PROVIDER EDUCATION ON STATIN DECISION AID USE FOR PRIMARY PREVENTION OF CARDIOVASCULAR DISEASE

by

Julia Jennifer Ni

Copyright © Julia Jennifer Ni 2023

A DNP Project Submitted to the Faculty of the COLLEGE OF NURSING In Partial Fulfillment of the Requirements For the Degree of DOCTOR OF NURSING PRACTICE In the Graduate College THE UNIVERSITY OF ARIZONA

2023
THE UNIVERSITY OF ARIZONA
GRADUATE COLLEGE

As members of the DNP Project Committee, we certify that we have read the DNP project prepared by Julia Ni, titled Provider Education on Use of a Statin Decision Aid for Primary Prevention of Cardiovascular Disease, and recommend that it be accepted as fulfilling the DNP project requirement for the Degree of Doctor of Nursing Practice.

Lori Martin-Plank
Date: Nov 7, 2023
Lorraine M. Martin Plank, PhD, FNP-BC, NP-C, GNP-BC, FAANP, FNAP

Kristie Lynn Flamm
Date: Nov 7, 2023
Kristie L. Flamm, DNP, FNP-BC, FAANP

Heather L. Carlisle
Date: Nov 7, 2023
Heather L. Carlisle, PhD, DNP, FNP, AGACNP, CHPN, RN

Final approval and acceptance of this DNP project are contingent upon the candidate’s submission of the final copies of the DNP project to the Graduate College.

I hereby certify that I have read this DNP project prepared under my direction and recommend that it be accepted as fulfilling the DNP project requirement.

Lori Martin-Plank
Date: Nov 7, 2023
Lorraine M. Martin Plank, PhD, FNP-BC, NP-C, GNP-BC, FAANP, FNAP
DNP Project Committee Chair
College of Nursing
ACKNOWLEDGMENTS

Thank you to all my committee members for your extensive care, attention, and guidance that made this project possible. Thank you, Dr. Martin Plank, for your invaluable advice from the very first stage and your encouragement whenever I lost momentum throughout this process. Thank you, Dr. Flamm, for your willingness to review and provide feedback. Thank you, Dr. Carlisle, for your insightful comments that helped refine my writing.

Thank you to the providers and staff members at TMCOne La Canada for supporting me in my learning endeavors and allowing me to conduct this project.

Thank you to my family for your unending support.

Thank you to my church community for your true and joyous friendship.
DEDICATION

To God be all the glory, honor, and praise.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>List</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF FIGURES</td>
<td>8</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>9</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>10</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>12</td>
</tr>
<tr>
<td>Background Knowledge and Significance</td>
<td>12</td>
</tr>
<tr>
<td>Local Problem</td>
<td>14</td>
</tr>
<tr>
<td>Intended Improvement</td>
<td>15</td>
</tr>
<tr>
<td>Project Purpose</td>
<td>15</td>
</tr>
<tr>
<td>Project Question</td>
<td>15</td>
</tr>
<tr>
<td>Project Objectives</td>
<td>15</td>
</tr>
<tr>
<td>Theoretical Framework</td>
<td>15</td>
</tr>
<tr>
<td>Roger’s Diffusion of Innovation Theory</td>
<td>15</td>
</tr>
<tr>
<td>Innovation</td>
<td>16</td>
</tr>
<tr>
<td>Communication</td>
<td>16</td>
</tr>
<tr>
<td>Time</td>
<td>16</td>
</tr>
<tr>
<td>Social System</td>
<td>17</td>
</tr>
<tr>
<td>Innovation-Decision Process</td>
<td>18</td>
</tr>
<tr>
<td>Literature Synthesis</td>
<td>18</td>
</tr>
<tr>
<td>Evidence Search</td>
<td>18</td>
</tr>
<tr>
<td>Comprehensive Appraisal of Evidence</td>
<td>19</td>
</tr>
<tr>
<td>Strengths of Evidence</td>
<td>21</td>
</tr>
<tr>
<td>Weaknesses of Evidence</td>
<td>21</td>
</tr>
<tr>
<td>Gaps and Limitations</td>
<td>21</td>
</tr>
<tr>
<td>METHODS</td>
<td>22</td>
</tr>
<tr>
<td>Project Design</td>
<td>22</td>
</tr>
<tr>
<td>Model for Implementation</td>
<td>22</td>
</tr>
<tr>
<td>Setting and Stakeholders</td>
<td>24</td>
</tr>
<tr>
<td>Planning the Intervention</td>
<td>25</td>
</tr>
<tr>
<td>TABLE OF CONTENTS – Continued</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td></td>
</tr>
<tr>
<td>Participants and Recruitment</td>
<td>25</td>
</tr>
<tr>
<td>Consent and Ethical Considerations</td>
<td>26</td>
</tr>
<tr>
<td>Respect for Autonomy</td>
<td>26</td>
</tr>
<tr>
<td>Beneficence</td>
<td>26</td>
</tr>
<tr>
<td>Justice</td>
<td>27</td>
</tr>
<tr>
<td>Data Collection</td>
<td>27</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>27</td>
</tr>
<tr>
<td>RESULTS</td>
<td>28</td>
</tr>
<tr>
<td>Outcomes</td>
<td>28</td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>30</td>
</tr>
<tr>
<td>Summary</td>
<td>30</td>
</tr>
<tr>
<td>Interpretation</td>
<td>30</td>
</tr>
<tr>
<td>Implications (Practice, Education, Research and Policy)</td>
<td>31</td>
</tr>
<tr>
<td>Limitations</td>
<td>32</td>
</tr>
<tr>
<td>DNP Essentials Addressed</td>
<td>33</td>
</tr>
<tr>
<td>DNP Essential I: Scientific Underpinnings for Practice</td>
<td>33</td>
</tr>
<tr>
<td>DNP Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking</td>
<td>33</td>
</tr>
<tr>
<td>DNP Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice</td>
<td>33</td>
</tr>
<tr>
<td>DNP Essential VII: Clinical Prevention and Population Health for Improving the Nation’s Health</td>
<td>34</td>
</tr>
<tr>
<td>Conclusions</td>
<td>34</td>
</tr>
<tr>
<td>Plan for Sustainability</td>
<td>35</td>
</tr>
<tr>
<td>Plan for Dissemination</td>
<td>35</td>
</tr>
<tr>
<td>APPENDIX A SITE APPROVAL/THE UNIVERSITY OF ARIZONA INSTITUTIONAL REVIEW BOARD AUTHORIZATION LETTER</td>
<td>36</td>
</tr>
<tr>
<td>APPENDIX B CONSENT DOCUMENT (DISCLOSURE AND CONSENT FORM)</td>
<td>39</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS – Continued

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Recruitment Material (Recruitment Emails)</td>
<td>41</td>
</tr>
<tr>
<td>D</td>
<td>Evaluation Instruments (Pretest and Posttest Surveys)</td>
<td>43</td>
</tr>
<tr>
<td>E</td>
<td>Participant Material Educational Video Script</td>
<td>48</td>
</tr>
<tr>
<td>F</td>
<td>Project Timeline</td>
<td>51</td>
</tr>
<tr>
<td>G</td>
<td>Literature Review Grid</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>References</td>
<td>57</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 1  Model of Rogers’ Innovative-Decision Process .........................................................17
Figure 2  Model of Improvement: Plan-Do-Study-Act (PDSA) Cycle.......................................24
LIST OF TABLES

Table 1  Provider Responses to Pretest Survey Questions .................................................................29
Table 2  Provider Responses to Posttest Survey Questions .................................................................30
ABSTRACT

**Purpose:** The purpose of this quality improvement project was to improve provider awareness, confidence, and intent to use shared decision-making (SDM) to facilitate discussion of primary prevention statin therapy with patients at a local primary care clinic.

**Background:** SDM is a collaborative process between providers and patients to make informed medical decisions based on clinical evidence and the patient’s values. Recent cardiology guidelines recommend SDM for guiding decisions related to the initiation of statin therapy for primary prevention of cardiovascular disease. The use of decision aids can help improve the practice of SDM by facilitating provider-patient discussion of the benefits and harms of treatment options.

**Methods:** This project employed a pretest/posttest design. Rogers’ diffusion of innovation theory and the Plan-Do-Study-Act (PDSA) cycle aided in the project design and intervention planning. Project outcomes were measured with a pretest and posttest survey. An educational video on SDM and the use of a statin decision aid was developed and sent to potential participants. Participation was voluntary. Data was collected and analyzed to evaluate providers’ awareness, usage, confidence, and perceived obstacles to the implementation of the statin decision aid.

**Results:** A 60% survey response rate was achieved. Following the educational intervention, respondents reported increased knowledge of SDM and increased usage of decision aids in the two-week post-intervention period. All three participants reported a lack of time during appointments as a perceived barrier to implementing decision aids into their practice.
Conclusions: The intervention resulted in increased provider awareness, knowledge, and intent to utilize SDM and a decision aid in the initiation of primary prevention statin therapy. Data collection was limited to a single primary care clinic site. This project’s findings may inform future research on the incorporation of decision aids into the clinic’s electronic health record (EHR).
INTRODUCTION

Cardiovascular disease (CVD) remains the leading cause of morbidity and mortality across most racial groups in the United States (US), resulting in a cost of over $200 billion annually in healthcare services and lost productivity (Arnett et al., 2019). This economic burden can be ascribed to uncontrolled CVD risk factors and suboptimal implementation of prevention therapies in adults (Arnett et al., 2019). The treatment of hyperlipidemia with statins for the primary prevention of CVD is a keystone recommendation by major clinical practice guidelines (Brodney et al., 2021). Utilizing shared decision-making (SDM) to facilitate provider-patient discussion of statin therapy can improve health outcomes and support patient-centered care (Backman et al., 2020).

Background Knowledge and Significance

Primary prevention of CVD addresses the prevention of cardiac events and mortality in patients without a previous history of a major adverse cardiac event (MACE), such as a stroke or myocardial infarction (MI) (Mainous et al., 2014). Many modifiable factors affect CVD risk, including obesity, tobacco smoking, diet, exercise, cholesterol levels, and diabetes mellitus control (Stewart et al., 2020). The recommendations for the use of statin therapies in the primary prevention of CVD have evolved in the last decade, as new evidence is constantly emerging (Yu et al., 2018). Statins are considered core in both primary and secondary prevention of CVD (Nanna et al., 2023). The American College of Cardiology/American Heart Association (ACC/AHA) provides a class I recommendation for statin treatment in adults up to 75 years with low-density lipoprotein cholesterol (LDL-C) of at least 190 mg/dL, diabetes mellitus, or a 10-year CVD risk of at least 7.5% (Nanna et al., 2023). The United States Preventive Services
Taskforce (USPSTF) provides a Grade B recommendation to offer statin treatment to adults aged 40 to 75 years with one or more cardiovascular risk factors and an estimated 10-year CVD risk of at least 10% (Nanna et al., 2023)

Pharmacological therapy increases in importance with the progression of disease, particularly when patient lifestyle changes have not been effective or adequate in lipid, blood pressure, or glucose control (Collins et al., 2016). Lifestyle changes do, however, remain the cornerstone in primary risk reduction. Adults who are between 40 and 75 years of age and are being evaluated for primary prevention of CVD should have a provider-patient risk discussion before beginning a new intervention like a statin (Arnett et al., 2019). SDM is a process in which providers and patients work together to decide about care based on clinical evidence and the patient’s informed preferences (Gustin et al., 2019). This is a bidirectional flow of knowledge: the provider offers clinical expertise, and the patient provides expertise on their values and goals of care (Backman et al., 2020).

The model for clinical decision-making has shifted from paternalism towards SDM in the past several decades (Backman et al., 2020). In 1982, the bioethics organization, President’s Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research delineated informed consent as active SDM (Backman et al., 2020). The Institute of Medicine’s (IOM) 2001 report featured SDM as a standard for clinicians, and the Affordable Care Act (ACA) mandates that healthcare programs develop and disseminate decision aids to enhance SDM (Gustin et al., 2019). There is a greater need for SDM in healthcare today with the increased accessibility of information on the internet, including that which is misleading or unsubstantiated; providers must help patients navigate available information while assessing
their knowledge and expectations for care (Backman et al., 2020). Quality SDM includes the presentation of evidence-based information about realistic care options individualized to the patient’s needs and preferences and may involve the use of decision aids (Backman et al., 2020). This project involves promoting provider awareness of the use of a decision aid to engage adult patients in SDM and to educate on the rationale for pharmacologic interventions for the management of dyslipidemia in primary prevention of CVD.

Local Problem

CVD is the leading cause of death in Arizona and nationally (Arizona Department of Health Services [AZDHS], 2019). In adults 20 years of age or older, the prevalence of CVD is 48.6% overall (Tsao et al., 2023). Within Arizona, it is the cause of 13,000 deaths annually (AZDHS, 2019). CVD is also the leading cause of preventable death for adults in Pima County (Pima County Health Department, 2019). A needs assessment was verbally conducted at a primary care clinic in Tucson, Arizona through personal communication by the researcher with providers, to guide and determine the suitability of intervention methodology and content for this quality improvement (QI) project. This informal assessment revealed little to no awareness or utilization of SDM tools or decision aids by the clinic’s providers when discussing statin therapy for primary prevention of CVD during their encounters with patients. Given the prevalence of CVD within Arizona, it is important and necessary to increase provider awareness of SDM and statin decision aids, which can advance patient-centered care and improve health outcomes.
Intended Improvement

Project Purpose

The purpose of this QI project was to improve provider awareness, confidence, and intent to use shared decision-making to facilitate the discussion of primary prevention statin therapy with patients at a local primary care clinic.

Project Question

Do providers at a primary care clinic in Tucson, Arizona who receive educational information on a statin decision aid for primary prevention of CVD, demonstrate increased awareness, confidence, and intent to inform patients between 40 and 75 years of age of the use and rationale for statins in the management of CVD risk?

Project Objectives

The objectives of this project were to educate primary care providers on the current evidence-based recommendations supporting the use of a decision aid for statin therapy for primary prevention of CVD and to promote SDM between providers and their patients on using these therapies to manage CVD risk.

Theoretical Framework

Rogers’ Diffusion of Innovation Theory

E. M. Rogers’ diffusion of innovation (DOI) theory explains the passage of an idea through stages of adoption by different actors (Greenhalgh et al., 2004). For Rogers, a “technology” is a design for instrumental action that reduces the uncertainty in cause-effect relationships involved in reaching a desired goal (Lundblad, 2003). The theory contains four key elements: innovation, communication, time, and the social system (Lundblad, 2003). Rogers’
theory also discusses the five stages of the innovation-decision process: knowledge, persuasion, decision, implementation, and confirmation (Rogers, 2003). In this theory, adoption is a decision to use an innovation and rejection is a decision to not adopt an innovation (Greenhalgh et al., 2004).

**Innovation**

An innovation is an idea, practice, or project that is perceived as new by an individual or actor (Lundblad, 2003). This innovation may have originated a long time ago, but if it is new for the actors, then it may still be an innovation (Lundblad, 2003). In this project, the innovation of interest is provider education on the use of a statin SDM aid.

**Communication**

The second element of communication consists of the process by which a unit of adoption shares information with another unit, and the channel or means for communicating (Lundblad, 2003). Diffusion includes three communication components: an innovation, two individuals or units of adoption, and a communication channel (Rogers, 2003). In this project, educational material is communicated to providers of a clinic through the channel of interpersonal media.

**Time**

The third element of time involves the innovation-decision process, adopter categories, and rate of adoption (Lundblad, 2003). Certain providers may be more or less inclined to adopt and apply the statin decision aid, and this will impact how quickly this innovation is diffused throughout the clinic.
**Social System**

The final theory element is the social system which is made up of members who share a common goal or objective (Lundblad, 2003). Since the diffusion of innovation takes place within the social system, it is influenced by the existing social structure (Rogers, 2003). There are several potential barriers to using educational materials to inform healthcare providers about introducing an innovation to practice. Barriers may include a lack of self-efficacy, lack of response expectation (patient outcome), and inertia of previous practice (Greenhalgh et al., 2004).

**Figure 1**

*Model of Rogers’ Innovative-Decision Process*
**Innovation-Decision Process**

An individual may leave the innovation-decision process at any of the five stages (Rogers, 2003). This project focuses on three of the five stages of the innovation-decision process most relevant to the project’s purpose: knowledge, persuasion, and decision. The first stage involves gaining knowledge about and exposure to the innovation (Rogers, 2003). The second stage, persuasion, refers to the formation of favorable or unfavorable attitudes and beliefs regarding innovation (Rogers, 2003). The third stage, decision, reflects the development of behavioral intentions to adopt or not adopt the innovation (Rogers, 2003).

The innovation-decision process also considers prior conditions that may influence the adoption of an innovation: previous practice, perceived needs or problems, innovativeness of the individual, and the norms of the relevant social system (Rogers, 2003). Factors influencing an individual’s attitude towards an innovation may include the relative advantage of the innovation, compatibility of the innovation with current beliefs and practices, the complexity of the innovation, how easy it is to try the innovation, and whether the individual can watch someone else using the innovation before making a decision (Rogers, 2003).

**Literature Synthesis**

**Evidence Search**

A literature search for peer-reviewed articles on SDM for initiating statin therapy for primary prevention of CVD in the outpatient setting was conducted in PubMed and Google Scholar. MeSH search terms within PubMed included: “decision aid,” “shared decision-making,” “statin,” “outpatient,” and “primary prevention of cardiovascular disease.” Inclusion criteria for articles included publication date within five years (2018-2023), English language, human
subjects, and full-text availability. The initial search in PubMed yielded 12 results. The same search terms in Google Scholar yielded 87 results. Articles were excluded due to focus on non-outpatient settings and issues other than primary prevention of CVD, resulting in a total of 10 articles selected for final appraisal.

**Comprehensive Appraisal of Evidence**

Studies have shown that SDM in the initiation of statin therapy can reduce older adults’ apprehension about interventions and can lead to more accurate expectations about outcomes and potential complications (Arnett et al., 2019; Brodney et al., 2021; Dembowski et al., 2022; Jaspers et al., 2018; Jhaveri et al., 2021; Ju et al., 2018; Nanna et al., 2023). A theme among many of the articles was that SDM increases participants’ knowledge, accuracy of risk perceptions, and concordance between patient values and treatment choices, as well as decreased feelings of being uninformed (Arnett et al., 2019; Brodney et al., 2021; Dembowski et al., 2022; Jaspers et al., 2018; Jhaveri et al., 2021; Ju et al., 2018; Nanna et al., 2023). SDM can better align therapy with the patient’s goals (Arnett et al., 2019; Backman et al., 2020; Jhaveri et al., 2021).

The SHARE approach for SDM established by the Agency of Healthcare Research and Quality (AHRQ) is widely cited and involves seeking the patient’s participation, helping the patient compare potential options, assessing the patient’s values, and lastly, attaining and evaluating the patient’s decision (Jhaveri et al., 2021). SDM also has possible benefits for the clinician, with clinical trials demonstrating improved clinician satisfaction with decision-making, and most decision aids did not affect the length of consultation time (Jhaveri et al., 2021; Nanna et al., 2023). Decision aids in primary prevention of CVD have not yet been widely adopted
(Jhaveri et al., 2021; Nanna et al., 2023). The International Patient Decision Aid Standard (IDPAS) established in 2003 developed a set of criteria for effective decision aids (Jhaveri et al., 2021). Examples of decision aids that meet IDPAS certification criteria are The Mayo Clinic Shared Decision-Making National Resource Center, which includes cardiovascular primary prevention choice for statin and aspirin use, and The Ottawa Hospital Research Institute Decision Aid Inventory (Jhaveri et al., 2021; Nguyen et al., 2021).

The evidence states that statins should be offered for primary prevention to older patients after an SDM process taking frailty, polypharmacy, and potential adverse effects into consideration (Brodney et al., 2021; Dembowski et al., 2022; Jaspers et al., 2018; Jhaveri et al., 2021; Ju et al., 2018; Nanna et al., 2023). Clinicians and patients must weigh the net benefit of primary prevention statins by balancing an individual’s potential benefits, including lower CVD risk, and avoiding burdensome hospitalizations, with the potential harms from treatment that may result from polypharmacy and side effects (Nanna et al., 2023). The likelihood that patients will live long enough to benefit from statin therapy should inform this decision (Brodney et al., 2021; Dembowski et al., 2022; Jaspers et al., 2018; Jhaveri et al., 2021; Ju et al., 2018; Nanna et al., 2023). Rather than simply identifying risk factors for CVD, computing the actual risk can aid in making accurate decisions for initiating statin therapy (Brodney et al., 2021; Jaspers et al., 2018; Jhaveri et al., 2021; Ju et al., 2018; Nanna et al., 2023).

There is a discrepancy between the patient's perceived meaningful benefit and what is clinically attainable by statin therapy (Jaspers et al., 2018; Ju et al., 2018). Myalgia frequency associated with statin use is considerably higher in observational studies compared with clinical trials (Brodney et al., 2021; Dembowski et al., 2022; Jaspers et al., 2018). Providing patients
with more information such as the benefits and harms of a therapy to make clinical decisions may decrease their eagerness for the use of statins (Brodney et al., 2021). Barriers to the use of decision aids include clinician perception of limited time, as older adults are more complex medically, as well as impairments in cognition, vision, or hearing which may interfere with patient comprehension of decision aids (Brodney et al., 2021; Jhaveri et al., 2021).

**Strengths of Evidence**

Most articles were systematic reviews and provided high-level evidence. A strength of the existing evidence was the consensus among researchers in support of SDM for statin therapy, particularly evident in existing clinical practice guidelines. Clinical trials studying the effects of statin decision aids were consistent in improving patient knowledge of the potential benefits of treatment and reducing decisional conflict.

**Weaknesses of Evidence**

A single decision aid for statin therapy has not yet been tested multiple times. Although many studies concluded that SDM between provider and patient is an effective tool to guide statin use, there is limited trial data. There have been few SDM implementation studies focusing on primary prevention statin treatment within the last five years.

**Gaps and Limitations**

SDM is a readily available, yet underutilized method for clinicians and patients to make decisions that align with patient preferences. Further trial data on the use of decision aids is needed as SDM is further implemented into clinical practice. Decision aids vary in reliability and quality, so established criteria for what constitutes appropriate evidence-based decision tools may need to be expanded upon. Some patients find it difficult to make decisions based on future
risks and tend to focus on current cholesterol levels. Decision aids need to be developed specifically for older patients with age-related impairments in mind.

**METHODS**

**Project Design**

The purpose of this QI project was to promote shared decision-making through the implementation of an educational video on the use of a statin decision aid, pertinent to adult patients between 40 and 75 years of age, at an outpatient clinic, and assess for increased awareness, confidence, and intent to use by healthcare providers. A pretest-posttest design was employed to compare baseline and outcome measures (Appendix D). Using a pre-/post-study design allows the researcher to analyze the effects resulting from an intervention (Polit & Beck, 2006). The pretest assessed providers’ current practices of educating patients on statins, awareness of SDM, SDM tools, and the Mayo Clinic Statin Choice Decision Aid. The educational training was delivered through a video demonstrating the use of the Statin Choice Decision Aid website (https://statindecisionaid.mayoclinic.org) a tool for clinicians to use during encounters with their patients. The posttest was administered two weeks following the conclusion of the intervention, evaluating knowledge gained about the decision aid tool and intent to use it.

**Model for Implementation**

This educational quality improvement (QI) project design and process was informed by the Plan-Do-Study-Act (PDSA) cycle (Figure 2) by the Institute for Healthcare Improvement (IHI, n.d.). Planning for the intervention included assessing the need for provider education within the clinical site of interest. This needs assessment-guided data collection considerations,
including stakeholders, participants, and the setting of the statin decision aid training. Following the planning, the intervention was implemented in the designated setting, and data was collected. Data gathered during the implementation was analyzed and evaluated for pretest and posttest comparison, impact, and future recommendations of SDM related to primary prevention statin therapy. These recommendations can be utilized for adapting and guiding future implementation and practice of the use of decision aids for the clinical site.

Participants were informed of the pretest-posttest design and use of data for academic and quality improvement (QI) purposes (Appendix B). Before delivering the intervention, a pretest survey was conducted to assess current SDM used during patient encounters related to primary prevention statin therapy, and existing provider awareness of the innovation of a statin decision aid. The intervention was delivered via an educational video reviewing indications and guidelines for statin therapy in the primary prevention of CVD and introducing the use of statin decision aid. Each provider received a disclosure and consent form, an explanation of the aims and objectives of the project, and a link to the educational video by email (Appendix C). A patient case study was presented within the video to demonstrate the use of the decision aid. Following the video, measured outcomes included providers’ awareness, confidence, and intent to utilize a statin decision aid during patient encounters.
Figure 2

*Model of Improvement: Plan-Do-Study-Act (PDSA) Cycle*

---

**Setting and Stakeholders**

This project was implemented at an outpatient primary care clinic in Tucson, Arizona. The patient population at this clinic is mainly middle-class adults greater than 40 years old, including Caucasians, African Americans, Asians, and those of Hispanic ethnicity. Providers care for patients with obesity, family history of heart disease, and other risk factors for CVD. Primary prevention is a major component and focus of typical office visits. The providers at this clinic have a significant role in the management of patient health outcomes.
Key stakeholders in the clinic included patients, physicians, nurse practitioners, the office manager, and medical assistants. The office manager expressed interest in the project’s objectives and assisted the researcher in verbal promotion to the physicians and nurse practitioners within the clinic. Risks to the stakeholders were minimal due to the video presentation of data which could be viewed at the participants’ convenience.

Planning the Intervention

The intervention included a pre-survey and educational YouTube video emailed to potential participants at the clinic. Participants completed the electronic pretest survey before watching the educational video. The video created by the researcher addressed current evidence-based recommendations for the use of statin therapy in the primary prevention of CVD and included a demonstration of the Mayo Clinic Statin Choice Decision Aid and its various features, with a patient case study example. The video included evidence from this project’s literature search supporting SDM by providers with their patients to improve health outcomes (Appendix E). An electronic posttest survey was provided two weeks after the completed viewing of the video to obtain feedback from providers on their awareness, usage, confidence, and perceived obstacles to the implementation of the statin decision aid in practice.

Participants and Recruitment

Participants were eligible for inclusion if they were healthcare providers who routinely provide care or counseling for patients requiring statin therapy for primary prevention of CVD. Recruitment was through email (Appendix C) and verbal promotion. Expected participants in this QI project included providers at a primary care clinic: three family physicians and two family nurse practitioners.
Consent and Ethical Considerations

Each participant was presented with a disclosure (Appendix B) before initiating the pretest survey, stating that continuation implies consent. When conducting studies or QI projects involving the use of human subjects, it is important to examine the ethical considerations that protect participants (Zaccagnini & White, 2014). The ethical principles of respect for autonomy, beneficence, and justice underlie this QI project.

Respect for Autonomy

The ethical principle of respect for autonomy is the basis of informed consent or refusal (Zaccagnini & White, 2014). People are autonomous beings and have the right to decide whether they want to participate in a clinical study (Miracle, 2016). This project respected the autonomy of persons by allowing participants to voluntarily participate and withdraw from the project at any time. Participants have the freedom to act in a self-determined manner.

In addition, this project aimed to increase provider awareness of a decision aid to enhance SDM, which promotes patient autonomy and the ability to express choice. SDM helps the patient to make an informed decision and understand their diagnosis, prognosis, treatment options, and the respective risks and benefits, as well as the risks and benefits of declining these treatments (Backman et al., 2020). Informed consent is at the core of SDM.

Beneficence

Beneficence is concerned with the concept of “doing good,” increasing potential benefits, and decreasing possible risks and harm (Miracle, 2016). One measure of this project to protect subjects was approval by the University of Arizona Institutional Review Board (IRB) before implementation. This QI project aimed to benefit and serve participants by increasing their
awareness of a tool that will support their counseling and education of patients in statin use and primary prevention of CVD.

Justice

The third ethical principle guiding this project was justice which concerns equal treatment, fairness, and the right to privacy for all people (Miracle, 2016). The inclusion criteria of people in this QI project were determined before the study began, which ensured all eligible participants had equal opportunity to participate in the project. Anonymity and confidentiality were maintained throughout the project as participants’ pretest and posttest responses were not linked to personal identifiers.

Data Collection

Data collected included electronic pretest and posttest surveys through Qualtrics before and following an educational video delivered to participants by email. The surveys utilized yes and no responses, open-ended responses, and five-point Likert-type items to obtain quantitative data for outcome measures of provider awareness, confidence, and intent to use statin decision aids. There was a two-week period between the implementation of the pretest survey and educational intervention and the delivery of the posttest survey.

Data Analysis

Data from the pretests and posttests were collected onto a Microsoft Excel spreadsheet and aggregated for analysis. The data were analyzed using quantitative methods and examined individual measurements from each participant’s pretest and posttest surveys. Descriptive analysis was completed on the data using tables to illustrate differences in pretest and posttest results and summarize participants’ responses from the Qualtrics surveys.
RESULTS

Out of a total of five healthcare providers, including family physicians and family nurse practitioners at the clinic, a 60% survey response rate was achieved.

Outcomes

Three clinic providers participated in watching the intervention video and completing the pretest and posttest surveys. The surveys utilized ‘yes’ and ‘no’ responses, open-ended responses, and five-point Likert-type items to obtain quantitative data assessing provider awareness of SDM concepts, self-reported competence with engaging patients with SDM, usage of 10-year ASCVD risk estimation and statin decision aids, and experiences with the statin choice decision aid. All participants answered each question on the pretest and posttest surveys, except the open-ended question of the posttest survey, which one participant declined to answer. The pretest survey consisted of five questions utilizing five-point Likert-type items to address the participant’s experience with SDM and statin decision aids (Table 1). Two out of three participants reported never using a decision aid with a patient before initiating statin therapy. Two out of three participants had never heard of the Statin Choice Decision Aid, and one participant reported having heard of it but never using it. All respondents reported competence when engaging patients in SDM and having received satisfactory training for SDM.
Table 1

Provider Responses to Pretest Survey Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Before starting a patient on a statin for primary prevention, I calculate their 10-year ASCVD risk to guide the decision.</th>
<th>Before starting a patient on a statin for primary prevention, I use a decision aid (such as Statin Choice Decision Aid), to facilitate a discussion with the patient.</th>
<th>What is your level of exposure to the Statin Choice Decision Aid?</th>
<th>I have received satisfactory training on how to engage patients with shared decision-making.</th>
<th>I feel competent engaging patients in shared decision-making, when clinically appropriate.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sometimes (n=2)</td>
<td>About half the time (n=1)</td>
<td>Never (n=2)</td>
<td>Strongly agree (n=2)</td>
<td>Strongly agree (n=2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sometimes (n=1)</td>
<td>Somewhat agree (n=1)</td>
<td>Somewhat agree (n=1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before starting a patient on a statin for primary prevention, I use a decision aid (such as Statin Choice Decision Aid), to facilitate a discussion with the patient.</td>
<td></td>
<td></td>
<td>Never heard of it (n=2)</td>
<td>Strongly agree (n=2)</td>
<td>Strongly agree (n=2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Heard of it but have not used it (n=1)</td>
<td>Somewhat agree (n=1)</td>
<td>Somewhat agree (n=1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The posttest survey was emailed to participants two weeks following the pretest viewing of the educational video. All respondents who completed the first survey completed the posttest survey. As depicted in Table 2, participants reported feeling more knowledgeable about the benefits of SDM after viewing the educational video. There was one identical question in both surveys which assessed intent to use a decision aid, such as the Statin Choice Decision Aid, to facilitate discussion with the patient; two out of three providers reported increased intent to use a statin decision aid postintervention. Two out of three respondents reported using the Statin Choice Decision Aid with at least one of their patients in the two weeks following the intervention. All three respondents selected lack of time during appointments as the barrier that would prevent them from using SDM tools in their practice.
Table 2

Provider Responses to Posttest Survey Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly agree (n=2)</th>
<th>Somewhat agree (n=1)</th>
<th>Most of the time (n=2)</th>
<th>About half of the time (n=1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel more knowledgeable about the benefits of shared decision-making than I felt before watching the educational video.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before starting a patient on a statin for primary prevention, I will use a decision aid (such as Statin Choice Decision Aid), to facilitate a discussion with the patient.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have used the Statin Choice Decision Aid with at least one of my patients, in the past 2 weeks.</td>
<td>Yes (n=2)</td>
<td>No (n=1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please select any barriers that would prevent you from using shared decision-making tools in your practice:</td>
<td>Lack of time during appointments (n=3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please provide any additional comments on shared decision-making or the educational video:</td>
<td>“SDM has been utilized already, but can be more mindful in the future” “Excellent video”</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DISCUSSION

Summary

This QI project involved the intervention of an educational video on SDM with demonstrated use of a statin decision aid with a patient case study. Following this intervention, participants were more aware of the decision aid and the benefits of SDM, and there was an increase in self-reported usage of decision aids with the initiation of primary prevention statin therapy.

Interpretation

Information gained from this project highlights the potential benefits of educating providers on SDM and the usage of decision aids. All three participants reported feeling more
knowledgeable about SDM after watching the educational video. One provider responded to the post-survey free-response question that “SDM has been utilized already, but [I] can be more mindful [of it] in the future.” This suggests that the respondent was more aware of the use of SDM following the intervention.

**Implications (Practice, Education, Research and Policy)**

The results from this project intervention reveal the limitation of using a decision aid tool to facilitate SDM; all three participants cited lack of time as a barrier to using SDM tools during appointments. By addressing the barrier of time constraints, provider usage of decision aids for SDM in practice could be increased. One method to consider for future approaches is refining the electronic health record (EHR) user interface to streamline the process of SDM during a patient visit and reduce the need for manual clicking by the provider.

Broader application of SDM tools within the clinic will require more extensive resources and training. The clinic may consider direct integration of a decision aid into the EHR to facilitate the SDM process and save time during provider-patient discussions. As the calculated 10-year risk for ASCVD is already embedded into the clinic’s EHR for all adult patients, it would be helpful to extract additional patient data into the statin decision aid tool to identify statin-eligible patients and thus reduce manual data entry and the possibility for user error. The incorporation of tools such as the Statin Choice Decision Aid can make it easier for providers to help patients make informed decisions.

Given the complex nature of accepting and adopting an innovation, it is expected that multiple educational or training sessions may be required to enact a change in practice. This project utilized a single educational video as an intervention. Additional education about the
Statin Choice Decision Aid and its functionality could be explored, and championing users of the tool may help significantly improve provider attitudes towards SDM. The implications of this project could guide future research into how to promote a change in SDM strategies in a primary care setting.

Organizational leaders can use information gained from this project by reviewing current policies regarding SDM. An additional consideration is the provision of incentives for health systems to provide SDM support and promote informatics interventions. Future QI initiatives at the clinic may reinforce the use of SDM tools through policy change.

**Limitations**

There were several limitations to this QI project. There was a small sample size of healthcare providers and a nonresponse bias of 40%, thus results are likely not reflective of the greater population of providers who prescribe primary prevention statin therapy. Nonrespondents may hold different attitudes and practices about SDM tools for statin therapy initiation. The delivery of the intervention was asynchronous, which may have hindered potential discourse, as opposed to if educational information was presented in one session to a group of clinic providers. Two out of three participants reported increased usage of the statin decision aid, however, the quality or ease of the SDM process during these clinical encounters was not assessed. The pre- and post-test design to evaluate the impact of the educational intervention was conducted over a brief two-week period. Longer follow-up is needed to determine the long-term effectiveness of provider education. Lastly, participation bias was a limitation. Respondents were likely able to infer the anticipated outcomes of the study due to the pretest/posttest design.
DNP Essentials Addressed

The Doctor of Nursing Practice (DNP) Essentials describes the competencies that are core to the preparation and learning experiences for the advanced nursing practice role (American Association of Colleges of Nursing [AACN], 2006). The following four DNP Essentials were addressed during project development and implementation.

DNP Essential I: Scientific Underpinnings for Practice

This project was guided by the principles and laws that govern the well-being and life process of human beings while utilizing nursing science to develop an evidence-based intervention and evaluate outcomes (AACN, 2006). The focus of this project was to improve healthcare delivery and the clinical practice of SDM.

DNP Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking

Scholarly nursing practice is characterized by ongoing improvement of systems practices to support patient health outcomes (AACN, 2006). The basis for this QI project design combined organizational understanding and the desire to improve health outcomes. This project was developed to improve provider awareness and usage of SDM for statin therapy at the clinical site of interest.

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

The integration of current literature to translate and implement the best evidence for practice is directed toward the purpose of patient-centered care (AACN, 2006). An evidence-based educational video was developed following a thorough review and appraisal of current
literature to identify the latest knowledge related to SDM for the initiation of primary prevention statin therapy.

**DNP Essential VII: Clinical Prevention and Population Health for Improving the Nation’s Health**

Health promotion and illness prevention are integral to achieving national population health goals (AACN, 2006). Epidemiological scientific data relating to population health was considered in this QI project. The evaluation and dissemination of knowledge on statin decision aids have the potential to enhance the individual patient’s and local community population’s health outcomes.

**Conclusions**

SDM is the clinical interaction at the foundation of patient-centered care, referring to care that is respectful of individual patient preferences, needs, and values (Backman et al., 2020). The Statin Choice Decision Aid and other SDM tools remain underused in practice despite randomized clinical trials supporting its efficacy and despite guideline recommendations related to the initiation of statin therapy for primary prevention of CVD (Brodney et al., 2021). As demonstrated in this QI project, the implementation of an educational video on SDM and the use of a decision aid can increase provider knowledge of and intent to use SDM tools. It is important to promote provider awareness of SDM and statin decision aids, which can improve health outcomes through collaboration and engagement with the patient. The ever-increasing use of informatics to implement decision aids can improve the clinical practice of SDM.
Plan for Sustainability

The project was implemented through one educational video to providers at an outpatient primary care clinic. Additional PDSA cycles could be carried out; future iterations of this QI project approach might involve tracking the actual usage rate of a statin decision aid at the clinic of interest. Synchronous educational sessions on SDM tools with EHR integration may be considered as a future method to encourage practice change. Further research is needed to assess the long-term effects of provider education of SDM for statin therapy, and whether EHR system interventions might help improve the provider-patient SDM process.

Plan for Dissemination

Data analysis and results were sent to the office manager of the clinic. The information presented in the educational video can be distributed as desired for presentation to other providers and staff members of the clinic.
APPENDIX A

SITE APPROVAL/ THE UNIVERSITY OF ARIZONA INSTITUTIONAL REVIEW BOARD

AUTHORIZATION LETTER
TMCOne La Canada
10390 N. La Canada Dr.
Oro Valley, AZ 85737

June 1, 2023

Human Subjects Protection Program
The University of Arizona
845 N Park Ave., Suite 537A
Tucson, AZ 85719

Please note that Ms. Julia Ni, University of Arizona Doctor of Nursing Practice student, has permission of TMCOne La Canada to conduct a quality improvement project at our facility for her project, “Provider Education on Statin Decision Aid Use for Primary Prevention of Cardiovascular Disease”.

Ms. Ni will conduct a survey of health care providers at TMCOne La Canada. She will recruit providers through email. The email will provide a description of the project, what they will be asked to do, the time involved, and a link to the online survey. Ms. Ni’s activities will be completed by August 10, 2023.

Ms. Ni has agreed to provide to my office a copy of the University of Arizona Determination before she recruits participants. She will also present aggregate results to the providers at their monthly staff meeting.

If there are any questions, please contact my office.

Signed,

[Signature]

V 2013-01
NOT HUMAN RESEARCH

June 13, 2023

Julia Ni

Dear Julia Ni:

On 6/13/2023, the IRB reviewed the following submission:

<table>
<thead>
<tr>
<th>Type of Review:</th>
<th>Initial Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title:</td>
<td>Provider Education on Statin Decision Aid Use for Primary Prevention of Cardiovascular Disease</td>
</tr>
<tr>
<td>Investigator:</td>
<td>Julia Ni</td>
</tr>
<tr>
<td>IRB Submission ID:</td>
<td>STUDY00003132</td>
</tr>
<tr>
<td>Sponsor:</td>
<td>None</td>
</tr>
<tr>
<td>Prime Sponsor:</td>
<td>None</td>
</tr>
<tr>
<td>IND, IDE, or IDE:</td>
<td>None</td>
</tr>
</tbody>
</table>
| Documents Reviewed: | * Ni, J - Advisor Attestation.pdf, Category: Institutional Approval;  
|                  | * Ni, J - Email to participants.docx, Category: Recruitment Materials;  
|                  | * Ni, J - Posttest Survey.pdf, Category: Data Collection Tool;  
|                  | * Ni, J - Presentation outline.docx, Category: Participant Material;  
|                  | * Ni, J - Pretest Survey.pdf, Category: Data Collection Tool;  
|                  | * Ni, J - Site Approval.jpeg, Category: External Site Authorization; |

The IRB determined that the proposed activity is not research involving human subjects as defined by DHHS and FDA regulations.
APPENDIX B

CONSENT DOCUMENT (DISCLOSURE AND CONSENT FORM)
**Project Title:** Provider Education on Statin Decision Aid Use for Primary Prevention of Cardiovascular Disease  
**Project Director:** Julia Ni, RN, BSN, DNP-FNP Candidate  
**Institution:** University of Arizona, College of Nursing

The purpose of this project is to provide education, increase awareness, and determine intent to use a statin decision aid (Mayo Clinic Statin Choice Decision Aid) to assist with educating and counseling patients at TMCOne La Canada.

If you choose to take part in this project, you will be asked to take a pretest survey, watch an educational video, and complete a posttest survey. It will take approximately 15-20 minutes to complete the educational module and surveys. There are no foreseeable risks associated with participating in this project and you will receive no immediate benefit from your participation. Survey responses are anonymous.

If you choose to participate in the project, participation is voluntary; refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may withdraw at any time from the project. In addition, you may skip any question that you choose not to answer. By participating, you do not give up any personal legal rights you may have as a participant in this project.

For questions, concerns, or complaints about the project, you may contact Julia Ni (investigator) at juliajni@arizona.edu

By watching the video and completing the surveys, you are consenting to participate in the project.
APPENDIX C

RECRUITMENT MATERIAL (RECRUITMENT EMAIL)
Recruitment Email 1: Pretest Survey and Educational Video

Dear __________,

My name is Julia Ni, and I am a DNP-FNP student at the University of Arizona College of Nursing. As an academic requirement, I will be completing a quality improvement project at TMC One La Canada. Attached is a disclosure and consent form. Please complete the survey, then watch the informational video. This will take approximately 15-20 minutes. Your name will not be collected or linked to your responses.

In two weeks, you will receive an email containing a post-survey to reflect on awareness gained and comments on shared decision-making and the statin decision aid.

Survey:
Video:

Please contact me at juliajni@arizona.edu for any questions, concerns, or technical challenges regarding the project. Thank you for your participation in my DNP project.

Sincerely,
Julia Ni
DNP-FNP Candidate

Recruitment Email 2: Posttest Survey

Dear __________,

Thank you for your participation in my DNP project. Please complete this post-survey. Your responses are anonymous. For any questions, please contact me at juliajni@arizona.edu.

Survey:

Sincerely,
Julia Ni
DNP-FNP Candidate
APPENDIX D

EVALUATION INSTRUMENTS (PRETEST AND POSTTEST SURVEY)
Before starting a patient on a statin for primary prevention, I calculate their 10-year ASCVD risk to guide the decision.

- Never
- Sometimes
- About half the time
- Most of the time
- Always

Before starting a patient on a statin for primary prevention, I use a decision aid (such as Statin Choice Decision Aid), to facilitate a discussion with the patient.

- Never
- Sometimes
- About half the time
- Most of the time
- Always

What is your level of exposure to the Statin Choice Decision Aid?

- Never heard of it
- Heard of it but have not seen appropriate patients to use it
- Heard of it but have not used it
- Have used it once or occasionally
- Use it routinely
I have received satisfactory training on how to engage patients with shared decision-making.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

I feel competent engaging patients in shared decision-making, when clinically appropriate.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree
I feel more knowledgeable about the benefits of shared decision-making than I felt prior to watching the educational video.

- Strongly Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Before starting a patient on a statin for primary prevention, I will use a decision aid (such as Statin Choice Decision Aid), to facilitate a discussion with the patient.

- Never
- Sometimes
- About half the time
- Most of the time
- Always

I have used the Statin Choice Decision Aid with at least one of my patients, in the past 2 weeks.

- Yes
- No
Please select any barriers that would prevent you from using shared decision-making tools in your practice:

- [ ] Lack of time during appointments
- [ ] Lack of knowledge about shared decision-making tools
- [ ] Patients would not be interested
- [ ] I don't think shared decision-making tools are useful
- [ ] Other

Please provide any additional comments on shared decision-making or the educational video:
APPENDIX E

PARTICIPANT MATERIAL (EDUCATIONAL VIDEO SCRIPT)
Educational Video Script

“Shared decision-making (SDM) is a collaborative process between clinicians and patients to make medical decisions based on clinical evidence and the patient’s informed preferences. Recent cardiology guidelines, including those by the American Heart Association (AHA)/American College of Cardiology (ACC), recommend SDM for guiding decisions related to the initiation of statin therapy for primary prevention of CVD. One innovative approach to improve the practice of SDM is to leverage informatics to implement decision aids. These are tools that can make it easier for patients to make informed choices and are intended to help them actively participate in decisions that involve weighing the benefits and harms of treatment options.

For this presentation, I will be discussing the Mayo Clinic Statin Choice Decision Aid: an online calculator for outpatient use to facilitate discussion on the appropriateness of statins for patients to reduce cardiovascular risk. This tool is designed for use during your visit with patients and has been shown to improve knowledge transfer and reduce decisional conflict. It is available in English, French, Spanish, Chinese, and Arabic.

To demonstrate its use, we will go through a patient case study. This decision aid allows you to choose between the well-known ACC/AHA ASCVD, Framingham, or Reynolds risk calculators. For this presentation, we will utilize the ACC/AHA ASCVD risk calculator. The online calculator first estimates the patient’s 10-year current risk for atherosclerotic cardiovascular disease (ASCVD). One can input the patient’s age, gender, population group, whether they’re a current smoker, have diabetes, or have systolic blood pressure. The calculator also asks for current SBP, HDL cholesterol, and total cholesterol measurements, and whether the patient is on a current statin medication. This estimation is given as a proportion - for example ‘Over 10 years, the current risk of having a heart attack for 100 people like you who do not medicate for heart problems is 16 people’.

The next section estimates the future risk of having a heart attack if the intervention of a statin is added: for example, ‘Over 10 years, the current risk of having a heart attack for 100 people is 12 people will have a heart attack, 84 people will have no heart attack, 4 people will be saved from a heart attack by taking medicine’.

The next section of the decision aid discusses issues, or benefits vs downsides, of beginning statin therapy. Cost, daily routine, side effects, and additional benefits are included. For example: standard dose statins cost about $4/month, with a daily routine of one pill once a day. Common side effects that most patients can tolerate are nausea, diarrhea, and constipation. Some may need to stop statins because of muscle aching/stiffness (5 in 100 patients) or increased liver blood tests, causing no pain but may lead to permanent liver damage (2 in 100 patients). Lastly, muscle and kidney damage requires patients to discontinue statins (1 in 20,000 patients). Additional benefits of standard dose statins include about one-fifth reduction of stroke risk.
The Statin Choice Decision Aid remains underused despite randomized clinical trials supporting its efficacy and despite guideline recommendations. A patient’s specific situation and context must be considered in health decision-making. As providers, we should ensure discussion of our patients’ values and goals through the process of shared decision-making, because although evidence-based research may deem an intervention as safe and effective, it may not be consistent with a patient’s particular experience.

SDM is the clinical interaction at the core of patient-centered care, meaning care that is respectful of and responsive to individual patient preferences, needs, and values, which was identified by The Institute of Medicine in 2001 as a key goal for improving the quality of healthcare in the US. As electronic health records (EHRs) evolve, hopefully, decision aids such as this one by Mayo Clinic can be directly integrated to reduce manual clicking and enhance ease of use.”

Case study: This is a 55-year-old Caucasian male who has no prior history of diabetes or CVD. He is a former smoker (stopped more than 1 year ago). No current medications. Systolic blood pressure is 132 mmHg, total cholesterol 140 mg/dL, HDL 23 mg/dL, LDL 72mg/dL.

10-year risk >= 7.5%

“I have used a decision aid to share decision-making with the patient about interventions to reduce the risk of coronary events. We estimated the patient's 10 years of atherosclerotic events at 8% and discussed how this risk could be reduced with the use of statins to 5%. After considering the patient's unique circumstances and the pros and cons of the alternatives, we have decided to...”

Link to video: https://youtu.be/m2jeaJUYtNM
APPENDIX F

PROJECT TIMELINE
<table>
<thead>
<tr>
<th>Completion Date</th>
<th>Planning</th>
<th>Pre-implementation</th>
<th>Implementation</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 10, 2023</td>
<td>Submit final draft of project proposal to committee chair</td>
<td>Complete DNP project proposal presentation</td>
<td>Defend DNP project proposal</td>
<td>Apply revisions to DNP project proposal</td>
</tr>
<tr>
<td>June 1, 2023</td>
<td>Prepare forms and content needed for implementation</td>
<td>Review applicability of implementation measures</td>
<td>Obtain site approval</td>
<td>Review requirements for implementation</td>
</tr>
<tr>
<td>June 13, 2023</td>
<td>Prepare methods of implementation</td>
<td>Review IRB application with committee</td>
<td>Submit IRB application paperwork and receive IRB determination</td>
<td>Review recruitment and intervention forms</td>
</tr>
<tr>
<td>July 18, 2023</td>
<td>Record educational video for intervention</td>
<td>Review data collection methods</td>
<td>Send email containing link to pre-survey and educational video to potential participants</td>
<td>Review data</td>
</tr>
<tr>
<td>August 1, 2023</td>
<td>Identify method for organization and analysis of data</td>
<td>Review data analysis method</td>
<td>Send follow-up email containing link to post-survey to participants</td>
<td>Organize data for analysis</td>
</tr>
<tr>
<td>October 18, 2023</td>
<td>Complete data analysis and summary</td>
<td>Integrate data analysis into results, discussion, and implications for future practice</td>
<td>Send final project paper to committee chair</td>
<td>Schedule presentation date</td>
</tr>
<tr>
<td>November 7, 2023</td>
<td>Prepare and adjust project presentation</td>
<td>Complete final project paper and presentation</td>
<td>Present final defense to committee members</td>
<td>Review feedback for future research</td>
</tr>
</tbody>
</table>
APPENDIX G

LITERATURE REVIEW GRID
Project Question: Do providers at a primary care clinic in Tucson, Arizona who receive educational information on a statin decision aid for primary prevention of CVD, demonstrate increased awareness, confidence, and intent to inform patients between 40 and 75 years of age of the use and rationale for statins in the management of CVD risk?

<table>
<thead>
<tr>
<th>Pub. Year; Author’s Last Name</th>
<th>Title of Publication</th>
<th>Type of Study</th>
<th>Main Outcomes of Findings</th>
<th>Support for and or Link to Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arnett et al. (2019).</td>
<td>2019 ACC/AHA guideline on the primary prevention of cardiovascular disease: Executive summary: A report of the American College of Cardiology/American Heart Association Task Force on clinical practice guidelines</td>
<td>Systematic review</td>
<td>Decisions about primary prevention of CVD should be collaborative between a clinician and a patient SDM about personalized risk estimates and perceived benefits of preventive strategies helps to address potential barriers to treatment options, compared with treatment offered without patient input</td>
<td>SDM enhances patient adherence to recommendations for primary prevention of CVD</td>
</tr>
<tr>
<td>Backman et al. (2020).</td>
<td>Shared decision-making for older adults with cardiovascular disease</td>
<td>Systematic review</td>
<td>Assessment of goals of care in the outpatient setting are important prior to the initiation of a therapy Time is a challenge to SDM, with multiple medical issues to discuss in a limited clinical encounter time</td>
<td>Decision aids are rooted in the evidence base There are many questions about how to best incorporate SDM into routine clinical care</td>
</tr>
<tr>
<td>Brodney et al. (2021).</td>
<td>Patient preference distribution for use of statin therapy</td>
<td>Survey study</td>
<td>After reviewing personalized benefit and harm information, 51% or less for risk categories under 20% of 304 participants wanted statin therapy Providing patients with more information to make clinical decisions may decrease their eagerness for use of statin therapy There is a broad range of CVD risk to recommend SDM</td>
<td>SDM about statin therapy is appropriate for a relatively broad range of ASCVD risk</td>
</tr>
<tr>
<td>Pub. Year; Author’s Last Name</td>
<td>Title of Publication</td>
<td>Type of Study</td>
<td>Main Outcomes of Findings</td>
<td>Support for and or Link to Project</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------------</td>
<td>---------------</td>
<td>--------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Dembowski et al. (2022).</td>
<td>Guidelines for the management of hyperlipidemia: How can clinicians effectively implement them?</td>
<td>Systematic review</td>
<td>Patients who participate in SDM have been shown to have better health outcomes, better healthcare experiences, and lower costs. Decision aids can help increase patient understanding of treatment options and outcomes.</td>
<td>For patients with ASCVD but greater than 75 years of age, clinicians should engage in SDM prior to initiation or continuation of statin therapy. SDM aids and motivational interviewing are useful strategies to implement guidelines.</td>
</tr>
<tr>
<td>Jaspers et al. (2018).</td>
<td>Variation in minimum desired cardiovascular disease-free longevity benefit from statin and antihypertensive medications: A cross-sectional study of patient and primary care physician perspectives</td>
<td>Cross-sectional study</td>
<td>Meaningful statin and antihypertensive therapy for lifetime and 10 years of use was quantified in 400 primary care physicians and 523 patients. There is a discrepancy between perceived meaningful benefit and clinically attainable benefit. Myalgia frequency associated with statin use is considerably higher in observational studies compared with clinical trials.</td>
<td>Patient satisfaction with the expected benefit of an agreed upon statin therapy could be utilized in the SDM process. Both clinicians and patients may overestimate realistic therapy benefit.</td>
</tr>
<tr>
<td>Jhaveri et al. (2021).</td>
<td>Aspirin, statins, and primary prevention: Opportunities for shared decision making in the face of uncertainty</td>
<td>Systematic review</td>
<td>Decision aids have been adopted for primary prevention of CVD, but they have not been widely adopted. Statin therapy may be beneficial in patients with elevated CVD risk and high potential lifetime benefit.</td>
<td>Implementation of SDM and decision aids in routine clinical practice remains challenging but may increase soon. The Mayo Clinic Statin Decision Aid is reliable and meets IDPAS criteria.</td>
</tr>
<tr>
<td>Ju et al. (2018).</td>
<td>Patient beliefs and attitudes to taking statins: Systematic review of qualitative studies</td>
<td>Systematic review</td>
<td>Statin adherence rates are around 57% for primary and 76% for secondary prevention.</td>
<td>Transparent and informed SDM that addresses the risks and benefits, reasons for prescribing statins, strategies for managing the statin regimen, and patient goals may improve continuation of statins in patients at high risk of CVD.</td>
</tr>
<tr>
<td>Pub. Year; Author’s Last Name</td>
<td>Title of Publication</td>
<td>Type of Study</td>
<td>Main Outcomes of Findings</td>
<td>Support for and or Link to Project</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Nanna et al. (2023).</td>
<td>Primary prevention statin therapy in older adults</td>
<td>Systematic review</td>
<td>Available evidence reflects a clear treatment benefit for primary prevention statin therapy up to age 75 ACC/AHA provides a class I recommendation for statin treatment in adults up to 75 years with LDL-C at least 190 mg/dL, diabetes mellitus, or a 10-year CVD risk of at least 7.5% USPSTF provides a Grade B recommendation to offer statin treatment to adults aged 40–75 years with one or more cardiovascular risk factors and an estimated 10-year cardiovascular disease risk of at least 10%</td>
<td>Any decision for statin therapy should begin with a comprehensive CVD risk assessment Clinicians and patients must weigh the net benefit of primary prevention statins by balancing an individual's potential benefits, including lower cardiovascular risks and avoiding burdensome hospitalizations, with the potential harms from treatment that may result from polypharmacy and side effects</td>
</tr>
<tr>
<td>Nguyen et al. (2021).</td>
<td>Availability and use of number needed to treat (NNT) based decision aids for pharmaceutical interventions</td>
<td>Systematic review</td>
<td>Various NNT-based decision aids exist</td>
<td>Mayo Clinic Statin Decision Aid efficacy has been proven in clinical settings</td>
</tr>
<tr>
<td>Pergolizzi et al. (2020).</td>
<td>Statins and muscle pain</td>
<td>Narrative review</td>
<td>Muscle pain caused by statins is difficult to quantify During SDM, clinicians may find some patients view statins as more dangerous than their risk for heart disease</td>
<td>SDM can help clinicians make therapeutic adjustments to find a tolerable statin regimen</td>
</tr>
</tbody>
</table>
REFERENCES


