

**Addressing COVID-19 Vaccine Hesitancy Using a Vaccine Decision Aid Tool**

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### **Abstract**

The COVID-19 pandemic highlighted health disparities among minority racial groups causing higher COVID-19 morbidity and mortality rates. Once the COVID-19 vaccine became available, Black/African American people had low vaccine uptake compared to other races in two large counties of North Carolina, despite the data showing reduced rates of severe disease when vaccinated. Attitudes surrounding vaccinations vary among different races, given the historical events of racial abuse, which can lead to vaccine hesitancy. A community health organization that supported underserved communities partnered with the DNP student to help improve the message surrounding COVID-19 vaccines. The DNP student created a COVID-19 vaccine decision aid tool and trained community health leaders on how to use this method with patients. The leaders provided feedback via surveys. All community health leaders (N=4) were taught, and 50% reported increased confidence levels post-implementation. The leaders encountered 13 patients in the office setting, and mostly positive feedback with rationale was provided on the usefulness of the COVID-19 decision aid tool. The project positively affected the community health leaders and improved the conversation surrounding COVID-19 vaccines. Recommendations for future study include tracking vaccine uptake before and after the intervention, asking for patient feedback, and expanding it to gain a variety of healthcare workers' perceptions.

*Keywords: COVID-19 vaccine, vaccine hesitancy, decision aid, community health, shared decision-making*

**Table of Contents**

Abstract .....	2
Section I: Introduction .....	6
Background.....	6
Organizational Needs Statement.....	6
Problem Statement.....	8
Purpose Statement.....	9
Section II: Evidence.....	9
Literature Review.....	9
Evidence-Based Practice Framework.....	15
Ethical Consideration and Protection of Human Subjects.....	16
Section III: Project Design.....	17
Project Site and Population.....	17
Project Team.....	18
Project Goals and Outcomes Measures.....	18
Implementation Plan.....	22
Timeline.....	22
Section IV: Results and Findings.....	23
Results.....	23
Discussion of Major Findings.....	29
Section V: Interpretation and Implications.....	33
Costs and Resource Management.....	33
Implications of the Findings.....	36
Sustainability .....	38

Dissemination Plan .....	38
Section VI: Conclusion.....	39
Limitations and Facilitators.....	39
Recommendations for Others.....	40
Recommendations for Further Study.....	41
Final Thoughts.....	41
References.....	43
Appendices.....	49
Appendix A: Literature Search 1.....	49
Appendix B: Literature Search 2.....	50
Appendix C: Final Version of COVID-19 Vaccine Decision Aid Tool.....	51
Appendix D: Phase A: Pre-Education Survey.....	53
Appendix E: Phase A: Post-Education Survey.....	54
Appendix F: Phase B: Pre-Education Survey.....	55
Appendix G: Phase B: Post-Education Survey.....	56
Appendix H: Check-in Survey 1.....	57
Appendix I: Check-in Survey 2.....	58
Appendix J: Check-in Survey 3.....	59
Appendix K: Check-in Survey 4.....	60
Appendix L: DNP Project Implementation Timeline.....	61
Appendix M: Phase A: Pre-Education Survey Results.....	64
Appendix: N: Phase A: Post-Education Survey Results.....	65
Appendix O: Phase B: Pre-Education Survey Results.....	66

Appendix P: Phase B: Post-Education Survey Results.....67

Appendix Q: DNP Project Budget.....68

Appendix R: Proposed Budget if a Public Health Nurse Was Hired.....69

Appendix S: Project Poster.....70

## **Section I. Introduction**

### **Background**

The COVID-19 pandemic shook the world, caused tremendous grief and hardship, and exposed significant health disparities in many communities. For instance, those of a racial or ethnic minority group, like Black/African Americans, were disproportionately affected by COVID-19 (Centers for Disease Control and Prevention [CDC], 2020). As a result, these groups had a higher prevalence of severe COVID-19 disease, which led to more intensive care hospital admissions and higher mortality rates than non-Hispanic White people. Factors associated with these outcomes included underlying medical conditions and social inequities such as reduced healthcare access and gaps in wealth, income, and education (CDC, 2020). The first COVID-19 vaccine became available in the United States in late 2020, and data showed that those who received it had a lower risk for severe COVID-19 illness and death (CDC, 2021b). However, attitudes and behaviors about vaccinations can vary among different races leading to greater vaccine hesitancy (Quinn et al., 2017). For instance, among racial and ethnic minority groups, medical mistrust, due to the traumatic historical events of racial abuse and discrimination in medicine, was one factor that led to COVID-19 vaccine hesitancy (CDC, 2022).

### **Organizational Needs Statement**

A non-profit community-based organization in a metropolitan area of North Carolina provided medical, psychological, and social support to local underserved and minority communities of two large neighboring counties (RAO Community Health, n.d.). This organization aimed to improve the community's health through advocacy and holistic medical care. With additional funding from the CDC, through the REACH (Racial and Ethnic Approaches to Community Health) grant, this organization began to aid in response to the

COVID-19 pandemic by administering COVID-19 vaccines to the community while providing education and identifying barriers to vaccine uptake (RAO Community Health, 2021).

In Summer 2021, new variants of COVID-19 spread rapidly among the two counties the organization served and were labeled as high community spread areas (CDC, n.d.). Additionally, COVID-19 hospitalizations were increasing, making vaccination a priority (Mecklenburg County Government, 2021). However, many residents remained hesitant to receive the COVID-19 vaccine as they continued to question and voice concerns about it (RAO Community Health, 2021). The non-profit community organization needed help improving vaccination rates by decreasing vaccine hesitancy and improving vaccine confidence in the minority populations they served.

Addressing the topic of COVID-19 vaccine hesitancy and improving vaccination rates aligned with Healthy People 2030 and Healthy North Carolina's goals to increase the proportion of adults who receive recommended vaccinations and reduce health disparities (Healthy People 2030, n.d.; North Carolina Institute of Medicine, 2020). Also, this objective aligned with the North Carolina Department of Health and Human Services' (NCDHHS) goal to give every eligible North Carolinian access to the COVID-19 vaccine while making efforts to enhance trust in the COVID-19 vaccine (North Carolina Department of Health and Human Services [NCDHHS], n.d.-a). The NCDHHS also emphasized the importance of reaching marginalized communities to ensure vaccine equity.

The effort to improve vaccination rates aligned with the Institute of Healthcare Improvement's Triple Aim initiative to boost population health, reduce healthcare costs, and enhance the patient experience (Stiefel & Nolan, 2012). First, fulfilling this organizational need would improve the health of the populace by reducing viral circulation, thus lowering severe

disease and mortality rates. Second, this disease prevention would lower healthcare costs by reducing emergency department visits, hospital admissions, and the utilization of resources. Also, at the time of the project, the COVID-19 vaccination was free to all residing in the United States regardless of health insurance coverage or immigration status (CDC, 2021b). Third, it would improve the patient experience by enhancing equity for a minority population by focusing on creating culturally appropriate messaging and improving outreach. An equitable healthcare model allows patients of marginalized communities to feel more comfortable, confident, and satisfied with the care they receive (Ford-Gilboe et al., 2018).

### **Problem Statement**

The Black/African American community in the two selected counties had high mortality rates of COVID-19, but among this population, COVID-19 vaccination rates were falling short. For example, in County A, outside of long-term care facilities, nearly 2 in 3 deaths were of people that were non-White, and 40% of those deaths were non-Hispanic Black persons (Mecklenburg County Government, 2021). Yet, they consisted of 39% of those fully vaccinated for COVID-19, which was the lowest percentage vaccinated among White, Asian/Pacific Islander, Hispanic, and American Indian/Alaskan Native communities (NCDHHS, n.d.-b). In County B, 21% of the total COVID-19 cases and 17% of COVID-19 deaths were Black/African American (Cabarrus County Health Alliance, 2021). However, this same group encompassed 42% of those fully vaccinated for COVID-19, which was the third-lowest percentage among Asian/Pacific Islander, White, Hispanic, and American Indian/Alaskan Native communities (NCDHHS, n.d.-b).

Additionally, the spread of misinformation about COVID-19 had been commonplace given the abundance of worldwide information people were exposed to daily. Misinformation



could significantly affect decision-making, and constant exposure to the same idea may seem more accurate (Greenspan & Loftus, 2021). To combat the spread of misinformation, healthcare providers, as prime health information resources, were urged by the CDC to address false information about COVID-19 and educate the public using evidence-based resources (CDC, 2021a). However, this was difficult because people's misinformed beliefs may still linger even if misinformation is withdrawn or rescinded (Greenspan & Loftus, 2021).

### **Purpose Statement**

The purpose of this Doctor of Nursing Practice (DNP) project was to train community health leaders on methods to improve the conversation surrounding COVID-19 vaccines for an underserved community. Unfortunately, misinformation regarding vaccinations was everywhere, which was a cause of confusion and vaccination hesitancy. Therefore, providing vaccine support and education to trustworthy leaders of the Black/African American community helped spread factual information to this marginalized group.

## **Section II. Evidence**

### **Literature Review**

The author completed an extensive literature review to assess current strategies to increase vaccination uptake or promote health within the Black/African American community. Search terms included Boolean phrases and Medical Subject Heading (MeSH) terms in ProQuest, PubMed, and Ovid MEDLINE. Due to the paucity of high-level research studies and systematic reviews focused on improving vaccination uptake in Black/African Americans, articles included in the first literature review focused on general vaccination uptake strategies (see Appendix A). Additionally, given the lack of studies focused exclusively on African Americans, the student conducted another literature search to review methods regarding health

promotion within the African American community using leaders or organizations (see Appendix B).

All studies were read in their entirety to determine appropriateness. Articles included in the literature review pertained to interventions focused on increasing vaccine acceptance rates in outpatient or community settings within the last five years. Studies that discussed Black/African Americans and ways to improve health communication within this population were kept along with strategies targeting the general population. Studies excluded from the review were those older than five years, strategies in acute care settings, vaccine trials, measurements of vaccine readiness without discussion of interventions, and studies focused solely on the cost-effectiveness of vaccine interventions. The final number of articles used in the review was 19. Those included in the review were Level VI evidence or higher. There were two studies with Level VI evidence, which were qualitative case-controlled studies. The remaining studies had higher levels of evidence, Levels I and II, such as literature reviews, systematic reviews, and random controlled trials.

### ***Current State of Knowledge***

The first literature search provided limited studies regarding improving vaccination rates in African Americans but offered insight into the characteristics and factors of vaccine uptake in this population. Additionally, approaches to target this population concentrated on building trust through community members and leaders. Literature on improving COVID-19 vaccination strategies was limited, given the early stage of COVID-19 vaccination efforts. However, the research highlighted several strategies for other vaccinations (i.e., influenza). These interventions involved education tactics and tools such as decision aids, reminder systems, and technology.

**Barriers to Vaccination.** Most of the literature on African Americans and vaccinations pertained to the factors impacting vaccine uptake, which included vaccine barriers. Ayers et al. (2021), Bogart et al. (2021), and Quinn et al. (2017) discussed that African Americans were more likely to have a distrust of vaccinations compared to other races, which translates to increased vaccine hesitancy. Ninety-seven percent of the participants in Bogart et al. (2021) reported at least one skeptical belief about the COVID-19 vaccine. In Quinn et al. (2017), African American participants had higher levels of concern and suspicion when discussing the influenza vaccine than White participants. Additionally, a heightened awareness of racism in healthcare was linked to decreased knowledge and trust in the vaccine, increased perception of risk, and greater vaccine hesitancy in African Americans. However, feelings of racial fairness were linked to more positive vaccine attitudes. Lastly, Forster et al. (2016) explained that in minority groups, there were ethnicity-specific factors such as religion, upbringing, language barriers, and sometimes a belief in a biological difference that influenced vaccine uptake. These factors of mistrust and differences in race or ethnicity were essential components to consider when pursuing minority communities.

**Health Promotion for African Americans.** The literature search that focused on improving the health of African Americans discussed many different settings and informants used. For example, Palmer et al. (2021), Walsh-Childers et al. (2018), and Hou & Cao (2018) all examined how the use of communal spaces and their members, such as barbershops, hair salons, and faith-based organizations, aided in improving the health of African Americans. Alternatively, Alsan et al. (2020), Palmer et al. (2021), and Bogart et al. (2021) discussed that traditional health promotion sources, such as medical providers, were also influential in the African American community because they were considered trustworthy members. Furthermore,

Alsan et al. (2020) found that when Black and Latinx persons watched physicians teaching about COVID-19 in a public health video, there were improvements in knowledge gaps and increased information-seeking behavior.

**General Vaccine Education.** Many studies discussed the use of education to improve vaccination rates. One strategy mentioned was healthcare provider education. Dempsey et al. (2018) and Whitaker et al. (2018) discussed that current gaps in patient education could be due to the lack of physician confidence. Real et al. (2017) reported a decrease in vaccine refusal rates after physicians took part in a virtual reality simulation where they practiced vaccine hesitancy discussions with avatar patients. An intervention focused on enhancing physician vaccine knowledge and communication tactics improved vaccine uptake.

In addition to enhancing provider education, Dempsey et al. (2018) found that the additional use of educational fact sheets while teaching patients helped improve vaccine uptake. Thomas and Lorenzetti (2018) and Tao et al. (2019) supported this and stated that patient education given by health care providers could improve influenza vaccine acceptance. Additionally, educating the public using videos, images, games, or interactive simulations about the concept of community immunity may improve immunization knowledge, enhance attitudes, and increase the public's intentions to vaccinate (Hakim et al., 2019). Another effective community-level strategy was using pharmacists as educators, administrators, or facilitators of vaccinations. They were considered trustworthy and provided increased access and convenience, especially to difficult-to-reach populations (Isenor, 2016).

**Tools.** Using tools, such as a decision aid, was also helpful in improving vaccination coverage. Vujovich-Dunn et al. (2021) discussed that decision aids were a form of shared decision-making that clarified a topic while also communicating personal values. Lin et al.

(2020) also showed evidence that using a vaccine aid with a shared decision-making conversation increased vaccination rates by 16.7% compared to traditional education methods. Another tool mentioned in the literature was a reminder system. Thomas and Lorenzetti (2018) reported that reminder post-cards, phone calls, and letters helped increase the influenza vaccine demand by patients in the community. In addition, provider-alert reminder systems in the medical record were effective in helping increase vaccination rates (Thomas & Lorenzetti, 2018). Lastly, Dumit et al. (2018) report that text messaging and web-based strategies, like video games and smartphone applications, were excellent platforms for patient vaccine reminders or health promotion information; however, funding for the technology may be a barrier to implementation.

### ***Current Approaches to Solving Population Problem***

Although the literature provided several strategies for improving vaccination rates, various approaches did not align with the community organization's needs. Moreover, other methods did not fit within the scope of this DNP project. The themes in any health promotion strategy surrounding Black/African American wellbeing were building trust and overcoming barriers. Ayers et al. (2021), Bogart et al. (2021), and Quinn et al. (2017) all discussed the way to overcome vaccination hesitancy and improve vaccine confidence was to do so through dependable advisors with customized messages targeting the Black/African American community. They discussed that using these trusted messengers of information was essential to improve vaccination rates.

Palmer et al. (2021) discussed health promotion activities within barbershops or hair salons were effective ways of increasing knowledge and improving health outcomes. Walsh-Childers et al. (2018) discussed that Black men desire information about prostate cancer from dependable personal sources. These sources include physicians, religious leaders, friends, family,

or prostate cancer survivors. Furthermore, Hou & Cao (2018) discussed that members of minority faith-based organizations could benefit if education on cancer and lifestyle changes were provided in the setting of religious worship.

In addition to community members, healthcare providers could be a trustworthy resource for Black/African Americans. For example, Bogart et al. (2021) discussed that 75% of the participants in their study believed that healthcare providers were the most trusted information source regarding COVID-19. With this, patient education given by a healthcare provider had been an effective method to improve vaccine uptake and was utilized often in the literature (Dempsey et al., 2018; Tao et al., 2019; Thomas & Lorenzetti, 2018). Furthermore, education given by a physician of the same race caused Black participants to seek more information about COVID-19 (Alsan et al., 2020).

The community organization reported a need for improving vaccine rates and addressing vaccine confidence. Additionally, Black/African Americans rely heavily on their values and trust in the messenger regarding healthcare decisions. Therefore, to combine the evidence from the literature, the organization's goals, and the needs of the Black/African American community, this DNP project involved teaching staff members of a community health organization effective communication strategies while using a decision aid tool on COVID-19 vaccines.

### ***Evidence to Support the Intervention***

Dempsey et al. (2018), Whitaker et al. (2018), and Real et al. (2017) all discussed that healthcare provider vaccine education was an effective method in improving vaccine uptake. Vujovich-Dunn et al. (2021) and Lin et al. (2020) also discuss that decision aids were a valuable tool in helping improve vaccination rates for various vaccines. The decision aid guided the individual on options surrounding a vaccine to make an informed medical decision. Additionally,

Ayers et al. (2021) recommended using trusted messengers of minority communities to help improve vaccine equity. Moreover, Bogart et al. (2020) reported that individuals might be more receptive to listening to COVID-19 vaccine messages if a community member or nonpolitical individual presents them.

Dempsey et al. (2018) discussed motivational interviewing as an effective and sustainable way to talk about vaccines. Ninety-one percent of the physicians involved in the study were likely to use motivational interviewing long-term (Dempsey et al., 2018). The CDC (2021c) also recommended motivational interviewing for discussing COVID-19 vaccines. The CDC stressed that the healthcare provider should ask permission to discuss the vaccine, create a collaborative environment, have an attitude of empathy, answer questions within their scope, and refer to the CDC resources as needed (CDC, 2021c).

### **Evidence-Based Practice Framework**

Due to the community-based nature of this project, the *Reach, Efficacy, Adoption, Implementation, and Maintenance* (RE-AIM) model provided appropriate guidance. The RE-AIM approach focuses on five factors to evaluate the impact of a public health intervention (Glasgow et al., 1999). First, Reach is measured at the individual level, such as the number of participants or the proportion of the population affected by the intervention. Second, Efficacy discusses the positive and negative impacts of the intervention. Third, Adoption discusses the number of settings that accept the intervention. Fourth, Implementation refers to executing the intervention and determining if it met the level of intention at both individual and organizational levels. Finally, Maintenance refers to the sustainability of the intervention (Glasgow et al., 1999).

Reach pertained to the organization's leaders using the decision aid tool and those they educated. Efficacy discussed the positive and negative impacts of the intervention, such as the

number of people impacted, the confidence levels of the organization's leaders, and the barriers faced while using the tactics. Adoption was the community organization involved in the project. Implementation was the execution of the DNP student's intervention. Finally, maintenance included the usefulness and sustainability of using the techniques to guide the conversations on COVID-19 vaccines.

### **Ethical Consideration & Protection of Human Subjects**

The author examined the ethical principles of this project and, with guidance from *The Belmont Report*, respect for persons, beneficence, and justice were priorities (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). Those involved had complete autonomy throughout and had the option to not participate in the project. The project was designed to maximize benefits and not harm by ensuring the training and the tool were continually up-to-date and based only on evidence-based methods. The information gathered, education provided, and the process performed were all done without ill-intent. Thus, there were no potential harms to the population of focus.

The author completed all online modules in the Collaborative Institutional Training Initiative (CITI) Program to ensure that the project maintained its integrity. The CITI program is vital to understanding social and behavioral research and the University Medical Center Institutional Review Board (IRB) process (East Carolina University, n.d.). Together, the student and faculty advisor filled out a Qualtrics survey provided by the affiliated university with questions to determine if an IRB was necessary before initiating the project. Upon completing the survey, the project did not meet the criteria required for a formal IRB. Also, the project site did not have a formal IRB process. Therefore, the project was deemed a quality improvement project.



### **Section III. Project Design**

#### **Project Site and Population**

The project site was a nonprofit community organization that provided care to underserved and uninsured populations of two neighboring counties in North Carolina. The organization provided medical care, community outreach, and social health services. The organization had an on-site outpatient clinic where they saw uninsured patients on Thursdays and Fridays. The full-time staff in the outpatient clinic were three medical assistants and one pharmacist. In addition, several temporarily-staffed primary care providers were also in the outpatient clinic. These providers saw two to ten patients per clinic day. Outside of the outpatient clinic, the organization held vaccine outreach events. These events were managed by the vaccine program coordinator and the medical assistants.

#### ***Description of the Setting***

This project took place remotely and in the outpatient clinic setting. First, the student created a COVID-19 vaccine decision aid tool outside the project site. This tool was meant to guide the staff as they were talking to patients about the COVID-19 vaccine. Next, the student made an educational video, which also occurred remotely. The video was meant to educate the staff on communication tactics.

After creating the tool and the video, the remainder of the project was done in the clinic setting. This portion of the project was divided into three phases: Education Phase A, Education Phase B, and Application Phase C. Education Phases A & B were the periods in which the staff was trained on using the tool. In Application Phase C, the staff used the decision aid tool with patients during outpatient clinic visits. This process was meant to be used in the community at vaccine outreach events, but none occurred during the project implementation phase.

***Description of the Population***

The three medical assistants and the vaccine program coordinator were the only staff members involved in the project due to being labeled the organization's full-time leaders of the COVID-19 vaccine effort. For this project, these four staff members were labeled *community health leaders*. One leader, the vaccine program coordinator, managed vaccine outreach events, completed pre-vaccination patient intake, and answered questions about the COVID-19 vaccine. The remaining leaders—the medical assistants—completed patient intake, responded to questions, and administered vaccinations during outpatient visits. At outreach events, the medical assistants shared the responsibility with the vaccine program coordinator to answer questions but were primarily responsible for administering COVID-19 vaccines.

**Project Team**

The DNP project could not have been possible without an effective team. This team consisted of the DNP student, community organization members, and affiliated university members. The Health Equity Director served as the DNP project site champion and the student's primary contact at the community organization. The project site champion informed the student of the organization's goals, details, and changes as the project was designed. In addition, the community health leaders were vital in providing feedback throughout the project's implementation. Regarding the affiliated university, two faculty members guided and evaluated the student's progress throughout the DNP project. Additionally, the student peers of the affiliated university helped with the writing of the project paper through the peer-review process.

**Project Goals and Outcome Measures**

The DNP project aimed to address COVID-19 vaccine hesitancy in underserved communities. The student looked at improving communication methods among the

organization's most critical leaders at the forefront of the COVID-19 vaccine effort. The first outcome measure was the number of community health leaders educated on communication tactics. Another outcome measure was how many people the community health leaders encountered and the location of the encounters, either at vaccine outreach events or outpatient visits. Another measure was to determine how useful the tactics were to the community health leaders during their conversations. The final measure was to determine the confidence levels of the community health leaders before, during, and after project implementation.

### *Description of the Methods and Measurement*

**Decision Aid Tool and Educational Video.** The student developed a COVID-19 vaccine decision aid tool and a short video for the community health leaders. The tool was on a piece of standard printer paper and contained three columns (see Appendix C). The first column contained a checklist on what makes someone most at risk for severe COVID-19 disease based on what was stated on the CDC website. The second column included the title, "Option 1: Getting the Vaccine," COVID-19 vaccine information, and the pros and cons of getting vaccinated. The third column had the title, "Option 2: Not Getting Vaccinated," some statistics, COVID-19 illness education, and the pros and cons of not getting vaccinated. The language in the tool was not higher than a fifth-grade level education. The COVID-19 decision aid tool contained evidence-based information from credible sources, like the CDC.

The educational video was approximately seven minutes long and focused on improving the conversation to simplify the individual decision to vaccinate against COVID-19. In addition, it provided brief details on motivational interviewing. Finally, it contained an exemplar conversation using the decision aid tool with motivational interviewing.

Before distribution to the community health leaders, the student's faculty and project site champion approved the tool and the educational video. Throughout the project, the student updated the tool weekly with the most current evidence-based information to keep up with the ever-changing data during the COVID-19 pandemic. After the weekly review, the student sent the updated tool to the organization's communications manager via email. The communications manager then uploaded the COVID-19 decision aid tool on the organization's internal website through DropBox for easy access for the community health leaders.

**Education Phase A and B.** Throughout the education phases of the project, surveys were the primary source of gathering data and were created using Qualtrics XM software. In Education Phase A, the student emailed the educational video to the participants with one pre-education survey (see Appendix D) and one post-education survey (see Appendix E). In Education Phase B, the student emailed the educational video to the participants with one pre-education survey (see Appendix F) and one post-education survey (see Appendix G). In Education Phases A and B, the surveys contained a combination of multiple-choice, Likert-scale, and written response questions.

**Application Phase C: Participants.** During Phase C Application, at clinic visits, one of the participants went through the electronic medical record and national database to note the scheduled patients that were not up to date on their COVID-19 vaccinations. When participants encountered patients during the outpatient visits, the discussion began with asking permission to discuss COVID-19 vaccination. Then the participant reviewed the information on the decision aid tool. They discussed the checklist portraying the personal, medical, and environmental factors putting someone at higher risk for severe COVID-19 disease. Next, the participant discussed the options of being vaccinated or unvaccinated. Lastly, the conversation ended with

the leader reminding the person that their health care provider and the CDC had many resources for additional questions. If questions or barriers arose for the leader during the conversation, they would make a note to review them with the student.

**Application Phase C: Check-in Surveys.** During Phase C, the student emailed four check-in surveys to the participants every two to three weeks. The check-in surveys were Likert-scale and had questions about confidence levels, the tool's usefulness, barriers, and the number of and where patients encountered. In the first two check-in surveys, there was one question asking about additional education needed regarding COVID-19 vaccines. For example, the first check-in survey asked if the participants wanted information on myths versus facts on the COVID-19 vaccines (see Appendix H). The second check-in survey asked an open-ended question about what the participants felt they needed more information on (see Appendix I). The third check-in survey focused on the project's primary outcomes (see Appendix J). The fourth and final check-in survey was a summation of the participants' thoughts on the entire project (see Appendix K).

The check-in surveys allowed the student to receive participant feedback during the application phase. The student could change the decision aid tool or provide COVID-19 education to the participants if requested. For example, after the first survey, the student created a three-minute educational video on myths versus facts on COVID-19 vaccines and updated the tool with this information. The information obtained for that video was guided by the CDC website and cited in the decision aid tool reference list. After the second survey, the student added current COVID-19 booster information to the decision aid tool based on a participant's request.

### ***Discussion of the Data Collection Process***

Data analysis was an ongoing process throughout implementation. The first data collection pertained to how many participants were taught during Education Phases A & B. Application Phase C was meant to gather data from the participants while using the decision aid tool. Confidence levels, barriers and usefulness of the decision aid tool, and the number of patients encountered were the data collected. The student reviewed the survey information remotely and documented it in an excel spreadsheet.

### **Implementation Plan**

Implementation occurred from January to May 2022. The education phases preceded the application phase of the project. The student updated the decision aid tool weekly during the entire implementation period. In addition, the student met with the site champion remotely until the project's completion. The RE-AIM framework guided the project to ensure it stayed on target with the project's purpose. With this, the student measured Reach, Efficacy, Implementation, and Maintenance through the feedback provided by participants. Adoption was the same throughout the project implementation as only one organization was involved.

### **Timeline**

During the project coordination process, the student created the COVID-19 vaccine decision aid tool and instructional video in November and December 2021. Then, the DNP project implementation period was between January and May 2022. Refer to Appendix L for the detailed timeline with dates. During the first two weeks of January, the student got approval from the faculty to send the vaccine decision aid tool and instructional video to the project site champion with authorization to begin implementation. Next, Education Phase A started in the third week of January. During this phase, the student emailed the educational video to the staff with the pre-and post-education surveys. Next, an in-person meeting was scheduled in the fourth

week of January to review any details about the process. Unfortunately, the day the in-person meeting was supposed to occur, the project site champion informed the student that the entire clinical staff became ill with COVID-19, putting the project on hold for five weeks.

After the clinical staff recovered, the student started Education Phase B by meeting with the team to discuss the project in detail again. After this meeting, the student emailed the community health leaders the educational video and pre-and post-education surveys. The community health leaders filled out the pre-education survey, watched the video, and completed the post-education survey in the first week of March. Application Phase C occurred from the first week in March to the second week in May, totaling ten weeks. Every two to three weeks of the application phase, the student emailed a check-in survey to the community health leaders to evaluate confidence levels on the communication tactics, barriers during the process, the usefulness of the tool, and how many patients and where they encountered them using the techniques.

Furthermore, every Sunday from January to May, for a total of 15 weeks, the student updated the COVID-19 vaccine decision aid tool and emailed it to the communications manager to be available for the community health leaders. Finally, every two weeks from January to May, the student met virtually with the project site champion to discuss the project's progress and needs. The final survey data was collected and the project ended on May 10, 2022.

## **Section IV. Results and Findings**

### **Results**

The results were divided into Education Phase A, Education Phase B, and Application Phase C. Some pre-education and post-education survey questions changed from Phase A and B to reduce the number of duplicate questions in the education phases. Participant 1 was the only

one who completed both Education Phase A and Phase B. The rest of the participants completed either Education Phase A or Phase B.

#### ***Education Phase A: Pre-Educational Video Survey***

Of the community health leaders, 50% participated in the Phase A pre-education survey. Refer to Appendix M for the Education Phase A pre-education survey results. The occupation of the participants was clinical staff/healthcare provider (n=1) and public health leader (n=1). The participants scored a 75% and a 50% on the knowledge-based questions. On a Likert-scaled question, the participants (n=2) “agreed” that they effectively communicate with patients about COVID-19 vaccines. In addition, the participants (n=2) marked their confidence levels a nine out of ten on communicating about COVID-19 vaccines before watching the educational video.

#### ***Education Phase A: Post-Educational Video Survey***

After watching the educational video, 50% of the participants completed the post-education survey. Refer to Appendix N for Education Phase A post-education survey results. There were two views of the educational video based on YouTube analytics. The occupation of the participants was clinical staff/healthcare provider (n=1) and public health leader (n=1). Participants scored a 75% and a 50% on the knowledge-based questions. On a Likert-scaled question, both participants “strongly agreed” that the video helped them learn how to discuss COVID-19 vaccines with patients. In addition, both participants rated their confidence levels a ten out of ten after watching the video. A final question was asked on how the participants will change their practices. In response to this question, one participant said, "I plan to improve on being okay with overt opposition to the vaccine. Combativeness does not aid towards increasing uptake, confidence, or positively influencing perception."



***Education Phase B: Pre-Educational Video Survey***

Of the community health leaders in the organization, 75% participated in the Education Phase B pre-education survey. Refer to Appendix O for the results. The occupation of the participants was clinical staff/healthcare provider (n=2) and public health leader (n=1). On a Likert-scaled question, the participants “somewhat agreed” (n=1) and “agreed” (n=2) that they effectively communicate with patients about COVID-19 vaccines. Participants scored an 80% (n=1) and 100% (n=2) on the knowledge-based questions. Before the educational video, Participant 1 marked their confidence level an eight out of ten, participant 2 marked their confidence level a nine out of ten, and participant 3 marked their confidence level a ten out of ten.

***Phase B of Education Portion: Post-Educational Video Survey***

After watching the educational video, 75% participated in the Education Phase B post-education survey. Refer to Appendix P for Education Phase B post-education survey results. There were five views on the educational video based on YouTube analytics. The occupation of the individuals was clinical staff/healthcare provider (n=2) and public health leader (n=1). Participants scored an 80% (n=1) and 100% (n=2) on the knowledge-based questions. On a Likert-scaled question, the participants “agreed” (n=1) and “strongly agreed” (n=2) that the educational video was helpful to their practices. After the educational video, participant 1 marked their confidence level a nine out of ten. Participant 3 marked their confidence level a ten out of ten, and participant 4 marked their confidence level a nine out of ten.

All participants (n=3) commented on how they will change their current methods after watching the video. For example, one participant mentioned, “Taking the time to get more information from each patient as to why they haven't been vaccinated.” Another participant said,

“I will use this tool as a visual guide when educating my patients about COVID.” The final participant said, “I will make sure my compassion is genuine and not scripted in order to yield higher levels of comfort from those I serve.”

During both Phase A and B of the education portion of the project, 100% (N=4) of the participants were educated on the communication methods. The participants worked at the community organization. Their occupations were clinical staff/healthcare provider (n=2) and public health leader (n=2).

### *Application Phase C*

**Survey 1.** Fifty percent of the participants completed the first check-in survey. The occupation of the participants was clinical staff/healthcare provider (n=1) and public health leader (n=1). Participant 1 reported a nine out of ten regarding confidence levels in using the methods, and participant 3 reported a ten out of ten. Regarding the usefulness of the methods, on a Likert-scaled question, 50% of the participants reported the tool as “very helpful” when talking with patients. One comment was made on why it was helpful. The participant said, “[It is helpful because] it is a visual aid to see at how high risk they are with not getting the vaccine.” No participant commented on the barriers of the methods or suggestions to improve the decision aid tool. The participants used the tool on eight patients in the previous two weeks. Lastly, 50% of the participants marked “yes” to wanting more education on myths vs. facts about COVID-19 vaccines.

**Survey 2.** Seventy-five percent of the participants completed the second check-in survey. The occupation of the participants was clinical staff/healthcare provider (n=2) and public health leader (n=1). Seventy-five percent of the participants used the tool in the office setting. Regarding confidence levels on using the methods, participant 1 reported a ten out of ten,

participant 3 reported “not applicable,” and participant 4 reported a two out of ten. In terms of the usefulness of using the tool, on a Likert-scaled question, one of the participants marked the methods “helpful,” one reported “very unhelpful,” and one reported, “not applicable.” Two participants provided a rationale for the tool's usefulness in which the following options were selected: 1) Reduces conflicts in decision making, 2) Guides my thoughts while talking with patients, 3) Saves time, 4) Useful to have a visual, and 5) Easy to read.

One comment was made on barriers encountered. The participant mentioned, “During the patient's clinic visit, I only draw blood and do not complete patient intakes where the forms are mostly utilized.” No participant commented on the suggestions to improve the decision aid tool or how unhelpful the methods were in discussing COVID-19 vaccines with patients. There were two patient encounters since the previous survey. Lastly, one participant requested more information on booster eligibility.

**Survey 3.** Fifty percent of the participants completed the third check-in survey. The occupation of the participants was clinical staff/healthcare provider (n=2). Fifty percent of the participants used the tool in the office setting. Regarding confidence levels, participant 1 reported a ten out of ten, and participant 3 reported, “not applicable.” One participant provided a rationale for the tool's usefulness, in which the following options were selected: 1) Reduces conflicts in decision making, 2) Guides my thoughts while talking with patients, 3) Saves time, 4) Useful to have a visual, and 5) Easy to read.

Regarding the tool's usefulness, on a Likert-scaled question, one participant reported the methods as “very helpful” when talking with patients, and one marked “not applicable.” No participant commented on the barriers of the methods, suggestions to improve the decision aid

tool, or how the techniques were unhelpful in discussing COVID-19 vaccines with patients.

There were two patient encounters since the previous survey.

**Survey 4.** Of the community leaders in the organization, 50% completed the fourth and final check-in survey. This survey was meant to gain more insight into the project's entirety. The occupation of the participants was clinical staff/healthcare provider (n=2). Participants 1 and 3 reported a ten out of ten in the level of confidence using the methods. There was one patient encounter since the previous survey. Fifty percent of the participants said they would continue to use these methods post-implementation. When asked about the reason for this decision, two comments were made. One participant said, "It is an awesome tool to use." Another said, "It is easy to use and great for a visual." On a Likert-scaled question, 50% of the participants "strongly agreed" to the following statements: "I feel more prepared to discuss COVID-19 vaccines with patients," "The decision aid tool was useful when talking to patients about COVID-19 vaccines," "Motivational interviewing was useful when talking to patients about COVID-19 vaccines," "I will use the decision aid tool in the future," and "I will use motivational interviewing in the future." Fifty percent of the participants provided a rationale for the tool's usefulness, in which the following options were selected: 1) Reduces conflicts in decision making, 2) Guides my thoughts while talking with patients, 3) Saves time, 4) Useful to have a visual, and 5) Easy to read.

No participant commented how the methods were unhelpful in discussing COVID-19 vaccines with patients. One comment was made regarding barriers and issues, "I did not encounter any barriers or challenges. This tool is user-friendly and easy to explain to patients." One comment was made on the sustainability of the methods. This participant said, "I see this as an effective tool in the future in my clinic because of the visual aspects of it, as well as it's an

overall easy tool for the patient to understand.” After the final survey, one participant emailed the student discussing the time it took out of their day to implement this process. The participant stated the conversation took less than five minutes, and there was no added time in preparation work before the patient came to the clinic.

## **Discussion of Major Findings**

### ***RE-AIM: Reach and Adoption***

**Number of Providers Educated.** Guided by the RE-AIM framework, this result category fulfills Reach, meaning how many people were impacted by the educational intervention. The number of participants involved also completes the Adoption phase of the framework, as this project only involved one community organization. All the organization's community health leaders were trained on communicating with patients using shared decision-making tactics via an educational video. This educational video was deemed helpful by all participants. Although in Education Phases A and B, the participants had no change in their knowledge-based score in the pre-and post-education surveys, the group averaged 81% in understanding the content. The number of patients encountered also fulfilled Reach but will be explained in more detail in the following section about Efficacy and Implementation.

### ***RE-AIM: Efficacy and Implementation***

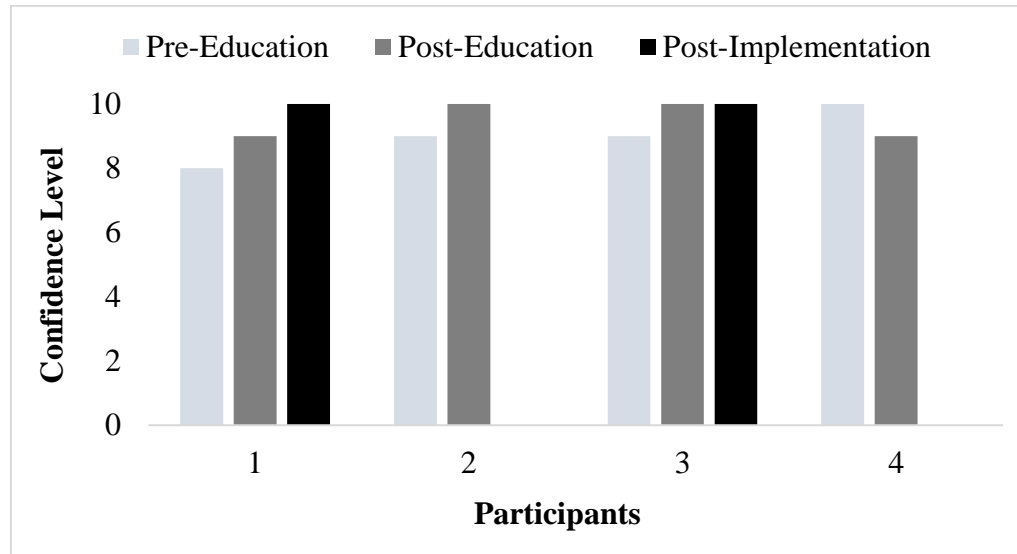
Continuing with the RE-AIM framework, Efficacy and Implementation were measured through survey feedback regarding participant confidence levels using the methods, the number of patients encountered, and the challenges faced by the participants.

**Confidence Levels.** During the education phases, all the participants in Phase A and most in Phase B reported increased confidence levels in using these tactics after watching the educational video. One participant reported a 1-point decrease but still had a high confidence level in using these tactics. Comparing the first pre-education survey to the final post-

implementation survey, 50% of the participants' confidence levels increased. See Figure 1 for the confidence level trends of the participants before and after education and post-implementation.

**Figure 1**

*Participant Confidence Levels in Using the Communication Methods Throughout Project*



*Note.* Confidence was measured on a 0 to 10 scale, with 10 being the highest level of confidence.

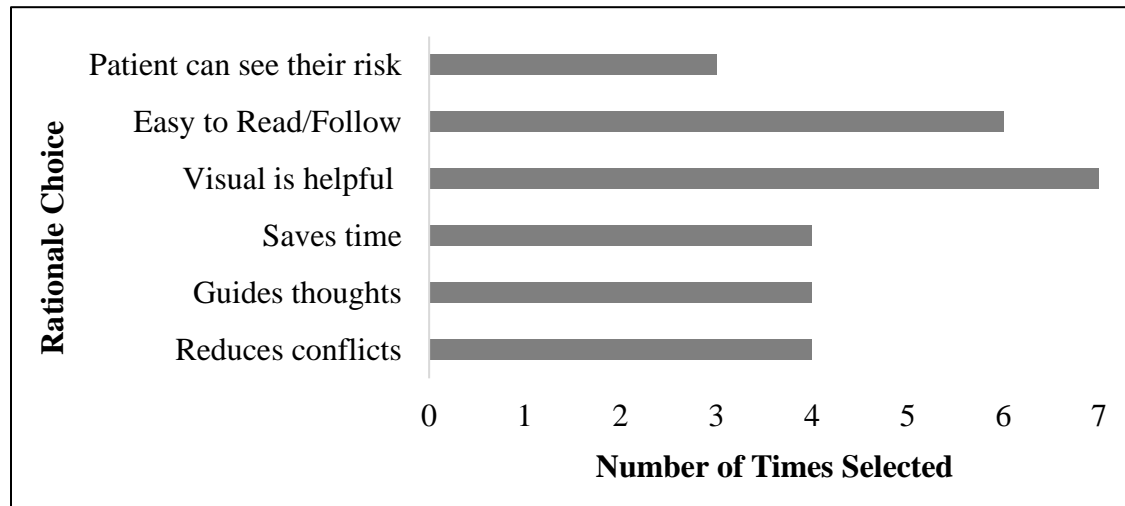
**Number of Patients Encountered.** The participants used the methods with 13 patients throughout implementation. They were all in the clinic, and none occurred at a community event. Most of these encounters were by those who identify as clinical staff/healthcare providers, with only one encounter by a public health leader. Although the organization made COVID-19 vaccination events a priority, this discrepancy in patient encounters by role may be because there were no community events during this time. This reduced the opportunity for those identifying most as public health leaders, such as the vaccine program coordinator, to use the techniques. Moreover, there may not have been community events because the vaccine program coordinator, the primary planner of vaccine events, left the organization in the middle of implementation.

**Barriers.** One participant commented on an obstacle to using the methods, stating they were involved in laboratory work and not doing intake where tactics mainly were used. However, this participant reported positive comments and high confidence levels. Also, in one check-in survey, one participant marked their confidence level as very low and the tactics as unhelpful but did not provide any explanation. In fact, in the same survey, this participant mentioned how the tool was useful, so it is difficult to determine the rationale for the low score. Unfortunately, this participant did not follow up with another survey. Lastly, the participant that used these tactics most frequently denied any barriers to using these methods.

The literature supports the collective results regarding confidence levels and provider education. Improved provider knowledge about vaccine information and evidence-based communication tactics can improve provider confidence when discussing vaccines (Real et al., 2017; Dempsey et al., 2018; Whitaker et al., 2018). The conversation and vaccine uptake improved when providers were more confident and were participating in teaching patients.

#### ***RE-AIM: Maintenance***

**Usefulness and Sustainability of the Methods.** Maintenance was measured through participant comments on the usefulness and sustainability of the communication methods. Of the ten times, the participants were asked about the usefulness of the techniques, six of those responses were “helpful” or “very helpful.” One response was “very unhelpful,” and three responses were “not applicable.” See Figure 2 for the feedback regarding the rationale for the usefulness of the decision aid tool. The top two reasons the decision aid tool was valuable to the participants were that it was advantageous to have a visual and easy to read. In addition, the participants marked that it also saved time, guided their thoughts, reduced conflicts in the patient's decision-making, and the patient could see their risks.

**Figure 2***Participant Rationale on the Usefulness of the Decision Aid Tool*

*Note:* This figure summarizes the data on why the decision aid tool was helpful to the participants. Each rationale choice was an option to be selected within a survey question.

Regarding sustainability for the organization, 50% of the participants will continue to use these methods post-implementation. The participants noted that there was no added time to their day when checking to see if the patients were up to date on their vaccinations. Also, the staff stated that the conversation took less than five minutes. Additionally, there were comments on ease of use, patient-friendliness, and an appreciation for having a visual in front of them. All these reasons allow for easy incorporation into their daily practices for future use.

A decision aid is meant to assist with shared decision-making and has facilitated vaccine uptake in much of the literature (Vujovich-Dunn et al., 2021; Lin et al., 2020). This technique can make it easier for the patient and provider to have a streamlined, focused, and informative conversation. Additionally, Dempsey et al. (2018) and the CDC (2021c) support motivational interviewing as a successful and sustainable communication technique. Furthermore,



motivational interviewing is used in several areas of healthcare and has been proven to be a valuable tactic.

## **Section V. Interpretation and Implications**

### **Costs and Resource Management**

The DNP project did not come without cost to the organization (see Appendix Q for the detailed breakdown of expenses). The primary costs came from equipment usage and software for developing the educational video, decision aid tool, and surveys. The software used was Microsoft 365, YouTube, Qualtrics XM, Outlook email, and DropBox. Microsoft PowerPoint, part of Microsoft 365, was used to create the educational video and the decision aid tool. The cost of this software was embedded in the student's tuition and fees and therefore was used at no extra expense. To create an easily accessible link, the student transferred the presentation to YouTube, a free subscription service. The student utilized Qualtrics XM to produce the surveys and Outlook email to send them, which the affiliated university provided at no extra cost to the student since they were embedded in the tuition and fees. DropBox was already an active subscription for the organization; therefore, there was used at no additional cost.

Printer paper and ink were the two primary supplies for the project. However, it was unclear the number of decision aid tools printed and how much ink was used; therefore, the cost analysis included one ream of 500-count paper and one ink cartridge. One ream of paper cost the organization \$7.99, and one combination black and color ink cartridge cost \$48.89, which totaled the equipment cost to \$56.88.

Staff time and salary were considered in the cost analysis as well. The student time throughout implementation was approximately 90 hours. Since the student was considered a non-paid intern, no costs were associated with this time spent. The vaccine program coordinator's time was not included in the cost analysis since this staff member had no patient encounters. The

primary participants that used the tool with patients were medical assistants. The average hourly salary in the area for medical assistants was \$16 (Zip Recruiter, n.d.-a). They had 13 patient encounters and spent five minutes with each patient using the decision aid tool. Over the ten weeks of implementation, they spent an extra 65 minutes talking to patients about the COVID-19 vaccine. Therefore, it cost the organization \$17.33 for ten weeks of project implementation.

The communications manager spent approximately two minutes each week submitting the most up-to-date decision aid tool onto the organization's DropBox account. The communications manager did this for 15 weeks since the student continued to update the tool during the five-week pause of the project. The total communication manager time during implementation was 30 minutes. With an hourly salary of \$43 per hour, the communications manager's cost was \$21.50. When combining the total equipment cost with the cost of staff time, the total project cost came to \$95.71.

Costs could have been reduced if the student emailed the community health leaders the tool directly and did not use the communications manager's time. However, the organization wanted this available to all staff, and the best way to do so was to submit it to the DropBox account, which the communications manager handled. Another cost-savings measure considered was using a paperless method like a quick response (QR) code. However, it was unclear if a QR coding subscription was cheaper than printer ink and paper.

During this project, the DNP student acted as a contracted public health registered nurse. Since the organization lacked consistent licensed healthcare providers available, the remainder of this cost analysis demonstrated what the project would cost the organization if they contracted a public health registered nurse in place of the student. Refer to Appendix R for an itemized breakdown of these numbers for this proposed scenario. At the time of implementation, the

average salary of a public health registered nurse in the project's area was \$29 per hour (Zip Recruiter, n.d.-b). If this nurse worked 90 hours during the project implementation period, as the student did, the nurse's expense to the organization would be \$2,610. The time spent by the medical assistants and communications manager would have been the same. The equipment cost of printer paper, printer ink, DropBox subscription, Microsoft 365, and email account would have been the same for the organization. The YouTube subscription to create the video would have remained free to the organization. Regarding survey software, the organization could have purchased a subscription to Qualtrics XM or used free survey programs such as Google Form or Survey Monkey. After calculating all expenses to have included a contracted registered nurse, the total cost to the organization would have been \$2,705.71.

Although it was unclear if the decision aid tool directly affected COVID-19 vaccine rates, the project expense was minimal compared to the significant impact of COVID-19 on one patient. In North Carolina, the average cost of one complex inpatient COVID-19 hospitalization was \$234,988 (Fair Health, 2021). The average price of one non-complex inpatient COVID-19 hospitalization was \$44,977, and outpatient visits for one COVID-19 case cost an average of \$2,214. Therefore, if the improved conversation provided one person with an up-to-date COVID-19 vaccine record, preventing one case of severe COVID-19 disease or hospitalization, the cost and burden on the healthcare system would be reduced.

Also, the act of improving the discussion goes beyond monetary measures. These methods, primarily the decision aid tool, were instrumental, easy, and sustainable for the community health leaders to use. Also, providing quality health education for underserved communities, like the Black/African American population, was part of the organization's mission; therefore, it was a successful and cost-effective project.

## **Implications of the Findings**

### ***Implications for Patients***

First, this project expanded health promotion strategies for a minority community. The community health leaders of a nonprofit organization serving primarily underserved communities were able to educate patients using an evidence-based approach. This improved conversation attempted to create a more equitable environment for the patients the community health leaders encountered. This aligned with the literature in that community leaders or healthcare providers were more likely to reduce medical mistrust and provide effective health promotion to the Black/African American community (Bogart et al., 2021; Palmer et al., 2021; Walsh-Childers et al., 2018).

Second, the project aimed to improve COVID-19 vaccine rates to help improve the community's health and reduce the pandemic's devastating impact on the public. Receiving the COVID-19 vaccine was advantageous, especially in high-risk groups like those of a minority race or ethnicity (CDC, 2021b). Although it was unclear if the project improved COVID-19 vaccination rates because it was not measured, it was essential to begin the conversation since there were comments of uncertainty and hesitancy about the COVID-19 vaccines.

Third, the patients that encountered the conversation with the community health leaders received evidence-based education on COVID-19 vaccines, which was impactful given the misinformation surrounding this topic. During this conversation, using a decision aid tool guided by motivational interviewing gave the pros and cons of the patient decision. The dialogue allowed the patient to look at their risks and decide what they felt was most appropriate. When patients were provided with the choice, it improved the discussion from the community health

leaders' perspective. This impact furthered the notion that shared decision-making matters and improved patient conversations (Lin et al., 2020; Vujovich-Dunn et al., 2021).

### ***Implications for Healthcare Worker Practice***

This DNP project further strengthened the notion that nurses have the knowledge and skills to create simplified ways to impact the community. The DNP student was able to teach leaders at the forefront of the COVID-19 pandemic on methods to help improve the messaging surrounding the COVID-19 vaccines. It showed that the nursing profession could lead a community-focused project to help improve patients' health outcomes.

Additionally, the community health leaders in the project also played a tremendous role in advancing health equity for an underserved population during this pandemic. The COVID-19 pandemic called upon many healthcare workers to step up during a unique public health crisis, and the partnering organization's leaders fulfilled this mission to serve. The project improved the community health leader's confidence in talking with patients about the COVID-19 vaccines. In learning these tactics, the leaders felt impactful in their efforts and deemed them practical strategies for patient encounters. This project also provided more tools in the organization's arsenal when communicating complex topics. The organization plans to share this with its partnerships to have a more significant impact on the communities they serve.

### ***Impact on Healthcare Systems***

The DNP project helped with the vaccine outreach effort during the COVID-19 pandemic, which reduced the overall burden on the healthcare system. As mentioned in the cost-benefit analysis, if the project got one person fully vaccinated for COVID-19, it would have reduced the risk for severe illness for that person and prevented an intensive care hospital admission. Thus, causing a reduction in healthcare costs. In addition to cost savings, the burden

on the healthcare staff was also reduced. Unfortunately, during this COVID-19 pandemic, healthcare workers at the forefront experienced higher levels of fatigue and burnout (Ghahramani et al., 2021).

Additionally, this project acknowledged that systemic racism exists in healthcare. The organization created a more equitable atmosphere for a marginalized community to address this. It recognized the need to improve vaccine accessibility and education for the Black/African American community, given the low vaccine uptake rates. For the future, healthcare systems must continue to recognize where there is a need to change the approach, tailor a message, and create a more equitable environment for all patients.

### **Sustainability**

Throughout the project implementation, the community health leaders enjoyed using the tool as a guide and learning evidence-based ways to communicate about COVID-19 vaccines. The community health leaders planned to continue using these methods to talk with patients about COVID-19 vaccines. Also, the project site champion planned to share the educational video and the decision aid tool with their other community partnerships. Lastly, the organization was heavily involved in other health promotion areas and planned to change the decision aid tool content to other healthcare topics they encountered most frequently. These topics included sexual health screenings focused on human immunodeficiency virus and sexually transmitted diseases.

### **Dissemination Plan**

The DNP project was presented by the student at the affiliated university to faculty, staff, project partner, and peers on July 12, 2022. Refer to Appendix S for the project poster. After the poster presentation, the project paper was submitted to the affiliated university's repository, "The ScholarShip." Additionally, the student planned to submit this paper to *Vaccine*, a journal

publishing articles on various topics surrounding immunizations, including vaccine hesitancy. Finally, the student planned to submit this paper to the next annual American Public Health Association conference in 2023.

## **Section VI. Conclusion**

### **Limitations and Facilitators**

During implementation, the project team experienced several barriers and limitations. The first barrier was the impact of COVID-19 on the project team. Early in the project, the entire project team, including the student, became ill with COVID-19 causing a large five-week gap where outpatient clinical services closed and no community vaccine events occurred. Therefore, during this time, data was not collected.

Another limitation was that the project population was small, with only four participants, and one of the participants left the organization in the middle of implementation. One barrier was that the full-time nurse practitioner, initially aligned as an integral part of the project, left the organization during the project coordination process. Mid-implementation, the student inquired if the temporarily-staffed primary care providers could be included in the project; however, given their unpredictable and changing schedules, it was deemed best to focus only on the permanent staff members.

The timing of the project was another possible limitation. By implementation, many people had already received the COVID-19 vaccine, including booster doses. This fact was not considered a limitation in the greater outlook of the COVID-19 pandemic; however, it limited the number of patients the staff encountered. Also, there were no community events during the project, limiting the number of patient encounters.

A final limitation was that there were no numerical vaccination targets the organization tried to meet despite tracking every vaccine administered. Therefore, it is difficult to determine the direct impact on vaccination rates that the communication methods had on patients. However, having one person updated on their COVID-19 vaccination series was considered a success for the organization.

Despite low participant numbers, these participants still made up 20% of the organization's staff and were primarily responsible for promoting COVID-19 vaccinations. Furthermore, the community leaders, the communications manager, and the site champion were tremendous facilitators of the project's success. Without these members, the project would not have occurred. Lastly, the affiliated university faculty helped the project's success by providing guidance, insight, and encouragement.

### **Recommendations for Others**

The organization did not track COVID-19 vaccine uptake before project implementation; therefore, one recommendation was to compare vaccine uptake before and after the project. Comparing the project's effectiveness on vaccination uptake would show if this project could impact vaccination rates. Another recommendation was to incorporate more staff and healthcare providers into the project. Since this organization was small and had limited healthcare staff, the viewpoints were limited to medical assistants and a vaccine program coordinator. A final recommendation was to create or utilize a more robust education program on COVID-19 and the vaccines. Although the staff received adequate education, the video was brief, potentially limiting additional details.



### **Recommendations For Further Study**

Since this project was only completed at one organization, viewpoints and impact were narrowly focused. Therefore, spreading this project to the partnerships of the community organization would provide additional insight and more healthcare staff to be involved. In addition, expanding could boost the number of patients impacted by these methods. Another recommendation would be to survey patients who participated in the project and had encountered the tool. This would broaden the results to understand how impactful the techniques were from the patients' perspectives.

Motivational interviewing and the decision aid tool were not new concepts and would be easily transferable to different health topics. Therefore, a broad recommendation would be to create a tool for a given health decision using evidence-based information. The information on the tool could be modified for a prevalent problem in one's clinic or community setting. Lastly, the decision aid tool could be a paperless option, like a QR code. Still, this would come with the expense of using smartphone applications, which may not be accessible to everyone. However, it would be a more creative and interactive option for patients and staff.

### **Final Thoughts**

The DNP project involved partnering with a community organization to address COVID-19 vaccine confidence in underserved communities. The DNP student created a COVID-19 vaccine decision aid tool and educated community leaders on how to use it with their patients. Although vaccine uptake was not measured, the organization deemed this project sustainable and impactful for the minority communities they served. The overall effort to improve messaging and communication surrounding the COVID-19 vaccine positively affected the community organization.

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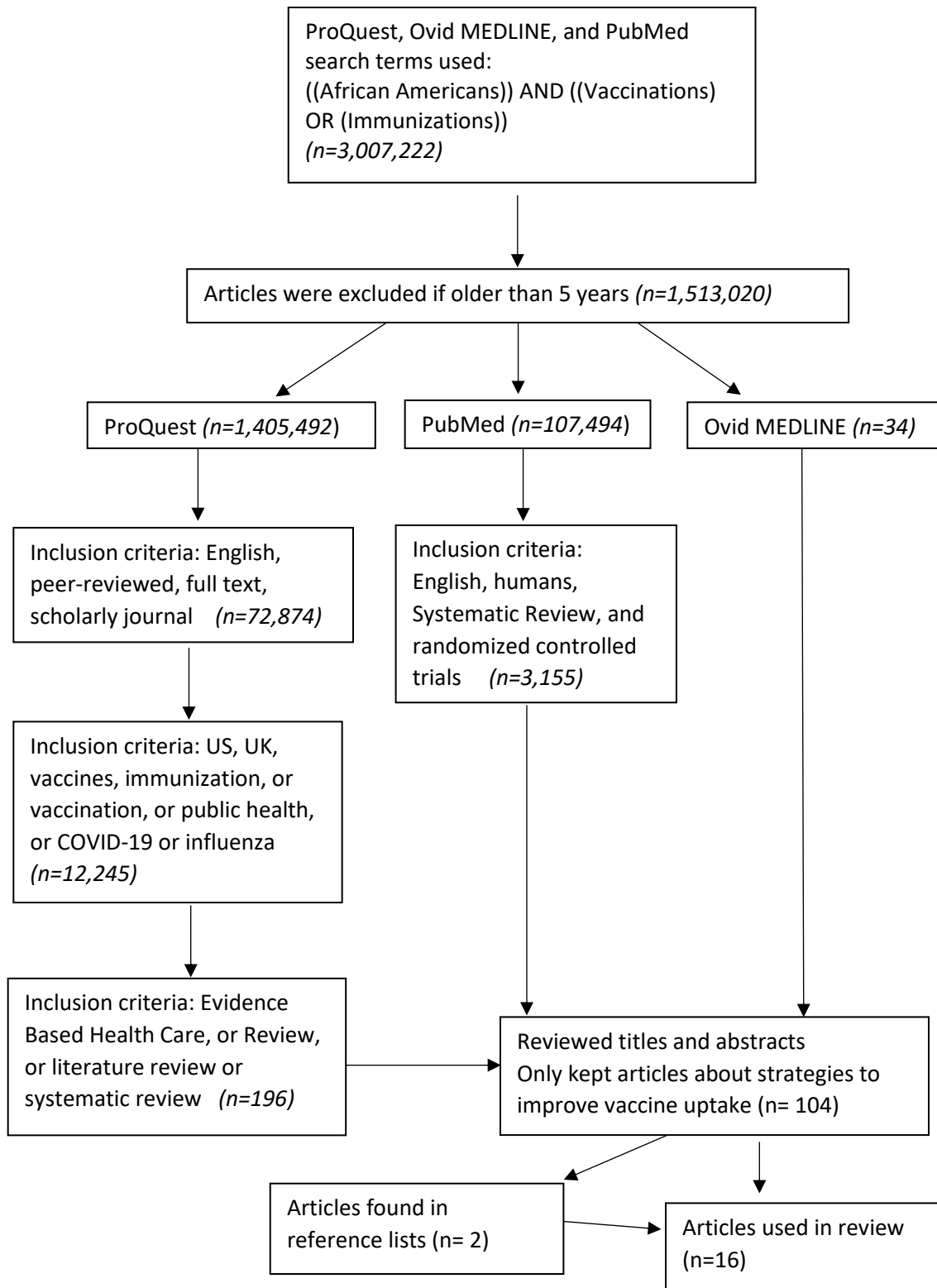
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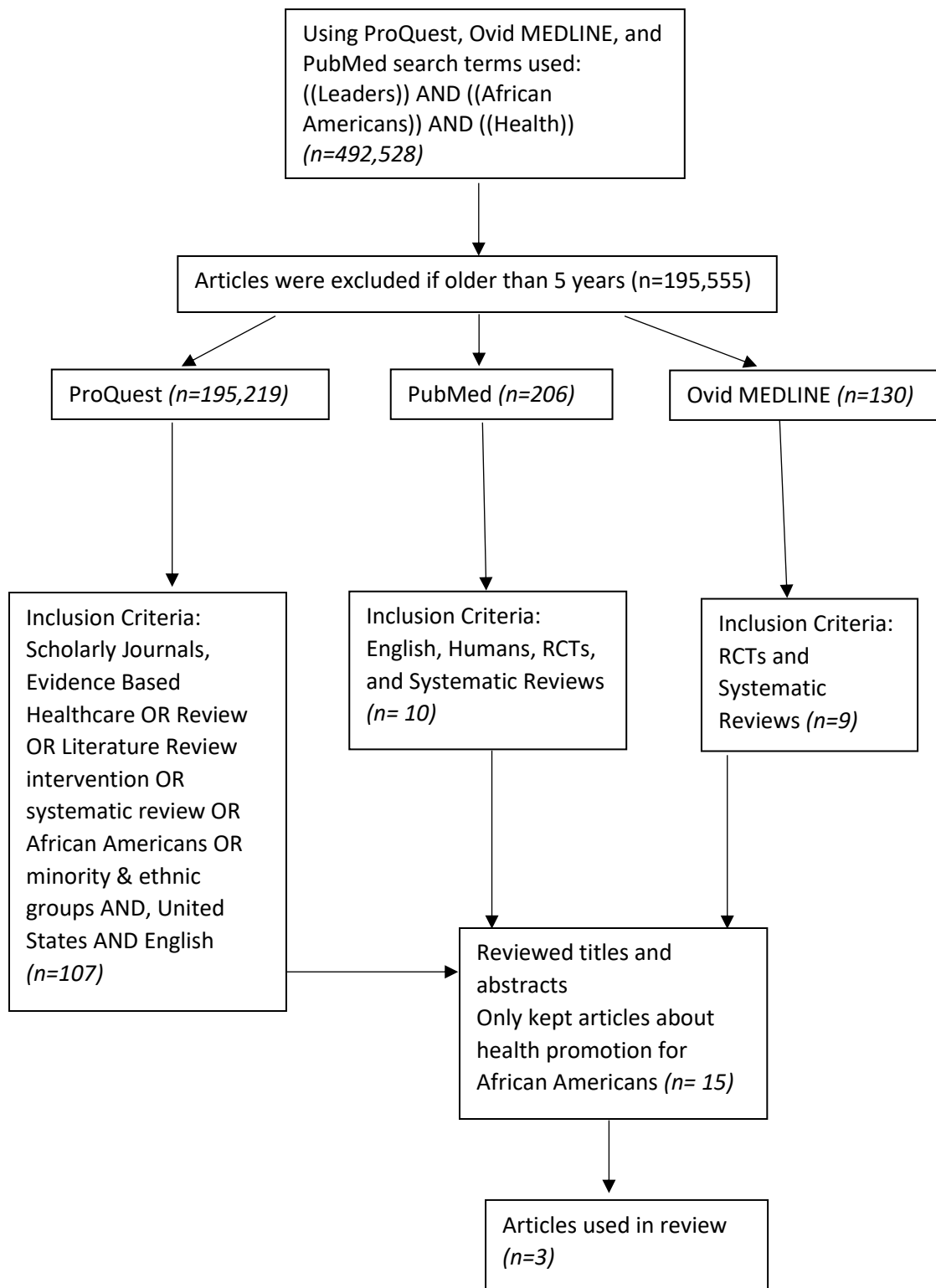
**Appendix A**

*Literature Search 1*



**Appendix B**

*Literature Search 2*



Appendix C

Final Version of the COVID-19 Vaccine Decision Aid Tool

**E.D.U.C.A.T.E**  
to  
**V.A.C.C.I.N.A.T.E**

**COVID-19 Vaccine: Is it the right decision for you?**

**ARE YOU AT RISK?**

You are at **higher risk** for severe disease, being hospitalized, or dying if you have any of the things on this list.

**This list does not include all risk factors.**  
You can still get sick with COVID-19 even if you don't have the things on this list. The Centers for Disease Control and Prevention (CDC) is still learning about COVID-19.

**Check the boxes that apply to you:**

**Personal factors:**

**Racial or Ethnic Minority**  
*(Black/African American, Hispanic/Latina, American Indian and Alaska Native)*

People in these groups have died from COVID-19 even at a younger age due to the higher risk of having chronic diseases earlier in life

**Smoker**

**Not physically active**

**Older than 65 years** (>81% of COVID-19 deaths)

**Medical Conditions:**

**Cancer**

**Overweight or Obese**

**Kidney or Liver disease**

**Lung disease** (COPD, asthma, tuberculosis)

**Dementia/Alzheimer's**

**Diabetes** (Type 1 or Type 2)

**Heart disease or Vascular disease** (Stroke)

**Pregnancy**

**HIV infection or AIDS**

**Blood disorder** (Sickle Cell or Thalassemia)

**Weak Immune System**

**Received a bone or organ transplant**

**Mental health issue** (depression, schizophrenia)

**Person with a mental disability**

**Substance use** (alcohol, opioid, cocaine)

**Home/Work:**

**Live in a crowded place**

**Essential Worker** (*Healthcare Worker, Farmer, Factory Worker, Grocery Store Worker, Public Transportation Worker*)

**An essential worker not listed**

**Comments on the vaccines from the CDC:**

- The COVID-19 vaccine **will not** make you sick with COVID-19. It teaches the immune system how to fight it.
- Getting vaccinated is a **better and more predictable** way to protect yourself from COVID-19 instead of getting sick with COVID-19.
- Vaccines **do not cause** variants they prevent new ones.
- The vaccines **will not change your DNA**, affect fertility, or cause you to be magnetic.
- The COVID-19 vaccines **do not** have metals, fetal tissue, latex, food proteins, or tracking devices in them.
- Catholic, Jewish, and Muslim leaders **have encouraged and supported** COVID-19 vaccination.

**OPTION 1**

**GETTING VACCINATED**

- The **BEST** way to protect yourself from getting very sick from **COVID-19**
- You are at a **MUCH LOWER** risk of being hospitalized or dying from COVID-19 compared to unvaccinated people

**VACCINES:**

- **Pfizer** (2 shots, at least 3 weeks apart)
- **Moderna** (2 shots, at least 4 weeks apart)
- **Johnson & Johnson/Janssen** (1 shot)

**COMMON SIDE EFFECTS:**

*\*Most only last a few days after the shot*

- **Pain/redness in the arm you got your shot**
- **Tiredness**
- **Fever or chills**
- **Headache or body aches**
- **Muscle/joint pain**
- **Nausea**

*These are normal. It means your body is building up protection from COVID-19*

POSITIVES	NEGATIVES
- You can do most things that you once were able to <b>before the pandemic</b>	- You can still get COVID-19 but your symptoms are more likely to be <b>mild</b>
- The vaccines are <b>safe</b> . Serious side effects are <b>very rare</b>	- Vaccine effectiveness can decline over time, so you need a <b>booster shot</b> , but it gives you <b>improved protection</b> from severe disease
- You are <b>unlikely</b> to be hospitalized or intubated if you get sick with COVID	- Getting vaccinated can <b>reduce the risk</b> of spreading the disease

**YOUR RESPONSIBILITIES:**

- It is still important to be as **safe** as possible
- If you are sick, keep your **distance** from others, wear a **mask**, and stay **home**

**OPTION 2**

**NOT GETTING VACCINATED**

**In February 2022: Unvaccinated people were:**

- **2.8x MORE AT RISK** for getting COVID-19
- **10x MORE AT RISK** for **dying** of COVID-19

**In February 2022: Hospitalization rates in unvaccinated were:**

- **5x HIGHER** in those over 18 years old
- **1.6x HIGHER** in adolescents 12-17 years old compared to vaccinated people

**SYMPTOMS OF COVID-19:**

- Fever, Chills
- Cough, Difficulty breathing
- Fatigue, Muscle, or Body aches
- Loss of taste or smell
- Sore throat, Congestion, Runny nose
- Nausea, Vomiting, Diarrhea

**Call 911 or go to the emergency room if you have:**

- Trouble breathing
- Chest pain
- Confusion
- Pale/blue skin, lips, or nails

POSITIVES	NEGATIVES
- You will <b>not have side effects</b> of a COVID-19 vaccine	- You will <b>not have any protection</b> from the COVID-19 virus
	- Your risk of getting very sick and <b>hospitalization</b> from COVID-19 is <b>higher</b>
	- Your <b>risk of death</b> from COVID-19 is <b>higher</b>

**YOUR RESPONSIBILITIES:**

- Wear your **mask** in public indoor spaces
- Maintain at least **6 feet** from other people

If you are **sick** or have been **exposed**:

- Stay **home**, **distance** yourself from others, **monitor** your symptoms, and get **tested** for COVID-19 to protect others

**BOOSTER ELIGIBILITY**

Pfizer	Moderna	J&J/Janssen
<b>1<sup>st</sup> Booster:</b> >12 years old <b>AND</b> At least 5 months since 2 <sup>nd</sup> shot <b>2<sup>nd</sup> Booster*:</b> >50 years old <b>AND</b> At least 4 months after 1 <sup>st</sup> booster	<b>1<sup>st</sup> Booster:</b> >18 years old <b>AND</b> At least 5 months since 2 <sup>nd</sup> shot <b>2<sup>nd</sup> Booster*:</b> >50 years old <b>AND</b> At least 4 months after 1 <sup>st</sup> booster	<b>1<sup>st</sup> Booster:</b> >18 years old <b>AND</b> At least 2 months since 1 <sup>st</sup> shot <b>2<sup>nd</sup> Booster*:</b> >50 years old <b>AND</b> At least 4 months after 1 <sup>st</sup> booster

**\*SECOND BOOSTER MUST BE AN mRNA VACCINE**  
*mRNA vaccines (Pfizer & Moderna) are preferred if received J&J can and should receive mRNA vaccine for booster*

**IMMUNOCOMPROMISED?**

Pfizer	Moderna	J&J/Janssen
>12 years old <b>3 primary doses</b> (see CDC for schedule) <b>1<sup>st</sup> Booster:</b> at least 3 months after 3 <sup>rd</sup> shot <b>2<sup>nd</sup> Booster*:</b> at least 4 months after 1 <sup>st</sup> booster	>18 years old <b>3 primary doses</b> (see CDC for schedule) <b>1<sup>st</sup> Booster:</b> at least 3 months after 3 <sup>rd</sup> shot <b>2<sup>nd</sup> Booster*:</b> at least 4 months after 1 <sup>st</sup> booster	>18 years old <b>2 primary doses</b> (see CDC for schedule) <b>1<sup>st</sup> Booster:</b> at least 2 months after 2 <sup>nd</sup> shot <b>2<sup>nd</sup> Booster*:</b> at least 4 months after 1 <sup>st</sup> Booster

**THOUGHTS:**

I **am** planning to get the vaccine

I **am not** planning to get the vaccine

I **am not sure** how I feel yet

**For more information go to the CDC website:**  
<https://www.cdc.gov/coronavirus>

*Updated April 24, 2022*

Updated 4/24/22

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## Appendix D

### *Phase A: Pre-Education Survey*

**1. Please mark what your title is most closely related to:**

Clinical staff/Healthcare Provider

Administration Public Health Leader

**2. When talking about COVID-19 vaccines the current communication methods I use are effective.**

Strongly disagree – disagree – neither agree/disagree – agree – strongly agree

**3. Choose the principle that is part of motivational interviewing?**

1. Tell the patient what to do

2. Ask open-ended questions

3. Passive listening

4. Control the conversation

**4. What's an example of showing a reflective response?**

1. I do not know why you are worried. The vaccine is great!

2. You are worried that the vaccine has microchips. Is this correct?

3. I would like to talk to you about what I heard on the news today.

4. Tell me your concerns.

**4. Motivational interviewing aims to do all of the following EXCEPT:**

1. Manage someone's feelings of uncertainty

2. Persuade or pressure the individual

3. Maintain their personal values

4. Guide people to make healthier choices

**5. True/False - Being open minded, compassionate, and empathetic is key to talking about COVID-19 vaccines with patients.**

**6. Please rate your level of confidence on a 1-10 scale regarding your ability to communicate about COVID-19 vaccines.**

## Appendix E

### *Phase A: Post-Education Survey*

**1. Please mark what your title is most closely related to:**

Clinical staff/Healthcare Provider

Administration Public Health Leader

**2. Choose the principle that is part of motivational interviewing?**

1. Tell the patient what to do

2. Ask open-ended questions

3. Passive listening

4. Control the conversation

**3. What's an example of showing a reflective response?**

1. I do not know why you are worried. The vaccine is great!

2. You are worried that the vaccine has microchips. Is this correct?

3. I would like to talk to you about what I heard on the news today.

4. Tell me your concerns.

**4. Motivational interviewing aims to do all of the following EXCEPT:**

1. Manage someone's feelings of uncertainty

2. Persuade or pressure the individual

3. Maintain their personal values

4. Guide people to make healthier choices

**5. True/False - Being open minded, compassionate, and empathetic is key to talking about COVID-19 vaccines with patients.**

**6. This video was helpful in showing me techniques to use when communicating about COVID-19 vaccines**

Strongly disagree – somewhat disagree – neither agree/disagree – somewhat agree – strongly agree

**7. After watching the presentation, please rate your level of confidence on a 1-10 scale regarding your ability to communicate about COVID-19 vaccines.**

**8. After viewing the presentation, what is one thing you will change or improve upon when educating about COVID-19 vaccines? \_\_\_\_\_**

## Appendix F

### *Phase B: Pre-Education Survey*

**1. Please mark what your title is most closely related to:**

Clinical staff/Healthcare Provider                      Administration      Public Health Leader

**2. When talking about COVID-19 vaccines the current communication methods I use are effective.**

Strongly disagree – disagree – somewhat disagree – neither agree/disagree – somewhat agree – agree – strongly agree

**3. Choose the principle that is NOT part of motivational interviewing?**

- |                               |                                     |
|-------------------------------|-------------------------------------|
| 1. Affirm the persons beliefs | 2. Ask open-ended questions         |
| 3. Control the conversation   | 4. Respond with a reflective answer |

**4. What's an example of showing a reflective answer?**

1. I do not know why you are worried. The vaccine is great!
2. What I hear you say, is that you are worried that the vaccine has microchips. Is this correct?
3. I would like to talk to you about what I heard on the news today.
4. You have to get this vaccine.

**5. Motivational interviewing aims to do all of the following EXCEPT:**

- |   |   |
|---|---|
| 1. Manage someone's feelings of uncertainty | 2. Persuade or pressure the individual    |
| 3. Maintain their personal values           | 4. Guide people to make healthier choices |

**6. The decision aid is used to do all of the following EXCEPT:**

- |   |                                    |
|---|------------------------------------|
| 1. Looks at the pros and cons               | 2. Guides the conversation         |
| 3. Forces the individual to make a decision | 4. Provides shared decision-making |

**7. True/False - Being open minded, compassionate, and empathetic is key to talking about COVID-19 vaccines with patients.**

**8. Please rate your level of confidence on a 1-10 scale regarding your ability to communicate about COVID-19 vaccines.**

## Appendix G

### *Phase B: Post-Education Survey*

**1. Please mark what your title is most closely related to:**

Clinical staff/Healthcare Provider      Administration      Public Health Leader

**2. Choose the principle that is NOT part of motivational interviewing?**

- |                               |                                     |
|-------------------------------|-------------------------------------|
| 1. Affirm the persons beliefs | 2. Ask open-ended questions         |
| 3. Control the conversation   | 4. Respond with a reflective answer |

**3. What's an example of showing a reflective answer?**

1. I do not know why you are worried. The vaccine is great!
2. What I hear you say, is that you are worried that the vaccine has microchips. Is this correct?
3. I would like to talk to you about what I heard on the news today.
4. You have to get this vaccine.

**4. Motivational interviewing aims to do all of the following EXCEPT:**

- |   |   |
|---|---|
| 1. Manage someone's feelings of uncertainty | 2. Persuade or pressure the individual    |
| 3. Maintain their personal values           | 4. Guide people to make healthier choices |

**5. The decision aid is used to do all of the following EXCEPT:**

- |   |                                    |
|---|------------------------------------|
| 1. Looks at the pros and cons               | 2. Guides the conversation         |
| 3. Forces the individual to make a decision | 4. Provides shared decision-making |

**6. True/False - Being open minded, compassionate, and empathetic is key to talking about COVID-19 vaccines with patients.**

**7. This video was helpful in showing me techniques to use when communicating about COVID-19 vaccines**

Strongly disagree – somewhat disagree – neither agree/disagree – somewhat agree – strongly agree

**8. After watching the presentation, please rate your level of confidence on a 1-10 scale regarding your ability to communicate about COVID-19 vaccines.**

**7. After viewing the presentation, what is one thing you will change or improve upon when educating about COVID-19 vaccines? \_\_\_\_\_**



## Appendix H

### *Check-in Survey 1*

**1. Please mark what your title is most closely related to:**

Clinical staff/Healthcare Provider

Administration Public Health Leader

**2. Please rate your level of confidence on a 1-10 scale regarding your ability to communicate about COVID-19 vaccines.**

**3. On a scale from 1-7, please rank how helpful the vaccine decision aid and is when communicating about COVID-19 vaccines?**

Very unhelpful – Unhelpful – Somewhat unhelpful – neither helpful/unhelpful – somewhat helpful – helpful – very helpful | Not applicable

**4. On a scale from 1-7, please rank how helpful the motivational interviewing is when communicating about COVID-19 vaccines?**

Very unhelpful – Unhelpful – Somewhat unhelpful – neither helpful/unhelpful – somewhat helpful – helpful – very helpful | Not applicable

**5. Please comment on why the vaccine decision aid and/or motivational interviewing are helpful or unhelpful. If you are encountering challenges, also use this space to explain here.**

**6. Please comment on any suggestions you have for the COVID-19 decision aid tool. If no suggestions, please put N/A as the answer to this question.**

**7. In the last two weeks, how many patients have you encountered using these methods?**

**8. Would knowing more about common myths and facts about COVID-19 vaccines be helpful for you when teaching patients? Please choose yes or no.**

## Appendix I

### *Check-in Survey 2*

**1. Please mark what your title is most closely related to:**

Clinical staff/Healthcare Provider                      Administration    Public Health Leader

**2. In what setting have you used these methods in (select all that apply)**

1. In office/At clinic visits 2. Vaccine Outreach/Out in the community 3. N/A

**3. On a scale from 1-7, please rank how helpful the vaccine decision aid tool and is when communicating about COVID-19 vaccines?**

Very unhelpful – Unhelpful – Somewhat unhelpful – neither helpful/unhelpful – somewhat helpful – helpful – very helpful | Not applicable

**4. On a scale from 1-7, please rank how helpful the motivational interviewing is when communicating about COVID-19 vaccines?**

Very unhelpful – Unhelpful – Somewhat unhelpful – neither helpful/unhelpful – somewhat helpful – helpful – very helpful | Not applicable

**5. How is the tool helpful when talking with patients about COVID-19 vaccines? Select all that apply.**

1. Reduces conflicts in patient decision-making                      2. Guides my thoughts while talking with patients                      3. Saves time  
4. Useful to have a visual                      5. Easy to read  
6. People can see their personal risk 7. Other \_\_\_\_                      8. N/A

**6. Please rate your level of confidence on a 1-10 scale regarding your ability to communicate about COVID-19 vaccines.**

**7. Please comment on any suggestions you have for the COVID-19 decision aid tool. If no suggestions, please put N/A as the answer to this question.**

**8. In the last two weeks or since your last survey, how many patients have you encountered using these methods?**

**9. This week, there is a video on myths vs facts about COVID-19 vaccines available to you. What is another topic about COVID-19 vaccines that you would like more information on? If nothing, please put N/A.**

## Appendix J

### *Check-in Survey 3*

**1. Please mark what your title is most closely related to:**

Clinical staff/Healthcare Provider                      Administration    Public Health Leader

**2. In what setting have you used these methods in (select all that apply)**

1. In office/At clinic visits 2. Vaccine Outreach/Out in the community 3. N/A

**3. On a scale from 1-7, please rank how helpful the vaccine decision aid tool and is when communicating about COVID-19 vaccines?**

Very unhelpful – Unhelpful – Somewhat unhelpful – neither helpful/unhelpful – somewhat helpful – helpful – very helpful | Not applicable

**4. On a scale from 1-7, please rank how helpful the motivational interviewing is when communicating about COVID-19 vaccines?**

Very unhelpful – Unhelpful – Somewhat unhelpful – neither helpful/unhelpful – somewhat helpful – helpful – very helpful | Not applicable

**5. If unhelpful, please comment on how it would be more helpful?**

**6. How is the tool helpful when talking with patients about COVID-19 vaccines? Select all that apply.**

1. Reduces conflicts in patient decision-making                      2. Guides my thoughts while talking with patients                      3. Saves time  
4. Useful to have a visual                      5. Easy to read  
6. People can see their personal risk 7. Other\_\_\_\_                      8. N/A

**6. Please comment on any suggestions you have for the COVID-19 decision aid tool. If no suggestions, please put N/A as the answer to this question.**

**7. Please rate your level of confidence on a 1-10 scale regarding your ability to communicate about COVID-19 vaccines.**

**8. In the last two weeks or since your last survey, how many patients have you encountered using these methods?**

## Appendix K

### *Check-in Survey 4*

**1. Please mark what your title is most closely related to:**

Clinical staff/Healthcare Provider                      Administration    Public Health Leader

**2. In what setting have you used these methods in (select all that apply)**

1. In office/At clinic visits 2. Vaccine Outreach/Out in the community 3. N/A

**3. In the last two weeks or since your last survey, how many patients have you encountered using these methods?**

**4. Please rate your level of confidence on a 1-10 scale regarding your ability to communicate about COVID-19 vaccines using the decision aid tool and motivational interviewing.**

**5. Will you continue to use these methods for talking with people about COVID-19 vaccines? Choose Yes or No.**

**6. Please explain why you chose your answer to the question above. \*\*If you have not used the techniques, please comment on your thoughts about these methods.**

**7. On a scale of one to 5 (strongly disagree to strongly agree, please answer the following Since learning these processes:**

- I feel more prepared to educate people on COVID-19 Vaccines
- The decision aid tool is helpful when talking with patients about COVID-19 vaccines
- The motivational interviewing is helpful when talking with patients about COVID-19 vaccines
- I would use the decision aid tool when talking with patients about a different health topic
- I would use motivational interviewing when talking with patients about a different health topic

Strongly disagree – disagree – neither agree/disagree – agree – strongly agree

**8. How was the tool helpful when talking with patients about COVID-19 vaccines? Select all that apply. \*\*If you have not used these methods, write in "Other" about your thoughts on the usefulness of the tool.**

- |   |   |               |
|---|---|---------------|
| 1. Reduces conflicts in patient decision-making | 2. Guides my thoughts while talking with patients | 3. Saves time |
| 4. Useful to have a visual                      | 5. Easy to read                                   |               |
| 6. People can see their personal risk           | 7. Other ____                                     | 8. N/A        |

**9. How was the tool unhelpful when talking with patients about COVID-19 vaccines? Select all that apply. \*\*If you have not used these methods, write in "Other" about your thoughts about how the tool may be unhelpful**

- |                       |                                     |                                     |                      |
|-----------------------|-------------------------------------|-------------------------------------|----------------------|
| 1. Too time consuming | 2. Caused a conflict with a patient | 3. The information was not relevant | 4. Difficult to read |
| 5. Other ____         |                                     |                                     |                      |

**10. Please comment on any of the issues, barriers, and challenges you have encountered throughout this process. \*\*Please do not put N/A. If you have not used the methods comment on your thoughts about these methods.**

**11. Please comment on how you see your organization using a decision aid tool or motivational interviewing in the future (aside from using it with COVID-19 vaccines). Is there another health topic that a decision aid tool could be created for regarding the patients you see? \*\*Please do not put N/A.**

## Appendix L

### *DNP Project Implementation Timeline*

Date	Steps of Implementation
January	<p>10<sup>th</sup>: Educational video approved by site champion. Approved by faculty.</p> <p>11<sup>th</sup>: Timeline approved by clinical site. Emails gathered to send out video first education video.</p> <p>14<sup>th</sup>: Coordination of biweekly meetings timeline for semester with project site champion.</p> <p>21<sup>st</sup>: Implementation began with an email sent to the staff from the project site. Virtual meeting with project site champion to review. COVID-19 and vaccine decision aid tool updated and sent to project site champion.</p> <p>25<sup>th</sup>: Conversation with project site champion discussing necessity to postpone official in-person meeting due to clinical staff getting COVID. Faculty meeting #1.</p>
February	<p>4<sup>th</sup>: Meeting with project site champion. Project remained on hold, but decision aid tool was updated and sent to the site. Coordination of meeting with communications manager and project site champion made.</p> <p>11<sup>th</sup>: Meeting with the communications manager and project site champion to discuss best way to update tool and submit it to the site.</p> <p>14<sup>th</sup>: COVID-19 Vaccine decision aid tool updated and sent to the communications manager.</p> <p>15<sup>th</sup>: Faculty meeting #2.</p>

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18<sup>th</sup>: Meeting with project site champion. Confirmation made that staff have recovered from COVID-19.

20<sup>th</sup>: Attendance at a vaccine event with some clinical staff.

27<sup>th</sup>: COVID-19 Vaccine decision aid tool updated and sent to the communications manager.

28<sup>th</sup>: In-person meeting with clinical staff. Project implementation restarted.

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March 1<sup>st</sup>: Educational video on motivational interviewing and the decision aid tool with pre and post surveys sent to staff via email.

6<sup>th</sup>: COVID-19 Vaccine decision aid tool was updated and sent to the communications manager.

14<sup>th</sup>: COVID-19 Vaccine decision aid tool was updated and sent to the communications manager. First check-in survey sent to staff.

15<sup>th</sup>: Faculty meeting #3.

18<sup>th</sup>: Meeting with project site champion.

20<sup>th</sup>: COVID-19 Vaccine decision aid tool was updated and sent to the communications manager.

28<sup>th</sup>: Myths versus facts video and second check-in survey sent to staff.

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April 1<sup>st</sup>: COVID-19 Vaccine decision aid tool updated and sent to the site. Meeting with project site champion.

3<sup>rd</sup>: COVID-19 Vaccine decision aid tool was updated and sent to the communications manager.

8<sup>th</sup>: COVID-19 Vaccine decision aid tool updated and sent to the site.

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10<sup>th</sup>: COVID-19 Vaccine decision aid tool was updated and sent to the communications manager.

11<sup>th</sup>: Third survey sent to the staff.

15<sup>th</sup>: Meeting with project site champion.

17<sup>th</sup>: COVID-19 Vaccine decision aid tool was updated and sent to the communications manager.

21<sup>st</sup>: Meeting with project site champion.

25<sup>th</sup>: Final survey sent to the staff.

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May 3<sup>rd</sup>: Final meeting with project site champion.

10<sup>th</sup>: Project end.

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**Appendix M***Phase A: Pre-Education Survey Results*

<b>Survey Questions</b>	<b>Participant 1</b>	<b>Participant 2</b>
<b>Role</b>	Clinical staff/Healthcare provider	Public Health Leader
<b>Likert-Scale – Current methods of communication are effective</b>	Agree	Agree
<b>Knowledge-Based Question Score</b>	75%	50%
<b>Confidence level in COVID-19 vaccine communication</b>	9/10	9/10



**Appendix N**

*Phase A: Post-Education Survey Results*

<b>Survey Questions</b>	<b>Participant 1</b>	<b>Participant 2</b>
<b>Role</b>	Clinical staff/Healthcare Provider	Public Health Leader
<b>Likert-Scale: Educational Video was helpful</b>	Strongly Agree	Strongly Agree
<b>Knowledge-Based Question Score</b>	75%	50%
<b>Confidence level in COVID-19 vaccine communication</b>	10/10	10/10
<b>How will you change</b>	(No comment)	"I plan to improve on being okay with overt opposition to the vaccine. Combativeness does not aid towards increasing uptake, confidence, or positively influencing perception."

**Appendix O***Phase B: Pre-Education Survey Results*

<b>Survey Questions</b>	<b>Participant 1</b>	<b>Participant 3</b>	<b>Participant 4</b>
<b>Role</b>	Clinical staff/ Healthcare provider	Clinical staff/ Healthcare provider	Public Health Leader
<b>Likert-Scale – Current methods of communication are effective</b>	Somewhat agree	Agree	Agree
<b>Knowledge-Based Question Score</b>	80%	100%	100%
<b>Confidence level in COVID-19 vaccine communication</b>	8/10	9/10	10/10

**Appendix P***Phase B: Post-Education Survey Results*

<b>Survey Questions</b>	<b>Participant 1</b>	<b>Participant 3</b>	<b>Participant 4</b>
<b>Role</b>	Clinical staff/ Healthcare provider	Clinical staff/ Healthcare provider	Public Health Leader
<b>Likert-Scale: Educational Video was helpful</b>	Agree	Strongly Agree	Strongly Agree
<b>Knowledge-Based Question Score</b>	80%	100%	100%
<b>Confidence level in COVID-19 vaccine communication</b>	9/10	10/10	10/10
<b>How will you change</b>	“Taking the time to get more information from each patient to as why they haven't been vaccinated.”	“I will use this tool as a visual guide when educating my patients about COVID.”	“I will make sure my compassion is genuine and not scripted in order to yield higher levels of comfort from those I serve.”

## Appendix Q

*DNP Project Budget*

<b>Budget Item</b>	<b>Individual Cost</b>			<b>Total Item Cost</b>
<b>Equipment</b>				
<i>Software</i> - Microsoft 365 subscription - YouTube subscription - Qualtrics XM subscription - DropBox subscription - Outlook email	\$0			\$56.88
<i>Supplies</i> One ream of printer paper (500 count)	\$7.99			
<i>Supplies</i> One cartridge of black/tricolor printer ink	\$48.89			
<b>Staff</b>				
	<b>Hourly Salary</b>	<b>Number of Hours</b>	<b>Individual Cost</b>	<b>Total Staff Cost</b>
Medical Assistants	\$16	1.083	\$17.33	\$38.83
Communications Manager	\$43	0.5	\$21.50	
Student Intern	\$0	90	\$0	
<b>Total Project (Equipment + Staff) Cost</b>				<b>\$95.71</b>

**Appendix R**

*Proposed Budget if a Public Health Nurse Was Hired*

<b>Budget Item</b>	<b>Individual Cost</b>			<b>Total Item Cost</b>
<b>Equipment</b>				
<i>Software</i> 1. Microsoft 365 subscription 2. YouTube subscription 3. Qualtrics XM subscription 4. DropBox subscription 5. Email account	\$0			\$56.88
<i>Supplies</i> One ream of printer paper (500 count)	\$7.99			
<i>Supplies</i> One cartridge of black/tricolor printer ink	\$48.89			
<b>Staff</b>				
	<b>Hourly Salary</b>	<b>Number of Hours</b>	<b>Individual Cost</b>	<b>Total Staff Cost</b>
Medical Assistants	\$15	1.08	\$15.17	2,646.67
Communications Manager	\$43	0.5	\$21.50	
Public Health Nurse	\$29	90	\$2,610	
<b>Total Project (Equipment + Staff) Cost</b>				<b>\$2703.55</b>

Appendix S

Project Poster

Addressing COVID-19 Vaccine Hesitancy Using a Vaccine Decision Aid Tool

Purpose

- To educate community health leaders on how to talk about COVID-19 vaccines to help improve vaccine messaging, combat misinformation, and improve vaccine uptake in an underserved population

Significance

- Black/African American community had been disproportionately affected by COVID-19 disease
- COVID-19 vaccine rates were low in Black/African American community
- Attitudes surrounding medical decisions varies among different races (Quinn et al., 2017)
- Organizational need to create and disseminate tailored messages about COVID-19 vaccines

Methods and Measurements

Methods:

- Creation of COVID-19 vaccine decision aid
- Educational video
- Participant surveys

Measurements:

- Number of community health leaders educated
- Survey feedback
  - Number and location of patients encountered
  - Confidence levels
  - Usefulness/barriers with rationale

Results

- 100% of community health leaders educated
- 50% increased in confidence
- 13 patients encountered in office
- Tool was mostly helpful or very helpful

Participant Rationale on the Usefulness of the Decision Aid Tool



"I plan to improve on being okay with overt opposition to the vaccine. Combativeness does not aid towards increasing uptake, confidence, or positively influencing perception." – Participant

Impact

Patients/Community

- Initiative to improve health equity
- Received evidenced-based education
- Shared decision-making matters

Community Leaders

- Empowered to have the discussion
- Recognizing the need to tailoring a message

Health System

- Acknowledgement of systemic racism
- Cost-savings – ICU \$234,988 (Fair Health, 2021)

Recommendations

- Using tool with other vaccines and health topics
- Expand (workers, setting)
- Tracking vaccine rates before and after
- Feedback from patients on impact

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References

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