (%)
Caucasian	53.5
African American	31
Multi-Racial	4
Native American	1
Asian American	0.5
Other/Unknown Ethnicity	10
Hispanic	4.6

Table 3. SWOT analysis of designated CMHO.

Strengths	Weaknesses
Program aligns with the organization's mission/strategic plan for 2018/2021.	Facility resources (staffing, financial, etc.) impacting the sustainability of the program.
Provider experience with behavioral health populations and approved cessation agents/NRTs.	Facility reliance on state for Medicaid funding.
Provider availability to prescribe cessation agents/NRTs under medication screening exams	
Functional space of facility conducive to group therapy sessions	
Committed employees who are dedicated to improving the quality of care provided to behavioral health populations.	
Staff and client buy-in.	
Opportunities	**Threats**
Need for TC programming in West Michigan.	Exacerbated of mental illness of participants impeding their ability to participate in therapy sessions.
Prevalence of tobacco use/dependence among the organization's clients.	Current tobacco regulation guidelines and unregulated advertising of newer products.
Billable opportunities for cessation counseling, acupuncture therapy, and transportation time rendered.	
Client interest in attending TC programming.	

Table 4. Comparison of contextual indicators of sustainability.

Fleiszer et al.	Meissner	Moullin et al.	Persaud	Shelton et al.	Vitale et al.
		Leadership		External Leadership (Outer) & Leadership/Support (Inner)	
		Service Environment/Policies		Sociopolitical Context (Outer)	
		Funding/Contracting		Funding Environment (Outer) & Organizational Funding (Inner)	
		Inter-Organizational Environment & Networks			
		Patient/Client Characteristics			
		Patient/Client Advocacy			
				Values, Needs, & Priorities (Outer)	
				Program Champions (Inner)	
				Staffing/Turnover (Inner)	
Context-Related					

Table 5. Comparison of process indicators of sustainability.

Fleiszer et al.	Meissner	Moullin et al.	Persaud	Shelton et al.	Vitale et al.
				Partnership/Engagement	
	Demonstration	Preparation	Organizational Learning	Training/Supervision	
				Accountability	
			Adaptation	Adaptation	
Development					Develop Action Plan
	Sustainability	Sustainment	Sustainability		
		Exploration	Innovation		
		Implementation	Implementation		
	Leadership				
	Alignment		Disconfirmation		Define Program
	Data				
	Evaluation		Measurement	Program/Evaluation/Data	Assess Program & Evaluate Sustainability
Benefits					Health Impact
	Replication				
			Strategy		Execute Action Plan
					Reassess and Identify
			Contextualization		
Routinization/ Institutionalization			Routinization		Program Institutionalization
			Culture		Readiness and Capacity
Process-Related					

Table 6. Comparison of intervention indicators of sustainability.

Fleiszer et al.	Meissner	Moullin et al.	Persaud	Shelton et al.	Vitale et al.
		Innovation/EBP Fit (system, organization, provider, patient/client)		Fit with the context and population	
		Innovation/EBP Developers		Implementer/Provider Characteristics	
		Innovation/EBP Characteristics			
				Adaptability	
				Perceived Benefit/Need	
				Implementer Skills/Expertise	
Innovation-Related					

Table 7. Comparison of "other" indicators of sustainability.

Fleiszer et al.	Meissner	Moullin et al.	Persaud	Shelton et al.	Vitale et al.
Leadership-Related					
				Continued Program Implementation	
				Continued Health Impact/Benefit	
				Capacity Building	
		Community Academic Partnerships			
		Purveyors and Intermediaries			

Table 8. Prioritization of sustainability approaches according to level of use (Lennox et al., 2018).

Organizational/Systems Focus	Intervention Focus
1. Demonstrating effectiveness	1. General resources
2. General resources	2. Demonstrating effectiveness
3. Monitoring progress over time	3. Monitoring progress over time
4. Organizational readiness and capacity	4. integration with existing programs/policies
5. Belief in the initiative	5. Training and capacity building
6. Organizational values and culture	6. stakeholder participation
7. Community participation	7. Intervention adaptation and receptivity
8. Leadership and champions	8. Leadership and champions
9. Stakeholder participation	9. organizational values and culture
10. Defining aims and shared vision	10. Funding

Table 9. Prioritization of sustainability approaches according to assessment time (Lennox et al., 2018).

Retrospective Assessment	Prospective Assessment
1. Demonstrating effectiveness	1. General resources
2. General resources	2. Demonstrating effectiveness
3. Leadership and champions	3. Monitoring progress over time
4. Accountability of roles and responsibilities	4. Stakeholder participation
5. Belief in the initiative	5. Integration with existing programs and Policies
6. Defining aims and shared vision	6. Training and capacity building
7. Funding	7. Intervention adaptation and receptivity
8. Monitoring progress over time	8. Leadership and champions
9. Training and capacity building	9. Belief in the initiative
10. Integration with existing programs and Policies	10. Relationships and collaboration and networks

Table 10. Facilitating "intervention characteristics" factors including frequency.

Hailemariam et al. (n = 26)	Hodge & Turner (n = 28)	Lennox et al. (n = 26)
EBP fit (42%)	Program fit (18%)	The problem (15%)
EBP effectiveness or benefit (42%)	Program benefits and burden (29%)	Demonstrating effectiveness (89%)
Ability to modify the EBP (35%)	Ability of program to be adapted (11%)	Improvement methods (6%)
Ability to maintain EBP fidelity/integrity (12%)		
	Program familiarity and competency (7%)	
		Monitoring progress over time (84%)
		Training and capacity building (76%)
		Evidence base for the initiative (52%)
		Expertise (23%)
		Project duration (8%)
		Project type (2%)

Table 11. Facilitating "negotiating initiative process" factors including frequency.

Hailemariam et al. (n = 26)	Hodge & Turner (n = 28)	Lennox et al. (n = 26)
		Belief in the initiative (63%)
		Accountability of roles and responsibilities (56%)
		Defining aims and shared visions (53%)
		Incentives (31%)
		Workload (27%)
		Complexity (24%)
		Job requirements (19%)

Table 12. Facilitating "capacity/resource" factors including frequency.

Hailemariam et al. (n = 26)	Hodge & Turner (n = 28)	Lennox et al. (n = 26)
Funding (50%)		Funding (68%)
Community stakeholder support/involvement (38%)		Accountability of roles and responsibilities (56%)
Workforce (35%)	Staff mobility and turnover (21%)	Staff (26%)
Resources (23%)		General resources (90%)
Internal/external EBP champions (19%)	Workplace support (46%)	
	Workplace climate and cohesion (18%)	Infrastructure (26%)
	Integration of the program (29%)	
	Leadership style (14%)	
	Supervision and peer support (29%)	
		Time (6%)

Table 13. Facilitating "processes and interactions" factors including frequency.

Hailemariam et al. (n = 26)	Hodge & Turner (n = 28)	Lennox et al. (n = 26)
Adaptation/alignment (54%)		Intervention adaptation and receptivity (73%)
Training and education (42%)	Training strategies (32%)	
Integration of rules and policies (27%)		Integration with existing programs and policies (79%)
Evaluation and feedback (23%)	Evaluation and feedback (25%)	
Engagement/relationship building (19%)	Engagement (61%)	
Shared decision making among stakeholders (15%)	Collaborative partnerships (46%)	
Navigating competing demands (4%)		Opposition (5%)
Other (19%)		
	Key program champions (25%)	
Ongoing support (42%)	Technical assistance and ongoing support (61%)	Support available (40%)
Planning (15%)	Sustainment planning (18%)	
	Funding and policy (46%)	
		Organizational values and culture (71%)
		Organizational readiness and capacity (56%)

Table 14. Facilitating "context and external environment" factors including frequency.

Hailemariam et al. (n = 26)	Hodge & Turner (n = 28)	Lennox et al. (n = 26)
Organizational leadership (46%)		
Setting characteristics (38%)		
System, policy change (19%)		Socioeconomic and political considerations (63%)
Organizational climate (19%)		
Organizational culture (15%)		
		Awareness and raising the profile (45%)
		Urgency (59%)
		Spread to other organizations (5%)

Table 15. Facilitating "people" factors including frequency.

Hailemariam et al. (n = 26)	Hodge & Turner (n = 28)	Lennox et al. (n = 26)
		Stakeholder participation (79%)
		Leadership and champions (73%)
		Relationships and collaboration and networks (65%)
		Community participation (56%)
		Staff involvement (42%)
		Ownership (26%)
		Power (18%)
		Patient involvement (16%)
		Satisfaction (11%)

Table 16. Emerging and preconditional factors for sustainability ("innovation factors/intervention characteristics").

Fleiszer et al. ("Innovation Factors")	Shelton et al. ("Intervention Characteristics")
Effectiveness of the innovation	
Fit with the organizational and professional missions, strategies, procedures	Fit with the population and context
Relevance of innovation in addressing a need or problem	Benefits/need
Type/nature/form of the innovation	
Adaptability of the innovation to the context	Adaptability
Integration of the innovation with existing programs/services	
Scale of the innovation	Burden/complexity
Age of the innovation	
	Trialability
	Cost

Table 17. Emerging and preconditional factors for sustainability ("contextual").

Fleiszer et al. ("Contextual Factors")	Shelton et al. ("Outer/Inner Context")
Project management structures and systems related to the innovation	
Predominant organizational culture (shared beliefs, values, norms)	(1) Climate and culture (inner context); (2) Values, priorities, needs (outer context); (3) mission
Policies and procedures based on the innovation	Policies (inner context)
Availability of expertise related to the innovation	(1) Champion (inner context); (2) Leadership/support (inner context)
Absorptive capacity	Capacity (inner context)
Nature of relationships among innovation stakeholders	
Characteristics of the workforce	Staffing/turnover (inner context)
Prevailing organizational climate	Structural characteristics (inner context)
Socio-economic-political conditions: stability, threats, norms	Sociopolitical context (outer context)
Policy and legislation governing the innovation	Policy and legislation (outer context)
Support and/or participation of the external community	Community ownership (outer context)
Connection of the institution to the outside community and/or broader networks	
Financing (initial and ongoing) of the innovation	Funding environment (outer context)
Other (non-financial) resources for the innovation	Funding/resources (inner context)
Competencies of the individuals to perform the innovations	
Commitment of stakeholders to the innovation/ownership of the innovation by stakeholders	Leadership (outer context)
Commitment of individuals to the organization/stakeholder engagement	

Table 18. Emerging and preconditional factors for sustainability ("process").

Fleiszer et al. ("Process Factors"	Shelton et al. ("Processes")
Planning and implementation of the innovation	Planning
Use of performance monitoring systems (especially evaluation and feedback)	Program evaluation/data
Training and education about the innovation	Training/support/supervision
Communication about the innovation	Communication
Timing, pacing, flow of events	
Navigation of competing demands	
Shared decision-making/collaboration	(1) Team/board functioning; (2) Partnership/engagement
	Fidelity
	Adaptation
	Technical assistance Capacity building

Table 19. Emerging and preconditional factors for sustainability ("people").

Fleiszer et al. ("Leadership Factors")	Shelton et al. ("Implementer and Population Characteristics")
Presence and influence of program champion(s)	
Involvement/actions of leadership and management	
	Provider/implementer characteristics
	Implementation skills/expertise
	Implementer attitudes
	Implementer motivation
	Population characteristics

Table 20. Hindering factors of sustainability including frequency (Hailemariam et al., 2019).

Sustainability Focus	Hindering Factor & Frequency
Innovation Characteristics	1. EBP effectiveness or benefit was not observed (12%) 2. No ability to modify/did not modify the EBP (12%) 3. EBP did not fit (8%) 4. Not able to maintain EBP fidelity/integrity (8%)
Capacity	1. No/limited funding; funding ended or eliminated (42%) 2. Lack of resources (27%) 3. Workforce (19%) 4. Community stakeholders did not support the sustainment of EBP (12%) 5. Lack of trained personnel to continue the EBP (12%) 6. Internal/external EBP champions did not support the sustainment of EBP (4%)
Processes and Interactions	1. Unable to navigate competing demands (23%) 2. Training and education was not sustained (12%) 3. No ongoing support (8%) 4. No sustained planning (8%) 5. Poor collaboration/partnership (8%)
Context	1. Organizational leadership did not support the sustainment of EBP (19%) 2. Setting characteristics (15%) 3. Organizational climate did not support the sustainment of EBP (12%) 4. System/policy change (0%)
Other	1. Lack of adequate number of service Users (19%)

Table 21. Relationships between facilitating and hindering "innovation characteristics" constructs (Hodge & Turner, 2016).

Subconstruct	Sustainment Factor	Hindering Factor
Program benefits and burden	Benefits: benefits of program outweigh the costs; program is appealing and easy to implement; program is visibly effective	Burden: benefits of program do not outweigh the costs; time and implementation of new program within the constraints of day-to-day work
Program fit	Compatibility: new program fills a "critical gap" within the healthcare system; new program becomes a part of everyday practice and service delivery	Incompatibility: new program is not viewed as a regular component of service delivery; incompatibility of program and work commitments
Ability of program to be adapted	Adaptation: program is guided by theory and population needs; program created to meet local needs; ability to relax eligibility rules when appropriate/relevant to the client	Discontinuation: fidelity breaches; limited provider commitment; limited training; limited supervision hours; limited incentivization
Program familiarity and competency	Competency: program familiarity and knowledge; incorporation/provision of skills training methods; perceived competency in program skills	Inadequacy: program complexity; program is difficult to understand; perceived inadequacy in program skills

Table 22. Relationships between facilitating and hindering "capacity" constructs (Hodge & Turner, 2016).

Subconstruct	Sustainment Factor	Hindering Factor
Workplace climate and cohesion	Cohesion: sustainment addressed early in program development; ongoing support/supervision; productive interpersonal relationships; teamwork viewed as a core value	Discord: weak communication processes; teamwork not valued; sustainment not addressed
Workplace support	Support: provision of space for training/practice; time for training/practice; financial support; vocal mandate for practice	Lack of Support Functions: weak information/communication; weak capacity building; inadequate space for training/practice; inadequate time for training practice
Integration of the program	Integration: leader's commitment to program mission; staff awareness of program mission, values, and goals; involvement of interprofessional teams, clients, and communities	Dissolution: lack of commitment/teamwork; staff unaware of program mission, values, and goals; leader not committed to program
Leadership style	Effective Leadership: leadership is respectful, respected, creative, and empowering; leadership able to resolve conflict; leadership that inspires and promotes learning	Ineffective Leadership: leadership that is disrespectful, disrespected, uninspired, and obstructing; leadership that is unable to negotiate or resolve conflict
Staff mobility and turnover	Mobility: staff retention; availability of qualified staff; staff readiness/preparedness	Turnover: high staff turnover; staff burnout; unavailability of qualified staff; funding restrictions
Supervision and peer support	Supervision: staff retention; on-site clinical mentoring; post-training support; peer-assisted supervision	Lack of Supervision: staff attrition; lack of feedback from supervisors

Table 23. Relationships between facilitating and hindering "process/interaction" constructs (Hodge & Turner, 2016).

Subconstruct	Sustainment Factor	Hindering Factor
Engagement	Engagement: shared-decision making of stakeholders; program alignment; program consistent with local context/culture; stakeholder outreach; community consultation; public education; community ownership	Disengagement: rapid geographic spread of program activities; missing opportunities to engage
Training strategies	Training Strategies: ongoing education; training at multiple levels (district, central, local)	Training Strategies: staff do not understand program/innovation; ongoing training not offered; delivery of program/innovation with insufficient training
Key program champion	Presence of Program Champion: champion advocates for the program/innovation; champion provides support from implementation not sustainment; champion encourages implementation activities	No Program Champion: lack of champion to advocate for the program/innovation; lack of champion to provide support; lack of champion to encourage implementation
Technical assistance and ongoing support	Technical Assistance: supportive coaching and training by experienced facilitators; available physical resources (materials, transportation, space)	Lack of Ongoing Support: lack of resources (materials, transportation, space); uneven support
Evaluation and feedback	Adequate Evaluation/ Feedback: measurement of performance and clinical outcomes; continued monitoring; implementation monitoring; integrated data collection	Inadequate Evaluation/Feedback: lack of regular monitoring; lack of commitment to assessment of outcomes
Collaborative partnerships	Collaboration: use of partnership models; partnership support; presence of high-functioning partnerships	Division: abandonment of team meetings; program/innovation not supported by external partner agents
Sustainment planning	Planning: development of financial and operational plans; early planning; program/innovation viewed as a long-term investment with long-term commitment	Planning: late/no planning; funding not secured; failure to have regular planning meetings
Funding and policy	High External Supports: program/innovation supported by parties outside the community (government regulations, policy, mandates, and funding); incentivization; political commitment	Limited External Supports: program/innovation not supported by parties outside the community (government regulations, policy, mandates, and funding); no incentivization; shifting political setting; lack of political commitment

Table 24. Data collection timeline.

Data	Collection Date
Attendance	Weekly
Time Between Cigarettes	Sessions 1 & 8 (January 15, 2020 and February 26, 2020)
Cigarettes Smoked/Day	Sessions 1 & 8 (January 15, 2020 and February 26, 2020)
Nicotine Dependence	Sessions 2 & 8 (January 22, 2020 and February 26, 2020)
Self-Efficacy	Sessions 1 & 8 (January 15, 2020 and February 26, 2020)
Readiness to Quit	Sessions 1 & 8 (January 15, 2020 and February 26, 2020)
Preparedness to Quit	Sessions 1 & 8 (January 15, 2020 and February 26, 2020)
Facilitator Training Evaluation	Post FFS facilitator training.
Use of Medications/NRTs	Sessions 1, 4, 5, 6, 7, (January 15, 2020, February 5, 2020, February 7, 2020, February 12, 2020, February 19, 2020, February 26, 2020)
Cessation Rate	Post February 26, 2020
Return on Investment	Post February 26, 2020

Table 25. Budget table for TC programming.

Program Financial Needs	Projected Cost
Training: training for two staff members priced at $350 per person.	$800
Participant Workbooks: workbooks for two closed clinics at capacity (16 participants per clinic; total of 32 participants) priced at $25 per participant.	$800
Supplies: healthy beverages and snacks to help curb nicotine cravings during program sessions priced at $80 per clinic ($160 for two closed clinics).	$160
TOTAL NEEDED	$800
TOTAL WANTED	$1,760
FUNDING AVAILABLE	$1,500
TOTAL REQUESTED	$1,500

Table 26. Program attendance rate by session.

Session	Number in Attendance
1	3
2	1
3	2
4	2
5	1
6	2
7	1
8	1

Table 27. Participant program evaluation.

Question	Response
I eat larger meals now than before I quit smoking. 1. Yes 2. Sometimes 3. Often	1
I spend more time watching TV or reading now than when I was smoking. 1. Yes 2. Sometimes 3. Often	1
How many sessions of the clinic did you attend?	"7"
Check the statement below that best describes you today: 1. I'm not smoking or using any form of tobacco. 2. I'm smoking or using another form of tobacco and I plan to quit within the next 30 days. 3. I'm smoking or using another form of tobacco and I plan to quit within the next six months. 4. I'm smoking or using another form of tobacco and I don't plan to quit within the next six months.	2
Did you stop smoking or using any other form of tobacco for one day (24 hours) or longer during the clinic? 1. Yes 2. No	1
What was the most helpful activity in the clinic?	"Relaxation exercises"
What was the least helpful activity in the clinic?	"Nothing"
How did the clinic facilitator help you?	"Understand the bad things of smoking"
How could the clinic facilitator have helped you more?	"She did good"
How would you improve the clinic?	"Get more people to come"
Would you recommend the clinic to friends who want to quit smoking? 1. Yes 2. No	1
Do you have any other comments or suggestions?	"No"

Table 28. Sustainability interventions according to level of use prioritization (Lennox et al., 2018).

	Intervention		Focus
1.	Secured grant funding to address the organization's limited financial resources available for staff training and materials.	1.	General resources
2.	FFS programming chosen as it has been found to be the most effective TC program when compared to 100 other TC programs.	2.	Demonstrating effectiveness
3.	Academic partnership with the ALA established to ensure monitoring of program activities over time.	3.	Monitoring of progress over time
4.	FFS programming can be easily integrated with the organization's existing substance abuse programs and policies.	4.	Integration with existing programs/policies
5.	Provision of FFS facilitator training for two staff members by the ALA.	5.	Training and capacity building
6.	Staff participation through the provision of acupuncture therapies, participant recruitment, guest speakers, and trained facilitators.	6.	Stakeholder participation
7.	Use of participant workbooks is flexible. Clinic design (open/closed) is flexible.	7.	Intervention adaptation and receptivity
8.	Guiding coalition established, comprised of champions from all levels of the organization's leadership hierarchy.	8.	Leadership & champions
9.	FFS programming is in alignment with the organization's values and culture as documented in their strategic plan for 2019-2021.	9.	Organizational values & culture
10.	Grant funding secured to address the organization's limited financial resources available for staff training and materials. Program format is adaptable and may be presented in an "open" format to provide financial support for planned "closed" clinics.	10.	Funding

Table 29. Retrospective Analysis of Interventions according to priority (Lennox et al., 2018).

	Intervention		Focus
1.	Included the implementation of a novel program with unknown effectiveness.	1.	Demonstrating effectiveness
2.	Limited financial resources available so the initial programming was novel. No academic partnerships were established.	2.	General resources
3.	Championed by the previous DNP student and site mentor; champions to carry on program activities were not identified/prepared.	3.	Leadership & champions
4.	DNP student was accountable for all program responsibilities.	4.	Accountability of roles and responsibilities
5.	Organizational buy-in was effectively established.	5.	Belief in the initiative
6.	Aim was to develop and integrate an evidence-based group TC program. Student's aim became the shared vision of the organization.	6.	Stakeholder participation
7.	Funding not available to continue program activities/provide program supplies.	7.	Funding
8.	Secured secondary DNP student to continue program development/monitoring. No external monitoring supports identified/established.	8.	Monitoring progress over time
9.	Not accomplished/performed; complicated by the novelty of the program.	9.	Training and capacity building
10.	Program was easily integrated with the organization's existing programs and policies.	10.	Integration with existing programs & policies

Table 30. Prospective Analysis of Interventions according to priority (Lennox et al., 2018).

	Intervention		Focus
1.	Secured grant funding to address organization's limited financial resources available for staff training.	1.	General resources
2.	Established program. FFS program was found to be the most effective program when compared with 100 other TC programs.	2.	Demonstrating effectiveness
3.	Academic partnership with the ALA. Clinic monitoring by trained program facilitators.	3.	Monitoring progress over time
4.	Client participation in clinic has been demonstrated. Staff participation through the incorporation of future group acupuncture therapies, participant recruitment, guest speakers, and trained facilitators.	4.	Stakeholder participation
5.	Programming can be easily integrated with the organization's existing substance abuse programming.	5.	Integration with existing programs & policies
6.	Facilitator training for two staff members.	6.	Training and capacity building
7.	Use of participant workbooks in flexible. Clinic design (open/closed) is flexible.	7.	Intervention adaptation and receptivity
8.	Guiding coalition compromised of champions from all levels of the organization's leadership hierarchy.	8.	Leadership and champions
9.	Pre-existing client and organization buy-in first established by the previous DNP student.	9.	Belief in the initiative.
10.	Holistic relationships with clients; collaboration within the established coalition's hierarchy; networking with ALA to provide evidence-based, quality programming.	10.	Relationships, collaboration, and networks

Appendix A

The IOA Model

Figure A. The IOA Model. Adapted from Canadian International Development Agency. (2006). *Organization assessment guide*. Ottawa, Canada: Oakron Consultants Inc.

Appendix B

Organizational Financial Report for 2016-2017

Financial Report FY 16–17

Revenue	
Program Services Revenue	$8,308,314
Navigate Revenue	530,983
Client Pay Services	284,601
Grants	162,341
Donations	28,179
Miscellaneous	5,355
Total Revenue Unrestricted	$9,319,773
Net Assets released from restrictions	44,217
Total Revenue and Release of Restrictions	$9,363,990
Expenses	
Kalamazoo County Programs	
ACT Services	$1,753,315
CTT/Integrated Recovery Services	1,906,592
Action Employment Services	230,802
CET Program	55,074
Center for DBT Services	379,911
Substance Abuse Services	403,277
Community Payee Services	182,631
Navigate	201,652
Kent County Programs	
ACT Services	2,455,052
Supported Employment Services	323,577
Navigate	364,461
Priority Health	54,974
Total Services Expenses	$8,311,268
Administrative Expenses	1,031,408
Total Agency Expenses	$9,342,676

Appendix C

Outcomes of Services Provided in 2016-2017

Our Services and Outcomes in FY 16–17

Assertive Community Treatment (ACT)—intensive, multi-disciplinary team-based services including Integrated Dual Disorder Treatment and 24-hour supports. We provide these services in two communities; Kalamazoo and Kent County.

	Kalamazoo	Kent
Individuals served	261	323
Live independently	80%	71%
Not hospitalized during the year	75%	71%
Competitively employed	17%	16%
Graduated to less intensive services	14%	8.6%
Overall satisfaction with services	94.8%	97%

Community Treatment Team (CTT)—integrated recovery services provided by Case Managers and Peer Specialists with Nursing and Psychiatric supports.

653 Individuals served
73% Live independently
86% Not hospitalized during the year
10.3% Competitively employed
12% Graduated to less intensive services
98% Overall satisfaction with services

Center for DBT Services—individual and group Dialectical Behavior Therapy for adults and adolescents with emotion regulation and self-harm issues.

245 Individuals served
44% Reduction in self-reported symptoms pre- and post-DBT services
52% Treatment completion rate
97% Overall satisfaction with services

Substance Abuse Services for Co-occurring Disorders—individual therapy, skills groups, care coordination, and recovery support services that matches stage of change to stage of treatment for people with co-occurring needs.

240 Individuals served
40% Treatment completion rate
713% Reported abstinence or reduced use at discharge
97% Overall satisfaction with services

Supported Employment Services (SE)—InterAct provides fidelity-based supported employment using the Individual Placement and Support model to help people choose, get, and keep community-based employment. We serve adults in Kalamazoo through Action Employment Services (AES) and in Kent through SE-Kent. Supportive Employment Opportunities (SEO) subcontracts to serve adults with developmental disabilities in the Kalamazoo area.

	AES	SE-Kent	SEO
Individuals served	170	316	17
Individuals employed	41%	41%	73%
Community-based employment sites used	59	77	26
Overall satisfaction with services	98%	99.5%	99%

Navigate—early intervention for young adults ages 15–30 experiencing first-episode psychosis. Navigate uses individual resiliency therapy, family treatment, supported employment and education, and medication management to change the trajectory of illness. Funded by a SAMHSA grant managed by Network 180, the program includes a team in Kent along with the 2016 addition of a team in Kalamazoo.

77 Individuals served
8 Average hospital days
63% Competitively employed or in school
99% Overall satisfaction with services

Wellness Center—peer run services that focus on building hope and recovery using Concepts of Wellness classes, yoga, WRAP, Healing from Trauma, one-to-one recovery coaching, and other self-management tools that promote healthy outcomes.

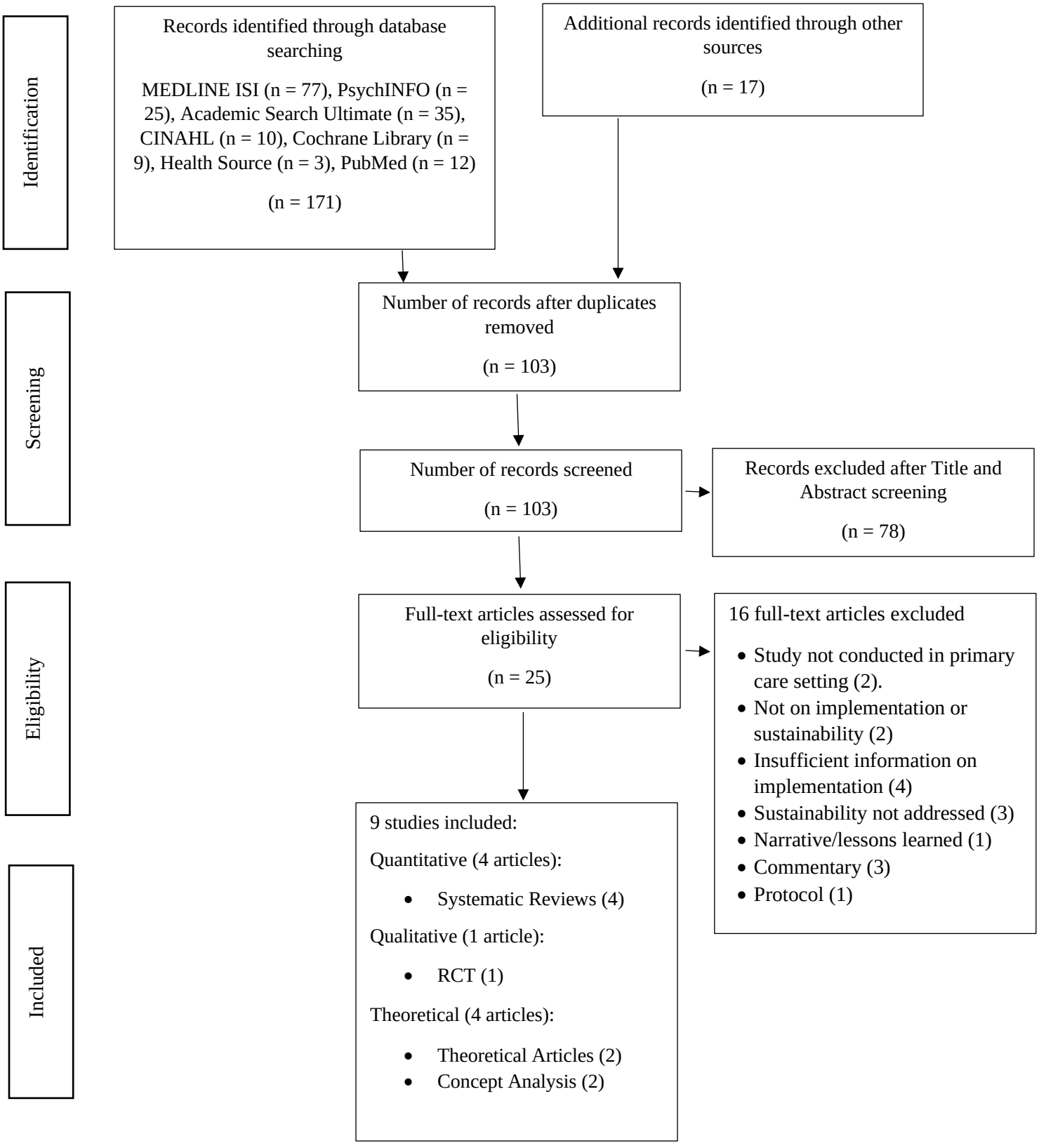
110 Individuals served
98% Overall satisfaction with services

Community Payee Services (CPS)—money management assistance for individuals in need of representative payee services for Social Security benefits.

640 Individuals served
$6.2 Million in benefits funds managed to meet individuals' needs
83% Overall satisfaction with services

Appendix D

Publication Identification, Screening, Eligibility, and Inclusion Process



Appendix E

First Clinic Calendar

Preparation	Session 1	January 15, 2020	12:00 p.m. – 1:30 p.m.
	Session 2	January 22, 2020	12:00 p.m. – 1:30 p.m.
	Session 3	January 29, 2020	12:00 p.m. – 1:30 p.m.
	Session 4 (Quit Day)	February 5, 2020	12:00 p.m. – 1:30 p.m.
Maintenance	Session 5	February 7, 2020	12:00 p.m. – 1:30 p.m.
	Session 6	February 12, 2020	12:00 p.m. – 1:30 p.m.
	Session 7	February 19, 2020	12:00 p.m. – 1:30 p.m.
	Session 8	February 26, 2020	12:00 p.m. – 1:30 p.m.

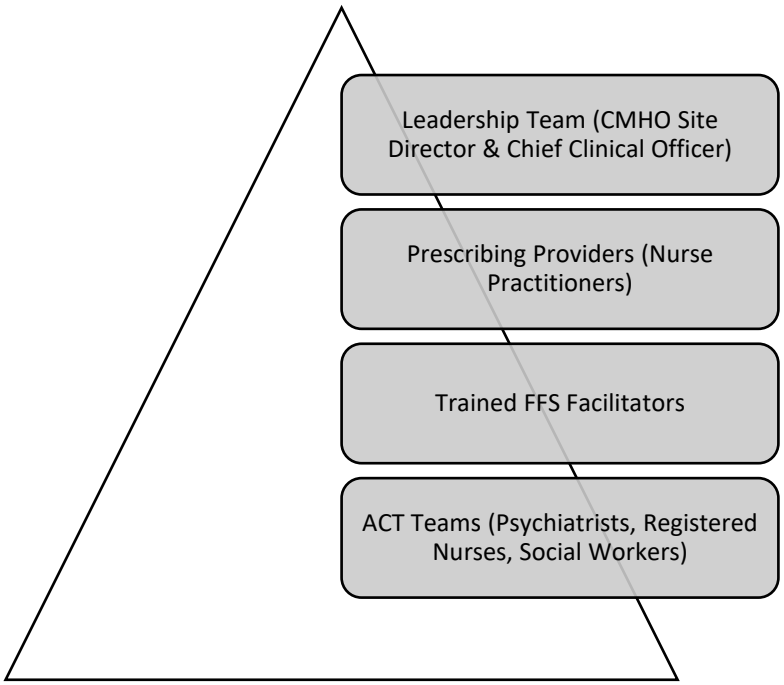
Appendix F

Kotter's Eight Step Plan for Implementing Change

Figure N. Kotter's Eight Step Plan for Implementing Change. Adapted from Kotter International. (2018). *The 8-step process for accelerating change.* Retrieved from https://www.kotterinc.com/wp-content/uploads/2018/05/8-steps-ebook-kotter-2018.pdf

Appendix G

Guiding Coalition by Leadership Hierarchy



Appendix H

Fagerstrom Test for Nicotine Dependence

Fagerstrom Test for Nicotine Dependence

	PLEASE TICK (✓) ONE BOX FOR EACH QUESTION	
How soon after waking do you smoke your first cigarette?	Within 5 minutes 5-30 minutes 31-60 minutes	☐ 3 ☐ 2 ☐ 1
Do you find it difficult to refrain from smoking in places where it is forbidden? e.g. Church, Library, etc.	Yes No	☐ 1 ☐ 0
Which cigarette would you hate to give up?	The first in the morning Any other	☐ 1 ☐ 0
How many cigarettes a day do you smoke?	10 or less 11 – 20 21 – 30 31 or more	☐ 0 ☐ 1 ☐ 2 ☐ 3
Do you smoke more frequently in the morning?	Yes No	☐ 1 ☐ 0
Do you smoke even if you are sick in bed most of the day?	Yes No	☐ 1 ☐ 0
	Total Score	

SCORE		
	1- 2 = low dependence 3-4 = low to mod dependence	5 - 7= moderate dependence 8 + = high dependence

Figure R. Fagerstrom Test for Nicotine Dependence. Adapted from Heatherton, Kozlowski, & Frecker (1991). The Fagerstrom Test for Nicotine Dependence: A revision of the Fagerstrom Tolerance Questionnaire. *British Journal of Addiction*, 86.

Appendix I

The Smoking Abstinence Self-Efficacy Questionnaire (SASEQ)

Participant ID: _____ Date: _____

Week: _____

1. You feel agitated or tense. Are you confident that you will **not** smoke?
   - ☐ Certainly
   - ☐ Probably
   - ☐ Neutral / Don't know
   - ☐ Probably Not
   - ☐ Certainly Not

2. You are (very) angry. Are you confident that you will **not** smoke?
   - ☐ Certainly
   - ☐ Probably
   - ☐ Neutral / Don't know
   - ☐ Probably Not
   - ☐ Certainly Not

3. You are in a café, at a party, or paying a visit. Are you confident that you will **not** smoke?
   - ☐ Certainly
   - ☐ Probably
   - ☐ Neutral / Don't know
   - ☐ Probably Not
   - ☐ Certainly Not

4. You feel (very) sad. Are you confident that you will **not** smoke?
   - ☐ Certainly
   - ☐ Probably
   - ☐ Neutral / Don't know
   - ☐ Probably Not
   - ☐ Certainly Not

. Someone offers you a cigarette of your own brand. Are you confident that you will **not** smoke?

- ☐ Certainly
- ☐ Probably
- ☐ Neutral / Don't know
- ☐ Probably Not
- ☐ Certainly Not

6. You see someone enjoy smoking. Are you confident that you will **not** smoke?

- ☐ Certainly
- ☐ Probably
- ☐ Neutral / Don't know
- ☐ Probably Not
- ☐ Certainly Not

The scores for the subsequent responses are the following:
Certainly = 4
Probably = 3
Neutral/Don't know = 2
Probably Not = 1
Certainly Not = 0

Figure S. The Smoking Abstinence Self-Efficacy Questionnaire. Adapted from Spek, Lemmen, Chatrou, vanKempen, Pouwer, & Pop (2013). Development of a smoking abstinence self-efficacy questionnaire. *International Journal of Behavioral Medicine, 20*.

Appendix J

Facilitator Training Questionnaire

FFS Training Evaluation Form

Date: _____

Instructions: Please indicate your level of agreement with the statements listed below.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. The training met my expectations.	☐	☐	☐	☐	☐
2. I will be able to apply the knowledge I gained.	☐	☐	☐	☐	☐
3. The training objectives for each topic were identified and followed.	☐	☐	☐	☐	☐
4. The content was organized and easy to follow.	☐	☐	☐	☐	☐
5. The materials distributed were pertinent and useful.	☐	☐	☐	☐	☐
6. The trainer was knowledgeable.	☐	☐	☐	☐	☐
7. The quality of instructions was good.	☐	☐	☐	☐	☐
8. Adequate time was provided for questions and discussions.	☐	☐	☐	☐	☐

	Excellent	Good	Average	Poor	Very Poor
9. How do you rate this training overall?	☐	☐	☐	☐	☐

Appendix K

Presidential Grant Decision Letter

December 10, 2019

Jennifer Wilssens
2201 Pinehurst Court
Midland, MI 48640

Dear Jennifer:

Please accept my congratulations. Your proposal to pursue your research titled: *"Sustainable Healthcare Innovations"* as a recipient of a GVSU Presidential Research Grant, has been approved by the review committee. Funding is available from January 6, 2020 through April 24, 2020. Expenses must be submitted prior to June 1, 2020 in order to receive reimbursement.

You have been awarded $1,500.00 for purchasing expenses for your research. Additionally, I am happy to provide you with *$600 to support your travel expenses to present these research findings at a professional conference*. This support is available through an application to the Academic Conference Fund which is administered by The Graduate School.

Please note that if your research involves animal or human research you will need to have approval from Grand Valley State University's Institutional Animal Care and Use Committee (IACUC) or the Human Research Review Committee (HRRC) before the funds will be released. If you purchase an item, using cash or a credit card, please forward all original receipts with a completed Travel and Expense Voucher to The Graduate School, attention, Irene Fountain, 318C DeVos Center for reimbursement of expenses.

If you wish to order an item for your research you will need to send the information for that order (company name, item number, description, location of delivery, and price of each item) to our office, attention: Irene Fountain. We will enter a purchase order online within five days of receiving your information. If you have any questions you may call Irene at 331-7123.

A final report on your project will be due on June 20, 2020. This report should be sent to The Graduate School, 318C DeVos Center.

If you accept this award, please sign below, and return the **original** copy to The Graduate School, 318C DeVos Center, within 5 business days. Be sure to keep a copy for your own records.

12/10/19

Date — Jeffrey A. Potteiger
Dean of the Graduate School

Date — Jennifer Wilssens (signature)

cc: C. McCurren
K. Burritt

Appendix L

Clinic Flyer

AMERICAN LUNG ASSOCIATION. | FREEDOM FROM SMOKING®

Join the American Lung Association's eight-week quit smoking program, conveniently held at the Location. Hundreds of thousands of people have become smoke-free through a Freedom From Smoking® Group Clinic which offers a structured, systematic approach to quitting smoking.

Overseen by a certified facilitator, you will learn:

- How to know if you're really ready to quit
- Medications that can increase your success
- Lifestyle changes to make quitting easier
- How to prepare for your quit day
- Coping strategies for managing stress & avoiding weight gain
- How to stay smoke-free for good

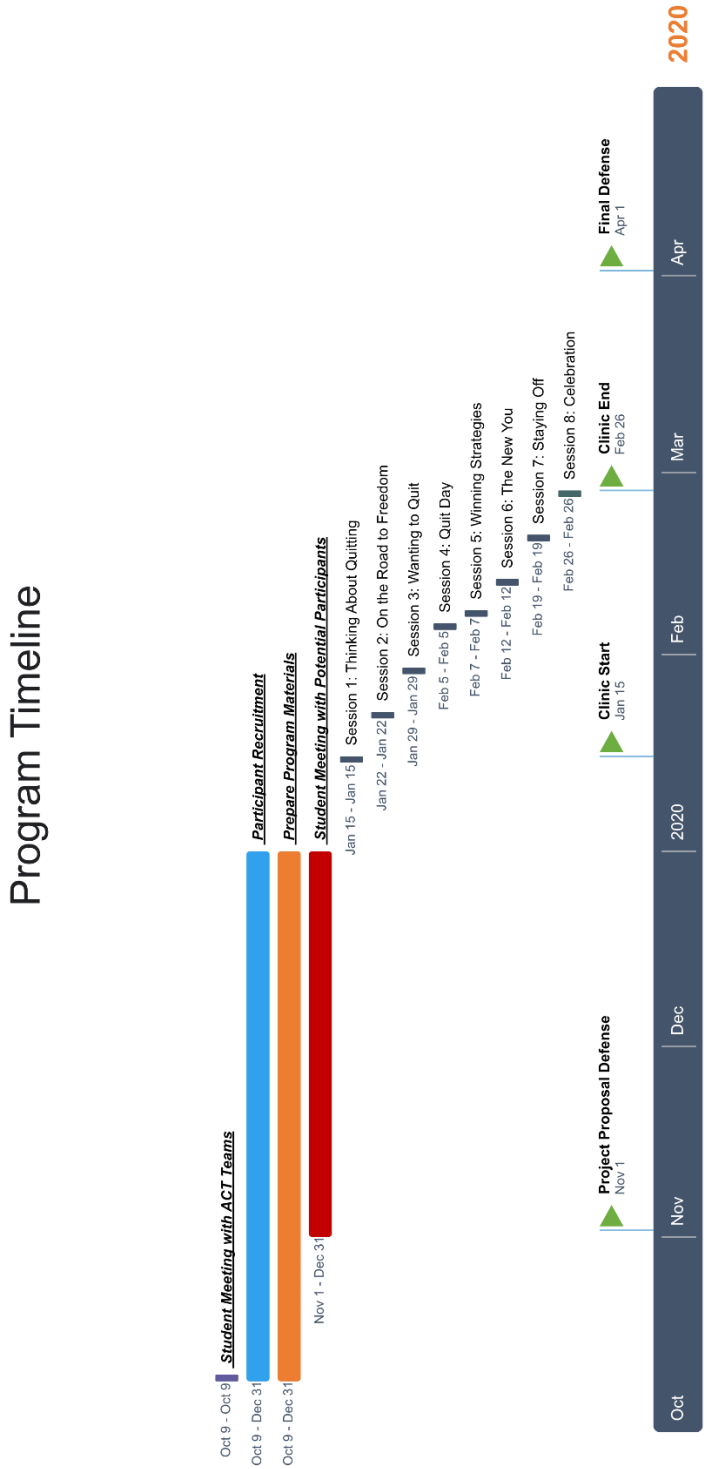
Freedom From Smoking Group Quit Program
Wednesday January 15, 2020 at 12:00 p.m.

Contact your designated ACT team to RSVP. Our first session starts on Wednesday, January 15, 2020 at 12:00 p.m. and our last session is on February 26, 2020 at 12:00 p.m.

You *can* quit smoking. We can help.

Appendix M

Timeline of Program Activities



Appendix N

GVSU IRB Approval

GRAND VALLEY STATE UNIVERSITY
www.gvsu.edu

DATE:	December 02, 2019
TO:	Karen Burritt
FROM:	Office of Research Compliance & Integrity
PROJECT TITLE:	Group Tobacco Control Programming
REFERENCE #:	20-135-H
SUBMISSION TYPE:	IRB Research Determination Submission
ACTION:	Not Research
EFFECTIVE DATE:	December 02, 2019
REVIEW TYPE:	Administrative Review

Thank you for your submission of materials for your planned scholarly activity. It has been determined that this project does not meet the definition of research* according to current federal regulations. The project, therefore, does not require further review and approval by the IRB. Scholarly activities that are not covered under the Code of Federal Regulations should not be described or referred to as "*research*" in materials to participants, sponsors or in dissemination of findings. While performing this project, you are expected to adhere to the institution's code of conduct and any discipline-specific code of ethics.

A summary of the reviewed project and determination is as follows:

The purpose of this quality improvement project is to implement the American Lung Association's Freedom from Smoking program within the designated community mental health organization. The smoking cessation program will be implemented as recommended to improve the health of patients at this clinic. There is no research question being asked and no new generalizable knowledge being created. Therefore, this project does not meet the federal definition of research and IRB oversight is not needed.

This determination letter is limited to IRB review. It is your responsibility to ensure all necessary institutional permissions are obtained prior to beginning this project. This includes, but is not limited to, ensuring all contracts have been executed, any necessary Data Sharing Agreements and Material Transfer Agreements have been signed, and any other outstanding items are completed.

An archived record of this determination form can be found in IRBManager from the Dashboard by clicking the "_ xForms" link under the "My Documents & Forms" menu.

If you have any questions, please contact the Office of Research Compliance and Integrity at (616) 331-3197 or rci@gvsu.edu. Please include your study title and study number in all correspondence with our office.

*Research is a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge (45 CFR 46.102 (d)).