

PRIMARY CARE INTERVENTIONS TO INCREASE LIFESTYLE MODIFICATION
EDUCATION FOR HYPERLIPIDEMIA PATIENTS

by

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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

2024

THE UNIVERSITY OF ARIZONA
GRADUATE COLLEGE

As members of the DNP Project Committee, we certify that we have read the DNP project prepared by Kendall Ryan Moeller, titled Primary Care Interventions to Increase Lifestyle Modification Education for Hyperlipidemia Patients, and recommend that it be accepted as fulfilling the DNP project requirement for the Degree of Doctor of Nursing Practice.



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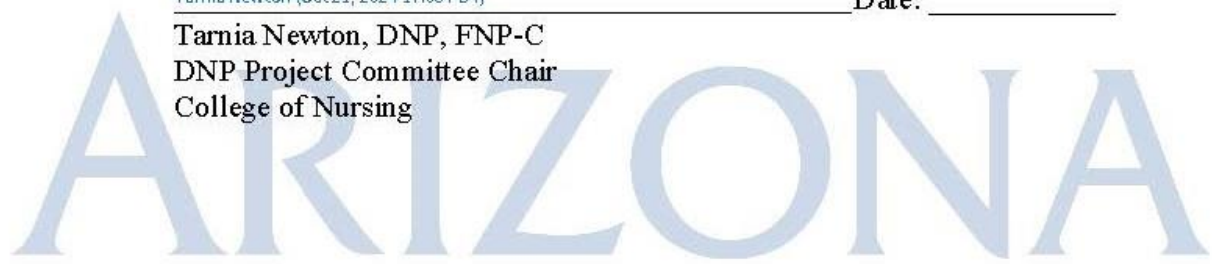
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Final approval and acceptance of this DNP project are contingent upon the candidate's submission of the final copies of the DNP project to the Graduate College.

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.



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LAND ACKNOWLEDGEMENT

We respectfully acknowledge the University of Arizona is on the land and territories of Indigenous peoples. Today, Arizona is home to 22 federally recognized tribes, with Tucson being home to the O'odham and the Yaqui. Committed to diversity and inclusion, the University strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service.

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ABSTRACT

Purpose: This Quality Improvement Project aimed to enhance lifestyle and dietary education for patients with hyperlipidemia at Benson Family Health Center through provision of take-home educational handouts and dietician referrals.

Background: Hyperlipidemia significantly contributes to prevalence of heart disease and stroke, which are the leading and fifth leading causes of death in United States, respectively (Centers for Disease Control and Prevention [CDC], 2023). Approximately 86 million American adults over 20 years old have cholesterol levels exceeding 200 mg/dL, yet less than half receive appropriate treatment (CDC, 2023). Alarmingly, about 10% of adults have cholesterol levels above 240 mg/dL, 17% have HDL (high-density lipoprotein) levels under 40 mg/dL (CDC, 2023).

However, studies have shown that behavior modification, including dietary changes, medication, exercise, and comprehensive risk factor management, can potentially slow, stop, or reverse atherosclerotic cardiovascular disease progression (Franklin, 2020).

Methods: This quality improvement project utilized four Plan-Do-Study-Act (PDSA) cycles over four weeks. Following institutional review board (IRB) approval, baseline data were collected through chart audits, which revealed a significant gap in care. Audits revealed no hyperlipidemia patients received any educational materials during their visit, only 10% were referred to dietitian, highlighting need for resources and standardized referral practices.

Intervention used during this project comprised: (1) implementation of standardized American Heart Association educational materials, (2) systematic documentation protocols for lifestyle counseling, and (3) streamlined dietician referral processes. Data collection occurred through weekly chart audits at conclusion of each PDSA cycle. Outcome measures included frequency of

handout distribution, documentation rates of lifestyle education, and frequency of dietician referrals. Pre and post-surveys were completed by single APRN participant to assess for practice changes upon completion of implementation.

Results: There was a significant increase in frequency of lifestyle and behavioral education and documentation of education given to patients with hyperlipidemia after implementing standardized educational pamphlets into practice. Frequency of education and documentation increased from 40% to 72% after PDSA cycles over one month. Additionally, there was a modest increase in dietary referrals from 10% to 12% over one-month intervention.

Conclusions: This initiative effectively increased education and documentation of non-pharmacological interventions related to hyperlipidemia, promoting healthier lifestyle choices with goal of improving overall health outcomes for BFHC patients. Further education is needed to explore long-term impact that providing these educational handouts on patient outcomes related to hyperlipidemia and cardiovascular health.

INTRODUCTION

Hyperlipidemia encompasses both genetic and acquired disorders characterized by elevated levels of lipids—fats, cholesterol, and triglycerides—in the bloodstream. These increased lipid levels can accumulate within arterial walls, escalating the risk of atherosclerosis and atherosclerotic cardiovascular disease (ASCVD), which in turn heightens the risk for stroke, heart attack, and amputation (Moneta, 2024). The risk of ASCVD is further compounded by smoking, diabetes, hypertension, and kidney failure (Moneta, 2024).

The National Lipid Association (NLA) underscores the importance of a patient-centered care approach in managing hyperlipidemia, which includes lifestyle and pharmacological therapies (Bays et al., 2014; Jacobson et al., 2015). Lifestyle modifications are critical in lowering total cholesterol, triglycerides, LDL cholesterol, and elevating HDL cholesterol, thereby aiding in ASCVD prevention (Riccardi, Costabile, & Rivelles, 2016). Although these recommendations are well-supported, research indicates a disparity between their endorsement and their implementation in clinical practice with numerous providers neglecting to address lifestyle modifications during patient visits (Franklin, Myers & Kokkinos, 2020). This has been attributed to many factors including lack of knowledge, hesitancy due to their own personal lifestyle habits, insufficient time, or lack of optimal reimbursement for such counseling (Franklin, Myers & Kokkinos, 2020). This project aimed to bridge this gap in a primary care setting by enhancing provider-patient education on lifestyle modifications, identifying barriers, providing specialty referrals, and offering resources that could be utilized by healthcare providers during the patient visits. The ultimate goal was to enhance the behavior modification

education patients receive during office visits regarding their hyperlipidemia in order to promote superior chronic disease management.

Background Knowledge and Significance

Cardiovascular disease remains the leading cause of mortality in the United States for both males and females, as reported by the CDC in 2023. The presence of high blood cholesterol (hypercholesterolemia) and hyperlipidemia significantly elevates the risk for heart disease and stroke, highlighting the gravity of this issue (CDC, 2023). The CDC estimates that over 86 million American adults aged 20 and older have total cholesterol levels exceeding 200mg/dL, with less than half receiving appropriate treatment (CDC, 2023). Moreover, nearly 10% of adults exhibit total cholesterol levels surpassing 240mg/dL (CDC, 2023). Additionally, between 2017 and 2020, 17% of American adults recorded low levels of high-density lipoproteins (HDL), commonly referred to as the "good" cholesterol, with levels below 40mg/dL (CDC, 2023). Despite these concerning statistics, significant strides have been made in recent decades in reducing the number of deaths attributed to myocardial infarction and stroke (Sorrentino, 2011).

According to America's Health Rankings (2024), in 2023, approximately 35% of adults residing in Arizona reported undergoing cholesterol checks and receiving notifications from healthcare professionals about elevated levels. Research indicates that nearly half of the reduction in coronary artery disease (CAD) deaths in the United States can be directly attributed to declines in major risk factors, including total cholesterol (24%), systolic blood pressure (20%), smoking (12%), and physical inactivity (5%) (America's Health Rankings, 2024). Additionally, population health, as highlighted by Franklin et al. (2020), is primarily managed through five key domains: genetic predisposition, social circumstances, environmental exposure, behavioral

patterns, and access to quality healthcare. This research underscores the significant impact of modifying unhealthy lifestyle behaviors, which accounts for approximately 40% of all deaths in the United States (Franklin et al., 2020). In congruency with these five key domains, recent studies have proposed that behavior modification, encompassing dietary changes, medication, exercise, and comprehensive risk factor management, especially smoking cessation, can potentially slow, stop, or even reverse the progression of atherosclerotic cardiovascular disease (Franklin et al., 2020).

Local Problem

The Benson Family Health Center (BFHC) was opened in 2018 as a part of the Chiricahua Community Health Centers. BFHC is a Federally Qualified Health Center (FQHC) system. FQHCs are federally funded, nonprofit health centers that serve medically underserved populations regardless of a patient's ability to pay (Rural Health Information Hub, 2024). Benson Family Health Center provides a wide array of services including comprehensive adult healthcare, pediatric care, a fully equipped medical laboratory, pharmacy services, integrated behavioral health support, substance use counseling, dietitian services, and assists with insurance enrollment. It is located in the rural, medically underserved community of Benson, Arizona (CCHCI, 2024). It is imperative that medically underserved populations like Benson still have access to quality healthcare. Research indicates that individuals residing in rural communities are at a higher likelihood of encountering certain social determinants of health (SDOH) barriers. Social determinants of health (SDOH) are conditions in people's environment where they were born, live, learn, work, play, worship, and age that have a major impact on people's health, well-being, and quality of life (U.S. Department of Health and Human Services, n.d.). Research by

Jacobson et al. (2015) investigated the relationship between SDOH and ASCVD risk and found that there was in fact an increased risk of ASCVD associated with SDOH barriers. These primary barriers were specifically, low income, inadequate access, lack of health insurance, low educational attainment, and geographic region (Jacobson et al., 2015). Given the increased susceptibility of Benson's population to ASCVD (Rural Health Information Hub, 2023), healthcare centers in the area should focus on providing targeted patient education regarding risk reduction.

However, a gap in healthcare has been identified where providers frequently overlook discussions regarding behavioral and lifestyle adjustments during the care and assessment of patients with hyperlipidemia (Franklin, Myers & Kokkinos, 2020). This deficiency often stems from the limited time allocated for each patient encounter (Franklin, Myers & Kokkinos, 2020). Currently, BFHC lacks a standardized informational handout to educate patients on lifestyle modification factors aimed at reducing total cholesterol, triglycerides, and LDL levels. Introducing a standardized educational handout to all eligible patients would assist providers in delivering crucial lifestyle modification strategies to reduce their ASCVD risk, thereby enhancing patient outcomes.

An interdisciplinary approach was utilized by leveraging the expertise and collaboration of various key stakeholders, including advanced practice providers (APRNs), medical assistants (MAs) and dietitians. Through this multidisciplinary effort, the project aimed to integrate diverse perspectives and skills to optimize patient care, enhance communication, and implement comprehensive interventions tailored to address patient's multifaceted needs.

Upon conducting a comprehensive chart audit encompassing 50 patients over a span of two and a half weeks, a gap in care was identified regarding the management of hyperlipidemia at BFHC. Of the 50 patients, 0% received educational handouts aimed at supporting the adoption of beneficial lifestyle and dietary changes to improve their condition. Additionally, only 10% of the patients were referred to a dietitian, indicating a significant gap in the provision of nutritional guidance. The chart audit found that a substantial portion, accounting for 40% of the sample (n=50), either were already prescribed or were newly initiated onto statin therapy. This highlighted the reliance on pharmacological interventions and the lack of promotion of first-line lifestyle interventions. However, a similar percentage of patients, 40%, did have documentation of lifestyle and dietary education in their charts, reflecting a modest attempt at holistic management. This audit highlighted the urgent need for improved patient education and comprehensive lifestyle interventions to complement pharmacotherapy in the management of hyperlipidemia at BFHC.

Intended Improvement

Project Purpose

The purpose of this quality improvement (QI) project was to enhance the frequency of patient education and encourage practice change by distributing standardized educational handouts outlining lifestyle and dietary modifications for patients diagnosed with hyperlipidemia in Benson, Arizona. Patients qualifying for this intervention were identified based on specific lab values of one or more of the following: total cholesterol (TC) >200, triglycerides (TG) >150, HDL<50, or LDL>100. The educational handout was intended to aid primary care providers

(PCPs) in addressing the challenges of offering essential lifestyle modification education during office visits to assist in the management and prevention of hyperlipidemia.

Project Question

Will primary care providers (PCPs) who participate in the QI project demonstrate higher rates of educational handout dissemination, lifestyle modification documentation and increased dietician referrals within Benson Family Health Center?

Project Objectives

1. Enhance the understanding of providers and healthcare staff regarding the importance of lifestyle and behavioral modification interventions in reducing, preventing, and managing patients with hyperlipidemia.
2. Staff members at BFHC will distribute an American Heart Association (AHA) standardized educational handout to all patients diagnosed with hyperlipidemia based on specific lab values: total cholesterol (TC) >200, triglycerides (TG) >150, HDL<50, or LDL>100.
3. Monitor and evaluate the effectiveness of the intervention by tracking the frequency of providing handouts, documentation of diet and lifestyle education and the number of referrals placed for dietitian consultations.

Theoretical Framework

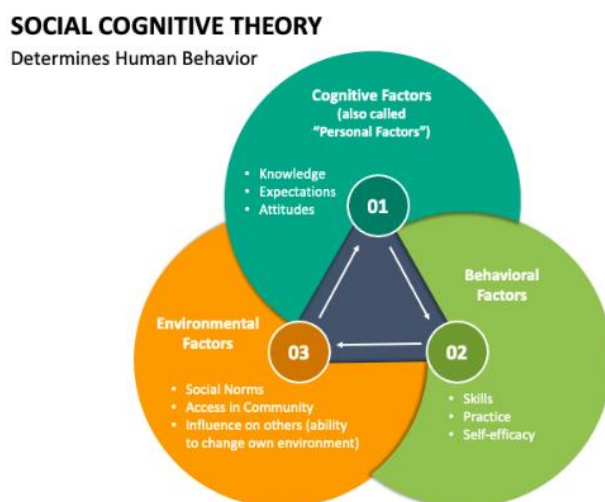
Social Cognitive Theory (SCT)

This project was aimed at incorporating increased diet and lifestyle modification education into the treatment of dyslipidemia in the primary health care (PHC) setting. The research shows that effective lifestyle modification is based on the understanding of numerous

social, cultural, and economic factors that substantially impact an individual's development of healthy behavior patterns (Islam et al., 2022). However, it is not always easy to implement and interpret the success of health promotion and prevention programs like this at the PHC level (Islam et al., 2022). Therefore, it is crucial to identify a theoretical framework that identifies methods for optimal intervention implementation that considers SDOH.

Figure 1

Social Cognitive Theory



The chosen theoretical framework for this project was Albert Bandura's Social Cognitive Theory (SCT), a widely recognized and applicable theory in health promotion practices (Islam et al., 2022). The SCT comprises key constructs such as observational learning, self-efficacy, behavioral capability, reinforcement, and self-control (Islam et al., 2022). These key constructs are aimed at identifying the dynamic interaction among an individual's behavior, environmental determinants, and personal cognitive factors, as highlighted by McAllister, Perry, and Parcel (2008). According to the SCT, an individual's learning is influenced not only by their own

experiences but also by their observations of others' behavior and the associated outcomes (Islam et al., 2022).

Behavioral Factors

Behavioral factors that influence an individual's readiness to change encompass skills, practice, and self-efficacy (Islam et al., 2022). By implementing a program focused on building patients' self-efficacy through the provision of take-home handouts encouraging healthy diet and activity, behavior change within the primary health care setting can be heightened. Strategies to implement a program like this include realistic and individualized goal setting, self-monitoring, overcoming barriers through problem-solving, enhancing social support, and rewarding oneself upon achieving set goals (Islam et al., 2022). Patients received an educational handout during their primary care visit intended to increase feelings of support and knowledge regarding their personal management of hyperlipidemia. Additionally, the provider was encouraged to offer dietician referrals where patients would have the opportunity to develop personalized goals that align with the hyperlipidemia dietary guidelines. These interventions were aimed at increasing confidence in patients' understanding of appropriate lifestyle and behavioral modification techniques to reduce ASCVD risk and enhance their overall health.

Environmental Factors

Environmental factors include social norms, access to healthcare, living conditions, access to high-quality food, transportation options, and cultural practices within a community (Islam et al., 2022). Influencing behavior through environmental change is known as facilitation (Bandura, 1998). Facilitation is the provision of new structures or resources that enable behaviors or make them more feasible (Bandura, 1998). Benson Family Health Center (BFHC)

provides the critical resource of access to healthcare for its community through mobile clinics, telehealth services, and in-person office visits. BFHC has a large population of low-income patients who utilize Arizona Health Care Cost Containment System (AHCCCS), a federal health care program jointly funded by the federal and state governments to provide health insurance for the low-income population (AHCCCS, 2024). BFHC positively impacts the environmental factors of community, support, access, and resources for this population. One key environmental characteristic that promotes positive behavior change is the clinic's central location within the community. The centralized location helps to mitigate factors related to limited transportation and access. Additionally, BFHC also provides telehealth services, home-visits, and a mobile clinic for its patients with limited means of transportation or support. This project further enhanced available resources to target environmental factors by supporting access to healthy food options through the provision of a handout outlining local healthy food resources within the community.

Cognitive Factors

Cognitive factors include age, gender, personal experiences, knowledge, expectations, and attitudes (Islam et al., 2022). These factors can influence an individual's goals and plan of care both positively and negatively. For instance, an older adult who is satisfied with their health and lifestyle habits may be treated less aggressively in terms of behavioral modifications compared to a young or middle-aged adult with a longer life expectancy. However, all patients who meet the inclusion criteria will still be offered a handout and option to work with a dietician and create a patient-centered plan of care with the provider. It is important to identify the unique

goals and expectations of each patient to ensure the provider and the patient feel satisfied with the care provided and the outcomes achieved.

Literature Synthesis

Evidence Search

The literature search was conducted using the Arizona Health Sciences Library (AHSL), specifically, the two academic databases of PubMed and CINAHL. The key words used during this search included: “hyperlipidemia education”, “hyperlipidemia”, and “hyperlipidemia education in primary care.” A search of the literature was conducted on the two academic databases, where PubMed generated over 100,000 results between 2015 and 2024 and CINAHL generated 23. To further narrow down the search results, terms including “lifestyle modification” and “hyperlipidemia guidelines” were utilized. Medical subject headings (MeSH) were implemented, and search terms included “diet” [MeSH] “lifestyle modification” AND [MeSH] OR “education” [MeSH]. The articles selected to be included in this research synthesis were published between 2015-2024, apart from Sorrentino et al. (2011), which contained pertinent information regarding the topic.

Inclusion criteria included articles that were written in English, had full-text availability, were peer-reviewed, and were published within the last ten years. Exclusion criteria consisted of articles published prior to 2015 and articles that exclusively focused on pharmacological treatment of hyperlipidemia. A sum of eight articles were selected for inclusion between the databases of PubMed, CINAHL and Google Scholar. The selected articles consisted of three systematic reviews, two retrospective cohort studies, one randomized control trial and two literature reviews. The literature review table is found in Appendix H.

Comprehensive Appraisal of Evidence

Guideline Implementation into Practice

Hyperlipidemia guidelines are not only important for providers to be familiar with but are crucial to be applied consistently into clinical practice as recommended to reduce patients' risks of ASCVD. The current American Heart Association (AHA) and American College of Cardiology (ACC) guidelines recommend early intervention and healthy lifestyle modifications as the first-line intervention for all patients with dyslipidemia regardless of drug therapy (Jacobson et al., 2015; Lemp et al., 2020). However, the research shows this is not being properly implemented into practice (Jacobson et al., 2015; Lemp et al., 2020). Approximately 45% of individuals with a diagnosis of hyperlipidemia were recorded as having lifestyle modification support within a two-year time frame of their diagnosis (Lemp et al., 2020). Additionally, only 19% of individuals were recorded as having any lifestyle support prior to their diagnosis (Lemp et al., 2020). This data indicates that providers often overlook the recommendation for early first-line therapy of lifestyle and behavior modifications, opting instead for pharmacologic therapies or failing to implement therapy at all.

Lifestyle and behavior modifications include incorporating a healthy diet, increased physical activity, smoking cessation, and reducing BMI (Franklin, Myers & Kokkinos, 2020; Lemp et al., 2020). The AHA handout distributed highlighted the risks of CVD, promoted eating a heart-healthy diet, making time to exercise, eliminating tobacco and alcohol, managing weight, and regularly seeing a healthcare provider (AHA, 2022). Within the AHA handout, the recommended diet consisted of increased fruits, vegetables, whole grains, legumes, nuts, fish, seafood, and poultry. It also promoted limiting sugary drinks and full-fat dairy products.

Additionally, the handout recommended 150 minutes per week of moderate-intensity physical activity or 75 minutes of vigorous physical activity. Keshani et al. (2023) found that patients who solely adopted therapeutic heart-healthy diets revealed a significant reduction in total cholesterol, triglycerides, and LDL along with an increase in HDL. Therefore, it is necessary to reinforce to providers the significant influence lifestyle modifications can have on lipoprotein levels and decreasing CVD morbidity and mortality rates for patients.

Patient Adherence

Patient adherence is pivotal in managing hyperlipidemia and reducing ASCVD events. There are many factors that influence patient adherence to lifestyle modification therapy. Some of these factors include cost, access to healthcare, and socioeconomic status (Jacobson et al., 2015; Riccardi, Costabile, & Rivelles, 2016). Additionally, evidence suggests that due to the asymptomatic nature of the disease, patients are less motivated to improve their cholesterol levels (Ismail, Redzuan, & Wen, 2022).

Increased patient adherence is feasible, however, through the implementation of sufficient education, counseling, and follow-up by providers and clinical staff members (Ismail, Redzuan, & Wen, 2022). A systematic review done by Ismail, Redzuan, and Wen (2022), found a significant enhancement of physical activity, consumption of healthy foods, self-monitoring frequency, medication adherence, self-care activities, and smoking status by utilizing a rapid reward system rather than the potential of long-term rewards, such as their overall health outcomes. Additional studies found that adherence to lifestyle modification interventions and lowered blood cholesterol levels were improved by receiving standard advice given by providers (Sialvera et al., 2018). The National Lipid Association (NLA) (2015) recommendations further

emphasize a patient centered approach to dyslipidemia management through shared decision-making regarding goals, potential benefits of therapy, risks, side effects and associated costs (Bays et al., 2014; Jacobson et al., 2015). This approach recognizes SDOH barriers patient's may face to increase their long-term adherence to healthy lifestyle modifications and improve outcomes.

Multidisciplinary Approach

The successful approach to dyslipidemia management through lifestyle and behavior modification requires adequate time, support, and education for both the patient and the provider. A literature review done by Franklin et al. (2020), found that a common barrier to providers offering sufficient education and support to patients were the time restraints within clinical practice. Most practices have productivity standards limiting them to 15-30 minutes per patient during the day, which is often an insufficient amount of time to discuss lifestyle modification therapy in enough depth for long-term adherence. Although we cannot change the productivity standards of healthcare today, we can implement tactics to utilize the time providers do have to their advantage. One strategy that demonstrated a positive impact in eliciting behavior change was through the utilization of motivational interviewing (MI) performed by certified nurse practitioners and physicians complemented with visual handouts to enhance communication (Ismail, Redzuan, & Wen, 2022). MI uses specific techniques including reflective listening, standard decision making, and eliciting change talk (Ismail, Redzuan, & Wen, 2022).

Additionally, a study done by Sialvera et al. (2018), found patients who were provided structured counseling by dieticians had significantly improved dietary habits, physical activity, and increased plant sterol intake over a longer-term compared to patients who received standard

advice by the provider alone. A multidisciplinary team approach utilizes a combination of healthcare professionals to plan, manage, and coordinate patient's care together. By employing a team approach to dyslipidemia management, healthcare workers are more likely to offer substantial, patient-centered support aimed at long-term healthy lifestyle changes and improved overall health outcomes.

Strengths of Evidence

The current evidence review had several key strengths. Among the eight sources, six explicitly discussed the large total sample sizes ($n=200+$) which provided increased confidence in the final results (Franklin et al., 2020; Ismail, Redzuan, & Wen, 2022; Keshani et al., 2023; Lemp et al., 2020; Massini et al., 2022; Riccardi, Costabile, & Rivelles, 2016). Additionally, the evidence synthesized from the three systematic reviews came from randomized control trials (RCTs) with large sample sizes (20+ trials), where the samples were randomly selected to avoid bias and increase confidence in the results (Ismail, Redzuan, & Wen, 2022; Keshani et al., 2023; Riccardi, Costabile, & Rivelles, 2016). Bias was also avoided in one study by narrowing the age range and eliminating external drugs and supplementary foods (Massini et al., 2022).

The systematic reviews and meta-analysis supporting lifestyle modification education as first-line treatment for hyperlipidemia attained the highest evidence, determined by the PRISMA quality assessment grading tool (Ismail, Redzuan, & Wen, 2022; Riccardi, Costabile, & Rivelles, 2016). Additionally, the use of high-quality databases including PubMed, CINAHL, and Google Scholar were utilized in the evidence search of the three systematic reviews and the two literature reviews (Franklin et al., 2020; Ismail, Redzuan, & Wen, 2022; Jacobson et al., 2015; Keshani et al., 2023; Riccardi, Costabile, & Rivelles, 2016). All eight articles concurred that in

the clinical setting, patient-centered care was a fundamental principle that was crucial to delivering high quality, personalized patient care, aimed at encouraging optimal health outcomes (Franklin et al., 2020; Ismail, Redzuan, & Wen, 2022; Jacobson et al., 2015; Keshani et al., 2023; Lemp et al., 2020; Massini et al., 2022; Riccardi, Costabile, & Rivelles, 2016; Sialvera et al., 2018). The consistent findings among all the high-quality articles further validated the findings and enhanced the confidence in their implementation into clinical practice.

Of the studies in this literature synthesis, they all utilized corroborated hyperlipidemia guidelines and recommendations provided by either the NLA, ACC, or AHA (Franklin et al., 2020; Ismail, Redzuan, & Wen, 2022; Jacobson et al., 2015; Keshani et al., 2023; Lemp et al., 2020; Massini et al., 2022; Riccardi, Costabile, & Rivelles, 2016; Sialvera et al., 2018).

Additionally, the literature review by Jacobson et al. (2015) explicitly utilized a standardized grading criteria to discuss the quality of evidence rating for each recommendation in an effort to promote standardized clinical decision making.

Weaknesses of Evidence

Nevertheless, some of the studies utilized in the systematic reviews were of poor quality because neither the study population nor the study investigators were blinded (Keshani et al., 2023). This increased the potential risk of bias to occur. However, in practice, conducting double-blinded dietary interventions are almost infeasible as the participant cannot be blinded. Additionally, in certain studies, the interpretation of results could have been affected by the absence of a control group (Massini et al., 2022).

The two literature reviews included in the synthesis have an increased risk of bias and opinion based on the hierarchy of evidence. Furthermore, the review conducted by the NLA

raised concerns regarding a heightened risk of bias related to consulting fees they received from many large medical corporations within 12 months leading up to the publication of the article (Jacobson et al., 2015).

Finally, the results of the retrospective cohort study and the systematic review and meta-analysis both showed substantial heterogeneity making the data less generalizable to the public (Keshani et al., 2023; Lemp et al., 2020). However, both reviews had large sample sizes, n=38,221 and 34 clinical trials, respectively, which allowed for a greater interpretation and utilization of the data (Keshani et al., 2023; Lemp et al., 2020).

Gaps and Limitations

A limitation was found in utilizing Electronic Health Records (EHRs) as the primary data source for analysis. Many of the studies relied on EHRs to gather data to determine the percentage of patients who received lifestyle modification education in primary care (Ismail, Redzuan, & Wen, 2022; Keshani et al., 2023; Lemp et al., 2020). This can be a limitation as the analysis of the data from an EHR is only able to capture what is explicitly recorded. Therefore, it is possible that the lifestyle modification education was being provided but not appropriately documented, potentially resulting in an underestimation of rates of lifestyle and behavior modification education in primary care (Lemp et al., 2020). The underestimation could also have been correlated to factors including patient refusals or provider/dietician shortages in the area (Lemp et al., 2020).

Another potential gap identified in the literature was the lack of specificity denoted to duration, quality, and quantity of physical activity in much of the literature. While all the studies found that increased/regular physical activity was beneficial, most of them failed to identify what

increased/regular physical activity specifically referred to within the adult lifespan. The literature review, conducted by Jacobson et al. (2015), was the primary review that defined physical activity including quantity and quality across the lifespan and addressing distinctions among different ethnic, racial, and sex groups.

A final limitation found among the literature was the failure to recognize the long-term adherence or economic costs related to lifestyle changes (Ismail, Redzuan, & Wen, 2022; Lemp et al., 2020; Massini et al., 2022; Riccardi, Costabile, & Rivelles, 2016; Sialvera et al., 2018). The study conducted by Sialvera et al. (2018) defined long-term treatment as lasting twelve weeks and short-term adherence as lasting six weeks to draw their conclusions. However, six to twelve weeks might be considered too brief to effectively assess any real long-term adherence measures and the costs associated with diet and lifestyle changes.

METHODS

Project Design

The aim of this project was to increase the percentage of patients with hyperlipidemia who received lifestyle and behavior modification education, increase the documentation of education provided, and increase dietician referrals at Benson Family Health Center (BFHC). This was achieved by providing an AHA take-home handout as a resource to enhance patient education regarding nonpharmacologic hyperlipidemia management strategies. The design involved the implementation of pre and post chart audits to assess the documentation of patients with hyperlipidemia. Additionally, pre and post surveys were included in the design to determine the provider's perceived rates of lifestyle modification education and documentation, reasons for not providing/documenting the education, and willingness to use a handout as a resource. The

patients who qualified for the intervention either had a documented diagnosis of hyperlipidemia in their medical records or exhibited current laboratory values indicating a new diagnosis of hyperlipidemia. The laboratory values that were utilized to identify a patient as having hyperlipidemia in this study included total cholesterol >200, triglycerides >150, HDL <50, LDL >100.

Chart audits were completed and examined to determine if pamphlets were given and if education was documented regarding lifestyle and behavior modification within the plan of care. By providing standardized educational handouts to qualifying patients consisting of lifestyle and dietary modification practices, there was a significant improvement in the frequency of education offered regarding nonpharmacological therapies provided to these patients. The outcome measures were quantified through the frequency of handout distribution, documentation of lifestyle and behavior education, and number of dietary referrals completed during each qualifying visit. The standardized educational handout was taken directly from the American Heart Association. It was a simple, easy to read, one page document discussing ASCVD risks and prevention methods through lifestyle and dietary changes. The goal was to provide a supplementary resource to staff and providers at BFHC that would improve existing methods of hyperlipidemia management education. Additionally, a handout that highlighted the healthy and affordable food resources available in and around Benson was also given. This handout aimed to address the SDOH barriers of inadequate access and healthy food options that were prevalent in the local area. The handouts were used to enhance patient knowledge and understanding of their own risks and optimal healthy lifestyle practices while encouraging providers to have more conversations regarding the nonpharmacologic management strategies of hyperlipidemia.

Model for Implementation

Plan-Do-Study-Act (PDSA) Cycle

The quality improvement method utilized was the Plan-Do-Study-Act (PDSA) model. The PDSA model is a four-step iterative method that reinforces practice change to encourage continuous process improvements. Each step of the cycle is designed to systematically test interventions to achieve desired quality improvement outcomes. This project included four PDSA cycles over the course of one month, each lasting one week.

Plan

The Director of Advance Practice-Adult and Family Medicine for Chiricahua Community Health Centers (CCHC) identified a need to refocus the clinic on improving quality measures for patients facing SDOH barriers, which are especially prevalent in rural communities like Benson. The Project Director (PD) communicated with the CCHC director after identifying a gap in clinical practice related to the management of hyperlipidemia in primary care at BFHC. Next, a plan was created to implement a project that aligned with the ACA and NLA guidelines. The goals and purpose of the project were discussed with the medical staff at BFHC, including MAs, providers, and management. Feedback was gathered from these discussions to refine the plan and objectives prior to implementation. The medical staff was informed of the objectives of the intervention, how the implementation would take place, and how the results would be analyzed.

Do

The second step involved implementing the plan developed in the previous step. Handouts were introduced to the MA and provider and placed in a central location identified by the staff. Additionally, a pre-survey was given to the participating nurse practitioner. The survey

was completed prior to the project initiation. PDSA cycles are iterative models for testing change and improving processes, therefore, the project included multiple trials to reach the positive results. The intervention consisted of four cycles where changes were made based upon evaluating the results of the preceding cycle and making adjustments to the intervention for each of the following cycles.

Study

After implementing the changes, the third step in the process consisted of studying and analyzing the results. This step included the collection and evaluation of the results and outcomes of the intervention. The data consisted of chart audits and survey results, where data was inserted into a Microsoft Excel spreadsheet. Data was gathered each week at the conclusion of each PDSA cycle through chart audits. Changes were made each week based on the data collected in the previous cycle. At the end of the four PDSA cycles, the side-by-side results portrayed what went well, what didn't, and why. These results were placed in a table and a run chart which facilitated the identification of trends and allowed for a comparison of measures after each PDSA cycle. This diagram helped to visualize the intervention's impact over time.

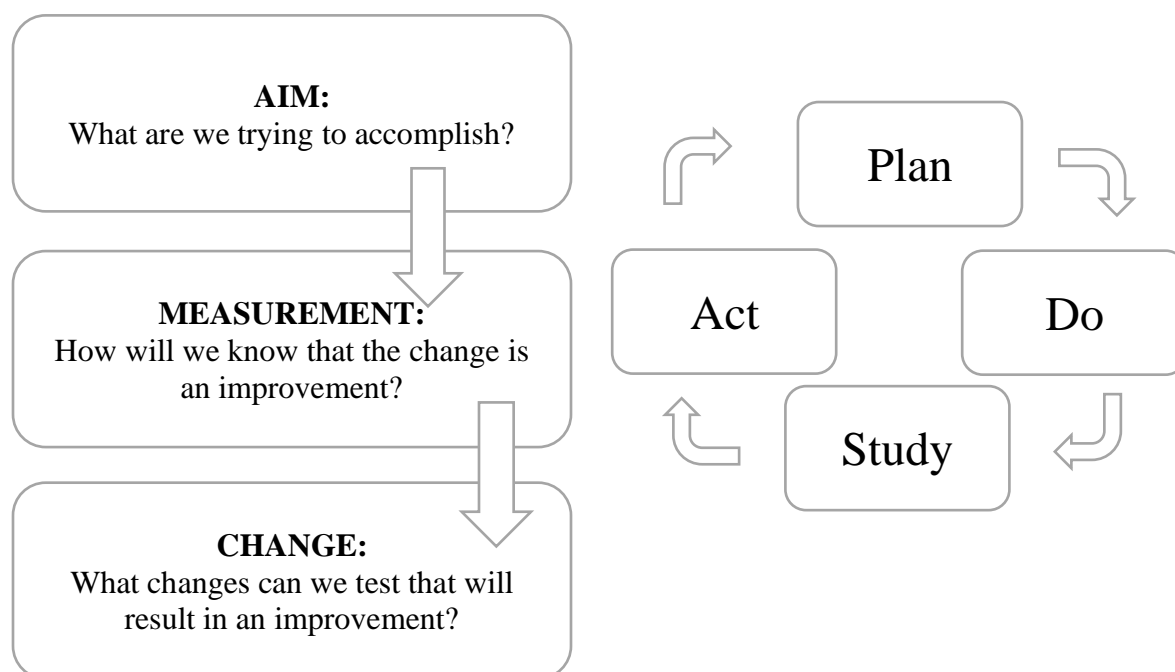
Act

The final step in the process dictated the necessary actions to take next based on the results of the previous study step. Upon successful implementation of the intervention and achievement of the predefined outcomes, recommendations were made to ensure its sustained use in future practice. It is anticipated that the AHA handout will continue to be a standardized part of clinical practice at BFHC to support the management of hyperlipidemia. The objective was to create a tool that would improve the rates of lifestyle and behavioral modification

education provided and documented for patients with hyperlipidemia, with the overarching goal of improving knowledge, outcomes, and quality of life.

Figure 2

The Model for Improvement: Plan-Do-Study-Act (PDSA)



(Adapted from *Model for Improvement*, by the Institute for Healthcare Improvement, retrieved from <http://www.ihl.org/resources/Pages/HowtoImprove/default.aspx>, Copyright 2019).

Setting and Stakeholders

The implementation site was Benson Family Health Center (BFHC) located in Benson, Arizona. The staff at BFHC consisted of physicians, advanced practice providers, medical assistants, nurses, dieticians, care coordinators, behavioral health specialists, pharmacists, and office staff. BFHC had a total of 10 healthcare providers which included both Doctor of Medicine (MDs) and advanced practice registered nurses (APRNs). The providers and staff at BFHC provide direct patient care to a variety of patients in their clinic. In this project, only one

APRN and one MA participated. The positive outcomes of the project outlined the need for future projects to incorporate additional providers to participate in future interventions.

In addition to the medical staff, alternative key stakeholders were the patients themselves. The primary patient population of rural community members were at increased risk of facing SDOH barriers, consequently increasing their risk for ASCVD (Jacobson et al., 2015). The qualified patients represented key stakeholders, as they were the direct recipients of the AHA handout, diet and lifestyle education, and dietician referrals. The objective was to enhance patient self-care confidence, knowledge, and achieve improved outcomes through increased education.

Planning the Intervention

The first step of the intervention phase consisted of speaking with the participating providers and medical assistants. A detailed outline was provided and current issues were addressed at this time. The intervention included three main steps. Step one involved the MA bringing the handouts to the patient during the intake and rooming process if their chart indicated a diagnosis of hyperlipidemia. If the patient did not have a documented diagnosis of hyperlipidemia but presented with new lab values qualifying them for this diagnosis, then the provider would be responsible for bringing the handouts to the room. Step two entailed the provider and patient engaging in discussion regarding lifestyle and behavior modifications, either as primary therapy or as an adjunct to the patient's current therapy, as deemed by the provider. In the third step, the provider documented the lifestyle/diet/behavioral modification education given and the distribution of the handouts under the appropriate hyperlipidemia diagnosis code. At this time, the provider also placed referrals to a dietician or documented a declination by the patient.

Additionally, it was disclosed that chart audits were to be conducted to gather data on provider documentation at the end of each week, representing each PDSA cycle. After discussing the steps of the intervention, a presurvey was distributed to the provider to gather information related to their use of lifestyle and behavioral modification education for patients with hyperlipidemia. This hyperlipidemia education presurvey consisted of four multiple choice questions. The questions consisted of perceived rates of lifestyle modification education/documentation, reasons for not providing/documenting the education, and willingness to use a handout as a resource. The presurvey was requested to be completed prior to the start date of the implementation.

Following the completion of the intervention, a post survey was provided. This survey included the same four questions as the presurvey, along with three additional multiple-choice questions and one free text question. These additional questions requested feedback and opinions regarding the intervention's success and perceived use in future practice. The reason for the repetition of the same four questions on the pre and post survey was to identify a change in provider mindset and practice regarding lifestyle and behavioral modification education. The surveys can be found in Appendix D. Finally, the PD was present on the first day of the intervention to assist in the implementation process, answer questions and ensure the intervention effectively translated into the clinic's standard flow.

Participants and Recruitment

A single provider and medical assistant were the participants who completed the four PDSA cycles. The staff participants were recruited in person at the BFHC. Upon agreeing to participate, individuals completed a presurvey that clearly stated that upon its completion, they

agreed to participate in the project. The inclusion criteria for the participating patients included a diagnosis of hyperlipidemia documented in their medical record or recent lab values identifying them as being a newly diagnosed hyperlipidemic patient. The lab values that were utilized to identify a patient as having hyperlipidemia in this study were total cholesterol >200, triglycerides >150, HDL <50, or LDL >100. The age range for patients eligible to receive the handout intervention were between 18 and 75 years old. The exclusion criteria included non-English speaking/reading patients and those younger than 18 years or older than 75 years.

Consent and Ethical Considerations

Upon the initiation of this Quality Improvement Project, ethical principles including beneficence, informed consent, confidentiality, and respect were diligently considered throughout the implementation process. Approval from the University of Arizona Institutional Review Board (IRB) was achieved prior to the implementation of the intervention into the practice setting. Once receiving IRB approval, the project director was supported to proceed to the implementation phase of the project, as the IRB deemed the project was in alignment with ethical guidelines. The survey completed by all individuals who were chosen to participate were given a clear disclosure and consent statement, utilizing an implied consent method upon completion of the presurvey. A written authorization letter was also obtained by the Director of Advance Practice-Adult and Family Medicine for Chiricahua Community Health Centers to approve the project's implementation. Access was limited to confidential information to only those who were directly involved to maintain the participants' confidentiality. Respect for persons was maintained by maximizing respect for participants' time, a valuable component in the primary care setting. Respect for persons time was exemplified through the advance notice

given to the participant to complete the presurvey and agree to participate. Respect for persons was also preserved by clearly informing participants prior to implementation that they may, at any time, withdraw themselves from the project. By maintaining confidentiality and respect for persons, participant risk of harm was reduced. The ethical value of beneficence was conveyed through the staff's unincentivized participation with the intent of improved patient care in the primary care setting.

Data Collection

Data was collected after each PDSA cycle using the NextGen EHR system. Pertinent patient information including medical diagnoses, lipid panel values, and statin usage was inputted into an Excel spreadsheet. To ensure confidentiality, this information was safeguarded through a secure network, and all devices containing this data were password protected. Additionally, any personally identifiable information was not included in the chart audits. If any confidential data needed to be discussed, secure communication channels, including encrypted emails or secured messaging platforms were utilized. All confidential data was discussed in a private, secure environment. The pre and post survey results were hand delivered to the project director where the data was entered into Microsoft Excel software for analysis.

Data Analysis

The data gathered by the surveys were analyzed by Microsoft Excel software which categorized the data into tables to determine the intervention's success. Additionally, the data gathered from the NextGen chart audits were inputted into a Microsoft Excel spreadsheet on a dual password protected computer. These data points were then transcribed into run charts and tables. Each point on the run chart represented a change within the iterative process of each

PDSA cycle, reflecting how small modifications made during each cycle impacted the outcomes. The chart allowed for the visualization of the frequency of handouts distributed and the documentation of lifestyle and behavior education over time. The trend lines of the run charts illustrated how the data evolved with each cycle, offering insights into the effectiveness of the interventions. The visual aids enabled stakeholders to quickly interpret patterns and trends without the need for complex statistical analysis.

RESULTS

The intervention was carried out over four PDSA cycles, consisting of one week each, with iterative modifications being made during each cycle to determine the results. After each cycle was completed a chart audit was performed to gather the resulting data. Additionally, the nurse practitioner completed surveys before and after the intervention to ascertain changes to the qualitative data overtime.

Chart Audit Results

Upon conducting comprehensive chart audits for each of the four PDSA cycles over the course of one month, a total of 42 patients were found eligible for the intervention. Eligibility entailed that the patient had an in-person clinic visit during the period of the intervention, was 18-75 years of age, spoke and read English as their primary language, and had a current or past diagnosis of a dyslipidemia.

In the pre-intervention chart audit where the initial practice gap was found, 0% of the total 50 patients received any educational handouts. However, 40% of these same 50 patients had documentation of lifestyle and dietary modification education in their chart. The post-intervention chart audit of the four PDSA cycles found a total of 42 eligible candidates for the

intervention over the one-month period. Out of all 42 patients, 72% received an educational handout and had documentation in the chart of education aimed at aiding them in adopting beneficial lifestyle and dietary changes. This documentation included a statement regarding the distribution of the educational pamphlet. This data can be broken down into four PDSA cycles. The first PDSA cycle (n=15) resulted in 87% of patients receiving both the handout and its corresponding documentation. This PDSA cycle included the initiation of the handout into the clinic where the pamphlets were located on the medical assistant's desk. Of the handouts given during the first PDSA cycle, 87% of them were distributed by the MA during the intake process and 13% were distributed by the provider during the visit. The second PDSA cycle (n=10) resulted in 60% of patients receiving both the handout and its corresponding documentation. The change made at the beginning of this PDSA cycle was to move the pamphlets into the provider's two patient rooms. Of the handouts given during the second PDSA cycle, 100% of them were distributed by the provider during the visit. The third PDSA cycle (n=10) resulted in 90% of patients receiving both the handout and its corresponding documentation. The change made during this PDSA cycle was placing the pamphlets in both locations, including at the MA's desk and in the two patient rooms. Of the handouts given during the third PDSA cycle, 67% of them were distributed by the MA during the intake and 33% were distributed by the provider during the visit. The fourth PDSA cycle (n=7) resulted in 50% of patients receiving both the handout and its corresponding documentation. The change made at the beginning of this PDSA cycle was to add a SMART phrase regarding the distribution of the educational pamphlet to ensure documentation was being completed. Of the handouts given during the fourth PDSA cycle, 50%

of them were distributed by the MA during the intake and 50% were distributed by the provider during the visit.

Additionally, the pre-chart audit conveyed a 10% referral rate to a dietitian, whereas the post-chart audit revealed a 12% referral rate. Finally, the pre-chart audit of the sample population (n=50) found 40% of the cohort, were already prescribed or were initiated on a statin during the visit. In contrast, after the intervention, the post-chart audit found 60% of the sample (n=42) were already prescribed or were initiated on a statin as pharmacological therapy which was 20% more than in the initial chart audit prior to the intervention. This may have been related to the increased discussions that took place in response to the intervention regarding hyperlipidemia.

Table 1

Handout and Documentation Rates Across PDSA Cycles

PDSA Cycle / Audit	Sample Size (n)	Handout Distribution (%)	Documentation (%)	Key Change/Intervention
Pre-Chart Audit	50	0	40	No intervention
PDSA Cycle 1	15	87	87	Pamphlets on MA desk
PDSA Cycle 2	10	60	60	Pamphlets moved to patient rooms
PDSA Cycle 3	10	90	90	Pamphlets in both MA desk and patient rooms
PDSA Cycle 4	7	50	50	SMART phrase created for documentation
Post-Chart Audit	42	72	72	Documentation reviewed post-intervention

Table 2*Distribution of Handouts Across PDSA Cycles*

PDSA Cycle / Audit	Distributed by MA (%)	Distributed by Provider (%)
PDSA Cycle 1	87%	13%
PDSA Cycle 2	0%	100%
PDSA Cycle 3	67%	33%
PDSA Cycle 4	50%	50%

Table 3*Referral to Dietician*

	PDSA Cycle / Audit	Referral to Dietician (%)	Key Change/Intervention
1	Pre-Chart Audit	10%	Pre-intervention
2	PDSA Cycle 1	20%	Pamphlets on MA desk
3	PDSA Cycle 2	0%	Pamphlets in patient rooms
4	PDSA Cycle 3	10%	Pamphlets in both locations
5	PDSA Cycle 4	14%	SMART phrase for documentation
6	Post-Chart Audit	12%	Total post-intervention

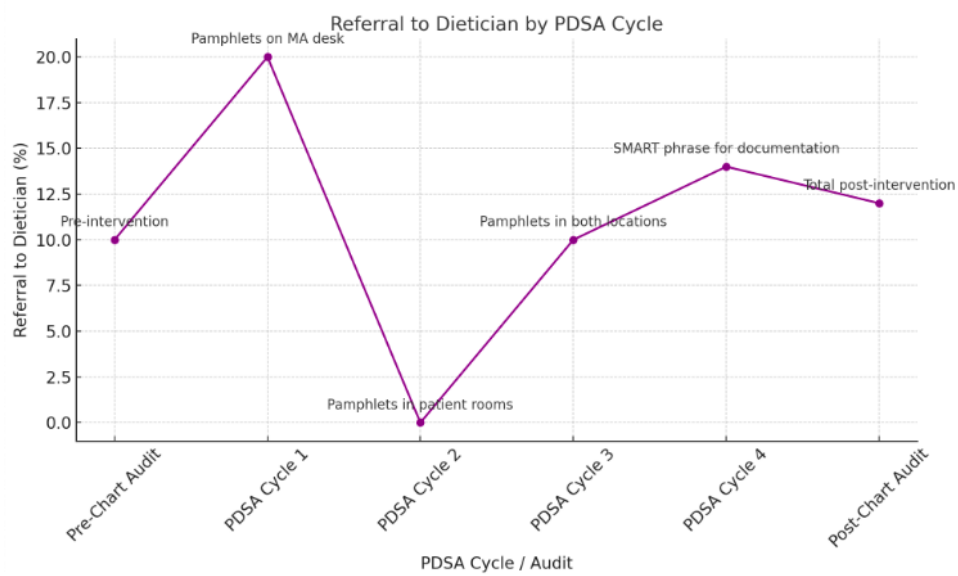
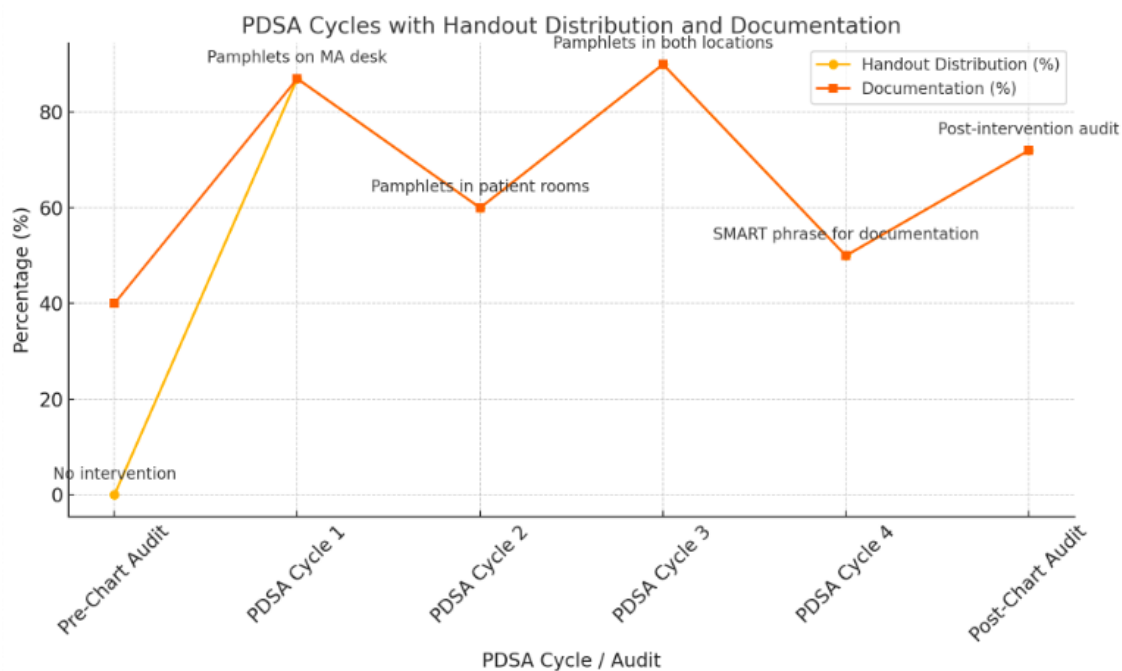
Figure 3*Referral to Dietician: Run Chart*

Figure 4*Handout and Documentation Rates: Run Chart*

Survey Results

The pre and post survey administered were identical in the first four questions listed. These questions were designed to assess provider distribution of lifestyle and dietary modification education for patients with hyperlipidemia before and after the initiation of the project. The surveys were given to one nurse practitioner who completed both the pre and post survey. The survey results indicated consistency in the frequency of providing and documenting lifestyle modification education (both remained "Often"). This suggested that the provider's practices in these areas were already well-established and did not change significantly during the intervention. The reasons for not providing or documenting lifestyle modification education also remained consistent, indicating that the barriers, such as, lack of time and patient disinterest were

persistent challenges that will need to be addressed in future projects. Willingness to use a pamphlet remained "Very willing" both before and after the intervention, suggesting a positive attitude toward the intervention.

The post-survey introduced four additional questions regarding the provider's intention to continue using the interventions, the actual use of the distributed AHA pamphlet, and its perceived helpfulness. The provider strongly agreed with their intention to continue using the intervention and found that the pamphlet was helpful overall. The positive feedback suggested the intervention was effective in supporting patient education indicating potential for continued use of the provided resources after completion of the project.

Table 4

Frequency of Providing and Documenting Lifestyle Modification Education

Question #1: How frequently do you provide lifestyle/diet modification education to patients diagnosed with hyperlipidemia?

Question #2: How frequently do you document the lifestyle/diet modification education you give to patients diagnosed with hyperlipidemia?

Survey Question	Pre-Survey Response	Post-Survey Response
Frequency of providing lifestyle/diet modification education to patients diagnosed with hyperlipidemia	Often	Often
Frequency of documenting lifestyle/diet modification education given to patients diagnosed with hyperlipidemia	Often	Often

Table 5*Reasons for Not Providing/Documenting Lifestyle Modification Education*

Question #3: What are the primary reasons for not providing/documenting lifestyle/modification education to hyperlipidemia patients?

Survey Question	Pre-Survey Response	Post-Survey Response
Primary reasons for not providing/documenting lifestyle modification education to hyperlipidemia patients	Lack of time during appointments, Patient disinterest or non-compliance	Lack of time during appointments, Patient disinterest or non-compliance

Table 6*Willingness to Use a Pamphlet for Lifestyle Modification Education*

Question #4: How willing are you to use a pamphlet as a resource for lifestyle modification education during patient appointments for patients with hyperlipidemia?

Survey Question	Pre-Survey Response	Post-Survey Response
Willingness to use a pamphlet as a resource for lifestyle modification education during patient appointments	Very willing	Very willing

Table 7*Post-Survey Only Questions – Questions #5-8*

Survey Question	Post-Survey Response
Intention to continue using the interventions provided during the study in future practice	Strongly agree
Did you use the distributed AHA pamphlet as a resource to assist in providing lifestyle modification education?	Yes
Found the pamphlet helpful when discussing lifestyle/diet modifications with patients	Strongly agree
Feedback on the intervention (effectiveness, time requirements, suggestions)	Positive feedback: strong, well balanced, user-friendly format, easy to read, patients appreciated having something to take home

Outcomes

Chart Audit

This hyperlipidemia project at Benson Family Health Center focused on improving the education and documentation of lifestyle and dietary modifications for patients with hyperlipidemia through the distribution of educational handouts and dietician referrals. During the project, 42 patients were eligible for the intervention in the one-month period based on criteria including in-person visits, age (18-75), English as a primary language, and a current or past diagnosis of hyperlipidemia. The outcomes of the pre-intervention chart audit revealed that none of the patients with hyperlipidemia had received an educational handout prior to the intervention, although 40% had documentation of lifestyle and dietary education. The post-intervention chart audit revealed 72% of the 42 eligible patients received an educational handout and had documentation of lifestyle and dietary changes indicating a 32% increase in documentation and a 72% increase in pamphlet distribution. The intervention took place through four consecutive PDSA cycles. Cycle 1 (n=15) resulted in 87% of eligible patients receiving handouts and associated documentation, where handouts were primarily distributed by the medical assistant (MA). Cycle 2 (n=10) resulted in 60% of eligible patients receiving handouts and associated documentation, where all the handouts were distributed by the provider. Cycle 3 (n=10) resulted in 90% of eligible patients receiving handouts and associated documentation, where distribution was split between the MA and provider. Finally, cycle 4 (n=7) resulted in 50% of eligible patients receiving handouts and associated documentation, equally distributed by the MA and provider. Additionally, the pre and post chart audit revealed a slight increase in referrals to the dietician where the pre-intervention was 10% and the post-intervention was 12%

indicating a 2% increase. Lastly, the chart audits found an increase in statin utilization during the project, where a current prescription or initiation of statin rates increased from 40% pre-intervention to 60% post intervention indicating a 20% increase. Overall, the intervention led to a significant increase in the distribution of educational handouts, documentation, medication prescriptions, along with a modest improvement in dietician referrals.

Surveys

The surveys examined provider practices, willingness to use an educational handout, and post-intervention insights. The outcomes of the provider practices revealed no change from the pre-intervention to the post-intervention. The surveys showed the perception of the frequency of providing and documenting lifestyle modification education remained consistent, which indicates well-established clinical practices by the provider. The primary barriers to providing or documenting education, which included time constraints and patient disinterest persisted after the intervention was completed, revealing areas for future improvement. The provider's willingness to use the educational pamphlet remained consistent as "very willing" before and after the intervention, highlighting the provider's acceptance of the resource into practice. Additionally, the provider expressed a strong intention to continue utilizing the intervention and stated that they found the handout helpful, further indicating the intervention's effectiveness and potential for future use. The overall provider feedback from the surveys suggested that the intervention was valuable and could be sustained in ongoing practice at BFHC.

DISCUSSION

Summary

The quality improvement project was designed to address the high prevalence of hyperlipidemia and its associated risks of heart disease and stroke, particularly in the rural, medically underserved community of Benson, Arizona. The project aimed to empower patients with knowledge on lifestyle and dietary modifications that are crucial for managing hyperlipidemia. The handouts included simple, evidence-based information on reducing cholesterol through diet and lifestyle changes, aimed at making these concepts accessible and easy to follow. Lifestyle and dietary education were successfully improved for hyperlipidemia patients through the distribution of the American Heart Association educational handout as well as the distribution of the handout outlining accessible healthy food resources in the area. The findings highlighted the critical role of patient education in managing chronic conditions like hyperlipidemia. By providing patients with the knowledge and resources to make healthier lifestyle choices, the initiative not only addressed immediate health concerns but also contributed to potential improvements in long-term cardiovascular health. The slight increase in dietitian referrals and the use of statins indicated a balanced approach, combining non-pharmacological and pharmacological treatments to effectively manage hyperlipidemia. However, the slightly modest increase in dietitian referrals and the continued use of statins highlighted the need for ongoing efforts to integrate comprehensive lifestyle interventions into clinical practice and continued education not to rely on pharmacologic therapies alone. In conclusion, this project demonstrated the potential for structured educational interventions utilizing handouts to bridge gaps in patient care, particularly in rural and underserved populations. The successful

distribution and documentation of educational handouts illustrated that with the right tools and support, primary care providers can effectively educate patients, encourage healthier lifestyle choices, and ultimately reduce the incidence of cardiovascular events during patient care visits regardless of time constraints.

Interpretation

After analyzing the data from the chart audits and surveys, the results conveyed a significant increase in the distribution and documentation of lifestyle and dietary modification education for patients with hyperlipidemia. Prior to the project, none of the patients with hyperlipidemia received educational handouts, and only 40% had documentation of lifestyle and dietary education in their medical records. After implementing the handouts, 72% of eligible patients received both the educational materials and documentation of lifestyle and dietary changes. The intervention also slightly increased dietitian referral rates from 10% to 12%, indicating a growing recognition of the importance of specialized nutritional guidance. Furthermore, the post-intervention data showed an increase in statin use, with rates rising from 40% to 60%, highlighting the continued use of pharmacological therapies in patient care.

Survey feedback from the provider revealed a consistent willingness to utilize the educational handouts provided during this intervention. Despite existing barriers, such as time constraints and perceived patient disinterest, the provider recognized the value of the handouts and expressed intentions to continue its use beyond the conclusion of the project. This acceptance suggests that educational tools, when well-integrated into clinical workflows, can enhance provider engagement and improve patient education.

Implications (Practice, Education, Research and Policy)

The findings demonstrate the significance of integrating educational interventions into routine clinical practice to best manage chronic conditions like hyperlipidemia. Healthcare providers, including nurses, medical assistance, nurse practitioners, and physicians can utilize these standardized handouts to better communicate essential lifestyle and dietary modifications to patients looking to improve their overall health and wellbeing. This approach helps to address essential clinical aspects of caring for patients with hyperlipidemia while empowering them to take an active role in managing their own health increasing self-efficacy, shown to improve the longevity of human behavior changes (Islam et al., 2022). Additionally, the use of evidence-based resources, like the one developed by the American Heart Association, enhances the credibility and effectiveness of the patient education provided. Primary care offices, like Benson Family Health Center, should consider continuing to incorporate these handouts into their patient visits to ensure comprehensive management of hyperlipidemia.

The project also highlights the need for ongoing education and training for healthcare providers regarding the management of chronic conditions like hyperlipidemia through lifestyle and dietary interventions. This ongoing education should emphasize the importance of both pharmacological and non-pharmacological interventions as part of a patient-centered approach to managing risk. Continued training should include how to best use the educational materials and address any potential barriers to provider and patient engagement.

Further research is needed to explore the long-term impact that providing these educational handouts has on patient outcomes related to hyperlipidemia and cardiovascular health. The research should determine the impact on clinical markers including lipid levels and

body weight, following the distribution of the educational handouts. Additionally, the research should examine the effectiveness of varying types of educational materials and modes of delivery based on patient preferences and social determinants of health. By understanding these factors, it will help to refine the educational interventions and enhance their overall impact on diverse patient populations.

Stakeholders and local policymakers should recognize the value of patient education in managing chronic diseases and consider integrating educational initiatives into public health strategies. Additionally, reimbursement should be included to incentivize healthcare providers to spend sufficient time on patient education, facilitated through standardized educational materials. By aligning policies with the overarching goals of patient education and prevention, healthcare systems can improve population health outcomes.

Limitations

Several limitations were identified in this quality improvement project and should be addressed in future implementations to improve the effectiveness and generalizability of the findings. During the second PDSA cycle, logistical challenges related to space, timing, and patient isolation requirements occasionally required placing patients in rooms designated for alternative providers, where the educational handouts were not easily accessible. This logistical issue decreased the likelihood that the patients would receive a pamphlet during their visit, potentially reducing the intervention's impact and rate of success. Ensuring all patient rooms are consistently stocked with a sufficient supply of educational materials or implementing a standardized practice for the distribution of pamphlets regardless of the room assignment would help to mitigate this limitation. Another limitation that was observed was within the

documentation process itself. When reviewing patient charts, it was noted that the patients with abnormal lipid panel diagnoses other than hyperlipidemia, such as hypercholesterolemia or hypertriglyceridemia, often did not receive the pamphlet or its distribution was not well documented. This was primarily because the SMART phrase created during the intervention to assist providers in streamlined documentation was only linked to the diagnosis of hyperlipidemia and failed to cover the other lipid abnormality diagnoses. This limitation could have led to an underreporting of the intervention's success and effectiveness. To address this limitation, the SMART phrase created should be linked to any abnormal lipid panel diagnoses, including cholesterol and triglycerides, ensuring comprehensive documentation, education, and results. A final limitation was the limited number of providers and MAs who participated in the intervention at BFHC. The intervention was completed by a single nurse practitioner and her medical assistant, which could have limited the findings. The outcomes could have been influenced by the specific practices, skills, and communication styles of these individuals, which might inaccurately reflect those of other providers or MAs. This is especially apparent in the survey results which could have offered more insight on current practices, willingness to use an educational handout, and post-intervention insights. To enhance the reliability and applicability of the results, future quality improvement projects should include multiple providers and medical assistants to capture a wider range of outcomes.

DNP Essentials Addressed

The Doctor of Nursing Practice (DNP) Essentials provide a framework for DNP programs and emphasize the competencies required for advanced nursing practice at the highest level (Carter, 2011). Multiple DNP essentials were addressed, focusing on quality improvement,

evidence-based practice, information systems/technology, and interprofessional collaboration. The *DNP Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking* was addressed as this project integrated multiple PDSA cycles to implement and refine the quality improvement initiative aimed at enhancing patient education at Benson Family Health Center. By implementing multiple PDSA cycles, leadership was demonstrated in systems thinking and continuous quality improvement based on findings. By identifying current practice gaps and implementing a structured approach to address these gaps, the project aligned with the principles of organizational leadership for improving healthcare outcomes (Carter, 2011). The *DNP Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice* was addressed using pre- and post-chart audits and surveys, highlighting the use of analytical methods to evaluate the impact of the intervention. The *DNP Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Healthcare* was indirectly addressed using chart audits and SMART phrases for documentation which implied a utilization of an electronic health record (EHR). This signifies the understanding of the role technology plays in improving patient care documentation and tracking interventions (Carter, 2011). Lastly, the *DNP Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes* was addressed through the involvement of an interdisciplinary approach including providers, medical assistants and dietitians. This collaboration is essential to improving communication and creating comprehensive interventions specific to patients' needs (Carter, 2011).

Conclusions

Plan for Sustainability

To ensure the long-term success and sustainability of the intervention at BFHC, further production of the American Heart Association educational handout and community food resources packet should be printed and distributed into every patient room, including the isolation rooms, as well as the staff only zones. This will create visual reminders and easy accessibility to the handouts for all healthcare staff to utilize as needed. Additionally, regular chart audits will help to monitor the continued use of the educational pamphlets and documentation signifying when additional training or changes are required. Lastly, sustainability can also be achieved by collaborating with the BFHC dietician and local community food resource centers to provide patients and providers with additional support and education.

Plan for Dissemination

The results and outcomes of the quality improvement project will be shared to the BFHC staff by initially emailing the Director of Advance Practice-Adult and Family Medicine for Chiricahua Community Health Centers who should disseminate the information through email and staff meetings. The findings will also be presented through an official DNP Oral Defense to a panel of faculty members, advisors, and peers to defend the methodologies and findings.

APPENDIX A

BENSONS FAMILY HEALTH CENTER SITE APPROVAL/THE UNIVERSITY OF
ARIZONA INSTITUTIONAL REVIEW BOARD AUTHORIZATION LETTER

Benson Family Health Center
335 S. Ocotillo Ave,
Benson, AZ 85602

April 23, 2024

University of Arizona Institutional Review Board
c/o Office of Human Subjects
1618 E Helen St
Tucson, AZ 85721

Please note that Ms. Kendall Moeller, UA Doctor of Nursing Practice student, has permission of the Benson Family Health Center to conduct a quality improvement project at our facility for her project, "Primary Care Interventions to Increase Lifestyle Modification Education for Hyperlipidemia Patients."

Ms. Moeller will conduct a survey and complete chart audits of health care providers at Benson Family Health Center. She will recruit providers through personal outreach. The survey will provide a description of the project, what they will be asked to do, the time involved, and a copy of an informed consent form. Ms. Moeller's activities will be completed by Friday, July 12.

Ms. Moeller 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 providers upon request.

If there are any questions, please contact my office.

Signed,



Dr. Karina Bechtold, DNP, FNP-BC
Director of Advance Practice-Adult and Family Medicine
Chiricahua Community Health Centers, Inc.



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 Tucson, AZ 85719
 Fax: 520-621-9810
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NOT HUMAN RESEARCH

May 30, 2024

Kendall Moeller

Dear Kendall Moeller:

On 5/30/2024, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title:	Primary Care Interventions to Increase Lifestyle Modification Education for Hyperlipidemia Patients
Investigator:	Kendall Moeller
IRB Submission ID:	STUDY00004696
Sponsor:	None
Prime Sponsor:	None
IND, IDE, or HDE:	None
Documents Reviewed:	<ul style="list-style-type: none"> • Advisor Attestation , Category: Other; • Chart Audit Forms , Category: Data Collection Tool; • Consent Form, Category: Consent Form; • Kendall Moeller-IRB Protocol for Determination of Human Research form, Category: IRB Protocol; • Participant Material , Category: Participant Material; • Recruitment Flyer , Category: Recruitment Materials; • Site Approval Letter, Category: Institutional Approval; • Survey Material , Category: Data Collection Tool;

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

IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities are research involving humans in which the organization is engaged, please submit a new request to the IRB for a determination.



APPENDIX B

CONSENT DOCUMENT (DISCLOSURE AND CONSENT FORM)

Informed Consent for Participation in the Hyperlipidemia Management Quality Improvement (QI) Project
Principal Investigator: Kendall Moeller, BSN, RN

You are invited to participate in the Hyperlipidemia Management Quality Improvement (QI) Project, which aims to assess and improve the provision of lifestyle modification education and its documentation for patients with hyperlipidemia. Before deciding whether to participate, it is important for you to understand the purpose of the project, what your participation will involve, and your rights as a participant. Please take the time to read this form carefully and feel free to ask any questions before making your decision.

Purpose: The Hyperlipidemia Management Quality Improvement (QI) Project seeks to evaluate the current practice of healthcare providers in offering and documenting lifestyle and behavioral modification education to patients with hyperlipidemia. The aim of the project is to improve the lifestyle and diet modification education provided to these patients, including the distribution of a take-home educational handouts and increased referral placements for dieticians within Benson Family Health Center. By participating in this project, you will contribute valuable information that will help identify areas for improvement and potentially enhance patient care in the future.

Withdrawal: Your participation in the Hyperlipidemia Project is voluntary, and you have the right to withdraw from the project at any time, for any reason, without penalty or consequence.

Confidentiality: Your privacy and confidentiality will be protected to the fullest extent possible. All data collected during the project will be kept confidential and stored securely. Your individual responses will not be identifiable.

If you have any questions or concerns about the Hyperlipidemia Management Quality Improvement (QI) Project, you may contact Kendall Moeller, BSN, RN at kendallm@arizona.edu for further information.

By completing this survey, you indicate your voluntary agreement to participate in the Hyperlipidemia Management Quality Improvement (QI) Project and your understanding of the information provided in this consent form.

APPENDIX C

RECRUITMENT MATERIAL (RECRUITMENT FLYER AND EMAIL)



Participants needed for a Doctor of Nursing Practice Student Project!

My name is Kendall Moeller and I am a Doctor of Nursing Practice (DNP) student at the University of Arizona. I am conducting a quality improvement project about utilizing educational handouts to improve the lifestyle and diet modification education provided to patients with hyperlipidemia. This is an opportunity to learn about hyperlipidemia, improve patient education, and be an active participant healthcare change!

If you choose to participate, you will be asked to complete a pre-survey on your current documentation and perceptions of nonpharmacologic management of hyperlipidemia, be an active participant in utilizing the provided educational handouts and complete a post-survey. Additionally, your documentation will be audited during the duration of the project.

To be eligible you must meet the following criteria:

- **Have direct patient contact with patients presenting with hyperlipidemia.**
 - **Work at the Benson Family Health Center**

This study is great for:

- Providers who want to improve their management of hyperlipidemia patients.
 - Providers who encounter a high volume of hyperlipidemia patients.
 - Providers who want to improve their documentation

If interested, email me at kendallm@arizona.edu or reach out to me at the Benson Family Health Center.

Thank you for your consideration! For questions or concerns, please contact Kendall Moeller, BSN, RN at Kendallm@arizona.edu or telephone at 520-307-2012.

APPENDIX D

EVALUATION INSTRUMENTS (PRE- AND POST-SURVEYS)

**HYPERLIPIDEMIA MANAGMENT
PRE-SURVEY**

1. How frequently do you **provide** lifestyle/diet modification education to patients diagnosed with hyperlipidemia?
 - a) Always
 - b) Often
 - c) Sometimes
 - d) Rarely
 - e) Never

2. How frequently do you **document** the lifestyle/diet modification education you give to patients diagnosed with hyperlipidemia?
 - a) Always
 - b) Often
 - c) Sometimes
 - d) Rarely
 - e) Never

3. What are the primary reasons for not providing/documenting lifestyle/modification education to hyperlipidemia patients? (Select all that apply)
 - a) Lack of time during appointments
 - b) Lack of educational resources
 - c) Patient disinterest or non-compliance
 - d) Not considered a priority
 - e) Insufficient knowledge on lifestyle/diet modifications
 - f) Other: (comment)

4. How willing are you to use a pamphlet as a resource for lifestyle modification education during patient appointments for patients with hyperlipidemia?
 - a) Very willing
 - b) Somewhat willing
 - c) Neutral
 - d) Somewhat unwilling
 - e) Very unwilling

Thank you for your feedback! Your answers are valuable for improving patient care.

HYPERLIPIDEMIA MANAGMENT POST-SURVEY

1. How frequently do you **provide** lifestyle/diet modification education to patients diagnosed with hyperlipidemia?
 - a) Always
 - b) Often
 - c) Sometimes
 - d) Rarely
 - e) Never

2. How frequently do you **document** the lifestyle/diet modification education you give to patients diagnosed with hyperlipidemia?
 - a) Always
 - b) Often
 - c) Sometimes
 - d) Rarely
 - e) Never

3. What are the primary reasons for not providing/documenting lifestyle/modification education to hyperlipidemia patients? (Select all that apply)
 - a) Lack of time during appointments
 - b) Lack of educational resources
 - c) Patient disinterest or non-compliance
 - d) Not considered a priority
 - e) Insufficient knowledge on lifestyle/diet modifications
 - f) Other: (comment)

4. How willing are you to use a pamphlet as a resource for lifestyle modification education during patient appointments for patients with hyperlipidemia?
 - a) Very willing
 - b) Somewhat willing
 - c) Neutral
 - d) Somewhat unwilling
 - e) Very unwilling

5. Please rate the following statement based on your agreement or disagreement:
I intend to continue using the interventions provided during the study in my future practice.
 - a) Strongly disagree
 - b) Disagree
 - c) Neither agree nor disagree
 - d) Agree
 - e) Strongly agree

6. Did you use the distributed AHA pamphlet as a resource to assist in providing lifestyle modification education to hyperlipidemia patients during the intervention period?
 - a) Yes
 - b) No
 - c) Sometimes

7. Please rate the following statement based on your agreement or disagreement:
I found the pamphlet to be helpful when discussing lifestyle/diet modifications with patients.
 - a) Strongly disagree
 - b) Disagree
 - c) Neither agree nor disagree
 - d) Agree
 - e) Strongly agree

8. Please provide feedback and opinions regarding the interventions success (How effective did you find the intervention in improving patient education? Did you feel the intervention took too much time? What suggestions do you have for improving the effectiveness of similar interventions in the future?)

Thank you for your participation! Your feedback is invaluable for assessing the success of the intervention and guiding future improvements in patient care practices.

APPENDIX E

PARTICIPANT MATERIAL (AHA HANDOUT, BENSON HEALTHY FOOD RESOURCES
HANDOUT)



American
Heart
Association.

REDUCE YOUR RISK OF ASCVD

(atherosclerotic cardiovascular disease)



ASCVD is caused by buildup in the arteries and it increases the possibility of heart disease and stroke.

These key steps can help you maintain a healthy lifestyle and reduce your risk of ASCVD, heart disease and stroke.



Know your risk.

The first step is knowing your risk of a cardiac event. Use our **Check. Change. Control. Calculator™** to estimate your risk of heart disease or stroke.

Eat a heart-healthy diet.

Build your nutrition plan around heart-healthy foods like fruits, vegetables, whole grains, legumes (e.g. beans, lentils), nuts, fish and seafood, and poultry. Limit sugary drinks and full-fat dairy products.

Make time to exercise.

Aim for 150 minutes of week of moderate-intensity physical activity or 75 minutes of vigorous exercise. Every bit helps. If you're already active, try upping your physical activity. If you're not currently active, try to find ways to move more.



Eliminate tobacco and limit alcohol.

Don't smoke, vape or use other tobacco products. Limit your intake of alcoholic beverages.



Manage weight.

Maintain a healthy weight with a heart-healthy diet and regular exercise.

Manage your conditions.

Work with your health care team to build a treatment plan that works best for you to help manage conditions that put you at a higher risk of ASCVD, like high cholesterol and high blood pressure. Your health care professional may prescribe medications to help manage blood sugar, cholesterol and/or blood pressure.

Learn more at heart.org/cholesterol

Healthy Food Resources in Benson, Arizona

Looking for nutritious food options in Benson? Check out these resources:

1. Community Food Pantry of Benson, AZ

- 2300 W Calvary, Benson, AZ 85602
- 520-200-5186
- Services: Pop-up markets, cooking classes, summer food program, healthy recipes



2. Tailored Food Boxes by Sierra Vista Gives

- 315 Bartow Drive, Sierra Vista, AZ 85635
- 520-699-5225
- Open Monday-Friday 8-5
- Services: Provides nutritional food boxes for those in need, free of cost! Available to all residents in the Cochise County.

3. Benson Area Food Bank



- 370 Huachuca St., Benson, AZ 85602
- 520-586-7916
- Open Monday, Wednesday, Friday 9-11:30am

4. Community Food Bank of Southern Arizona

- 3003 S. Country Club Road, Tucson, Arizona 85713
- 520-622-0525



APPENDIX F

CHART AUDIT FORMS (PRE- AND POST-INTERVENTION CHART AUDIT)

Pre-Intervention Chart Audit

Patient	Diabetes	Hyperlipidemia	Education documented	On statin	On metformin	Referral for dietician offered/completed	Pamphlet given
1	pre diabetes	total 262 LDL 181	yes	no	no	no	no
2	yes	yes-WNL	no	yes	yes	no	no
3	no	yes: 208 TC 148LDL 34 HDL	no	no	no	no	no
4	pre diabetes	yes: 243 TC 123 LDL 32 HDL 495 TG	yes	no	yes	no	no
5	pre diabetes	yes: LDL 114	no	no	no	no	no
6	pre diabetes	yes: TC 216 HDL 38 LDL 116 TG 391	yes	yes	yes	no	no
7	no	yes: TC 234 LDL 138 TG 242	no	no	no	no	no
8	no	yes	no	yes	no	no	no
9	no	yes: TC 211 HDL 35 LDL 143 TG 181	no	no	no	no	no
10	pre diabetes	yes: HDL 39 TG 198	no	yes	no	yes	no
11	no	yes: LDL 129	no	no	no	no	no
12	no	yes:	no	yes	no	no	no
13	pre diabetes	yes: HDL 37 TG 241	no	no	yes	no	no
14	no	yes: LDL 113 HDL 37	no	no	no	no	no
15	no	yes: TC 238 HDL 48 LDL 161	no	no	no	no	no
16	yes	yes: LDL 111 TG 176	yes	yes	yes	yes	no
17	no	yes: TC 212 LDL 143	no	no	no	no	no
18	no	yes: TC 236 LDL 172	no	no	no	no	no
19	no	yes: HDL 28 TG 181	no	no	no	no	no
20	pre diabetes	yes: TC 213 LDL 140	yes	yes	no	yes	no
21	no	yes: LDL 120	no	no	no	no	no
22	yes Type 1	yes: TG 219	no	no	no	no	no
23	yes	yes: TC 212 HDL 37 LDL 125 TG 281	yes	yes	yes	no	no

24	no	yes: TC 206 LDL 122	no	yes	no	no	no
25	yes	yes: TG 263	no	yes	no	no	no
26	no	yes: TC 250 LDL 180	no	no	no	no	no
27	pre diabetes	yes: TC 229 LDL 143 tg 176	no	yes	no	no	no
28	yes	yes: TC 218 LDL 119 TG 171	yes	no	yes	yes	no
29	no	yes: TC 235 LDL 147 TG 168	yes	no	no	no	no
30	no	yes: HDL 33 LDL 120 TG 183	no	no	no	no	no
31	pre diabetes	yes: TG 192	yes	yes	yes	no	no
32	pre diabetes	yes: TC 214 LDL 131 TG 194	yes	yes	yes	no	no
33	yes	yes: TC 331 HDL 21 TG 1958	no	no	yes	no	no
34	pre diabetes	yes: TG 250	no	yes	no	no	no
35	yes	yes: TG 157	yes	yes	yes	no	no
36	no	yes: TC 268 LDL 176 TG 194	no	no	no	no	no
37	yes	yes: TC 232 LDL 149	no	no	yes	yes	no
38	pre diabetes	yes: TC 215 LDL 118	yes	no	no	no	no
39	pre diabetes	yes: TC 256 LDL 139 TG 381	yes	no	no	no	no
40	pre diabetes	yes: TC 228 LDL 153	no	no	no	no	no
41	no	yes: HDL 36 TG 228	no	yes	no	no	no
42	pre diabetes	yes: TC 238 LDL 139 tg 256	yes	yes	yes	no	no
43	pre diabetes	yes: TC 250 LDL 178	yes	no	no	no	no
44	no	yes: LDL 108 TG 179	yes	no	no	no	no
45	no	yes: TC 234 LDL 134	no	no	no	no	no
46	no	yes: TC 208 LDL 136	yes	no	no	no	no
47	no	yes: TC 251 LDL 149 TG 218	no	no	no	no	no
48	yes	yes: TC 256 LDL 161 TG 430	no	yes	no	no	no
49	yes	yes: HDL 38 LDL 111 TG 152	yes	yes	yes	no	no
50	yes	yes: HDL 40 TG 257	yes	yes	yes	no	no
51	yes	yes: TC 207 LDL 116	yes	no	yes	no	no

Post Intervention Chart Audit

PDSA 1						
Patient date seen	Hyperlipidemia	Education documented	On statin	Referral for dietician offered/completed	Pamphlet given	Documentation of pamphlet given
6/4	yes	yes	no	offered/completed	yes	yes
6/4	yes	yes	no	offered/completed	yes	yes
6/4	yes	yes	yes	offered/completed	yes	yes
6/4	yes	yes	no	not offered	yes	yes
6/4	yes	yes	yes	not offered	yes	yes
6/5	yes	yes	yes	not offered	yes	yes
6/5	yes	yes	yes	not offered	yes	yes
6/5	yes	no	yes	not offered	no	no
6/5	yes	yes	no	not offered	yes	yes
6/5	yes	yes	no	not offered	yes	yes
6/5	yes	no	no	not offered	no	no
6/6	yes	yes	yes	not offered	yes	yes
6/6	yes	yes	no	not offered	yes	yes
6/6	yes	yes	no	not offered	yes	yes
6/6	yes	yes	yes	not offered	yes	yes
PDSA 2						
Patient date seen	Hyperlipidemia	Education documented	On statin	Referral for dietician offered/completed	Pamphlet given	Documentation of pamphlet given
6/11	yes	yes	no	not offered	yes	yes
6/11	yes	yes	yes	not offered	yes	yes
6/11	yes	yes	no	not offered	yes	yes
6/11	yes	yes	yes	not offered	yes	yes
6/11	yes	yes	yes	not offered	yes	yes
6/12	yes	no	no	not offered	no	no
6/12	yes	no	no	not offered	no	no

	6/12	yes	yes	no	not offered	yes	yes
	6/14	yes	no	yes	not offered	no	no
	6/14	yes	no	yes	not offered	no	no
PDSA 3							
Patient date seen		Hyperlipidemia	Education documented	On statin	Referral for dietician offered/completed	Pamphlet given	Documentation of pamphlet given
	6/18	yes	yes	yes	not offered	yes	yes
	6/18	yes	yes	yes	not offered	yes	yes
	6/19	yes	yes	yes	not offered	yes	yes
	6/19	yes	yes	yes	not offered	yes	yes
	6/19	yes	yes	no	not offered	yes	yes
	6/19	yes	yes	yes	not offered	yes	yes
	6/20	yes	yes	yes	not offered	yes	yes
	6/20	yes	yes	no	not offered	yes	yes
	6/20	yes	yes	yes	offered/placed	yes	yes
	6/21	yes	no	no	not offered	no	no
PDSA 4							
Patient date seen		Hyperlipidemia	Education documented	On statin	Referral for dietician offered/completed	Pamphlet given	Documentation of pamphlet given
	6/25	yes	no	yes	not offered	no	no
	6/25	yes	yes	yes	not offered	yes	yes
	6/26	yes	yes	yes	not offered	yes	yes
	6/26	yes	no	yes	not offered	no	no
	6/27	yes	no	no	not offered	no	no
	6/27	yes	no	yes	offered/placed	no	no
	6/28	yes	no	yes	not offered	no	no

APPENDIX G
PROJECT TIMELINE

Completion Date	Planning	Pre-implementation	Implementation	Evaluation
February, 2024	Discussion with assigned preceptor and site supervisor regarding QIP at the clinical site			
March, 2024	Literature research conducted, relevant articles compiled, synthesized, literature grid completed			
March, 2024	Drafted initial background/significance, theoretical framework, literature synthesis, and methods			
April, 2024	Revisions of background/significance, theoretical framework, literature synthesis, and methods completed with chair/advisor			
April, 2024	Verbal QIP approval by the director of CCHCI			
April, 2024	Chart audit completed			
April, 2024	Participant material created: pre and post surveys, AHA handout			
April, 2024	PowerPoint for proposal presentation drafted			
April 22, 2024	Proposal sent to all DNP committee members for review			
May, 2024		DNP Project proposal to committee via zoom by adhering to 10-business day rule, submit to IRB and await approval		
June, 2024			All 4 PDSA cycles of the QI implementation will be completed. Start Monday, June 3 at 0700 and end on Friday, June 28th at 1700 (1 week per cycle)	
July, 2024			Complete post chart audits and post survey(s)	
August, 2024				Evaluate results and

Completion Date	Planning	Pre-implementation	Implementation	Evaluation
				draft the discussion
September, 2024				Complete revisions of the final DNP project and prepare for final defense
October, 2024				Complete final DNP project defense
December, 2024				Graduate

APPENDIX H
LITERATURE REVIEW GRID

Project Question: Will primary care providers (PCPs) who participate in the QI project demonstrate higher rates of educational handout dissemination, lifestyle modification documentation and increased dietician referrals within Benson Family Health Center?

Pub. Year; Author's Last Name	Title of Publication	Type of Study	Main Outcomes of Findings	Support for and or Link to Project
#1 (Lemp et al., 2020)	Use of lifestyle interventions in primary care for individuals with newly diagnosed hypertension, hyperlipidemia or obesity: a retrospective cohort study	Retrospective cohort study, total sample size 770,711; n=38,221 with hyperlipidemia diagnosis; 2 year time-line)	This article shows that although the National Institute for Health and Care Excellence guidelines recommend early intervention the use of lifestyle interventions as first-line treatment, these guidelines are not being properly implemented in the clinical setting with patients. The findings showed that less than half of newly diagnosed patients with hyperlipidemia had ever received lifestyle intervention therapy during or prior to starting on pharmacologic therapy.	Appropriate guideline implementation by providers in clinical practice is crucial to successful management of chronic diseases, especially in high risk ASCVD patients.
#2 (Keshani et al., 2023)	Effects of therapeutic lifestyle change diets on blood lipids, lipoproteins, glycemic parameters, and blood pressure: a systematic review and meta-analysis of clinical trials	Systematic review and meta-analysis (34 clinical trials)	This systematic review showed that therapeutic diets resulted in a significant decrease in total cholesterol (TC), triglycerides (TGs), LDL-C, HDL-C, apo-B, and apoA-1. These results convey that therapeutic diets can reduce most of the lipid profiles, reducing CVD mortality and morbidity rates.	This article shows the clinical significance that introducing a therapeutic diet into a patient's lifestyle can have on lowering their lipid levels to lead to improved patient outcomes without adding any lipid-lowering medications. This is especially important for patients in rural communities who are more effected by SDOHs.
#3 (Massini et al., 2022)	Mediterranean dietary treatment in hyperlipidemic children: Should it be an option?	Retrospective cohort study (n=223)	This study found that dietary intervention with the introduction of a Mediterranean diet in children with primary hyperlipidemia significantly improves lipid profiles. This study identified positive and	This article conveys how we can reduce CVD risks early on in primary care by implementing healthy lifestyle behaviors in children. The goal is to create health habits early on to reduce the need for pharmacologic therapies later on, reduce CVD risks, reduce

Pub. Year; Author's Last Name	Title of Publication	Type of Study	Main Outcomes of Findings	Support for and or Link to Project
			inverse correlations between common dietary practices for children and adolescence.	mortality and morbidity, and improve overall quality of life.
#4 (Sialvera et al., 2018)	Structured advice provided by a dietitian increases adherence of consumers to diet and lifestyle changes and lowers blood low-density lipoprotein (LDL)-cholesterol: the Increasing Adherence of Consumers to Diet & Lifestyle Changes to Lower (LDL) Cholesterol (ACT) randomised controlled trial	Randomized control trial (n=100)	This study showed that structured counseling given by dietitians and common standard advice given by physicians were both effective in respect to improving blood cholesterol levels in the short term. However, the study also showed that utilizing structured counseling by dietitians significantly improved patient's dietary habits, physical activity, and increased plant sterol intake in the longer-term compared to the physician group alone.	This article conveys the significance of utilizing a multifactorial/interdisciplinary approach to education and support for patients with hyperlipidemia. By employing a team approach, healthcare workers are more likely to support their patients in making long-term lifestyle changes to improve their health.
#5 (Ismail, Redzuan, & Wen, 2022)	Patient-centered education in dyslipidemia management: a systematic review	Systematic review (20 RCTs)	This article showed that patient centered education successfully improved patient's cholesterol levels, as well as the psychosocial, cognitive, behavioral, and cardiometabolic outcomes. This study showed that because dyslipidemia is primarily asymptomatic patients need to be motivated to make changes through a rapid reward system rather than the long-term rewards, such as their overall health outcomes.	This article conveyed how certified nurse practitioners can successfully achieve desirable outcomes (smoking cessation, physical activity, self-monitoring, and cholesterol levels) by utilizing a patient centered approach to educating patients on the significance of dyslipidemia and supporting them in an individualized manner.
#6 (Franklin et al., 2020)	Importance of Lifestyle modification on cardiovascular risk: Counseling strategies	Literature review	This article showed that providers need to utilize a comprehensive treatment strategy through a patient	This article portrayed how unhealthy lifestyle habits, population health, risk factors of cardiovascular disease, current provider counseling practices,

Pub. Year; Author's Last Name	Title of Publication	Type of Study	Main Outcomes of Findings	Support for and or Link to Project
	to maximize patient outcomes		centered approach for interventions to favorably modify unhealthy behaviors and facilitate CV risk reduction. The article also emphasized that patients maintain the primary responsibility in their own lives to make health day-to-day decisions to improve their own health.	patients' readiness to change, and research-based interventions all play a pivotal role in the maximization of patient outcomes.
#7 (Riccardi, Costabile, & Rivelles, 2016)	How well can we control dyslipidemias through lifestyle modification?	Systematic review	This article analyzed an array of evidence from cross sectional studies, randomized control trials, and systematic reviews and meta-analyses to find that lifestyle modifications can be extremely effective in controlling dyslipidemias. It showed how a multifactorial approach to dyslipidemia management is preferable as it combines small variations to lifestyle rather than a single, more radical change.	This article conveys how implementing multiple small behavioral and lifestyle changes including eating a healthy diet (whole grain cereals, vegetables, fruits, nuts, low-glycemic index foods, oils rich in MUFA or PUFA, fish, poultry, and low fat dairy products) based on a Mediterranean diet, smoking cessation, completing regular physical activity, and maintaining optimal BMI can have a significant impact on plasma lipoprotein levels, therefore reducing the overall risk of CVD.
#8 (Jacobson et al., 2015)	National lipid association recommendations for patient-centered management of dyslipidemia: part 2	Literature review	This article expanded on NLA Part 1 Recommendations for patient-centered management of dyslipidemia to provide additional guidance where evidence is lacking on clinical ASCDV event to help guide clinical decisions. The recommendations emphasize the importance of a patient centered approach to dyslipidemia management	This article conveys that the patient should be an active participant in the process of managing their dyslipidemia. It also discusses the quality of evidence rating for each recommendation to promote standardized clinical decision making. The recommendations include lifestyle changes including specific dietary guidelines, weight loss, exercise/physical activity including quantity and quality across the

Pub. Year; Author's Last Name	Title of Publication	Type of Study	Main Outcomes of Findings	Support for and or Link to Project
			through shared decision-making regarding goals, potential benefits of therapy, risks, side effects and costs. The article continues to recommend lifestyle counseling and dietary adjuncts as key elements of preventive efforts at all levels of ASCVD risk.	lifespan, pharmacotherapy, screening, differences among varying ethnic/racial/sex groups, comorbidities, and adherence and their effects on lipoproteins levels and ASCVD risk reduction.

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