# A QUALITY IMPROVEMENT INITIATIVE ON ASTHMA MANAGEMENT IN A FAMILY MEDICINE SETTING

by

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# DEDICATION

To the setting of interest: an outstanding family practice. A clinic where excellent humans are willing to take on the hard work to implement new practices without losing the warmth and caring touch needed to provide good care. A clinic that years ago took in a relatively inexperienced nurse and has since invested in her heavily.

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# ABSTRACT

Achieving control of asthma symptoms can improve quality of life and reduce hospitalizations. Clear clinical practice guidelines from the National Heart Lung and Blood Institute's Expert Panel Report 3 (2007) detail critical components for optimal asthma management. One component, the Asthma Control Test (ACT), is a standardized tool used to assess asthma control. Another component, the Asthma Action Plan, is an individualized plan formulated by the provider for asthma patients to help self-manage asthma.

*Problem*: Organizational stakeholders at a family medicine clinic in southwest Montana identified that there was no standardized workflow for asthma management. The clinic has 1,238 asthma patients. In the past year, none have had asthma control assessed using a standardized tool, and only one patient has had an Asthma Action Plan completed.

*Methods*: After collaboration with stakeholders, a brief educational intervention for providers and rooming staff and a new workflow to implement ACT screening and asthma action plan were developed. Electronic medical record reports and chart audits were used to monitor the completion of the ACT and Asthma Action Plans. A series of five one-week Plan-Do-Study-Act (PDSA) cycles were run to work toward goals of 100% completion of ACT at office visits, 100% of uncontrolled ACT scores addressed, and 80% of uncontrolled scores addressed with Asthma Action Plans.

*Results*: During the first five weeks of the new workflow, 49 alerts were fired for ACT completion; 36 ACT screens were completed (73%); by the fifth week, rates increased steadily to 88.9%. Only six ACT screens revealed uncontrolled asthma; providers directly addressed 100% of those scores. None of those patients had an Asthma Action Plan completed; however, six other patients with well-controlled asthma did during this timeframe.

*Conclusions*: While the project cannot assume the workflow improved outcomes for asthma patients, significant steps to adhering to clinical practice guidelines were made by introducing ACT screening and Asthma Action Plans. More work is needed to increase adherence to the new workflow, particularly Asthma Action Plan completion rates. Additionally, the clinic is now open to introducing additional elements of asthma guidelines in the future, such as peak flow meter use.

# CHAPTER ONE

# DESCRIPTION OF THE PROBLEM

## Introduction

In the United States, an estimated 7.7% of the population, or nearly 25 million people, have an asthma diagnosis, resulting in an estimated 1.6 million emergency department visits and 183,000 hospitalizations annually (Centers for Disease Control and Prevention [CDC], 2021). Unfortunately, the number of people diagnosed with asthma is increasing and has grown from 1 in 14 in 2001 to 1 in 12 in 2018 (CDC, 2021). In addition, the estimated national economic impact of uncontrolled asthma related to decreased productivity and mortality is estimated to surpass $300 billion between 2019 and 2038 (Yaghoubi et al., 2019). Though declining, asthma mortality rates are still calculated at 13.2 per one million among American adults and continue to be a "Healthy People 2030" priority (CDC, 2021). Furthermore, half of all individuals with a current asthma diagnosis had an asthma attack last year (CDC, 2021).

Asthma is a common and complex chronic inflammatory disease of the airways that results in recurrent and varying symptoms for patients related to "airflow obstruction, bronchial hyperresponsiveness, and underlying inflammation" (National Heart Lung and Blood Institute [NHLBI], 2007). Asthma requires ongoing monitoring and management to control it and can cause symptoms such as cough, wheezing, chest tightness, and shortness of breath. Asthma attacks have the potential to be life threatening. The development of asthma is multifactorial and linked to genetic, environmental, and occupational causes (CDC, 2021). All individuals with asthma are susceptible to asthma attacks and exacerbations and need to know how to self-

manage these episodes. There is no cure for asthma; however, asthma can be managed using a combination of medication and managing asthma triggers in the environment.

## State Impact

In the state of Montana, 10.0% of the adult population and 7% of the pediatric population have a current diagnosis of asthma. Statewide, there is an estimated total of 94,000 individuals with a current diagnosis of asthma in a state with a population of just over 1 million (Montana Department of Public Health and Human Services [MDPHHS], 2020). Half of Montanans with asthma report that asthma has limited their activity, and a third have missed at least one day of work in the past year (MDPHHS, 2020). Unfortunately, 71% of adults with asthma in Montana have uncontrolled symptoms based on activity limitation, daily symptoms, short-acting bronchodilator use, and sleep awakenings (CDC, 2016). Only 62% of Montanans with asthma can adequately identify the signs and symptoms of an asthma attack. One in four Montanans with an asthma diagnosis do not know how to respond to an asthma attack. Many Montanans with asthma have uncontrolled asthma or are not well prepared to self-manage their asthma.

Deaths due directly to asthma are rare, with an average of 13 Montanans dying annually since 1999 (MDPHHS, 2020). Therefore, asthma-related deaths account for only 0.4% of deaths in the state. Each of these asthma-related deaths represents an average of 17 years of potential life lost per death. However, these deaths are a significant public health concern due to their preventable nature.

The economic burden of asthma in Montana is high, with Montanans spending millions annually. Statewide in 2018, there were 459 preventable asthma-related hospitalizations and 2,318 emergency department visits. Each hospitalization costs an average of $13,024, totaling

$3.7 million statewide. Emergency department visits cost an average of $1,822, totaling an additional $3.5 million annually (MDPHHS, 2020). Montanans could avoid a significant portion of these costs with improved asthma control.

## Asthma and the Vulnerable

Montana has several unique characteristics and vulnerable populations that are disproportionately affected by asthma. First, Montana has a low population density of 7.3 persons per square mile, with five metropolitan counties, five micropolitan counties, and 46 rural counties. The density and geographic features of the state are relevant as rural areas have a higher number of excess deaths from asthma than urban areas. The theorized cause of these excess deaths in rural areas is less access to health care coupled with lower health insurance rates (CDC, 2021).

American Indians are the second largest racial group and make up 6.7% of the population of this predominately rural state. There are 12 American Indian tribes in Montana and seven reservations, each with a sovereign tribal government. American Indians and Alaska Native individuals have a 10% higher risk of death from asthma (AAFP, 2020). In addition, American Indian children have a higher prevalence of asthma when compared to non-Hispanic, white children (MDPHHS, 2021).

Finally, those with household incomes less than $25,000 per year have a higher prevalence of uncontrolled asthma than people earning more than $50,000 per year (Asthma Control in MT, 2016). Montana's median household income is 12% lower than the median household income in the United States. Unfortunately, one in five adults with asthma in Montana

has not been able to fill an asthma prescription due to cost, as the costs of inhalers have increased over the past several years (MDPHHS, 2021).

Asthma is a health condition that affects vulnerable populations and is commonly exacerbated by inadequate healthcare. The state of Montana, while ahead of the country in some statistics such as mortality, has several vulnerable populations that can benefit from improved asthma care.

## Background

Quality asthma care requires several components to achieve and maintain control; clear clinical practice guidelines from the NHLBI in the Expert Panel Report 3 (EPR-3) have been available since 2007, with minor updates in 2020. The first goal of long-term asthma management is to reduce impairment, which includes preventing chronic symptoms, requiring infrequent use of short-acting beta-2 agonists, and maintaining normal lung function and activity levels. The second goal is to reduce risk or prevent exacerbation, decrease the need for emergency department visits and hospitalization, and minimize the adverse effects of pharmacologic therapy (NHLBI, 2007).

The NHLBI EPR-3 identifies four critical components of long-term asthma management: assessment and monitoring, patient education, control of comorbidities and environment, and pharmacologic therapy (2007). Elaborating on the components of asthma assessment, objective tests, physical exams, and patient history are used to diagnose and assess asthma and determine if asthma control is achieved and maintained. Both asthma severity and control need to be evaluated for impairment and risk to complete a full assessment. The Asthma Control Test (ACT) is an example of a validated standardized questionnaire explicitly developed to assess

impairment (Nathan et al., 2004). In addition, to appropriately maintain or adjust pharmacologic therapy, the provider must assess asthma symptoms. Other elements of this first component of assessment and monitoring include peak flow readings, pulmonary function/spirometry, and more.

The second component of patient education for self-management describes vital action steps to teach patients how to manage their asthma and develop a written Asthma Action Plan. Asthma Action Plans help providers and patients agree on treatment goals, educate patients to control asthma through their actions, direct patients to adjust medications when symptoms worsen or flare, and empower patients to seek an appropriate level of medical care as needed (NHLBI, 2007).

The third key component of asthma management is the control of comorbidities and the environmental factors that affect asthma. For example, providers should work with patients to reduce potential occupational and irritant exposures such as tobacco smoke and air pollution. In addition, providers should address and work to control comorbid conditions such as sleep apnea, gastroesophageal reflux, and more. Patients should also have some education on what to expect if they are ill with a viral or bacterial respiratory infection.

The fourth key component is medication management, and the EPR-3 details clear guidelines for optimal medication management. Appropriate and optimal medication management is guided by the first component of the asthma control assessment. Prescribing the correct inhaled corticosteroid-containing medications can dramatically reduce the frequency and severity of symptoms and reduce the risk of hospitalization or death.

## Asthma in the Setting of Interest

In the clinical setting of interest, a family medicine ambulatory clinic in southwestern Montana, support staff, and primary care providers do not have a standardized asthma assessment approach. As a primary care clinic, the staff and providers often address multiple health concerns and chronic conditions in one visit; therefore, many workflows are in place to provide the standard of care for many other common chronic diseases. In a preliminary conversation with the office manager, the initial suggestion for a quality improvement project was to focus on improving asthma management. Asthma was suggested as other clinics within the broader healthcare organization have existing workflows for assessing asthma control and provide patient education and provider workflows to address suboptimal asthma control (Anonymous, personal communication, August 20, 2021).

The primary goal of this quality improvement initiative will be to develop and adapt workflow changes using a systems approach at a busy family medicine clinic to meet long-standing asthma management guidelines.

# CHAPTER TWO

# SYNTHESIS OF THE EVIDENCE

## Literature Review

A thorough review of the existing literature was performed using several academic databases to direct an asthma quality improvement project in the primary care setting. Electronic databases searched included PubMed, Google Scholar, CINAHL, Medscape, Cochrane Database of Systematic Reviews, and Joanna Briggs Institute. The search terms focused on, but were not limited to, asthma, asthma screening, asthma action plans, primary care, and asthma self-management. Initially, the search focused on articles published in the past 10 years. However, the EPR-3 guidelines and several high-quality research studies were published outside the 10-year range and were ultimately included in this review for the sake of completeness. Any evidence examined outside the 10-year time frame included has withstood the test of time, with little to no contradictory information found.

In a review of the evidence, several novel approaches to asthma self-management in the primary care setting, such as mobile applications, were excluded from the search as budget and resources prohibit this type of approach. Instead, the review of evidence focused on two of the cornerstones of asthma management not yet utilized by the setting of interest: ACTs and Asthma Action Plans. Therefore, these two areas were chosen as the focus for this quality improvement project as low-cost, standard-of-care items that need to be utilized to meet the EPR-3 asthma guidelines and improve long-term asthma outcomes.

## Evidence Surrounding the ACT

The ACT is a self-administered tool to help identify poor asthma control. The ACT (see Appendix A) has five items related to symptoms and daily functioning with a four-week recall: 1) effect of asthma on daily functioning, 2) frequency of shortness of breath, 3) frequency of nighttime awakenings, 4) use of rescue medications, and 5) overall self-assessment of asthma control. The five items are scaled using a five-point scale of 1=all the time or not to 5=not at all; for asthma control rating or 1=not controlled at all to 5=completely controlled depending on the item. Thus, the test is scored on a range of 5, indicating poor asthma control, to 25, indicating complete control. An ACT score greater than 19 indicates well-controlled asthma.

In 2004, Nathan et al. developed the ACT as a straightforward and quick method to assess asthma control with or without lung function testing in busy clinical settings with limited time and resources. The ACT is a test with acceptable reliability (test-retest reliability = 0.77), internal consistency (Chronbach's $\alpha$=0.84–0.85), and validity that correlates with a specialist's rating of asthma control determined based on history, physical examination, and spirometry (specifically forced expiratory volume in one second, FEV1) (American Thoracic Society, 2020).

The ACT established robust clinical utility before and since its formal endorsement by the EPR-3 in 2007, alongside three other options of validated instruments for assessment and monitoring of asthma. Since the EPR-3, a systematic review and meta-analysis have shown that the ACT is preferable in clinical practice to other instruments such as the Asthma Control Questionnaire (Jia et al., 2013). In addition, the analysis showed that the ACT performs well when used to assess controlled and uncontrolled asthma using the prespecified cut-off score; however, the tool does not help monitor uncontrolled asthma (Jia et al., 2013). A critical step in

asthma management is assessing control, as control reflects the overall management of underlying airway inflammation.

In a targeted literature review by van Dijk et al. (2020), the improvement of ACT score correlates with improved asthma treatment benefits and outcomes with substantial evidence for a relationship between ACT score and lung function and asthma-related quality of living. Additionally, moderate evidence supported the improvement of ACT scores and decreased rescue medication use, exacerbations, and increased sleep quality and work productivity (van Dijk et al., 2020).

Preliminary data from the setting of interest reveal that no patients have had their asthma control assessed using a standardized tool such as the ACT in the past year. The current workflow is that asthma control is discussed between the provider and patient during the history-taking portion of the office visit, with no standard questions or format. In a conversation with one of the clinic's providers, they indicated that the providers are typically limited by time and can only ask one or two questions about asthma control to the patient (Anonymous, personal communication August 20, 2021).

## Evidence Surrounding the Asthma Action Plan

Asthma Action Plans (see Appendix B) are paper or electronic plans tailored by the provider for each asthma patient as a guide for self-management if and when asthma worsens. Asthma Action Plans contain information about when and how to increase treatment and for what duration and when to seek medical attention. In addition, these plans give patients tools to recognize worsening asthma either through symptoms or changes in peak flow meter readings, which assists patients in "tuning in" to their symptoms. Asthma Action Plans are strongly

recommended for patients who have poorly controlled asthma, a history of severe exacerbation, or moderate or severe persistent asthma (NHLBI, 2007).

National and international asthma guidelines recommend asthma action plans. In 2007, the EPR-3 strongly recommended Asthma Action Plans using an Evidence Category B rating (high-quality randomized control trials with a limited body of data). Evidence since the EPR-3 continues to demonstrate the Asthma Action Plan's role in increasing adherence to inhaled and oral corticosteroids, patients' confidence in controlling their asthma symptoms, decreasing asthma exacerbations, and improving quality of life (Ducharme et al., 2011; Goronfolah et al., 2019). In addition, another recent randomized controlled trial found Asthma Action Plans significantly decrease emergency department visits, hospitalization, and ICU admission (Farag et al., 2018). Asthma Action Plans with peak flow self-management instructions are the most cost-effective intervention identified for reducing emergency department visits for high-risk asthma patients (di Asis & Greene, 2003).

One recent criticism of Kelso's (2016) written Asthma Action Plan is that appropriate education alone helps achieve outcome goals, and the written plan provides little benefit beyond asthma education and verbal education alone. However, this research was performed in a specialty clinic and, therefore, may be less generalizable to the primary care setting, where asthma education is given on a less routine basis. Thus, the primary care setting of interest is likely to benefit from using a standardized tool like the Asthma Action Plan.

Peak flow meters are inexpensive handheld devices that are blown into and measure a patient's ability to push air out of their lungs. Patients can use peak flow readings to monitor their symptoms and are a standard outcome measure in research studies on asthma. Asthma Action Plans direct patients to monitor asthma by monitoring asthma symptoms or peak flow

readings. Most of the evidence reviewed purports that both types of Asthma Action Plans benefit the patient (NHLBI, 2007; Gibson et al., 2003). The EPR-3 recommends peak flow meters as part of the clinical practice guidelines for patients and providers to monitor asthma. In addition, di Asis et al. (2004) showed a more significant economic impact and reduction of ER visits and hospitalization costs with peak-flow-based asthma action plans over symptom-based plans.

Despite being recommended for over two decades, Asthma Action Plans are still underutilized in primary care settings. Implementation barriers include lack of knowledge or misconceptions by providers, lack of resources such as time, and poor teamwork; facilitators to implementation include good teamwork and work organization (Wiener-Ogilvie et al., 2007). Ring et al. (2015) describe a "vicious cycle" where providers do not review Asthma Action Plans with patients, which conveys that the plan has little value in their asthma management. Then, in the future, the patient is less likely to discuss the plan with the provider, which reinforces the provider's bias that the patient does not value the plan. Ring et al. (2015) recommend a comprehensive systems approach to overcome the barriers to implementing Asthma Action Plans.

In the setting of interest, only 19 of 1,283 (1.5%) patients with a current asthma diagnosis and an office visit in the past year have ever had an Asthma Action Plan completed. Only one patient with an active asthma diagnosis had an Asthma Action Plan (0.1%) that had been updated and documented in the electronic health records (EHR) within the last year in the entire clinic. Statewide data indicate that approximately 24% of individuals with an asthma diagnosis have an Asthma Action Plan that guides treatment decisions (MDPHHS, 2020). The setting of interest is underutilizing tools meant to standardize asthma management and, therefore, failing to implement clinical practice guidelines and standard of care best practices.

## Barriers to Asthma Counseling in the Primary Care Setting

Primary care providers may not be specifically trained or skilled in providing asthma-specific counseling; one brief intervention by Foster et al. (2016) of a two-hour education session for providers was rated as extremely useful by almost all providers. The intervention resulted in positive patient outcomes of increased patient satisfaction with asthma care, increased confidence, and increased medication adherence, which was observed for over a year. However, more than half of primary care providers in the same study reported that despite their training, time constraints prevented them from implementing asthma self-management counseling for patients (Foster et al., 2016).

## Evidence Surrounding Clinical Decision Support

Clinical decision support (CDS) is an alert for patient-specific information presented at appropriate times to enhance healthcare provided by clinicians and staff. CDS includes various tools, alerts, reminders, and order sets or bundles. CDS has been shown to significantly improve clinical practice in over 90% of randomized controlled trials (Kawamento et al., 2018). However, CDS fatigue and a systemic lack of response to the CDS alerts and reminders are a challenge. The disconnect is often due to a mismatch of the CDS with the provider's workflow (Kawamento et al., 2018).

In the setting of interest, there is an existing CDS in the electronic health record's health maintenance section, which contains alerts for preventive care that a patient is due for based on their demographic information and medical history. Health maintenance is not a pop-up alert but is instead accessed voluntarily by the health care team. Health maintenance is commonly used to

help update immunizations or guide care for other chronic conditions such as diabetes in the setting of interest. However, the asthma alerts for the ACT and Asthma Action Plan are currently ignored as there is no current workflow in place.

## Summary of the Evidence

Overall, the literature has long supported the notion that utilizing tools such as the ACT and Asthma Action Plan is necessary for following current guidelines to result in the optimal care of patients with asthma. In addition, the literature confirms that these imperative tools have low rates of clinical utilization despite the abundance of evidence. Therefore, the review of the evidence establishes the need for a quality improvement project to develop a systematic workflow process for screening with the ACT to identify patients with the most need for completed Asthma Action Plans at a primary care practice.

Other elements of the EPR-3 guidelines were initially considered for the project, such as peak flow meters and spirometry. However, ultimately, the clinic stakeholders felt that these items were barriers to implementation. Therefore, settling on the low-cost, quicker-to-complete elements of the ACT Screen and Asthma Action Plan were focused on.

The quality improvement (QI) initiative will develop a workflow to have rooming staff identify patients due to ACT using an existing health maintenance reminder in the electronic medical record (EMR). If a patient's ACT score indicates suboptimal asthma control, the protocol will direct support staff to notify the provider to assess and complete an Asthma Action Plan. Additionally, utilizing a standardized documentation tool related to asthma assessment, monitoring, and patient education can help facilitate adherence to guideline recommendations.

These workflow changes can introduce sustainable, systemic change to improve asthma management at the setting of interest.

# CHAPTER THREE

# SETTINGS AND METHODS

## Project Purpose and Goals

Before implementing this QI initiative, there was no standardized process for assessing asthma control and no standardized interventions to improve asthma outcomes at the setting of interest. The quality improvement project started with assembling a QI team within the clinic to adapt processes to reflect the current clinical practice guidelines for asthma. The QI team developed new workflows focused on using well-established tools such as the ACT and the Asthma Action Plan.

The developed workflow directed rooming staff to assess asthma control using the ACT for patients with a current diagnosis of asthma during office visits. If the ACT results indicate suboptimal asthma control, the new workflow directs the support staff to alert the provider to address and consider completing an Asthma Action Plan with the patient. The project's short-term outcome goals were for rooming staff to conduct the ACT screening to identify the most vulnerable asthma patients and ensure action to improve asthma control for the patient. The long-term goals of this initiative are that the improved workflow will ensure care practices align with the clinical practice guidelines. The desired long-term result is that asthma patients will have fewer asthma exacerbations, increased quality of life, and fewer emergency room visits and hospitalizations.

The target population for this QI initiative is the clinic staff and providers themselves. The clinic staff completed training through brief educational sessions. The clinic staff was also

involved with PDSA cycles meant to implement the new workflow to change staff and provider behavior, increase knowledge, and improve attitudes.

The clinic staff and providers implemented the new workflow for patients aged four and older with a current diagnosis of asthma or reactive airway disease presenting for certain types of office visits. Existing health maintenance alerts within the EHR indicated if a patient was due for the ACT and Asthma Action Plan for this population. The new workflow of ACT screen administration started during visits scheduled as an annual wellness visit, medication management visit, asthma follow-up or management visit, or acute asthma visit.

The primary specific, measurable, achievable, relevant, and time-bound (SMART) goals of the project were:

1. Complete ACT screening on 100% of patients with an asthma diagnosis in the clinic for all visit types except for acute non-asthma visits within five weeks of project implementation.
2. The secondary goal was for a provider to address the patient's asthma if the ACT score is equal to or less than 19 (which indicates uncontrolled asthma) 100% of the time. Addressing the patient's low ACT score was accomplished by several different actions such as a referral to a specialist, completing the asthma action plan and patient education, or a medication change.
    a. As a part of the second goal of addressing suboptimal controlled asthma, a secondary goal was to have 80% of patients with a low ACT score have a completed Asthma Action Plan created and given during the appointment.

## Implementation Framework

The model for improvement featuring the PDSA cycle was the foundation and framework for guiding this QI project. The model for improvement has two stages: three fundamental questions and the PDSA cycle to determine whether the change is an improvement and accelerates improvement through iterative change (Institute for Healthcare Improvement [IHI], 2017). The three fundamental questions are as follows:

1) Aim: What are we trying to accomplish?
2) Measures: How will we know that a change is an improvement?
3) Changes: What changes can we make that will result in improvement?

The PDSA cycle helps to quickly implement changes and determine whether the change results in improvement. The PDSA cycle is a four-step model used for problem solving during process improvement (IHI, 2017). PDSA, often referred to as rapid cycle improvement, is used to test changes on a small scale.

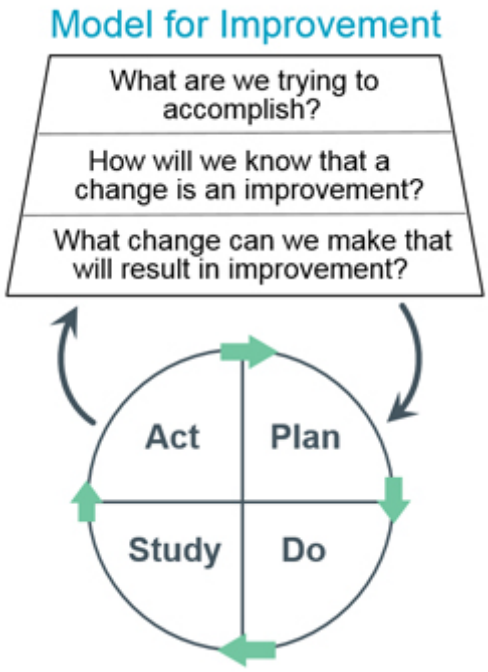
Step One: Plan: The first step of the cycle is to plan the test or observation, including creating the plan to collect data. Early in the planning stage, clear answers to the three questions must exist to set a clear objective for the PDSA cycle. Then, determining a plan to carry out the test is created and includes identifying who, what, where, and when. Finally, the QI team makes predictions about the cycle outcomes during the planning stage and formalizes plans to collect quantitative and qualitative data (IHI, 2017).

Step Two: Do. The second step is to initiate the change and pilot the test on a small scale using the created plan. Observation of this stage and documentation of any unexpected problems can help inform the next steps of the cycle.

Step Three: Study. The third step is to study and set aside time to analyze the results of the cycle using the plan for data collection formulated in the plan step. The outcomes of the PDSA cycle are compared to the predictions made in the planning stage. The next stage of the PDSA cycle is informed by summarizing what is learned in the study phase.

Step Four: Act. The fourth step is to determine and refine what changes need to be made based on what was learned from studying the cycle. The PDSA cycle then repeats itself as a plan made for the next iteration of the PDSA cycle after reconsideration of the three fundamental questions.

Figure 1. Model for Improvement




Hundreds of healthcare facilities, including the setting of interest, use the model for improvement to guide change. The PDSA cycle engages stakeholders during the change and can increase confidence in the intervention during the cycles (Taylor et al., 2014). However, one

challenge of the PDSA is that its application is often varied and inconsistent. In addition, there is often a lack of compliance with PDSA model principles veering off the scientific method, leading to reduced effectiveness (Taylor et al., 2014).

The model for improvement fits well for this improvement project as the setting of interest has previously used the PDSA cycle for other QI initiatives with success. The QI team will pay careful attention to the steps and principles of the model to ensure optimal effectiveness. The Model for Improvement and PDSA cycles guided the implementation of a workflow change to introduce the ACT screening and Asthma Action Plan to the setting of interest.

## Setting of Interest

The setting of interest is a primary care clinic in a micropolitan area of southwestern Montana that has identified improving asthma management as an area in need of a QI initiative. The practice comprises 10 providers and approximately 12 support staff consisting of registered nurses, licensed practical nurses, medical assistants, and patient care techs. The clinic provides primary care services, including preventive care, wellness, and acute same-day care to a panel of approximately 10,000 patients; 1283 of them have a current asthma diagnosis. The primary care clinic is affiliated with a non-profit organization of two hospitals and an integrated healthcare delivery system serving an eight-county region in southwestern Montana. The mission statement of the healthcare system is “to improve community health and quality of life.” The organization’s vision statement is to be a partner in health and wellness and compassionately deliver the best care every time for each person. Both the organizational culture and the office culture continuously strive to improve care; QI projects often occur in this office. However, given the COVID-19 pandemic, the staff has put many QI projects on hold as there was a very

significant staffing shortage in the clinic leading up to and throughout the project implementation.

Site-specific barriers to implementing this QI project include short staffing, short appointment times, and a lack of training for nursing about asthma and the chosen interventions. Site-specific facilitators include the staff being accustomed to QI projects using the PDSA cycle. An additional facilitator is that the clinic already has workflows and processes for other chronic conditions. Therefore, the new workflow for asthma was modeled after current workflows for other chronic diseases such as diabetes, hypertension, and depression (See Appendix C.)

Key stakeholders for this QI project include providers and the healthcare team, including clerical staff, clinic management, patients and their families, organizational leadership, and more. The QI team is small, and the team lead role was filled by the DNP student, who was responsible for the day-to-day management of the project. The clinic nurse navigator and the lead provider had input regarding the technical components and systems input, and both are experts in QI methods. The office manager filled the role of the executive sponsor as she has power and leadership within the organization.

Resources required for this project included QI team personnel time for meetings and preparation. The DNP student led the QI team, and the team meeting time was limited to not distract team members from their primary job duties. The project required time for training personnel, which took time at two monthly staff meetings and during several daily huddles weekly for several weeks. After implementation, the project required approximately 1–2 minutes for each patient screened using the ACT and another several minutes to create and review an Asthma Action Plan if the ACT score indicated uncontrolled asthma. The EHR technology already included a health maintenance alert for ACT and Asthma Action Plan. The EHR also

already contains a module that the provider can use to complete an electronic Asthma Action Plan that can be printed and shared with the patient. Supplemental asthma educational materials were gathered from the NHLBI and Montana Asthma Control Program and organized in a cabinet. While not a necessary component of the new workflow, peak flow meters were stocked in the office by a local durable medical equipment provider. This project had a very minimal budget using existing clinic staff and resources approved by the clinic office manager.

## Quality Improvement Project Plan and Design

The QI initiative focused on improving patient outcomes by implementing processes and workflows at the clinic level. The process intervention also included a brief educational intervention targeting providers and support staff to prepare for the change. The project happened in four distinct phases using the Model for Improvement as the foundation:

Phase 1 Planning and Development: During this first phase, the QI team assembled and used the Model for Improvement by identifying the project aims, measures, and changes. Next, the QI team created a new workflow and staff training materials for asthma management. The training included ACT administration and a process to alert the provider when the ACT score indicated suboptimal control. The DNP student created a brief presentation and handouts about asthma action plan creation and general asthma education, including peak flow meter education. Peak flow meters were made available in the clinic if the provider decided a patient needed a peak flow meter or chose a peak flow-based Asthma Action Plan. During the early planning stages, the new workflow was piloted with one provider and one rooming staff team member. The pilot team trialed the new workflow was used for two weeks. During the two-week time frame, the pilot team used the new workflow approximately four times, and the pilot team did

not find any obvious or unexpected issues with the workflow. After this small pilot, final preparations for clinic-wide implementation occurred with the intention of launching the workflow.

The QI team planned to deliver education to staff via staff meetings at the nursing and provider staff meetings one month before implementation. The DNP student developed educational materials to cover asthma best practices per the EPR-3, including training about general asthma education, the ACT screen, Asthma Action Plans, Peak Flow Meter use, proper inhaler use, and a review of asthma materials available in the clinic.

Phase 2 Preparation for Clinic-wide Implementation: Materials, including a short presentation and corresponding workflow handouts, were created to be dispersed to rooming staff and providers. Ultimately, due to unforeseen barriers discussed later, the QI team decided to distribute materials and give a less formal presentation of the new workflows at morning huddles during the week leading up to the implementation date.

The DNP student gave providers and rooming staff folders full of printed materials on the new workflow. The materials included instructions on identifying patients needing ACT and when and how to alert the provider of an ACT score of uncontrolled asthma. In addition, the staff was provided with a review of asthma resources available in the clinic, standardized patient educational materials, and more. Rooming staff was encouraged to ask questions at huddle and give feedback and concerns regarding the new workflow.

Providers were given printed materials organized in individual folders on the new workflow and provider expectations and supporting materials. In addition, the providers were given information on how to complete Asthma Action Plans in the EMR and resources to reduce

barriers to achieving the action plans. Providers were also given materials reviewing best practices and a review of the asthma materials already available in the clinic.

The clinic staff was directed to contribute feedback to PDSA cycles by contacting the DNP student directly or leaving feedback in a particular area of the huddle board designated for the project. In addition, the QI team used this time during huddles to address questions and concerns from the staff.

Phase 3 Implementation of the New Workflow: The new workflow was implemented on January 31, 2021, with the short-term goal of increasing the percentage of patients with asthma diagnoses who complete the ACT during clinic visits. Starting on that date, approximately 75% of the rooming staff and provider teams implemented the new workflow. Some staff and providers missed the original brief educational intervention and were given the information within the next week. Any ACT score indicating uncontrolled asthma prompted the rooming staff to alert the provider to the patient's uncontrolled asthma. The QI team printed a list for each rooming staff member of the patient names and appointment times for the upcoming week when an ACT screen and Asthma Action Plan were indicated so staff would be prepared to use the new workflow.

During the first week of implementing the new workflow, the QI team was available the first two full days to observe and support the process and in the morning for two hours at the beginning of each workday. In addition, the DNP student sat in the huddle space and was available for questions and concerns as needed. The DNP student was then available intermittently for on-demand support for approximately 16 hours per week for the first several weeks of implementation. After one week of implementation, the first PDSA cycle was performed. The clinic was then presented with initial data in a run chart showing the percentage

of patients screened using the ACT and what percentage of patients received a completed Asthma Action Plan.

PDSA cycles have continued beyond the DNP project's five-week timeline, and the goals were ultimately adjusted based on the Model for Improvement. In addition, rooming staff and providers provided feedback to the QI team, primarily with verbal communications during check-ins during morning huddles. Other times, feedback was left with notes on a whiteboard designated for projects on the huddle board.

Phase 4 Data Collection and Analysis: Outcome data were collected. Outcome data were obtained via the Epic Dashboard for primary care. The report generates an Excel document including medical record number, age, sex, date of last office visit, date of last completed ACT screen, date of Asthma Action Plan completion, and other asthma-related data. In addition to the information provided by the report, chart audits were used to gather if ACT scores indicating uncontrolled asthma were addressed by the provider either via Asthma Action Plan, medication change, or referral to a specialist.

Outcome data were measured pre- and post-intervention. Four weeks of data from before the intervention (January 2021) will be compared to five weeks of post-intervention data (February 2022). The primary short-term outcomes analyzed were based on the project's SMART goals:

1) What percentage of the time did the ACT get completed for patients with asthma during office visits?
2) Did the provider acknowledge and address a score of ≤19 on the ACT?
3) Did the Asthma Action Plan get completed for patients with a score of ≤19 on the ACT?

## Ethical Considerations/Protection of Human Subjects

Before starting the QI project, the DNP student obtained approval with exempt status from the Montana State University (MSU) Internal Review Board (IRB). The IRB exempt protocol approval number is NW010322-EX. This project is a quality initiative improvement developing a process for implementing an evidence-based practice geared toward providers. The project was implemented to benefit human participants and did not increase the risk to patients. However, special attention to potential patient privacy and confidentiality risks was paid and appropriately managed. The participants in this project were protected by the Health Insurance Portability and Accountability Act of 1996 (HIPAA). HIPAA protects the privacy of patients' health information. In addition to adhering to HIPAA, the clinic staff and DNP student followed the primary care office standards of care. The data collected via reports did not include any patient identifiers beyond EMR numbers used to cross-reference and validate data via chart audits as necessary. All electronic files and spreadsheets containing any patient information or EMR numbers were stored on hospital-issued, password-protected computers accessed only by the QI team. The risks presented by participating in this project are no different from the risk of patients receiving the standard-of-care as there is no inherent risk of being screened using ACT or being provided an Asthma Action Plan.

# CHAPTER FOUR

# RESULTS

## Introduction

The QI project aimed to improve the quality of care given to asthma patients at a family medicine clinic through education and a new workflow. The QI team designed and implemented a staff education intervention, improved clinic resources, and introduced a new workflow incorporating the ACT screening and Asthma Action Plan. Participants' characteristics, as well as asthma patient characteristics, were gathered. Additionally, data were collected and compiled for process and outcome measures such as ACT screening completion rates and Asthma Action Plan completion rates utilizing Epic EHR reports.

## Participant Characteristics

Participants in this project were primary care providers and rooming support staff at the setting of interest, a primary care clinic associated with a non-profit hospital organization. Participants engaged in this project beginning in January 2022. There were ten provider participants, nine physicians, and one physician assistant. There were 14 rooming staff participants, half of which were registered nurses in addition to licensed practical nurses, medical assistants, and patient care technicians.

Table 1. General Characteristics of Provider Participants

| Variable | Frequency (n) | Percentage (%) |
|---|---|---|
| Professional Title | | |
| Physician (MD) | 8 | 80.0 |
| Physician (DO) | 1 | 10.0 |
| Physician Assistant (PA) | 1 | 10.0 |
| Years in Practice | | |
| <5 | 1 | 10.0 |
| 5-15 | 2 | 20.0 |
| 15-30 | 6 | 60.0 |
| >30 | 1 | 10.0 |

Table 2. General Characteristics of Rooming Staff Participants

| Variable | Frequency (n) | Percentage (%)* |
|---|---|---|
| Professional Title | | |
| Registered Nurse (RN) | 7 | 50.0 |
| Licensed Practical Nurse (LPN) | 4 | 28.5 |
| Medical Assistant (MA) | 1 | 7.1 |
| Patient Care Tech (PCT) | 2 | 14.3 |

*Response totals do not equal 100 due to rounding.

## Asthma Patient Characteristics

The setting of interest has 1,282 patients with a diagnosis of asthma, according to the Epic EMR report. The report pulls all patients at the setting of interest with any ICD code representing asthma; these ICD-10 codes used to generate the report are detailed in Table 3.

Table 3. Asthma ICD-10 Codes and Descriptions

| **ICD-10 Code** | **Description** |
|---|---|
| J45.2X | Mild intermittent asthma |
| J45.3X | Mild persistent asthma |
| J45.4X | Moderate persistent asthma |
| J45.5X | Severe persistent asthma |
| J45.90X | Asthma, unspecified |
| J45.990 | Exercise-induced bronchospasm |
| J45.991 | Cough variant asthma |
| J45.998 | Other asthma |

*The X fifth digit is used to describe asthma as uncomplicated (X=0), with exacerbation (X=1), and with status (X=2).

The patients in the clinic with asthma are primarily female (60%), ranging in age from 4 to 82 years old, with an average range of 42.8 years (SD=18.4). Nearly two-thirds of all asthma patients in the clinic have had appointments in the past year. Almost three-quarters of asthma patients in the clinic are prescribed a beta agonist, while only one in ten are currently prescribed an inhaled corticosteroid.

Table 4. General Characteristics of All Asthma Patients at the Setting of Interest

| Variable | Frequency (n) | Percentage (%)* |
|---|---|---|
| Sex | | |
| Male | 514 | 40.1 |
| Female | 768 | 59.9 |
| | | |
| Age | | |
| 4-9 | 10 | 0.8 |
| 10-14 | 30 | 2.3 |
| 15-19 | 72 | 5.6 |
| 20-29 | 267 | 20.8 |
| 30-39 | 221 | 17.2 |
| 40-49 | 222 | 17.3 |
| 50-59 | 177 | 13.8 |
| 60-69 | 167 | 13.0 |
| 70-79 | 96 | 7.5 |
| >80 | 21 | 1.6 |
| Interval Since Last Visit | | |
| <1 year ago | 838 | 67.7 |
| 1–2 years ago | 190 | 15.3 |
| >2 years ago | 210 | 17.0 |
| Prescribed Beta-Agonists | | |
| Yes | 909 | 73.4 |
| No | 239 | 26.6 |
| Prescribed Inhaled Corticosteroids | | |
| Yes | 134 | 10.8 |
| No | 1104 | 89.2 |
| Tobacco Use | | |
| Current Daily Smoker | 46 | 3.7 |
| Current Some Day Smoker | 23 | 1.9 |
| Former Smoker | 249 | 20.1 |
| Never Smoker | 824 | 66.6 |
| Passive Exposure | 18 | 1.5 |
| Never Assessed | 122 | 9.9 |

*Response totals may not equal 100 due to rounding.

## Process Measures

The QI project measured and tracked the process measures for four weeks prior to the project implementation and for four weeks after implementation. The items measured included

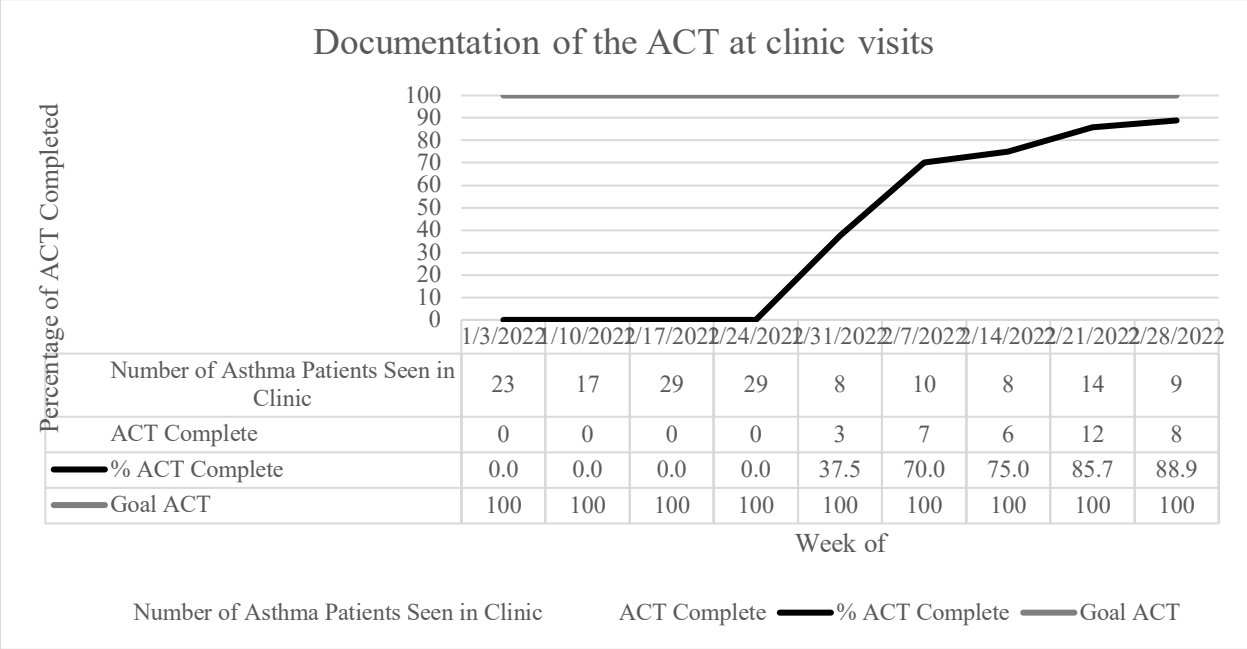
the number of EMR health maintenance alerts for ACT fired each week, how many ACT screenings were completed, the score of the ACT and how many indicated uncontrolled asthma, the number of Asthma Action Plans completed, and if and how uncontrolled asthma was addressed by the provider.

In the four weeks prior to project implementation, there were a total of 98 patients seen with an asthma diagnosis for all visit types and the same number of EMR alerts for ACT fired; zero of these patients had an ACT screening completed or an Asthma Action Plan completed. The report generated to monitor completion rates found 86 patients with asthma were seen in the clinic for any visit type during the 5 weeks post project implementation, however upon review and chart audit only 49 of those visits met the smart goal criteria of all visits except acute non-asthma visits. In the five weeks post-project implementation, there were 49 patients seen with an asthma diagnosis for a visit meeting goal criteria and the same number of EMR alerts for ACT fired; 36 of these patients had an ACT screening completed, and six of these patients had an Asthma Action Plan completed.

The first goal of the project was to complete ACT screening on 100% of patients with an asthma diagnosis in the clinic for all visit types except for acute non-asthma visits within five weeks of project implementation; during the fifth week of project implementation, 88.9% of ACT screens (8 out of 9) were performed falling short of this goal though trending upward significantly toward the first goal of the QI project.

During the five weeks post-project implementation, 73.4% of the time (n=36 out of 49), an alert for ACT was fired, the ACT screen was completed by rooming staff. During the same time frame, 26.5% (n=13 out of 49) of the time, it was unclear why the rooming staff did not perform the ACT during the clinic visit.

Figure 2. Documentation of the ACT at eligible clinic visits over time




| | 1/3/2022 | 1/10/2022 | 1/17/2022 | 1/24/2022 | 1/31/2022 | 2/7/2022 | 2/14/2022 | 2/21/2022 | 2/28/2022 |
|---|---|---|---|---|---|---|---|---|---|
| Number of Asthma Patients Seen in Clinic | 23 | 17 | 29 | 29 | 8 | 10 | 8 | 14 | 9 |
| ACT Complete | 0 | 0 | 0 | 0 | 3 | 7 | 6 | 12 | 8 |
| % ACT Complete | 0.0 | 0.0 | 0.0 | 0.0 | 37.5 | 70.0 | 75.0 | 85.7 | 88.9 |
| Goal ACT | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

The average ACT score collected was 22.5 out of 25, indicating that most asthma patients completing the ACT screen in the clinic had well-controlled asthma. During the five weeks after project implementation, 6 out of 36 ACT screenings performed revealed uncontrolled asthma. When the ACT screening revealed uncontrolled asthma 100% of the time, upon chart review, it was found that the ACT score was addressed. The provider took at least one action, sometimes two, to address uncontrolled asthma screening results. The actions the providers took included change in medications (n=4), referral to a specialist (n=2), and scheduling a follow-up clinic visit (n=2).

A secondary part of the goal to address uncontrolled asthma, as identified by ACT scores, was 80% of the time for the provider to complete an Asthma Action Plan during the appointment. The actions taken by the providers to address an ACT score indicating uncontrolled asthma did not include completing an Asthma Action Plan during the five weeks post-

implementation. However, six Asthma Action Plans were completed by providers during the first five weeks of implementation; all the patients for which an Asthma Action Plan was completed had ACT scores indicating well-controlled asthma. Despite falling very short of the goal, the number of Asthma Action Plans completed was significantly increased compared to the period before project implementation.

## Discussion

This QI project aimed to implement a new workflow to reflect current clinical practice guidelines for asthma. The new workflow incorporates processes for elements such as the ACT screening form and Asthma Action Plans and provided brief educational sessions and other helpful asthma resources. The project aligned with the 2007 EPR-3 from the NHLBI, which recommends the ACT, Asthma Action Plans, and appropriate patient education as necessary components of delivering high-quality care to asthma patients.

The QI project was able to successfully integrate the administration of the ACT at a family medicine clinic and begin to implement the use of the Asthma Action Plan. This practice change was implemented by all rooming staff and providers in the clinics. The findings suggest that implementing the ACT screen in a busy primary care clinic facilitates the identification of patients with poorly controlled asthma most in need of intervention.

While the rate of ACT implementation fell short of the goal to be completed 100% of the time, it was on par with the existing literature. For example, Sangvai et al. (2017) discussed ACT implementation at a large healthcare organization, and the goal completion rate was set at 70%, which took over six months to achieve. Additionally, the report used to tract ACT screen completion rate pulled information on all visit types, therefore the QI team needed to perform

chart audits to accurately determine if the visit was for an acute non-asthma visit or not as the first goal specified the visit type. Performing chart audits required a significant time weekly and would be less feasible without the DNP student moving forward.

After reconsideration of the PDSA cycle data, the time investment needed for chart audits, and the new evidence from Sangvai et al. (2017), the QI team agreed that a more reasonable goal would be ≥75% ACT completion rate for all clinic visit types. Informal feedback from rooming staff was that it was that the ACT screen was doable and did not take as much time as anticipated to complete.

The project findings indicate that when the ACT screen identifies uncontrolled asthma, the clinic providers consistently address uncontrolled asthma through appropriate actions. However, one unexpected result was that the providers did not complete any Asthma Action Plans for patients with uncontrolled asthma. In personal communications with providers, several factors were identified explaining the gap in expectation to implementation, primarily that it was challenging to complete the Asthma Action Plan zones when medications were changed at the visit or when the provider referred to a specialist and anticipated there would be future medication changes. Additional or alternative explanations for not completing Asthma Action Plans for patients with uncontrolled asthma included prioritizing other interventions and anticipating completing an Asthma Action Plan at the follow-up visit. Additionally, a few providers who had not attended huddles or meetings were only provided folders with the project materials and were unaware of the short-term goal.

## Challenges Encountered

Several challenges and barriers arose during the implementation of the QI project. Short staffing was one significant barrier that was anticipated during the planning phase but persisted throughout the QI project duration. Several of the rooming staff were still completing orientation during the project implementation. Due to a surge in COVID-19 cases, several staff members were home in isolation, and in-person meetings were reverted to the teleconferencing format. The educational session planned to launch the QI project was transitioned to a more informal presentation during pre-existing morning huddles. Attendance from provider staff was low during morning huddles, resulting in a delay and inconsistent dissemination of information to many of the provider staff. The QI team also lost two key members who moved into other professional roles. A combination of these factors delayed the start of the QI project by nearly four weeks. Retrospectively, the DNP student and QI team realized that more communication with providers via other means such as email and instructional videos could have been valuable.

## Facilitators

There were several facilitators to this project; first, the clinic staff had used PDSA cycles before for other QI initiatives. An unexpected facilitator was that the use of informal huddles to disseminate information led to an open and honest conversation surrounding the project. Several staff team members asked questions and shared input for the PDSA cycles. For example, integrating the use of peak flow meters was initially thought to be a barrier by providers involved in the initial planning stages of the project; however, with additional support from other providers and rooming staff, the clinic is working on adding peak flow meter readings to the

workflow. Another example is that a provider had the idea for a future campaign to call patients due for ACT screening, have staff complete the screen over the telephone, and schedule follow-up visits if the ACT screen indicates uncontrolled asthma. A spirometry device was found in a cabinet, and the clinic is considering training a staff member to perform spirometry. Additionally, several unexpected staff members began to champion the project during the informal huddle sessions, became actively involved, and helped carry the project forward.

## Limitations

A significant limitation of the QI project is that it was implemented within only one medium-sized clinic consisting of 10 providers and 14 rooming staff members. While the clinic has a large panel of patients with an asthma diagnosis (n=1283), the time frame for this QI project was short and condensed to five weeks, only catching a small fraction of these patients. In addition, due to the short project time frame, there was not enough time to track whether Asthma Action Plans were being completed at arranged follow-up visits or not. Another limitation is that the providers wanted the autonomy to use the preferred Asthma Action Plan of the provider, which would potentially confer some variability in long-term patient outcomes. Additionally, some specific features of the site are not universal such as the EMR capabilities or existing resources for asthma available in the clinic.

## Feasibility and Plan for Sustainability

Based on initial feedback from stakeholders, there was concern about initiating a project that would consume significant resources during a time of severe staffing shortage. Initial plans had the goal of completing an Asthma Action Plan for every patient with asthma, but this was

viewed as excessive use of time for nursing and providers. Therefore, a plan was developed to screen all patients with the ACT and limit completion of the Asthma Action Plans for only patients with uncontrolled asthma. However, through implementation, it was realized that the preferred action to address uncontrolled asthma was not an Asthma Action Plan but rather referrals or medication changes. Therefore, moving forward, providers will work on completing Asthma Action Plans for patients during wellness visits. Additionally, Asthma Action Plans will be completed at follow-up visits scheduled if and when the ACT indicates uncontrolled asthma. One recommendation for the setting of interest is to standardize the Asthma Action Plan used to reduce variability and long-term outcomes; the Asthma Action Plan available in the EHR uses peak flow meter readings and would be the preferred plan to use.

The initial project was scaled back, and critical elements of the EPR-3, such as peak flow meters, were removed to ensure initial feasibility while maintaining staff buy-in. The intention that the most at-risk and vulnerable patients with poorly controlled asthma will still benefit from the intervention has proven true. All patients with low ACT scores indicating uncontrolled asthma have taken appropriate actions and scheduled follow-up clinic visits. Looking toward the future, the healthcare team will eventually begin to incorporate other elements of the EPR-3, such as peak flow meters and pulmonary function testing. Peak flow meters have already been made available in the clinic through a local durable medical equipment supplier. The rooming staff has been trained to show patients how to use them properly, and handouts for patients have been made available. Many educational materials have been introduced to the clinic and are now neatly organized in an asthma kit, which should require minimal maintenance over the years.

As a goal, in the long term, this project would lead to increased ACT scores for patients with uncontrolled asthma, indicating an improvement in asthma control and a reduction in

asthma symptoms. Therefore, the recommendation for the setting of interest is to continue monitoring ACT scores to assess whether the QI initiative improves asthma symptoms and control for patients over the long term. In addition, higher ACT scores have been correlated with reduced emergency room visits and hospitalizations; therefore, continuing to monitor these outcomes would show whether the project's long-term outcome goals are met. Ideally, following up in 12 months to see if there was a reduction in emergency department visits and hospitalizations from the 12 months before the QI project implementation could ensure that the higher-level outcome goals are met.

Overall, the findings of this QI project fit in with existing knowledge and the EPR-3 guidelines that the ACT screen is a valuable tool and has a place in routine use in the clinical setting. Additionally, the findings showed slow uptake of the Asthma Action Plan, fitting in with existing evidence that they are valuable, underutilized, and challenging to implement.

# CHAPTER FIVE

# DNP ESSENTIALS

## DNP Essentials

At the beginning of the DNP journey, I had some idea of the essentials and what separated the DNP-prepared nurse from other healthcare professionals. Throughout the course of the DNP degree, coursework that was more varied than anticipated addressed all the DNP essentials. The development and execution of this project address most of the eight DNP essentials, if not in some way all the essentials. After completing this project and the coursework, I better understand that meeting the essentials uniquely positions DNP-prepared nurses to lead healthcare change.

Essential I is about the scientific underpinnings for nursing practice. Before beginning the DNP degree, I had a very solid scientific background with a previous degree in biology and varied experiences in the past. However, I worked toward meeting this essential by completing various coursework to broaden my understanding of nursing sciences and other scientific domains such as biological, psychosocial, statistical, and analytical sciences. In addition to the sciences, I was expecting to learn more about, there was also foundational education provided in engineering and organizational sciences. The DNP coursework increased my knowledge and exposed me to various scientific domains that will increase my future ability to apply science and nursing-based approaches to address healthcare problems by providing a broad and deep foundation.

Essential II is about organizational and systems leadership for quality improvement. While I knew that the DNP role would prepare me for potential leadership roles, I was less knowledgeable about how it would change me to be a "systems thinker." Throughout the coursework, I learned about various frameworks and strategies for implementing systems change, including the Model for Improvement, which was used for this project. This essential was met by meeting with organizational stakeholders and integrating the QI project. While this project was implemented in one clinic and not implemented organization-wide, it aligned with the organization's values and mission. The project provided an opportunity to focus on improving quality for a panel of patients/specific target population instead of an individual patient's needs. One of the more challenging parts of this DNP project was understanding the needs of the setting of interest and balancing the desire to implement an improved workflow with productivity. This project allowed for an opportunity for me to assume a leadership role in an organization and use a systems approach to improve quality that otherwise would not have been possible.

Essential III is about clinical scholarship and analytical methods for evidence-based practice. Reviewing and synthesizing the available scientific literature to develop and guide this intervention helped meet this essential. I was prepared to undertake a thorough and methodical investigation of the evidence through previous coursework, including multiple complete courses in evidence-based practice. These courses taught me to utilize standardized tools and evidence tables to review existing evidence. In addition, these courses taught me how to use evidence with a scrutinizing and discriminating eye to understand the strengths and limitations of the evidence. I reviewed thousands of pages of evidence for this project, yet a big picture understanding of the

problem and evidence at hand could be brought into view to translate the research to practice meeting this essential.

Essential IV is about using information technology and systems to improve and transform healthcare. This essential was met by using EHR technology as a tool to assist this project. In addition, the EHR was used to extract data to evaluate the project's outcomes. While I did not have the opportunity to develop or change the EHR used, it was used heavily throughout this project, and I needed to understand how it worked, its limitations, and how to troubleshoot. As a result, I will feel much more prepared to use technology for similar projects in the future. The role of technology in the future of healthcare will be vital, and DNP leaders will be integral to leading this change. While using the EHR was initially very challenging, with some minimal support, it became exciting. Using the EHR opened up an exciting new realm and a way to explore patient care. Using EHR technology in this way is a new skill set that will uniquely distinguish me as a DNP-prepared nurse from other nurses. I hope that I have the opportunity to use EHR technology to implement other QI projects in the future.

Essential V is about healthcare policy for advocacy in healthcare. While I did not specifically address this essential through the DNP project, it was addressed throughout various coursework, mainly through the Healthcare Policy Course. DNP coursework provided a framework to better understand how policy is made and how to analyze health policy. While I have not had ample opportunity to design or influence health care policies to work toward reducing disparities, I hope in the future that I can incorporate more advocacy into my personal and professional life.

Essential VI is about interprofessional collaboration for improving patient and population health outcomes. This essential was achieved by the cooperation and collaboration of

stakeholders and participants with different roles within the healthcare team to work on this project. The project required forming a team with a wide variety of professional members. The project required much more interprofessional effort than anticipated, working with members such as providers, rooming staff, clerical staff, durable medical equipment providers, nurse navigators, information technology, management, and more. Despite being a nurse for many years, I had to act as a consultant to listen to the various stakeholders. Beyond working with different professionals, there was an element of bargaining with all professionals involved, which required modifying the original project plan to ensure feasibility and sustainability for all members. I had the opportunity to use effective communication and learn how to improve my communication with different team members. In the end, effective communication with various team members led to the successful implementation of a new workflow that benefited patients and worked well for all team members. Also, I believe this project highlighted to the other team members the unique value the DNP degree brings, hopefully conferring some mutual respect as I move into a new role as a DNP.

Essential VII is about clinical prevention and population health for improving the nation's health. Throughout this DNP course, I have learned how important it is not just to address illness but to promote health in individuals and families. This DNP project addressed a gap in care for asthma patients at the setting of interest. In addition to addressing a gap in screening, it also included incorporating patient education to improve wellbeing. While the project was still implemented at the practice level instead of the community level, it was still an opportunity to think about population health instead of individual health.

Essential VIII is about advanced practice nursing in the specialty of choice. The specialty I chose, family/individual, is an area where I have worked as a nurse for many years. While this

project did not specifically address this area, it was implemented in a family medicine setting, a setting similar to where I plan to work. In addition, several hundred hours of clinical practice focusing on the family and individuals in this area has helped me to work toward meeting this essential. Before starting this journey, I formed therapeutic relationships with patients as a nurse, which allowed for an easy transition to doing the same as a provider. However, the role of family/ individual nurse practitioner requires much more, including conducting a systematic assessment of health and illness in complex situations; this is challenging to do with skill, and I am still working toward this. However, throughout those hours of clinical practice, I have grown tremendously to meet this essential and work on developing the ability to form an appropriate assessment and plan. I will continue to work toward mastery of this essential, likely for years to come. Another component of this essential is to mentor other nurses to contribute to excellence in nursing practice; while I am not yet an expert nurse practitioner, I am optimistic that in the future, I can engage in this role in some way, whether it be through being a preceptor or otherwise.

After achieving the DNP degree and meeting the DNP Essentials, I am optimistic about my future career. While I intend to practice as a provider in a family medicine setting, I know that there are opportunities in leadership, research, or education. Learning about all the possible roles for the DNP-prepared nurse allows for some flexibility to see where my professional path and interests lead me. I would not be surprised if I ended up working in an academic setting at some point in my life, as I value being a lifelong learner. The most important part of the essentials is that they outline exactly what makes a DNP-prepared nurse well-suited to not only practice as a provider but also to influence and lead healthcare change. Because of the essentials,

I can see what unique value I have that can bring positive change to healthcare as a DNP-prepared nurse.

# REFERENCES CITED

American Thoracic Society. (2020). Asthma Control Test. Retrieved October 9, 2021, from https://www.thoracic.org/members/assemblies/assemblies/srn/questionaires/act.php.

Asthma and Allergy Foundation of America (2020). *Spotlight: Asthma disparities among indigenous americans. https://www.aafa.org/media/2830/asthma-disparities-among-indigenous-americans.pdf*

Centers for Disease Control and Prevention. (2022). Most recent asthma data. Retrieved April 17, 2022, from https://www.cdc.gov/asthma/most_recent_data.htm

Centers for Disease Control and Prevention. (2016). Uncontrolled asthma among adults, 2016. Retrieved April 17, 2022, from https://www.cdc.gov/asthma/asthma_stats/uncontrolled-asthma-adults.htm

de Asis, M. L., & Greene, R. (2004). A cost-effectiveness analysis of a peak flow-based asthma education and self-management plan in a high-cost population. The Journal of asthma : official journal of the Association for the Care of Asthma, 41(5), 559–565.

Ducharme, F. M., Zemek, R. L., Chalut, D., McGillivray, D., Noya, F. J., Resendes, S., Khomenko, L., Rouleau, R., & Zhang, X. (2011). Written action plan in pediatric emergency room improves asthma prescribing, adherence, and control. American journal of respiratory and critical care medicine, 183(2), 195–203. https://doi.org/10.1164/rccm.201001-0115OC

Farag, H., Abd El-Wahab, E. W., El-Nimr, N. A., & Saad El-Din, H. A. (2018). Asthma action plan for proactive bronchial asthma self-management in adults: a randomized controlled trial. International health, 10(6), 502–516. https://doi.org/10.1093/inthealth/ihy050

Foster, J. M., Smith, L., Usherwood, T., Sawyer, S. M., & Reddel, H. K. (2016). General practitioner-delivered adherence counseling in asthma: feasibility and usefulness of skills, training and support tools. The Journal of asthma : official journal of the Association for the Care of Asthma, 53(3), 311–320. https://doi.org/10.3109/02770903.2015.1091473

Gibson, P. G., Powell, H., Coughlan, J., Wilson, A. J., Abramson, M., Haywood, P., Bauman, A., Hensley, M. J., & Walters, E. H. (2003). Self-management education and regular practitioner review for adults with asthma. The Cochrane database of systematic reviews, (1), CD001117. https://doi.org/10.1002/14651858.CD001117

Goronfolah, L., Abulaban, A., Barnawi, A. I., Jawi, M., Alhadhrami, W., & Baatiah, N. Y. (2019). The Effectiveness of Written Asthma Action Plan at the National Guard Health Affairs' Asthma Clinic. Cureus, 11(11), e6247. https://doi.org/10.7759/cureus.6247

Institute for Healthcare Improvement. (2017). How to improve. Retrieved April 17, 2022, from http://www.ihi.org/resources/Pages/HowtoImprove/default.aspx

Jia, C. E., Zhang, H. P., Lv, Y., Liang, R., Jiang, Y. Q., Powell, H., Fu, J. J., Wang, L., Gibson, P. G., & Wang, G. (2013). The Asthma Control Test and Asthma Control Questionnaire for assessing asthma control: Systematic review and meta-analysis. The Journal of allergy and clinical immunology, 131(3), 695–703. https://doi.org/10.1016/j.jaci.2012.08.023

Kawamanto, K., Flynn, M. C., Kukhareva, P., ElHalta, D., Hess, R., Gregory, T., Walls, C., Wigren, A. M., Borbolla, D., Bray, B. E., Parsons, M. H., Clayson, B. L., Briley, M. S., Stipelman, C. H., Taylor, D., King, C. S., Del Fiol, G., Reese, T. J., Weir, C. R., Taft, T., … Strong, M. B. (2018). A Pragmatic Guide to Establishing Clinical Decision Support Governance and Addressing Decision Support Fatigue: a Case Study. *AMIA ... Annual Symposium proceedings. AMIA Symposium*, *2018*, 624–633.

Kouri, A., Boulet, L. P., Kaplan, A., & Gupta, S. (2017). An evidence-based, point-of-care tool to guide completion of asthma action plans in practice. The European respiratory journal, 49(5), 1602238. https://doi.org/10.1183/13993003.02238-2016

Meleis, A. I. (Ed.). (2010). *Transitions theory: Middle-range and situation-specific theories in nursing research and Practice*. Springer Publishing Company.

Montana Department of Public Health and Human Services (MDPHHS). (2020). The burden of asthma in Montana, 2020. Retrieved from http://dphhs.mt.gov/Asthma/data.

Nathan, R. A., Sorkness, C. A., Kosinski, M., Schatz, M., Li, J. T., Marcus, P., Murray, J. J., & Pendergraft, T. B. (2004). Development of the asthma control test: a survey for assessing asthma control. The Journal of allergy and clinical immunology, 113(1), 59–65. https://doi.org/10.1016/j.jaci.2003.09.008

National Heart, Lung, and Blood Institute, National Asthma Education and Prevention Program. (2007) Expert Panel Report 3: *guidelines for the diagnosis and management of asthma full report.* NIH publication no. 07-4051. https://www.nhlbi.nih.gov/sites/default/files/media/docs/EPR-3_Asthma_Full_Report_2007.pdf

Taylor, M. J., McNicholas, C., Nicolay, C., Darzi, A., Bell, D., & Reed, J. E. (2014). Systematic review of the application of the plan-do-study-act method to improve quality in healthcare. BMJ quality & safety, 23(4), 290–298. https://doi.org/10.1136/bmjqs-2013-001862

Ring, N., Booth, H., Wilson, C., Hoskins, G., Pinnock, H., Sheikh, A., & Jepson, R. (2015). The 'vicious cycle' of personalised asthma action plan implementation in primary care: a qualitative study of patients and health professionals' views. *BMC family practice*, *16*, 145. https://doi.org/10.1186/s12875-015-03

Sangvai, S., Hersey, S. J., Snyder, D. A., Allen, E. D., Hafer, C., Wickliffe, J., & Groner, J. A. (2017). Implementation of the Asthma Control Test in a Large Primary Care Network. Pediatric quality & safety, 2(5), e038. https://doi.org/10.1097/pq9.0000000000000038

Sheares, B. J., Mellins, R. B., Dimango, E., Serebrisky, D., Zhang, Y., Bye, M. R., Dovey, M. E., Nachman, S., Hutchinson, V., & Evans, D. (2015). Do Patients of Subspecialist Physicians Benefit from Written Asthma Action Plans?. American journal of respiratory and critical care medicine, 191(12), 1374–1383. https://doi.org/10.1164/rccm.201407-1338OC

van Dijk, B.C.P., Svedsater, H., Heddini, A., Nelsen, L., Balradj, J.S., & Alleman, C. (2020). Relationship between the asthma control test (ACT) and other outcomes: a targeted literature review. BMC Pulm Med 20(79). https://doi.org/10.1186/s12890-020-1090-5

Walter, H., Sadeque-Iqbal, F., Ulysse, R., Castillo, D., Fitzpatrick, A., & Singleton, J. (2015). The effectiveness of school-based family asthma educational programs on the quality of life and number of asthma exacerbations of children aged five to 18 years diagnosed with asthma: a systematic review protocol. JBI database of systematic reviews and implementation reports, 13(10), 69–81. https://doi.org/10.11124/jbisrir-2015-2335

Wiener-Ogilvie, S., Pinnock, H., Huby, G., Sheikh, A., Partridge, M. R., & Gillies, J. (2007). Do practices comply with key recommendations of the British Asthma Guideline? If not, why not?. Primary care respiratory journal : journal of the General Practice Airways Group, 16(6), 369–377. https://doi.org/10.3132/pcrj.2007.00074

Yaghoubi, M., Adibi, A., Safari, A., Fitzgerald, J.M., & Sadatsafavi, M. (2019). The projected economic and health burden of uncontrolled asthma in the united states. *American Journal of Respiratory and Critical Care Medicine*, 200(9), https://doi.org/10.1164/rccm.2https://doi.org/10.1164/rccm.201901-0016OC 01901-0016OC

# APPENDICES

# APPENDIX A

## ASTHMA CONTROL TEST

_____ Today's Date: _____

_____ Patient's Name: _____

_____

FOR PATIENTS:

## Take the Asthma Control Test™ (ACT) for people 12 yrs and older.

Know your score. Share your results with your doctor.

**Step 1** Write the number of each answer in the score box provided.

**Step 2** Add the score boxes for your total.

**Step 3** Take the test to the doctor to talk about your score.

| | | | | | | | | | SCORE |
|---|---|---|---|---|---|---|---|---|---|
| 1. In the past **4 weeks**, how much of the time did your **asthma** keep you from getting as much done at work, school or at home? | All of the time | 1 | Most of the time | 2 | Some of the time | 3 | A little of the time | 4 | None of the time 5 | |
| 2. During the past **4 weeks**, how often have you had shortness of breath? | More than once a day | 1 | Once a day | 2 | 3 to 6 times a week | 3 | Once or twice a week | 4 | Not at all 5 | |
| 3. During the past **4 weeks**, how often did your **asthma** symptoms (wheezing, coughing, shortness of breath, chest tightness or pain) wake you up at night or earlier than usual in the morning? | 4 or more nights a week | 1 | 2 or 3 nights a week | 2 | Once a week | 3 | Once or twice | 4 | Not at all 5 | |
| 4. During the past **4 weeks**, how often have you used your rescue inhaler or nebulizer medication (such as albuterol)? | 3 or more times per day | 1 | 1 or 2 times per day | 2 | 2 or 3 times per week | 3 | Once a week or less | 4 | Not at all 5 | |
| 5. How would you rate your **asthma** control during the **past 4 weeks**? | Not controlled at all | 1 | Poorly controlled | 2 | Somewhat controlled | 3 | Well controlled | 4 | Completely controlled 5 | |
| | | | | | | | | | TOTAL | |



**If your score is 19 or less, your asthma may not be controlled as well as it could be. Talk to your doctor.**

FOR PHYSICIANS:

**The ACT is:**

- A simple, 5-question tool that is self-administered by the patient
- Clinically validated by specialist assessment and spirometry[1]
- Recognized by the National Institutes of Health

Reference: 1. Nathan RA et al. *J Allergy Clin Immunol*. 2004;113:59-65.

# APPENDIX B

## SWOT ANALYSIS AND FISHBONE DIAGRAM

| **Internal Factors** | |
|---|---|
| **Strengths (+)** | **Weaknesses (-)** |
| -Clinic is interested in QI initiative<br><br>-Skilled staff who is already trained in management of health maintenance items for other chronic disease processes<br><br>-QI team is experience with QI initiatives | -Short appointment times for patients<br><br>-Clinic busy and nurses responsible for many tasks during appointment rooming process<br><br>-Providers and nursing staff need education and support on this topic<br><br>-A few staff members adverse to change/more responsibility |
| **External Factors** | |
| **Opportunities (+)** | **Threats (-)** |
| -Expand project in the future to all visit types<br><br>-Expand project in the future to asthma action plan regardless of ACT score | -COVID-19 pandemic evolving and impacting clinic activities (some patients hesitant to come into clinic, providers being diverted to viral care)<br><br>-Short staffing organization, state, and nationwide<br><br>-Patient's may not |

# APPENDIX C

## SITE REPRESENTATIVE FORM

# Site Representative Form

Student: Nicole Wing

Project Site Representative: Kristine Graham

Email: KGraham@bozemanhealth.org

Phone number (preferred contact number): 406-490-5484

Project Site Name and Address: Bozeman Health Family Medicine

935 Highland Blvd Suite 2200

Bozeman, MT 59715

Proposed Practice Problem to be addressed: Improve Asthma outcomes

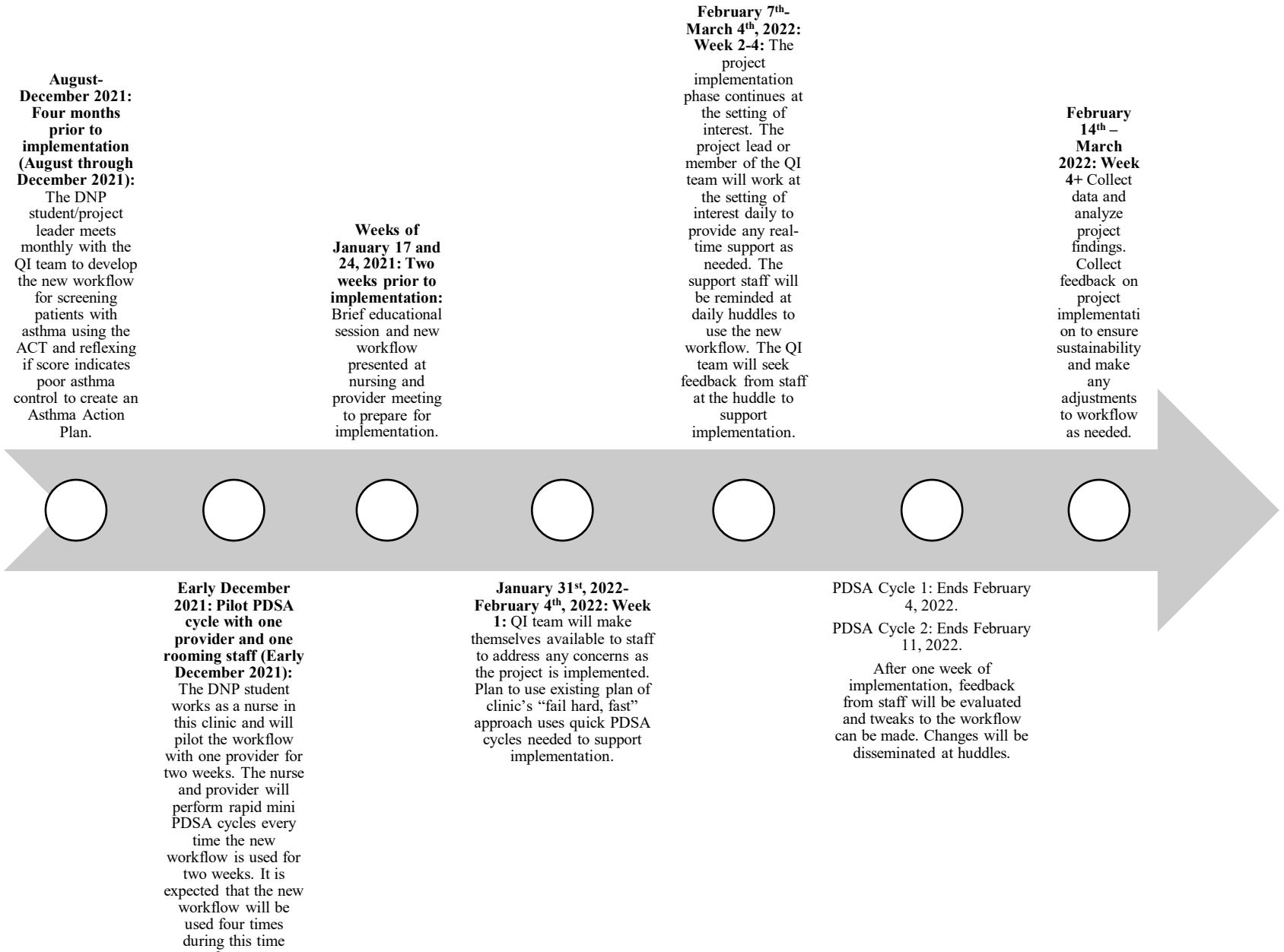
Proposed Intervention: Develop and streamline process for administering Asthma Control Test, completing Asthma Action Plans

Signature of Project Site Representative:

CV/Resume attached

# APPENDIX D

## PROJECT TIMELINE


**August-December 2021: Four months prior to implementation (August through December 2021):** The DNP student/project leader meets monthly with the QI team to develop the new workflow for screening patients with asthma using the ACT and reflexing if score indicates poor asthma control to create an Asthma Action Plan.
**Early December 2021: Pilot PDSA cycle with one provider and one rooming staff (Early December 2021):** The DNP student works as a nurse in this clinic and will pilot the workflow with one provider for two weeks. The nurse and provider will perform rapid mini PDSA cycles every time the new workflow is used for two weeks. It is expected that the new workflow will be used four times during this time frame.
**Weeks of January 17 and 24, 2021: Two weeks prior to implementation:** Brief educational session and new workflow presented at nursing and provider meeting to prepare for implementation.
**January 31st, 2022-February 4th, 2022: Week 1:** QI team will make themselves available to staff to address any concerns as the project is implemented. Plan to use existing plan of clinic's "fail hard, fast" approach uses quick PDSA cycles needed to support implementation.
**February 7th-March 4th, 2022: Week 2-4:** The project implementation phase continues at the setting of interest. The project lead or member of the QI team will work at the setting of interest daily to provide any real-time support as needed. The support staff will be reminded at daily huddles to use the new workflow. The QI team will seek feedback from staff at the huddle to support implementation.
PDSA Cycle 1: Ends February 4, 2022.
PDSA Cycle 2: Ends February 11, 2022.
After one week of implementation, feedback from staff will be evaluated and tweaks to the workflow can be made. Changes will be disseminated at huddles.
**February 14th – March 2022: Week 4+** Collect data and analyze project findings. Collect feedback on project implementation to ensure sustainability and make any adjustments to workflow as needed.

# APPENDIX E

## PDSA CYCLE LOG DNP STUDENT'S NOTES AND FINDINGS

## **PDSA Cycle 1** Timeframe: January 31, 2022–February 4, 2021

| | |
|---|---|
| **Plan** | **Can the clinic start using the new asthma workflow?** Can rooming staff complete ACT screen? Can providers address uncontrolled asthma using new workflow? |
| **Do** | Rooming staff directed to start using new workflow and administering ACT screen. Resources/instructional folders given to providers. |
| **Study** | 1. Not all rooming staff had ACT screening tab wrenched into Flowsheet tab and were unable to record ACT results without IT help or help from a nurse or DNP student who knew how to access the flowsheet.<br>2. Rooming staff asked for laminated sheets of ACT screen to be filled out using dry erase markers as previously planned but not yet back from print shop.<br>3. Provider asked for rooming staff asked for additional training on how to teach patients to use peak flow meters. Rooming staff also independently made this request.<br>4. Staff asked for asthma resources to be consolidated and organized in one area of the office.<br>**ACT Screens Completed: 3/24 (8%)**<br>**Asthma Action Plans Completed: 0/24 (0%)** |
| **Act** | 1. IT support, DNP student, and a nurse champion provided elbow support to rooming staff wrenching in ACT tab.<br>2. Laminated ACT screens made by front office staff.<br>3. YouTube video found demonstrating good peak flow meter use. Handout with instructions for patient found from the NHLBI. Plan to review during morning huddles next time DNP student in office.<br>4. "Asthma Kit" cabinet made and labeled. Filled with all asthma information and resources. |

## **PDSA Cycle 2** Timeframe: February 7, 2022- February 11, 2021

| | |
|---|---|
| **Plan** | **Will changes in the plan and new resources increase rates of ACT screens and asthma action plans?** |
| **Do** | Rooming staff directed to continue new workflow and administering ACT screen. |
| **Study** | 1. Rooming staff reporting increasing success with ACT screen completion. Some rooming staff offer that they used nursing judgment to not complete ACT screen (patient being seen for another acute problem in a short time slot).<br>2. Providers request more information to be presented at upcoming staff meeting on 2/16/2021. Feedback that perhaps would have been better to sequentially roll out project (i.e., start with ACT screen, add on asthma action plan, etc.)<br>3. Offered rooming staff lists of patients needing ACT for the week—this was felt to be a good help to prepare to use new workflow. |

| | |
|---|---|
| | 4. All patients on asthma reports used for QI project may not have asthma diagnosis.<br>**ACT Screens Completed: 7/17**<br>**Asthma Action Plans Completed: 0/17** |
| **Act** | 1. Consider appropriate goal for project. Look to literature to find goals for similar projects using a screening tool.<br>2. Focus effort on ACT administration this week and getting rates up. Focus next week on asthma action plans and the provider piece of the new workflow. DNP will present information at upcoming staff meeting.<br>3. Generated and distributed lists of patients needing ACT done for the week.<br>4. Encouraged providers to update charts as needed to accurately reflect asthma diagnosis or lack thereof on problem lists. |

## **PDSA Cycle 3** Timeframe: February 14, 2022- February 18, 2021

| **Plan** | **Will changes in the plan and new resources increase rates of ACT screens and asthma action plans?** |
|---|---|
| **Do** | Rooming staff directed to continue new workflow and administering ACT screen. |
| **Study** | 1. Rooming staff reporting increasing success with ACT screen completion. Some rooming staff offer that they used nursing judgment to not complete ACT screen (patient being seen for another acute problem in a short time slot).<br>2. IT issues with health maintenance. Sometimes completion of ACT does not remove it from the to do list on health maintenance. There are other asthma questions about hospitalizations and steroid use outside ACT that must be answered to fulfill the requirement. This may affect Epic reports.<br>**ACT Screens Completed: 6/11**<br>**Asthma Action Plans Completed: 1/11** |
| **Act** | 1. Continuing to consider appropriate goals for project for ACT completion rates. Look to literature to find goals for similar projects using a screening tool. Would like to see ACT completion rates be optimized and stabilized prior to determining goal.<br>2. IT issues: Workaround taught to rooming staff. Ticket submitted to Epic EMR for assistance.<br>3. Continue to provide rooming staff with lists of upcoming asthma patients; while this is working well need to evaluate long-term sustainability. Takes approximately 20 minutes each Monday morning. Lists are not always accurate as patients cancel and schedule last minute. |

## **PDSA Cycle 4** Timeframe: February 21, 2022- February 25, 2021

| | |
|---|---|
| **Plan** | **Will changes in the plan and new resources increase rates of ACT screens and asthma action plans?** |
| **Do** | Rooming staff directed to continue new workflow and administering ACT screen. |
| **Study** | 1. Continue to monitor any IT issues surrounding ACT. Staff seeming to be able to use work around to get ACT to be completed on health maintenance.<br>2. Shift focus from ACT screen to asthma action plan completion; discuss low rates with providers.<br>**ACT Screens Completed: 12/20**<br>**Asthma Action Plans Completed: 2/20** |
| **Act** | 1. IT issues largely resolved.<br>2. Continue to provide support to providers to complete asthma action plans. Consider other resources to increase completion rates. |

## **PDSA Cycle 5** Timeframe: February 28, 2022- March 4, 2021

| | |
|---|---|
| **Plan** | **Will changes in the plan and new resources increase rates of ACT screens and asthma action plans?** |
| **Do** | Rooming staff directed to continue new workflow and administering ACT screen. |
| **Study** | 1. Rooming staff reporting increasing comfort level with ACT screen completion.<br>2. Informal feedback from providers is ACT screen is helpful to satisfy health maintenance and address asthma control.<br>**ACT Screens Completed: 8/12**<br>**Asthma Action Plans Completed: 3/12** |
| **Act** | 1. Consider making a decision to reset goal of ACT completion to 75% reflecting literature and this week's chart review that reveals all ACT screens not performed were due to the office visit being for another acute issue and deferring the ACT was appropriate. See if this holds over the next few weeks before officially changing the goal.<br>2. Continue to provide support to providers to complete asthma action plans. Consider other resources to increase completion rates. Preliminary ideas include: Pursuing grants—another office gave incentive bonuses to staff (would like to avoid this but could also increase motivation)? Additional training session? Reach out to pulmonology or asthma offices to see if our patients have plans on file with their offices? |