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Improving Communication of Asthma Related Care Between Pediatric Primary Care Providers and Schools

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Improving Communication of Asthma Related Care Between Pediatric Primary Care Providers
and Schools

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Abstract

Introduction: Asthma is a life-altering chronic disease that affects many children throughout the state of Michigan. Evidence-based guidelines recommend a written asthma action plan (AAP) be given to all caregivers of children with asthma. This would include schools, but the plans are not making it there. This project focused on collecting school asthma data and designing a process change at a local clinic to send the plans directly to the schools.

Objectives: The goal of this project was to improve communication between healthcare providers and schools for children with asthma. The objectives were to increase the percentage of children with asthma who had asthma action plans and to send the AAP directly to the school from the clinic. Additionally, information was collected from the schools to evaluate asthma care in the community.

Methods: A process change was implemented among staff members in a small, pediatric clinic in southern lower Michigan. Also, a school survey was electronically sent to all schools in the county. The process change tracked the number of AAPs going to schools and counted how many asthma patients received AAPs during appointments. The intervention was guided by the Donabedian model and implementation guided by the Promoting Action on Research Implementation in Health Services (PARiHS) framework.

Results: Responses from the school survey revealed that most county schools (87.5%) did not have a nurse on staff. Additionally, in over 70% of the schools that responded, office personnel were primarily in charge of routine asthma care for students. Most schools had a low rate (< 25%) of AAPs on file for asthmatic students and staff stated that they found having an AAP on file was very useful. The process change was executed over 12 weeks and staff adjusted well

to the change, resulting in 73% of eligible children seen in the office receiving written AAPs and having them sent directly to schools via fax at the time of the visit.

Conclusions: Data from the school survey gave insight on current asthma care in schools and the schools' desires for communication with healthcare providers. Implementing a process change focused on AAPs was successful and the office was able to provide written AAPs to schools for over 70% of asthmatic students seen in the office during the process change.

Implications: This intervention of sending AAPs directly to schools improved communication between healthcare providers and schools where asthma care is given. Asthma management can be improved as communication is improved, and may decrease the number of asthma-related complications for children with this respiratory disease.

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Introduction

Asthma is a complex and chronic respiratory disease which affects seven million children in the United States (US) (Michigan Department of Health and Human Services [MDHHS], 2016). Asthma has no cure, but people who have asthma can go on to lead normal, active lives with proper management of their chronic diseases. Management of asthma can be difficult due to the individual immune and inflammatory responses to triggers and stimuli, as well as a complicated and ever changing regimen of medications.

Background

Michigan has a higher percentage of children with asthma (14.2%) and a higher hospitalization rate when compared to the rest of the US (MDHHS, 2016). Children with asthma are more likely to miss school, visit their doctors or the emergency department, or be hospitalized (American Academy of Allergy, Asthma & Immunology [AAAAI], 2018). To assist healthcare providers in managing pediatric asthma, the National Heart, Lung, and Blood Institute (NHLBI) has created clinical practice guidelines that summarize current evidence and outline optimal asthma management strategies (2007). The NHLBI recommends using an asthma action plan (AAP) to assist parents and caregivers with daily management of asthma and delineates how to manage worsening asthma symptoms (NHLBI, 2007). Additionally, the NHLBI recommends all children with asthma have an AAP on file at their school, but currently only 41% of Michigan students with asthma have an AAP on file (MDHHS, 2017b).

Children spend a considerable amount of time at school, and children with asthma have specific health needs that need to be relayed to school nurses or personnel to assist them in

managing their disease and preventing complications. One in five Michigan students with asthma miss more than six days of school each year due to their disease, and 81% of asthma hospitalizations for Michigan students occur during the school year (MDHHS, 2017a). Having an up-to-date and individualized AAP on file for all students with asthma would be optimal in controlling their diseases and its implications for students.

Problem Statement

Asthma care is individualized for children based on their ages, classification of asthma, and symptom severity. Every child with asthma will have an individual asthma action plan with different medications to use based on the symptoms that are experienced. When asthma is not well controlled, children with asthma may have difficulty sleeping, missed school days, reduction of their usual activities, and increased emergency and urgent care visits (MDHHS, 2016). Although hospitalization and mortality rates are declining, many children are still living with this chronic disease and need assistance from adults in managing their care to avoid worsening of symptoms (MDHHS, 2016). Almost half (46.3%) of children with asthma in Michigan reported having to restrict their usual activities due to their disease in the past year, yet only 50.4% report they have ever received an asthma action plan (MDHHS, 2017a).

The providers at a small pediatric practice in a suburban area of lower Michigan have identified a similar problem with their patients. Although the practice is meeting current quality standards set forth in this community for the percentage of children with asthma action plans on file in the electronic healthcare record (EHR), the providers realized the information is not always relayed to the school where the child spends a considerable amount of time. Will the development of a process to send asthma action plans directly to schools improve communication between providers and schools and improve overall pediatric asthma care at this

practice? A Doctor of Nursing Practice (DNP) project was implemented at this Michigan pediatric practice to answer this question.

Assessment of the Organization

Framework for the Assessment

Before any changes were to be made, the organization was evaluated to assess the capacity for change. The DNP student completed a comprehensive assessment using the Burke-Litwin Model of Organizational Performance and Change. The model provided a framework for assessment through evaluation of transformational and transactional factors that impact the organization's ability to change (Burke & Litwin, 1992). Appendix A displays how all these factors interact with one another.

The practice is small in nature and not affiliated with the large hospital group in the area. The practice has limited resources, but a small and dedicated staff intent on delivering the highest quality of care to their patients.

Ethics and Protections for Human Subjects

An application for review and exemption for this project was submitted to the Grand Valley State University Institutional Review Board (Appendix B). Additionally, a letter of support from the site mentor at the clinic was obtained (Appendix C). Beyond further planning, no project activities were initiated until the review was completed and Board determination of the project as a quality improvement initiative was granted. The purpose and scope of this project was limited to evidence-based practice improvement and quality improvement. No patient identifiable information was collected. Schools were tallied as AAPs were sent to them so that follow-up surveys could be targeted to schools that received the highest number of AAPs. The school surveys were anonymous. No physical, social, psychological, legal, or economic

threats to schools, the clinic, or participants were associated with this project. As such, it was anticipated that the impact of the project would pose minimal to no risk to participants. These minimal risks may have included inconvenience or impacts associated with the request for anonymous and voluntary participation with this project. All members of the team completed human subjects protection training via the Collaborative Institute Training Initiative and their interactions with patients were guided accordingly.

Stakeholders

Within this organization, the key stakeholders were the physician owner and the pediatric nurse practitioner on staff. They were the leaders of the organization and were responsible for completing the AAPs. All other employees were identified as stakeholders due to the small office size. Children and their families were stakeholders as well. Outside of the practice, school nurses and school personnel responsible for asthma care were identified as key stakeholders.

SWOT

A SWOT analysis was also completed and identified the strengths, weaknesses, opportunities, and threats for the proposed change. Appendix D displays the SWOT analysis in table format. The analysis allowed adequate planning for change with areas of weakness and maximizing existing strengths.

Strengths

The clinic's biggest strengths were its team approach dynamic and individual dedication for quality improvement. The nurse practitioner and her medical assistant were passionate about asthma care and acted as champions for the proposed change within the office. The office was small and had very few staff members, so there were few barriers to implementing this change.

The physician owner was supportive of the proposed change. Low staff turnover meant that staff were able to incorporate the changes easily into their daily routines without feeling overwhelmed. Longer appointment times gave providers more time to complete the AAP during the visit and gave supportive staff time between appointments to send the AAP to the school. Staff were already tracking the AAP usage for asthma patients at the practice. They had made past improvements to meet their quality measure and gained financial reimbursement.

Weaknesses

A lack of reliance on policy and procedures could eventually phase out the proposed change over time if the motivation of employees decreased. The AAP within the EHR system was laborious and difficult to use, but had to be used in the future to gain financial reward for meeting benchmarks. There was no visual cue to alert providers that a patient had an AAP that was up for review in the EHR, and problem lists were not frequently used in current workflow.

Opportunities

Opportunities presented by this proposed change included improving the EHR for all users. If the AAP could be feasibly changed to promote better workflow and easier use, then all providers using the EHR network could benefit from the change. This may have also led to more AAPs being used overall and could, on its own, improve health outcomes for people of all ages in the county with asthma. The schools could see a benefit to having more AAPs on file for students with asthma. Potentially, it would allow for individualized education for children at school about their chronic illnesses and proactive management of their diseases. It could decrease missed days of school and emergency room visits for these children. Future reimbursement would continue for the clinic because this measure could be added as a requirement if they met their quality reporting guidelines on asthma action plans. Patient

satisfaction could improve as families received their AAPs at time of visit and received necessary education. Parents could also be satisfied that the clinic would be forwarding the information to the schools, so they wouldn't have to remember to do it.

Threats

There was additional work for clinic personnel related to completing the AAP and gaining written consent from parents to send the AAP directly to the school. Also, there was not a one button "send" function built into the EHR, so to send it to the school, there may have been a multistep process. It was anticipated that the front office staff of clerk and medical assistants would coordinate the transfer of the completed AAP to the specified school. If this was perceived as additional work or not perceived as a valuable service by staff, then it may have upset the work-life balance and decreased motivation.

Clinical Practice Question

Based on the assessment data gathered from Burke and Litwin's Causal model and the SWOT analysis, a problem was identified. The problem involved a small population of patients on the clinic's panel with asthma, who were not always getting an AAP, and further, the AAPs were never sent to the schools. There were 53 total active patients who were identified as having asthma. Of those 53, only 25 of them (47.2%) had a completed AAP in the EHR (*COMPASS Report*, 2018). Additionally, there was no policy or common practice of sending the AAP directly to the child's school. It was expected that the community and clinic would benefit from exploring how schools receive this information and its perceived value to them; from improving communication with school health personnel; and from continuity of care for students with asthma.

Review of the Literature

A review of existing literature was conducted for the clinical problem that was identified. The aims of the literature review were to explore how asthma action plans are used in schools, and school nurses' perceptions about using them. Also, barriers were explored regarding AAP use, and outcomes related to AAP use at school. The findings of this review could guide process reformations at pediatric healthcare locations regarding AAP design. The findings could also determine ways to share AAPs with school sites and optimize communication between providers and school caregivers.

Method

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009) served as a framework for this review. A comprehensive electronic search was conducted in CINAHL and PubMed databases. Appendix E displays the flow diagram for this literature search. It was limited to reviews in the English language during the period of 2005 to 2018. Keywords used were: "asthma action plan", "school*", and "pediatric or child*". There were 185 non-duplicated articles which were further screened using PRISMA guidelines. Each article was assessed for eligibility using inclusion and exclusion criteria according to PRISMA criteria (Moher et al., 2009). Review of title and abstracts resulted in removal of 168 articles that did not meet criteria. An additional ten articles were excluded after in-depth examination of content. Seven remaining articles were included in this review. Appendix F outlines each article in a table format.

Summary of Results

The studies examined in the literature review showed benefits of using asthma action plans in the school setting. Some researchers focused on examining how nurses used AAPs in the school setting and determined their usefulness. The researchers found school nurses used AAPs to guide care, give confidence, and individualize education (Borgmeyer et al., 2005; Egginton et al., 2013; Hanson et al., 2013). McLaughlin and colleagues (2006) found that when AAPs were available for nurses, students received more treatment and were less likely to be transferred for emergency care. Frankowski et al. (2006), Splett et al. (2006), and Staudt et al. (2015) found that using multifactorial interventions aimed at multiple stakeholders could increase the number of available AAPs in schools and improve asthma care for students in a school setting.

Completing an asthma action plan for children diagnosed with asthma is recommended as a standard of care (NHLBI, 2007). Children often spend a large amount of time at school, where caregivers may not be as familiar with their specific cases. Asthma action plans can help school nurses and other school personnel understand an individual student's triggers, symptoms, and regimen for managing asthma. Providers of healthcare for children should provide AAPs to children and family members with asthma, but also open the communication line with the school. Providing an asthma action plan for students to take to school, or using a portal where available, would provide an additional measure of safety for these children.

Limitations

There were many limitations in this review. The studies were varied and all of the researchers used different ways to gather data about asthma action plan use in schools. Many of the research articles included in this review were case studies, which are difficult to replicate in a

different location. One of the studies used nurses' perceptions regarding how many children had AAPs on file, instead of obtaining objective information from the school. All of the studies included in this review are descriptive studies and case studies, with the exception of a randomized community study. They are not the highest level of evidence. Finally, the interventions varied from study to study, so it is difficult to compare them and know which change offers the best outcomes.

The results of this review suggest that the current evidence in favor of asthma action plans in the school setting for pediatric patients with asthma is consistent. There is value in having all caregivers of children with this chronic disease use a map of treatment to guide them.

Evidence to be used for Project

For this project, the evidence being used was the finding that school nurses found AAPs useful to guide and direct individual asthma care for students. The literature review also revealed that schools often did not have asthma action plans on file. The schools from the literature review wanted to improve communication among them, the families, and the healthcare providers. Many successful interventions were multifactorial and included schools and healthcare providers. Electronic sharing of AAPs was found to be an efficient way to enhance communication. This method of communication was not possible for this project, but the DNP student worked with an interdisciplinary team to enhance the abilities of the county-wide electronic health record to be able to fax directly to schools in the future.

Taking all of this evidence in mind, the DNP student used a multifactorial intervention to improve communication between schools and the clinic. One goal of this project was to increase the number of patients with asthma who have asthma action plans. A second goal was to develop a process to send the AAP directly to the schools. Additionally, information was

gathered from the schools about their current asthma practices and a follow-up survey was sent to three schools. One school that received two AAPs, and two other randomly selected schools that received one AAP each, received follow up surveys. The purpose of the follow-up survey was to assess if they felt they received more AAPs during the project time period.

Phenomenon Conceptual Model

Conceptual models provide frameworks from which to view a phenomenon of interest. The models guide researchers with understanding the phenomenon and provide a structured, systematic way to implement the changes. To adequately assess the quality of asthma care the patients at the clinic were receiving, the Donabedian model was applied (Appendix G). This model was used to comprehensively and systematically review all of the components of asthma care quality. The Donabedian model is well known for its utility in assessing healthcare quality.

The Donabedian model encompasses three categories (structure, process, and outcome) of which inferences can be drawn about the quality of healthcare (Donabedian, 1988). “This three-part approach to quality assessment is possible only because good structure increases the likelihood of good process, and good process increases the likelihood of a good outcome” (Donabedian, 1988, p. 1745).

Structure

Donabedian (1988) describes *structure* as the attributes of the setting in which care occurs. The structure for this project included the physical location of the clinic, clinic staff, schools, school staff, equipment in the medical office such as fax machines and computers, the electronic healthcare record (EHR) and training provided to the staff during the project. It also included potential future quality reimbursement for asthma related activities.

The medical office was owned by the physician practice owner. It was centrally located in the county and had a panel of almost 1,300 patients. There was one physician owner and a part time pediatric nurse practitioner delivering care. They also employed two medical assistants, one clerical associate, and one office manager who was also responsible for billing. The clinic had a fax machine and all other typical office supplies and equipment.

There were rarely formal meetings among staff and new information was disseminated casually among staff members. The staff had been stable, with little to no change in personnel over an extended period of time. Both providers were very experienced and had over 30 years of experience in their fields. Appointments for patients were typically scheduled 30 minutes apart and some appointment slots were left open for same-day sick visits.

The payor mix for the clinic was nearly all commercial insurance. Only approximately 5% of their patients were receiving Medicaid. The clinic was able to obtain more reimbursement for the commercial insurance payments and therefore gave generous appointment lengths and did not feel the need to schedule in as many patients as they could throughout the day. Fewer than 5% of the clinic's patients had asthma as a diagnosis.

The clinic was a patient-centered medical home and the practice participated with the local health network to improve quality and gain further reimbursement. The practice also was a member of the county wide medical record group which managed the EHR they were using. The health network monitored quality indicators for the clinic and provided an electronic dashboard for the clinic so they could see their progress.

Within the EHR in use, there were electronic asthma action plans available. The physician and the nurse practitioner (NP) reported that it was not user friendly and did not print with the after-visit summary. They also had AAPs available in color for patients, which were

completed by hand to be given to patients and families. The clinic was meeting quality standards for their asthma action plan use, but they expressed an interest in improving this quality indicator. Before the start of the intervention, just below 50% of asthma patients at the clinic had a completed AAP within the EHR (*COMPASS Report*, 2018).

When the project started, the EHR did not have the ability to send the AAP directly to the schools. For this project, a fax machine was utilized to send AAPs to the appropriate school. There were 58 schools (elementary, middle, and high schools) within the county. There was not a local portal system between schools and healthcare providers.

Process

Process is how providers and patients interact and how the provider functions in the process of providing care (Donabedian, 1966). This would include the practitioner's activities in diagnosing and implementing treatment as well as the activities of the patient seeking care and carrying out the treatment (Donabedian, 1988). The processes concerning this project included the patient-physician relationship, and how the providers carried out the treatment.

The initial clinic process concerning asthma patients started with the medical assistant (MA) collecting height, weight, and vital signs. Next, the MA started the note in the EHR and verified all home medications and vaccination status. Then, the MA alerted the provider that the patient was ready for the examination. The provider assessed, diagnosed and prescribed treatments and medications as necessary. This information was then recorded by the provider in the EHR. For patients with asthma, the provider asked about asthma symptoms during every visit and performed an examination. As a result, medications could be continued, reordered as necessary, or changed during the visit. The provider was also responsible for updating the AAP at every visit, but, this didn't occur every time. Sometimes the provider manually filled out a

new AAP on paper for the patient, but usually only during an exacerbation with new medications being used. Providers also sometimes filled out the AAP within the EHR at a later time when catching up on charting, not during the visit. Providers stated that the EHR AAP was difficult and time consuming to use. Patients were not routinely given additional AAPs for school use unless they were asked about the need for them.

This DNP project incorporated a process change for the medical assistants as well as the providers. The biggest process change revolved around sending the AAPs to schools after they were completed. The MAs assisted the providers in completing the recommended treatments by sending the AAPs to schools.

Schools played a role in process as well. A short survey was developed to gain more information regarding the processes at the school for children with asthma. The surveys asked about who was doing routine asthma care for students, estimated percentages of asthmatic students with AAPs at the school, if school personnel felt AAPs were useful, whether there was an emergency plan for an acute asthma attack, and whether the school employed a nurse.

Outcomes

Donabedian (1988) describes the *outcome* construct as the effects of care on the health status of patients and populations. Outcomes are frequently used to judge healthcare quality because they are mostly concrete and amenable to measurement (Donabedian, 1966). It is important to make sure the outcome being measured is valid to the phenomenon being evaluated.

In this project, the main outcomes being evaluated were the percentage of eligible asthmatic patients having AAPs completed and sent directly to the school. Asthma action plans provide a way to communicate treatment plans to all caregivers. The National Heart, Lung, and Blood Institute (NHLBI) published the Expert-Panel Review 3 (2007) and recommends that all

children with asthma be provided with a written asthma action plan. The NHLBI also recommended that all children with asthma have a written AAP at their school (NHLBI, 2007).

During this intervention, the DNP monitored the total number of eligible asthma patients and the number who had the written AAP sent directly to the school. After the process change occurred, providers were increasingly aware of the patients who had an asthma diagnosis. The providers completed written AAPs for asthma patients and sent them directly to the schools.

An additional outcome for the clinic was future quality reimbursement for meeting the goal of a number of AAPs within the EHR for patients diagnosed with asthma. Prior to the project, this measure was taken out of the matrix for reimbursement, but there were plans for reintroduction in the next year. At the project start, the clinic was meeting the recommended threshold for this quality measure, but continued emphasis on asthma care was expected to improve their rates and further impact this population of children. Over time, this asthma related quality measure was to be reintroduced and providers were going to need a growing percentage of AAPs within the EHR for asthma patients to gain reimbursement. Being proactive and focusing on asthma action plans was a way of preventing the office from losing future reimbursement when the bar was raised for this quality measure.

Also, a very brief targeted follow-up survey was sent to three schools (one that received two AAPs and two random schools that received one AAP from the clinic). This survey focused on the perceptions of the school personnel about the number of AAPs they had received since the beginning of the project.

Project Plan

Purpose of Project and Objectives

The goal of this project was to improve communication between healthcare providers and schools for children with asthma. The first objective was to make sure the students had a completed asthma action plan from their healthcare provider. This was measured by the overall number of eligible asthmatic patients seen. Next, the students updated asthma action plans needed to reach the schools. This objective was measured by clinic staff completing the Asthma Action Plan Sent to School Form (Appendix H). A final goal was to seek additional information from the schools to understand the current state of asthma care in the school and possibly direct future projects in the county for improving asthma care for students. This objective was measured using the School Surveys (Appendix I).

Design for Evidence-based Initiative

The design for this project was a quality assurance initiative. The National Association for Pediatric Nurse Practitioners (NAPNAP) encourages all pediatric nurse practitioners to engage in quality improvement initiatives (NAPNAP, 2013). The American Academy of Pediatrics (AAP) defines quality improvement as “a collection of techniques that systematically and scientifically identifies need for change and outlines action plans to make improvements in health care and health services which will then increase the likelihood of desired health outcomes” (AAP, 2012, p. 9). The DNP student systematically assessed the organization and conducted a systematic review of the literature for the phenomenon of interest. A need for change in process for asthma action plans was identified and a plan was developed to make process changes to improve outcomes.

Setting

The setting for this project was a county in southern lower Michigan. This county had a population of 158,640 with just over 20% of its population under the age of 18 (United States Census Bureau, n.d.). There were 58 private and public elementary, middle, and high schools spread out within this county. The clinic was centrally located within the largest city in the county. The clinic and building was owned by the physician and employed a very small number of staff. The total panel size for the clinic was 1,287. The clinic had a patient asthma rate of only 4.1% (*COMPASS Report*, 2018).

Participants

Participants for this project included the schools, the patients and their families, and the office staff. All 58 schools received a survey and information was gathered about their current practices with asthma care for students. All children of school age with asthma being seen at the clinic during the implementation of this project were offered the opportunity to have the clinic forward the AAP directly to the school. Children who were home-schooled, or children outside of school age were not included in this intervention. The parents or guardians signed a consent form to release the information to the schools. The clinic staff and providers participated in process changes for quality improvement.

Model Guiding Implementation

The model guiding the implementation of this project was the Promoting Action on Research Implementation in Health Services (PARiHS) framework (Kitson, Harvey, & McCormack, 1998). This model was chosen for its ability to guide implementation of quality assurance projects. Kitson and colleagues state that “the successful implementation of research into practice is a function of the interplay of three core elements – the level and nature of the

evidence, the context or environment into which the research is to be placed, and the method or way in which the process is facilitated” (Kitson, Harvey, & McCormack, 1998, p. 149). Within each element there are sub-elements for which there is a range that exists from high to low (Kitson et al., 1998). For example, the sub-element patient preferences may range from “not involved” on the low end of the range, to “partnership” on the high end of the range (Kitson et al., 1998). A three dimensional matrix depicting how evidence, context, and facilitation can influence outcomes is available in Appendix J.

Evidence

In the PARIHS model, *evidence* is defined as the combination of research, clinical expertise, patient choices and preferences, and local information (Kitson et al., 2008). For a successful implementation, all of the sub-elements were considered. All four of these sub-elements were important for this project.

Research

After performing the literature search, the DNP student concluded that there was enough evidence for a process change at the clinic. There were not randomized controlled clinical trials or systematic reviews for the phenomenon of interest. There were few clinical trials reported for children, due to ethical concerns. Most of the articles in the literature review were descriptive and many were case studies. These are considered to be on the lower range of evidence. In addition to the evidence found during the literature review, there are evidence-based guidelines by the NHLBI for asthma management that include a written asthma action plan for patients and for the school (NHLBI, 2007). The evidence-based guidelines are of the high range of evidence for the sub-element of research. The evidence-based guidelines acted as a base for this project, and the descriptive studies and case studies drove the intervention.

Clinical Experience

Both the physician and the pediatric nurse practitioner were very experienced practitioners. They were the leaders within the clinic and influenced the design of care. Both providers were engaged in improving asthma care for their patients. They were open and willing to implement the proposed intervention. They exhibited high levels of consensus and consistency of views.

Patient Preferences

The patients and their families also played a big part in the implementation of this intervention. Any children of school age (5-18) with an asthma diagnosis were given a written asthma action plan when seen in the clinic during the intervention timeframe. The families were also offered the option to have the clinic send the AAP directly to their children's schools. The parent or guardian had to sign a release for the clinic to share the information with the school. The parents had to be a partner in this intervention for the intervention to be successful.

Local Context and Environment

The local context and environmental sub-element was added to the PARIHS model on revision (Kitson et al., 2008). It was also important for the intervention. This sub-element includes organizational culture, evaluation data, and local community stories. The schools and their involvement fit into this sub-element. A school survey was designed to gather more information on the asthma care present in the schools. The information from the survey added local context information and could help guide further interventions within the county. Organizational culture was also assessed in the organizational assessment and was complimentary for the intervention.

Context

This element refers to the environment / setting in which the intervention will be implemented (Kitson et al., 1998). There are three sub-elements within it: culture, leadership, and measurement (Kitson et al., 1998).

Culture

The culture within the clinic was patient-centered. The clinic was a designated patient centered medical home. All of the clinic staff valued their co-workers and their patients, and they tried to improve care regularly. Both providers were dedicated to continuing their education and to keeping up-to-date on current practice changes.

Because there were very few employees, there were few overt rules and little staff turnover. The staff was friendly and they worked together seamlessly. Both medical assistants were cross-trained to work the front desk so they could help as needed. The culture was team oriented and they worked together to accomplish daily tasks. Clinic staff members understood their roles and would often go above and beyond to help each other. With so few employees, all clinic staff members had to be committed to making a change for the change to occur and be sustained.

Leadership

The leadership within this practice focused on the physician, the pediatric nurse practitioner, and the office manager. There was not a written or official chain of command. The physician was considered to be at the top of the leadership role and consulted when a change is made. Both providers served as role models for support staff. The style of leadership exhibited by the physician was the situational approach. In the situational approach, the leader will “adapt his or her leadership style to the demands of different situations” (Northouse, 2016, p. 93).

Because the owner employed highly skilled and unskilled personnel with varying degrees of experience, the physician matched his style of leadership to the competence and commitment of the employee. The physician was a very effective leader and did not micromanage nor intimidate his employees.

Measurement

The clinic participated in a local collaboration that focused on improving health outcomes and safety. It was a clinically integrated network and included a pay-for-performance system that recognized and rewarded physicians on improving patient outcomes. When the evidence-based guidelines were met, the office received a monetary reward which was shared among all staff members.

There was an absence of peer review and most of the measurement activities within the clinic revolved around the local collaboration efforts to improve quality. This intervention added an additional layer of feedback and review for staff members.

Facilitation

The element of facilitation describes the type of support that is required for participants to change their attitudes, habits, skills, ways of thinking, and working (Kitson et al., 1998). Facilitators act to make things easier, help others to achieve their goals, encourage others, and promote action (Kitson et al., 1998). The DNP student took on the role of the facilitator. For this role, the DNP student incorporated the following sub-elements.

Characteristics

The facilitator role requires the “personal characteristics of openness, supportiveness, approachability, reliability, self-confidence, and the ability to think laterally and non-judgmentally” (Kitson et al., 1998, p. 152). The DNP student displayed these characteristics and

was respected among staff members. The DNP student had spent the previous year doing clinical work at the clinic site and was familiar with the staff and their workflow. The student was also an experienced nurse and worked in the local Emergency Department for over 10 years. This added credibility, authenticity and empathy for the facilitator.

Role

The role of the facilitator was to educate staff and lead the intervention. The DNP student collected additional information from schools and coordinated efforts from other local organizations to improve asthma care across the county. As the facilitator, the student had the lead in the intervention and had authority over the project.

Style

The sub-element of style refers to range and flexibility of style and consistent and appropriate presence and support from the facilitator. The facilitator demonstrated range and flexibility by analyzing and reflecting process changes with staff members. The DNP student recorded positive and negative reflections from clinic staff on the process change and made changes as needed. The DNP student facilitator was present on site frequently at the beginning of the intervention. After the staff members became comfortable with the process change, the DNP student came to the office once weekly for data collection and process change evaluation.

Implementation Steps and Strategies

The steps for implementation of the project were as follows (Appendix K):

1. IRB exemption for this project was received on October 31, 2018.
2. Proposal and acceptance of project by faculty at GVSU and site mentor obtained on November 5th, 2018.

3. The DNP student met with office staff on November 21st to educate them about the new process change.
4. The DNP student called all schools in the county (total of 58) to obtain fax information and emails for surveys. The student then emailed all schools with the anonymous survey (Appendix I). This was completed by November 23rd, 2018.
5. Implementation of the process change occurred on Monday, November 26th, 2018. The DNP student visited the clinic frequently during the first week of implementation to answer questions and make changes as needed.
6. The DNP student met weekly (on Fridays) with office staff for the duration of the 12 twelve week intervention. The AAP Sent to School Forms were collected and the de-identified data was then entered into an electronic spreadsheet on the student's personal computer. The DNP student also spoke with available staff about the process change and recorded findings on the Office Process Change Evaluation Form (Appendix L). As needed, changes to the process were made in a collaborative effort between the student and the clinic staff.
7. The intervention trial was completed on February 15th, 2019.
8. Data were analyzed with the statistician. This was completed on February 26th, 2019.
9. Follow-up School Surveys (Appendix M) were distributed on February 28th, 2019 to the one school that received two AAPs and two other randomly selected schools that received one AAP from the office.
10. Defended the final project at Grand Valley State University on April 15th, 2019.

Measures

One project outcome that was measured is the number of eligible asthmatic children that were seen at the office during the implementation period. This was collected at the end of the intervention by chart review by the DNP student. The number for each week was placed in the electronic spreadsheet on the DNP student's personal computer. Every week the DNP student would also compile the AAP Sent to School Forms (Appendix H) and input the de-identified information into the electronic spreadsheet. How the process change was affecting clinic staff members was also monitored. A form for recording subjective thoughts from clinic staff members on the new process was completed to capture their statements to the DNP student. The format for this form is seen in Appendix L.

Information was also collected from the schools within the county. An anonymous school survey, which can be seen in Appendix I, was emailed to every school to gather asthma information. Additionally a follow-up survey was also sent to three schools (one school that received two AAPs and two random schools that received one AAP from the clinic) to assess if there was a perceptible change in AAPs received by the schools.

Data Collection Procedures

The DNP student called every school in the county to collect fax numbers to allow the clinic staff to send the AAPs directly to the school. Email addresses were also collected during the calls for the distribution of the school surveys. The survey responses were collected via SurveyMonkey® and analyzed from the SurveyMonkey® website.

Providers completed a written AAP for each eligible patient. At checkout, the medical assistants or front office staff would have the patient's parents sign a release of information form and verify the school to which the copy of the written AAP should be sent. The AAP was sent

by fax at the time of checkout. The staff then completed the AAP Sent to School Form and placed it in the project folder. Every week the forms were collected. The forms were then transcribed with no identifying information into the DNP student's personal computer spreadsheet.

The DNP student, at the end of the intervention, distributed a follow-up school survey to three schools to determine if there was a perceptible difference in AAPs for students by the school personnel. Only one school received two AAPs and the remainder of the schools were selected at random. The follow up school surveys were also emailed and analyzed using SurveyMonkey®.

Data Management

Data were collected on forms generated by the DNP student. Schools were given a code and the school code was recorded on the electronic spreadsheet. All forms were kept in a project folder inside a locked filing cabinet in the office manager's office at the clinic site. All data were de-identified before being transcribed into a spreadsheet on the DNP student's personal computer. The personal computer was password protected and no other person, besides the DNP student, had access to the computer. School surveys and follow-up school surveys were sent by SurveyMonkey® and were anonymous. The project folder and all forms were then kept in the locked filing cabinet for a time period of one year and then shredded.

Analysis

The DNP student met with a statistician to analyze collected data. The analysis included the total number of eligible asthmatic children seen by the clinic and tracking the number of AAPs sent to the schools. Descriptive statistics from the school surveys was analyzed by SurveyMonkey®. The descriptive statistics derived from this project helped the DNP student

describe, show, and interpret the data in a meaningful way. The final project analyses were presented to clinic staff at the conclusion of the defense.

Resources and Budget

A budget was created to display the cost for this project. Most of the resources used were already present at the office (fax machine, paper AAPs, printers). The DNP student made an in-kind donation of time based on the current hourly RN rate and estimated time contribution. Statistician time was provided by the university and its graduate assistant program. The hourly rate for the statistician was based on graduate assistantship terms and conditions (tuition reimbursement and monthly stipend) and then divided into an hourly rate (Grand Valley State University [GVSU], 2018). Due to the generous appointment times and staggered lunch schedule, clinic staff had ample downtime for educational opportunities and process planning and did not accrue any additional hours or overtime for this project. Hours from clinical staff and providers for training and implementation for this project were approximately 8 hours each and salaries were estimated (Salary.com, n.d.). The SurveyMonkey® web application which was used for electronic surveys was a free program. Appendix N displays the budget for the project.

Results

School Surveys

School surveys were sent electronically by email to all 58 schools in the county. Thirty-two responses were received, which was a 55% response rate. Of those who responded, 90.6% ($n = 29$) identified themselves as office staff / secretaries or administrative assistants. Also two school nurses (6.25%) and one school principal (3.13%) completed the surveys.

At 87.5% ($n = 28$) of the schools, there was no nurse reported on staff and only 4 schools (12.5%) reported having a part-time nurse or a nurse that was shared among school buildings. No schools reported having a full-time nurse or an on-call nurse.

Responses to a question asking who does the routine asthma care in the schools is presented in Appendix O, Table 1. Office staff were mainly responsible for this, but some schools reported that students carried their own inhalers and teachers helped as needed. One school did report that students mainly do their own routine asthma care, but severe cases are assisted by the principal and office staff. Another school stated that when needed, they utilize the community based health center at an adjacent school for assistance with emergencies.

When asked if schools had a written plan for medical emergencies (such as an acute asthma attack), most schools (62.5%, $n = 20$) responded positively. The rest of the schools either did not have a plan or the respondent was unsure. A complete breakdown of the responses to this question is available in Appendix O, Table 2.

Survey respondents were then asked to estimate the percentage of asthmatic students who had asthma action plans on file at the school (Appendix O, Table 3). The majority of schools estimated that fewer than 25% had AAPs at the school. Only a few schools estimated a higher percentage.

An open-ended question was asked of respondents inquiring whether they felt that asthma care for their asthmatic students would benefit from better communication with the student's primary care provider. Twenty six schools (81.3% of total respondents) responded to this question. Of those responding, 61.5% ($n = 16$) responded favorably to this. Five schools (19.2%) were unsure and five schools (19.2%) did not feel their students with asthma would benefit.

An additional open-ended question asked respondents how they utilized asthma action plans at their school. Again, only 26 (81.3%) schools responded to this question. The answers were varied. Fourteen schools (53.8%) reported they kept the plans on file. Other responses include: "parents are notified immediately, child is closely watched"; "students come to first aid room when they need their emergency inhalers"; "it's on a per student basis"; "each child knows to come to the office to see me if having an asthma attack".

The last question in the school survey asked respondents to rate how valuable they felt asthma action plans were for use at the school. All 32 respondents (100%) completed this question. The options were rated from (1) to (5) with (1) being *not very valuable* and (5) being *extremely valuable*. Overall, the average of answers was 3.56 with a breakdown of responses shown in Appendix O, Table 4.

Asthma Action Plans

Over the course of twelve weeks, a total of fourteen written asthma action plans were sent to schools by the clinic. A retrospective chart audit revealed that there were a total of 19 asthmatic children who were seen at the clinic during implementation of this process change. The total percentage of these children for whom a written plan was sent to the schools was 73.7%. Five eligible children (26.3%) did not have a written AAP sent to the schools by the office staff. Asthma action plans were sent to a total of thirteen schools within the county. Only one school (7.7%) received two asthma action plans from the clinic. Twelve other schools (92.3%) received only one asthma action plan from the clinic.

Follow Up School Survey

Follow up school surveys were sent to three schools that received AAPs from the clinic site. The one school that received two AAPs was sent a follow up school survey. The other

follow up school surveys were sent to two randomly selected schools that received one AAP each during the intervention. There was a 100% ($n = 3$) response rate for this survey. Only two schools (66.6%) identified the respondent as office staff. The other school did not respond to this question. All schools (100%, $n = 3$) did not report seeing an increase in available asthma action plans since the start of this initiative in November. No schools answered the final question which was triggered if they answered yes to seeing an increase in available AAPs.

Discussion

Responses to school surveys showed a lack of licensed health professionals at the schools. Most healthcare is provided by office staff or the students themselves. Although most schools saw the benefit of asthma action plans, there were a fair number of schools that did not want more communication with pediatric providers and did not feel that AAPs were useful. Additionally, there were many schools (37.5%) that had no medical emergency plan, or were unsure if they had one. Since most of the respondents to this survey were the office staff and they were primarily tasked with asthma care for the students, it is worrying that there are no medical emergency plans for these children with chronic illness.

The clinic staff was diligent and only missed a few patients during the implementation. Prior to implementation of this quality improvement project, the clinic used the electronic AAP within the EHR to track their AAP completion rates for the clinic. They previously had a 47.2% completion rate in August 2018. After that, the measure was taken out of the quality matrix and work was being done to improve the EHR AAP. The clinic changed to using handwritten AAPs and during the implementation period, they had at least a 73.7% completion rate for the small number of asthma patients seen in the clinic. The clinic did not see a large number of children with asthma during this implementation period, which included multiple holidays and winter

break from schools. Due to the low number of asthma action plans sent to schools from the clinic, the follow up school surveys were as expected and did not show a perceptible amount of change for respondents.

The staff responded well to the change in process. The front office staff at the clinic developed a process of checking for asthma patients at the beginning of each day and again at lunch for added afternoon sick visits. They stated it did not take up much extra time and were aware of the benefit for this population of children. Staff also mentioned that the parents liked the fact that the clinic would send it directly to the school so they didn't have to remember to do it. Providers liked the visual reminder of having the paper AAP in the room for these patients at the start of the visit and did not perceive it as additional work. Clinic staff stated that they intended to continue with the process change after the implementation period was over.

Limitations

This project had a short (12 week) implementation period and small sample size. Only 19 patients who met the inclusion criteria visited the clinic during the implementation, and only 14 AAPs were sent to schools. The follow-up survey was sent to only three schools, but due to the very low number of AAPs to each school, no change was perceived. The clinic had a rather small patient panel and an even smaller number of patients with an asthma diagnosis. This may have been partly due to the payor mix of the clinic comprised mostly of commercial insurance and a very low rate of Medicaid participants, who may have higher rates of this disease.

Another limitation of this project was the EHR. Originally, the DNP student planned on using the AAP within the EHR and tracking rates of AAP within the EHR on the quality tracking dashboard, which is updated daily. She had been working with an interdisciplinary team to improve the AAP in the EHR. The EHR AAP was difficult to use and many local offices had

been complaining and wanting a fix for this. Just prior to implementation, the local clinically integrated network decided to rebuild the AAP and remove the AAP measure from the quality dashboard. After consulting with an advisor, the DNP student chose to do a retroactive chart audit to measure the total number of eligible patients and compare it to the number of patients who had their AAP sent to the school.

Implications for Practice and Further Study in the Field

This DNP project had many implications for practice. A process change to promote communication between pediatric healthcare providers and schools was easily accomplished in a small office. The process change could be easily sustained after the implementation period. The clinic staff responded favorably to the process change and easily adjusted their work flow to support identification of asthma patients and sending AAPs directly to schools.

Additionally, the school survey implied that most schools were open to improving communication of asthma related care for their students. Very few schools had nurses and most asthma care was performed by office staff and students. It was also revealed that only some schools were prepared for a severe asthma attack or medical emergency. With no licensed medical professionals at school buildings and office staff tasked with assisting students with medical care, there is an opportunity for better education for staff and assistance with writing medical emergency plans.

Having a working AAP imbedded within an EHR is a valuable tool. It can be seen by all providers using the EHR and updated as needed. Portals for sharing electronic health information with schools have been successful when implemented in other settings. It may work to increase communication between providers and school caregivers. An EHR with an

automated feature to send AAPs directly to a designated fax machine at a selected school may also be possible and work to accomplish the goal of increased communication.

Conclusion

A small, private pediatric practice in lower Michigan sought to improve communication between healthcare providers and schools for children with asthma. An organization assessment and literature review were completed and identified a potential process change solution to this problem. Two theoretical frameworks were utilized to better understand this phenomenon and implement the process change. During the 12 week intervention period, 19 children were seen in the office who met criteria for inclusion and 14 asthma action plans were sent out to various schools throughout the county. Additionally, an electronic school survey was sent to all 58 schools and had a 55% response rate. The survey informed the DNP student of current practices around asthma care in the schools. A follow up school survey to assess perceived changes in the number of asthma action plans did not reveal a perceived change. Overall, the process change went well and was easily tolerated by clinic staff members and will be continued into the future.

Sustainability

The clinic planned to sustain this practice change. Even though the facilitator left the clinic site, the pediatric nurse practitioner and a full time medical assistant took over the cause. They will maintain the fax number list for schools and offer to send any AAPs directly to schools at time of check-out. Both the physician and the nurse practitioner are pleased with extra focus on asthma patients and will continue to use written AAPs for patients until the EHR AAP is finished and updated. There may be future school connectivity or school fax lists placed within the EHR so the delivery to schools may be electronic and less time consuming. The clinic was also expecting the EHR AAP to be added back in as a quality measure when it was rolled out in

the following year, and they were happy with their forward progress on completion rates for future reimbursements.

Dissemination of Results

The results from this DNP project were disseminated to the stakeholders at the clinic on March 15th, 2019. The final product of this quality improvement project was presented at Grand Valley State University in front of the DNP student's advisory committee on April 15th, 2019 and the presentation was open to any other students or members of the college who chose to attend. The finished draft of the scholarly project was uploaded to ScholarWorks afterward. Additionally, presentations of results to the interdisciplinary team working on the EHR AAP were planned and a short presentation or copy of the final draft of the report provided to all schools in the county. Disseminating the findings of the surveys and process change further educated interested parties in how asthma care is carried out in the county for schoolchildren and gave an example of how to improve communication between two critical caregivers (providers and school caregivers).

Reflection on DNP Essentials

The American Association of Colleges of Nursing (AACN) has outlined eight essential areas of competency for graduates of DNP programs. The DNP student did address most of these competencies within the scope of this project, at least to some degree. Some competencies were demonstrated with work outside of this DNP project experience.

Essential I: Scientific Underpinnings for Practice

Essential I is concerned with integrating nursing science with other science-based theories (AACN, 2006). The DNP prepared nurse will be able to use science-based theories to evaluate healthcare and outcomes and be able to develop new practice approaches based on these

theories (AACN, 2006). This project used many theories including Burke and Litwin's Model of Organizational Performance and Change, the Donabedian model, as well as the PARIHS framework. The DNP student was able to apply these diverse theories to the project and evaluated the phenomenon and outcome using these structured frameworks. The student found that using non-nursing, but science-based theories, enhanced the project by adding to her knowledge base and systematically guiding and driving the project. She found it was especially useful to use a theory when doing a new task or skill, such as assessing the organization. The frameworks provided easy and logical steps along the way to ensure a complete and thorough assessment. Without using the theories, it would have been very easy to forget an important aspect or part of the project.

Essential II: Organizational and Systems Leadership

The second Essential is focused around organizational and systems leadership for quality improvement and systems thinking (AACN, 2006). The AACN (2006) wants DNP graduates to contribute to nursing science by developing evidence-based interventions, evaluating outcomes, and disseminating findings. This Essential was addressed by the DNP student by becoming a leader for this project and through translation of current science and evidence in order to design a practice based intervention for a specific population. Systems and organizational leadership skills were displayed by the student's efforts in spearheading this intervention and having a seat at the table to affect change throughout the entire county to improve health of children.

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

The AACN (2006) expects doctors of nursing practice to be able to evaluate, integrate, translate, and then apply the principles of evidence-based practice. The DNP graduate needs to apply nursing science and merge it with practice, human needs, and human caring (AACN,

2006). A literature review was completed to compile evidence and it was translated into a scholarly project. The student developed skills during this research portion to organize relevant articles and utilize electronic reference managers to manage gathered information in a meaningful way. Analytical skills were developed and used to analyze the information from the literature and organizational assessment as well as problem-solving and decision making during the planning and implementation phases. Dissemination skills of leadership and communication were also enhanced as presentations to the local pediatric clinic, schools, and into the greater nursing and research community were given. The DNP student accomplished completion of this essential by facilitating meaningful change within the organization for the benefit of asthmatic children in the community.

Essential IV: Information Systems Technology

Doctors of nursing practice must be able to use technology in a meaningful way to support practice, clinical decision making, and safety (AACN, 2006). The DNP student served as a consultant, representing clinicians and users of an electronic healthcare record, to improve electronic use of asthma action plans. Plans for future technical and healthcare improvements were addressed by gathering needed data from schools that can be used to better serve this population. The needed data included fax numbers for all schools in the county and was gathered by the student calling every school site; as well as gathering information on how AAPs were being used in schools which was compiled by an electronic survey sent to all schools. Although this project did not use much technology for the intervention, the intervention was designed to be easily transferred to the EHR when the upgraded version of the AAP is released.

Essential V: Advocacy for Health Care Policy

DNP graduates need to be advocates for their patients and will identify problems, analyze health policy, and lead legislative efforts to better serve their patients and nursing practice (AACN, 2006). This DNP student attended multiple state level asthma related conferences to learn about current issues for this population, current legislation, and ongoing efforts to improve quality of life for children with asthma. Additionally, the DNP student participated in a state level advocacy day for nurse practitioners. The student met with state representatives to speak as an advocate for nursing practice and children's health issues.

Essential VI: Interprofessional Collaboration

Team-based care is a necessity for the safety of patients. The AACN (2006) expects graduates of DNP programs to lead inter-professional teams with effective communication and collaboration to solve clinical problems. This DNP student served as a leader of an inter-professional team for this scholarly project. The student worked with a physician, a pediatric nurse practitioner, medical assistants and IT specialists. Additionally, the student was a member of an inter-disciplinary team comprising of nurses, software engineers, network specialists, data scientists, and EHR technicians which were tasked with improving the current EHR AAP. Interprofessional collaboration skills of professional communication were enhanced and the student was able to see the value of having her voice at the table to be able to affect change. Additionally, the student developed some advanced leadership skills as she represented the medical end-users of the EHR and negotiated and advocated for enhanced functionality of the AAP within the EHR. She also demonstrated effective team leadership skills as the lead facilitator of this project and would problem solve and make decisions based on all of those

affected. She listened to concerns and anticipated future problems and difficulties. The student led the team through complex healthcare and organizational situations to affect change.

Essential VII: Clinical Prevention and Population Health

This Essential equips DNP graduates with the expertise to synthesize epidemiological, biostatistical, cultural, psychosocial, occupational and environmental science data to improve the health of specific populations (AACN, 2006). This DNP student focused on a specific chronic respiratory illness present in childhood and evaluated the impact it had on children. A specific intervention was then designed to improve the health and well-being of this population. For this intervention design, data were gathered from a wide array of sources including conferences, evidence-based research, clinical practice, and local school surveys. The student then synthesized the national guidelines recommendations of asthma care for school-aged children and applied them to create a process change to improve the health of this population.

Essential VIII: Advanced Nursing Practice

The goal of this Essential is to improve clinical outcomes by demonstrating advanced levels of clinical judgement, and systems thinking, and by delivering evidence-based nursing care (AACN, 2006). DNP graduates need to demonstrate these foundational practice competencies, regardless of their chosen specialty (AACN, 2006). The DNP student exemplified this essential by implementing an evidence-based process change that sent out fourteen AAPs to local schools. She conducted a systematic assessment of evidence-based asthma care in the context of multiple settings for caregivers of children with asthma. She designed, implemented, and then evaluated the intervention using nursing and other sciences. Throughout the process, she developed and sustained partnerships with other professionals to facilitate this optimal care. The student demonstrated advanced levels of clinical judgement, systems thinking, creativity in

the design, delivering, and evaluating the evidence-based intervention. Additionally, the student mentored involved staff members to achieve the goal. The student drew on previous nursing experience and education to tie all of these elements together in the setting of a pediatric primary care office.

In conclusion, the DNP student learned a great deal of new knowledge and expanded the limits of her abilities to affect change during this project. She was able to overcome her own personal hesitations to grow and develop into a leader in the complex world of healthcare. She relied on her DNP Essentials to navigate through unfamiliar terrain and ensure nothing was missed or overlooked. This project immersed the student in the Essentials for DNP practice and served as the foundation for her future scholarly practice.

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Appendix A

The Burke-Litwin Model of Organizational Performance and Change

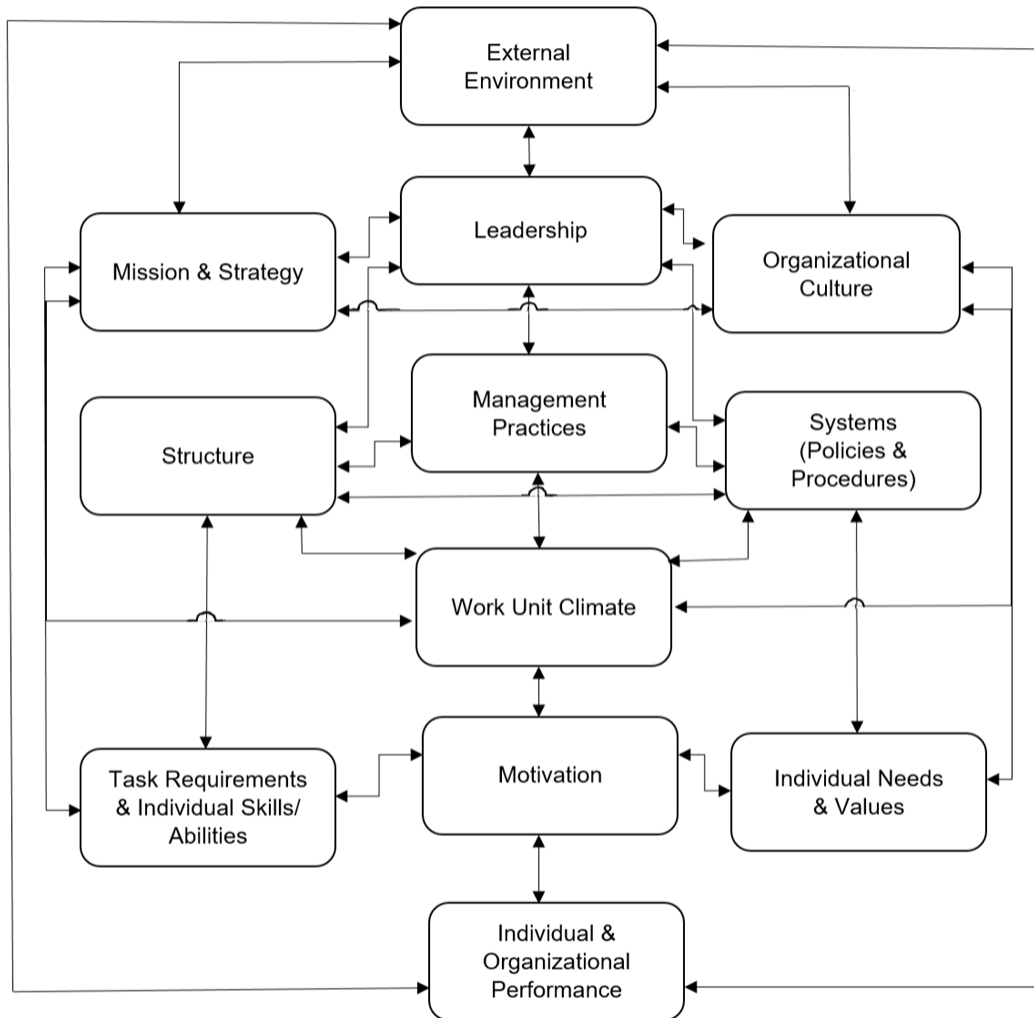


Figure 1. A model of organizational performance and change. Reproduced from “A Causal Model of Organizational Performance and Change,” by W. W. Burke and G. H. Litwin, 1992, *Journal of Management*, 18, 528. Copyright 1992 by Southern Management Association.

Appendix B

IRB Exemption Letter

DATE: October 31, 2018

TO: [REDACTED]

FROM: HRRC

STUDY TITLE: Improving Communication of Asthma Plans Between Primary Care Offices and Schools

REFERENCE #: 19-125-H

SUBMISSION TYPE: HRRC Research Determination Submission

ACTION: Not Research

EFFECTIVE DATE: October 31, 2018

REVIEW TYPE: Administrative Review

Thank you for your submission of materials for your planned scholarly activity. It has been determined that this project does not meet the definition of research* according to current federal regulations. The project, therefore, does not require further review and approval by the Human Research Review Committee (HRRC).

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

The purpose of this project is to improve communication between providers and impact quality of care for pediatric asthma patients at a single medical practice. While this is a systematic investigation, it is not designed to contribute to generalizable knowledge. Therefore, this project does not meet the federal definition of research and IRB oversight is not required.

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

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

Sincerely,
Office of Research Compliance and Integrity

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

Human subject means a living individual about whom an investigator (whether professional or student) conducting research obtains: data through intervention or interaction with the individual, or identifiable private information (45 CFR 46.102 (f)).

Scholarly activities that are not covered under the Code of Federal Regulations should not be described or referred to as *research* in materials to participants, sponsors or in dissemination of findings.

Appendix C

Letter from Site Mentor

[REDACTED]

September 19, 2018

To Whom It May Concern:

[REDACTED] is a Doctor of Nursing Practice (DNP) student at Grand Valley State University. As part of her DNP studies, she will be conducting a project in my office at [REDACTED] Pediatrics. [REDACTED] will be assessing current protocols for asthma action plan usage within the office and determining ways to share them with schools to improve the overall health of our pediatric asthma population.

I am a practitioner at this office and will serve as a mentor for [REDACTED] in relation to the project. I allow this student to conduct her project at [REDACTED].

Sincerely,

[REDACTED]

Pediatric Nurse Practitioner at [REDACTED]

Appendix D

SWOT Analysis of Organization for Proposed Project

Strengths	Opportunities
<ul style="list-style-type: none"> • Clinic staff have a team dynamic • All staff members verbalize a commitment to quality improvement and appear invested in their patients • The NP and her MA are excited to champion this proposed change • Few office staff members means decreased barriers to implement change • Physician is supportive of the proposed change • Experienced staff (low turnover rate) will not be overwhelmed with new tasks • 30 minute appointments give providers more time to complete AAP during visit, and MAs more time between visits • Staff are already tracking quality measures related to AAPs and have made changes to reach their reimbursement level in the past 	<ul style="list-style-type: none"> • Improving the AAP within the EHR will benefit all users of Epic on the network across the county. • If AAPs are easier to use, more providers will provide them to their patients to improve health outcomes of all asthmatics. • Schools will benefit from having up to date AAPs on file for children with asthma through individualized education and proactive health management. • School aged children with asthma who have AAPs at school miss fewer days of school and are less likely to visit the emergency room • Future financial reimbursement for the clinic for meeting COMPASS quality reporting goals. • Increased patient and family satisfaction due to the increased education received in the AAP and forwarding it to the school.
Weaknesses	Threats
<ul style="list-style-type: none"> • No written policies or procedures. Proposed changes could fade away if staff do not stay dedicated or motivation decreases • Current AAP is embedded within EHR, but difficult and time consuming to use. Both providers do not like completing it due to lack of ease. • No visual cue within the EHR to alert provider when an AAP needs to be completed or is expired. • Providers do not typically use Problem Lists in the EHR to easily identify if a patient has asthma. 	<ul style="list-style-type: none"> • Additional work to obtain written consent and complete the AAP may become burdensome. • Current EHR does not have an easy way to send AAP directly to the school. • If front office staff perceives additional tasks as not valuable, it could upset work-life balance and decrease motivation.

Appendix E

PRISMA Flow Sheet

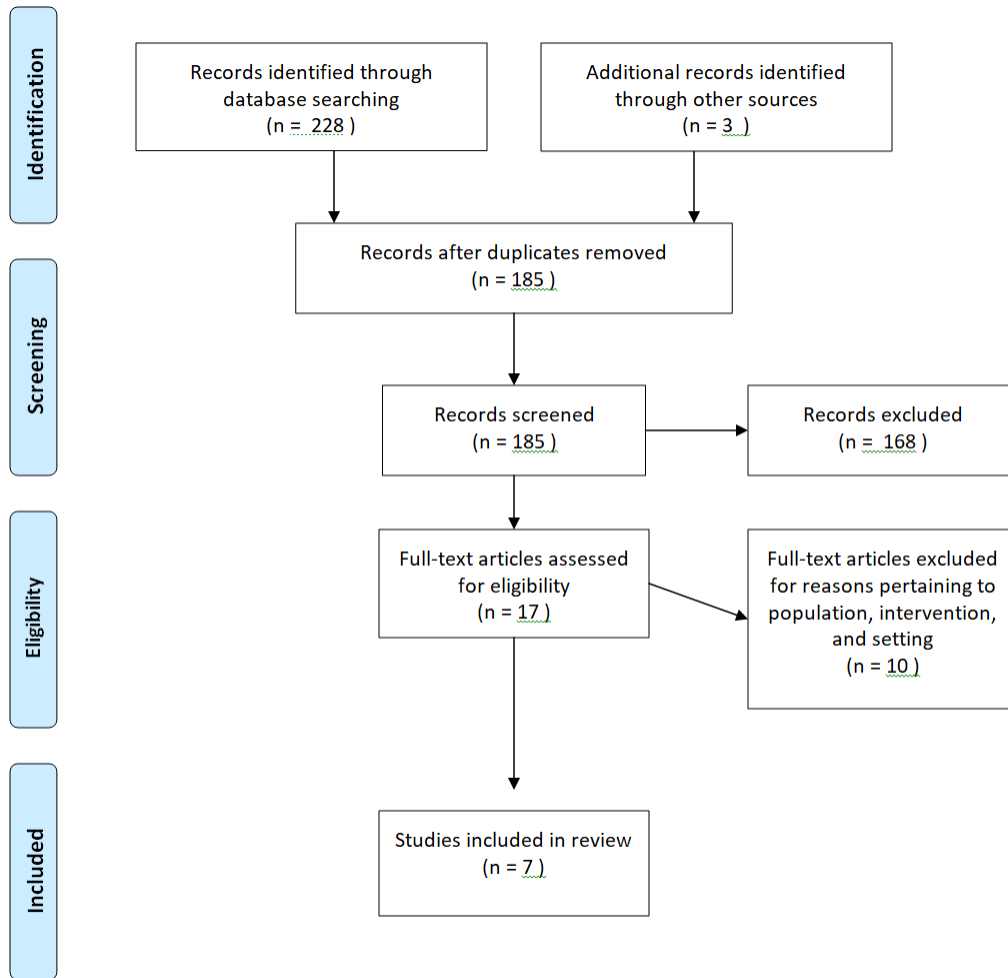


Figure 2. Flow diagram of search selection process. Adapted from "Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement," by D. Moher, A. Liberati, J. Tetzlaff, D. Altman, and PRISMA Group. Copyright 2009 by *PLoS Medicine*.

Appendix F

Literature Review Table of Evidence

Author (year) Purpose	Design/ Method (setting, sample)	Intervention	Results	Conclusion
Borgmeyer (2005) Evaluated and explored the school nurse's role in asthma management with emphasis on their experiences with using an asthma action plan.	Descriptive study, self-administered questionnaire (St. Louis metropolitan area asthma conference; school nurses; N=76)	Questionnaire with fixed and open-ended questions. School nurses described their role in caring for students with asthma and their use of AAPs.	80% have used an AAP 72% agreed that having an AAP increased confidence 28% of asthmatic students had an AAP at school and listed this as a major concern. The AAP provided guidance and direction for safe asthma care, prevented serious adverse events, and enhances proper management of asthma with students and staff. 50% schools had asthma management policy, but nurses rarely involved in making policies	Outlined the school nurses' perspectives about AAP use with student with asthma. 20% of surveyed school nurses had not used AAPs in their practice. Nurses reported AAPs gave them guidance, and confidence in providing direct care It was also useful in education for staff and students.
Egginton (2013) Explored how southeast Minnesota schools addressed asthma problems; identified areas for improvement; and assessed the potential value of asthma action plans in schools.	Descriptive qualitative study with focus groups (14 focus groups in 5 school districts in Southeast Minnesota; participants in stakeholder groups on asthma care in schools; N=103)	Semi-structured moderated focus groups held separately for elementary school personnel, parents of elementary school children with asthma, and health professionals. Transcripts were coded and analyzed.	Four major themes identified with analysis: <i>Communication</i> : No uniform way to exchange health information between schools and healthcare providers. <i>Asthma Control Continuum</i> : Students require individualized care and instruction regarding their asthma care. <i>Policy/Protocol</i> : The school staff roles and rules vary and are unclear. <i>Self-Reliance</i> : Older children may self-manage asthma care and be unknown to school staff until they require emergency support.	The AAP may solve a school's concerns about its ability to provide asthma support in school, but schools were not getting them. Schools wanted tools and systems to assess asthma control and share information with parents and physicians.

<p>Frankowski (2006) Described a case study that used a community approach to encourage exchange of information using the Vermont asthma action plan. Educated and empowered school nurses to provide asthma education in their schools.</p>	<p>Case Study Pilot program (2 school supervisory unions in Vermont; elementary and middle school children with asthma, 10 schools included N=10)</p>	<p><u>Interventions for PCPs</u> : education, posters, inhalers and spacers, data reports, problem solving for office system issues and communication problems</p> <p><u>Interventions for school nurses</u>: education, framework, posters, donated spacers, baseline data, support for asthma education, tracking forms, problem solving for communication problems, and asthma updates.</p> <p><u>Interventions for Community</u>: reviewed baseline data, learned about coordinated school health model, addressed communication barriers between PCPs and school nurses, brainstormed for educational programs in schools.</p>	<p>PCPs wrote an additional 31 asthma action plans for students. There was also an absolute increase of 44.0% of students with asthma who had a current AAP on file at the school, which is 3 times as many as baseline. Also, a noted uptick in the amount of AAPs from non-participating providers, possibly reflecting increased awareness as a result of outreach from school nurses and program staff during the pilot.</p>	<p>Working concurrently with school nurses and PCPs in the same community can benefit students suffering from asthma by increasing the number of AAPs received by school nurses. This program allowed for education, peer support, and problem solving in real time which benefitted this community.</p>
<p>Hanson (2013) Determined the usefulness of the AAP and barriers to its use by school nurses. They also used a portal feedback survey to improve quality of design and function of the AAP portal.</p>	<p>Descriptive study; self-report AAP survey and portal feedback survey, (southeast Minnesota; school nurses N=65 for AAP survey, N=12 portal survey)</p>	<p>Developed and implemented secure portal for electronic AAPs. Survey to assess nurse response, perceived value for AAPs, efficiency, self-efficacy and project impact.</p>	<p>60% school nurses felt the AAP enabled them to manage care more efficiently, support critical decision-making processes. Significant barriers to asthma care were identified. 35% of nurses reported difficulty reaching students' parents. Nurses felt the portal was easy to use, increased their confidence, made it easier to perform their job.</p>	<p>The AAP portal was designed using results from the AAP school nurse survey. Electronic sharing of the AAP can possibly increase school nurse efficiency and enhance communication</p>
<p>McLaughlin (2006) Presented results of the Asthma Childhood School Initiative which explored the availability and use of AAPs during asthma care at school.</p>	<p>Case study (Hartford, Connecticut; Analyzed asthma incident forms during the 2003-2004 school year; N=1080)</p>	<p>Developed an asthma incident information form (AIIF) for school nurse use for visits requiring non routine asthma care. These forms were collected and analyzed at the end of the school year.</p> <p>Information on AAPs on file, severity of condition on arrival, treatment given, condition at reassessment, if AAP guided treatment, student's disposition, and if student was seen in last</p>	<p>*AAPs were found to be on file for only 22.7% . *AAPs guided care 93.3% of time. *93.7% were "moderate" upon arrival, and the rest were "severe". *31% presented with severe symptoms had AAPs on file.</p> <p>When an AAP was on file, students received additional medications and treatments, were transferred to the ER and</p>	<p>School nurses used AAPs to guide treatment during an acute asthma episode and used the PCP contact information on the AAP frequently, especially during severe episodes. Having an AAP on file was associated with decreased emergency room usage.</p>

		year for non-routine asthma care.	more likely to be dismissed home to be referred to PCP	
<p>Splett (2006) Evaluated the effectiveness of enhanced asthma management compared to usual asthma care on school health office impact and school attendance.</p>	<p>Randomized community trial with 16 matched schools. Control and intervention groups with at least 700 students with asthma in each group. (Minneapolis Public Schools, 16 elementary and middle schools N=16)</p>	<p>Development of enhanced asthma care at school health offices and clinic performance improvement projects. Used evidence-based protocols, tools and forms, communication with health care partners, securing equipment and educational resources. Defined asthma care expectations and provided training, developed processes for improvement and rapid cycle monitoring. Developed a system for sharing AAPs and developed an AAP with consent for medication included.</p>	<p>Control schools had significantly more total visits ($p < .02$, $M=119$, $SD=20$) and episodic visits ($p < .003$, $M=13$, $SD=0.8$). The control schools also had a greater proportion of episodic visits compared to intervention schools ($p = .004$, $M=23$, $SD=4$).</p> <p>In intervention schools: parents were more frequently notified of episodic visits, more students with peak flow and education, greater number of AAPs, and more asthma medications were given. No significant differences were found in attendance.</p>	<p>Implemented enhanced asthma care in intervention schools impacted school health personnel and students. Care shifted to be more proactive, instead of reactive, and was found to be sustainable over 4 years.</p>
<p>Staudt (2015) Researchers shared their experience of partnering with organizations to design and implement a uniform, citywide asthma action plan to improve asthma management capacity in schools in San Antonio, Texas.</p>	<p>Case study (San Antonio, Texas; 16 school districts, 12 nurse coordinators surveyed N=12)</p>	<p>Modified an AAP, trained school personnel in symptom recognition, actions to take, and use of equipment. An annual summit was organized for school nurses, healthcare providers and community members to exchange ideas and strategies on implementation and to revise the plan as time went on. A survey was distributed to school nurse coordinators to evaluate impact of AAP on asthma management and student health.</p>	<p>Summits were well attended. In 2007, 5670 AAPs were distributed and 53% were completed and returned. In 2008, 71% were returned.</p> <p>91% nurses said keeping AAPs on file improved their ability to manage symptoms. 83% felt it improved student compliance, 66% felt students were better able to control their asthma and were more aware of warning signs, 41% noticed fewer visits to the school clinic. 33% felt it improved school attendance.</p>	<p>This community based project has been highlighted as a success by the CDC and county and city officials. School nurses reported the AAP improved asthma management and student outcomes. The number of AAPs returned to the school for students increased over time.</p>

Appendix G

The Donabedian Model

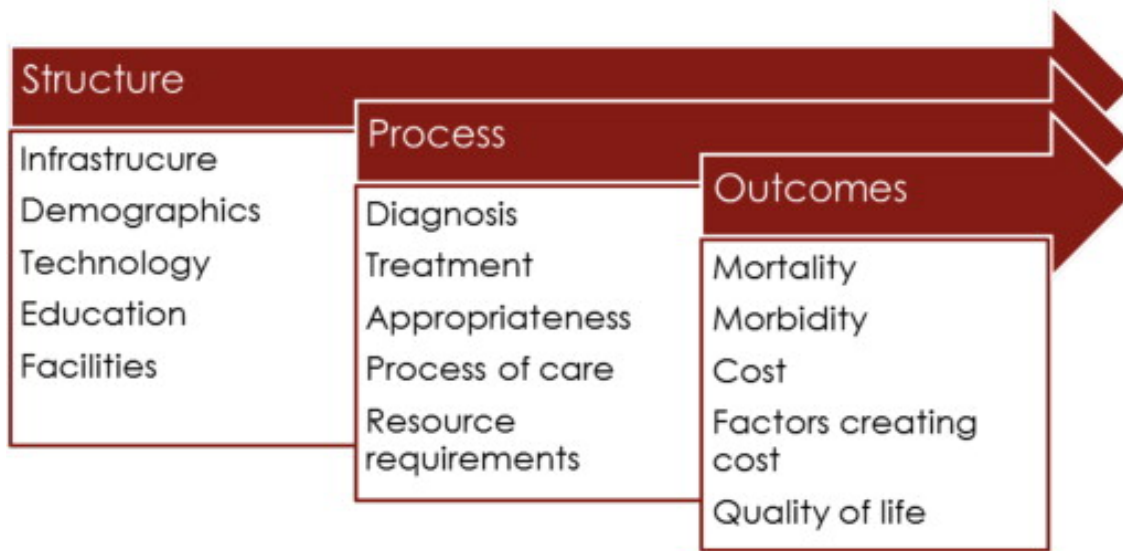


Figure 3. How (and why) do quality improvement professionals measure performance? -

Scientific Figure on ResearchGate. Available from: https://www.researchgate.net/The-Donabedian-model_fig1_274097282

Appendix H

Asthma Action Plan Sent to School Form

Asthma Action Plan Sent to School Form

Date: _____

Name of School: _____

Method of Delivery: (Please circle one)

Fax Email Sent with student/family Mail Electronic

Other: _____

Appendix I

School Survey

School Survey

1. What is the role of the person filling out this survey? (Please circle your answer)
 - a) School Principal
 - b) Office Manager/ Office Staff
 - c) Health Teacher
 - d) Other Teacher
 - e) School Nurse
 - f) Other _____

2. Is there a professional nurse (RN / LPN) on site at this school? (Please circle your answer)
 - a) Yes, here full time
 - b) Yes, here part time or shared between school buildings
 - c) Yes, here on call when needed
 - d) No, there is not a nurse for this school
 - e) Other _____

3. Who normally does routine asthma care (for example: medication/inhalers, etc.) at this school? (Please circle your answer)
 - a) Office Staff
 - b) School Nurse
 - c) Teacher
 - d) Other _____

- 4. Does your school have a written plan for medical emergencies such as an acute asthma attack?

Please circle one: Yes / No

- 5. What do you estimate to be the total percentage of children with asthma that have asthma action plans on file at the school? (Please circle answer)

< 25%

26-50%

51-75%

> 76%

- 6. How are asthma action plans utilized at your school?

- 7. Do you feel like asthma care for your students would benefit from better communication between the student's primary care providers and schools? Please explain:

Appendix J

PARiHS Three Dimensional Matrix

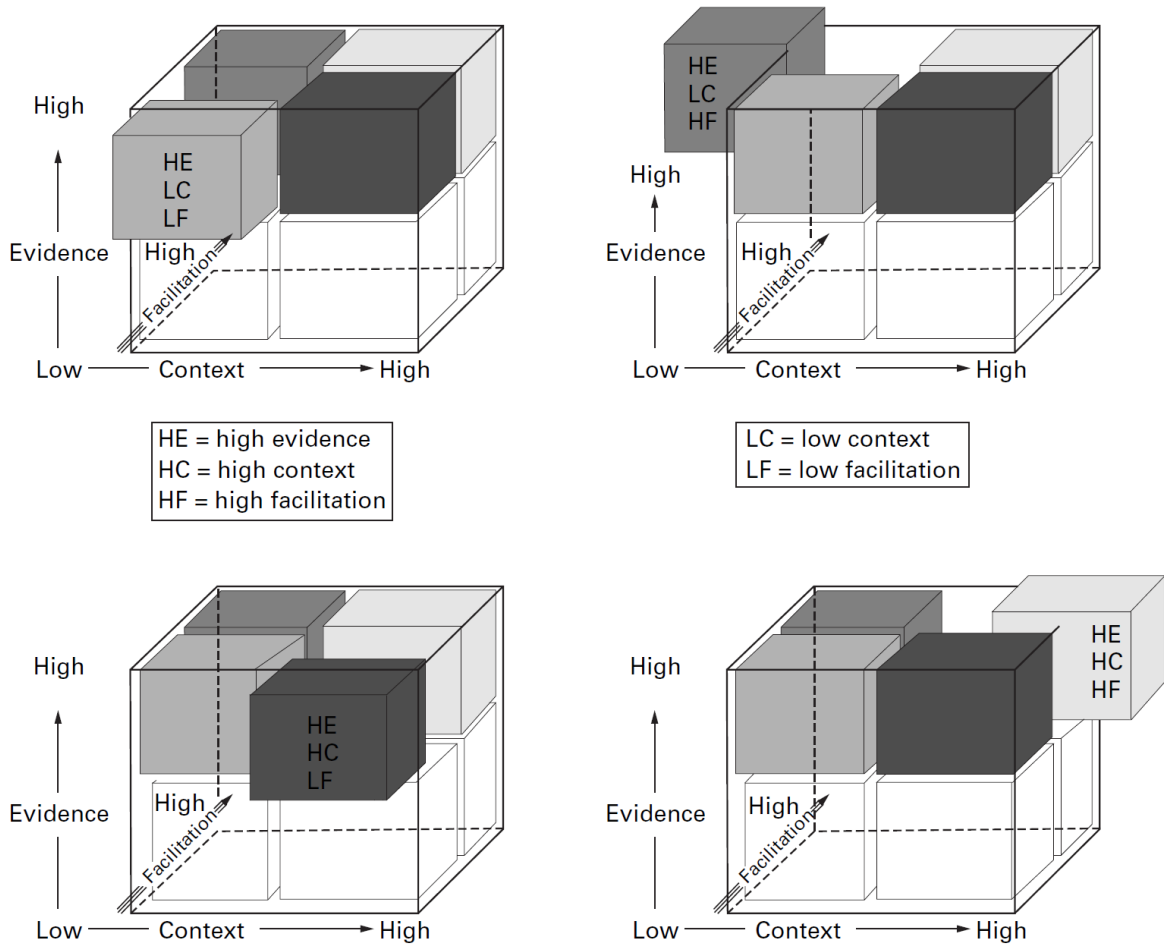
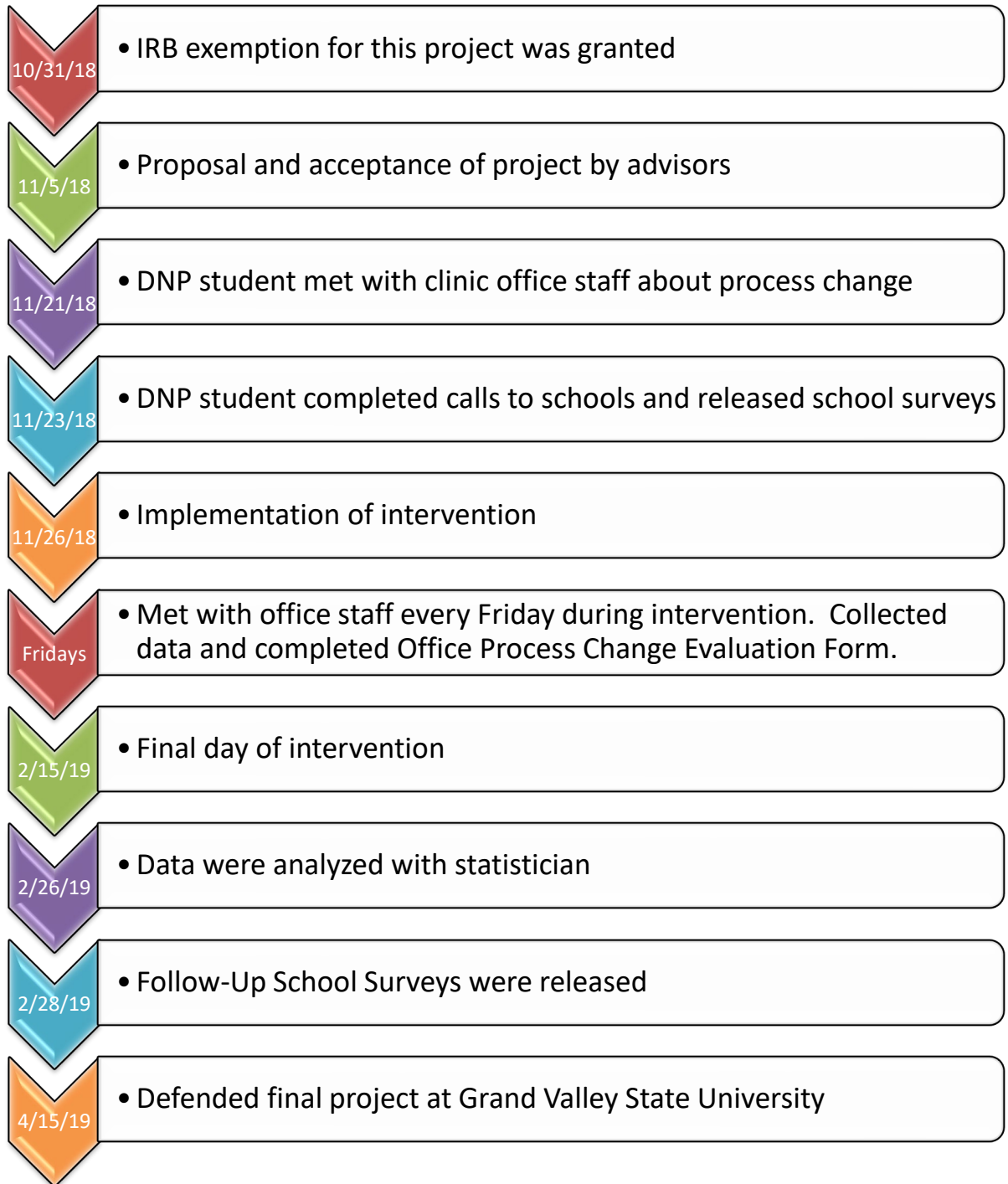


Figure 4, PARiHS implementation framework. Reprinted from “Enabling the implementation of evidence based practice: A conceptual framework,” by A. Kitson, G. Harvey, and B. McCormack, 1998, *Quality in Health Care*, 7, 149-158. Copyright 1998 by Quality in Health Care.

Appendix K

Timeline



Appendix L

Form to Evaluate Process Change Process in Clinic

Office Process Change Evaluation

Date of evaluation: _____

Staff who participated in evaluation: _____

What is going well: _____

Opportunities for improvement: _____

Changes made to current process: _____

Appendix M

Follow-up School Survey

Follow Up School Survey

1. What is the role of the person filling out this survey? (Please circle your answer)

- a) School Principal
- b) Office Manager/ Office Staff
- c) Health Teacher
- d) Other Teacher
- e) School Nurse
- f) Other _____

2. Have you noticed an increase in available asthma plans since November?

Please circle one: Yes / No

3. If yes, do you feel that asthma care for your students has benefitted from better communication between the student’s primary care providers and schools? Please explain:

Appendix N

Budget

Doctor of Nursing Practice Project Financial Operating Plan

		<u>Formula/Calculation</u>
Revenue		
Project Manager Time (in-kind donation)	4,950.00	
Team Member Time:		
Team Member: Pediatrician	750.88	
Team Member: Pediatric Nurse Practitioner	393.04	
Team Member: Medical Assistants/Secretary (3 employees)	378.00	
Team Member: Office Manager/Biller	291.36	
Consultations		
Statistician	316.80	
TOTAL INCOME	<u>7,080.08</u>	
Expenses		
Project Manager Time (in-kind donation)	4,950.00	\$45 x 110 hours
Team Member Time:		
Team Member: Pediatrician	750.88	\$93.86 x 8 hours
Team Member: Pediatric Nurse Practitioner	393.04	\$49.13 x 8 hours
Team Member: Medical Assistants/Secretary (3 employees)	378.00	\$15.75 x 8 hours (for 3 employees)
Team Member: Office Manager/Biller	291.36	\$36.42 x 8 hours
Consultations		
Statistician	316.80	\$31.68 x 10 hours
Cost of print/copy/fax	6.00	
TOTAL EXPENSES	<u>7,086.08</u>	
Net Operating Plan	<u><u>-6.00</u></u>	

Appendix O

Tables from School Survey

Table 1

Table of Asthma Care Providers in School

Response	<i>n</i>	Percentage
Office Staff	25	78.1
Teacher	1	3.1
Student	4	12.5
First Aid Person	1	3.1
"No asthma issues at the school"	1	3.1

Note. Responses to survey question "Who normally does the routine asthma care (for example: medication/inhalers, etc.) at this school?"

Table 2

Medical Emergency Plan at School

Response	<i>n</i>	Percentage
Yes	20	62.5
No	3	9.38
Unsure	9	28.13

Note. Responses to survey question "Does your school have a written plan for medical emergencies such as an acute asthma attack?"

Table 3

Estimated AAP on File at School for Asthmatic Children

Response	<i>n</i>	Percentage
< 25%	28	87.5
26 – 50%	2	6.25
51 – 75%	0	0
> 76%	2	6.25

Note. Responses to survey question "What do you estimate to be the percentage of children with asthma that have asthma action plans on file at the school?"

Table 4

How Valuable are Asthma Action Plans to Schools

Response	<i>n</i>	Percentage
1 (Not very valuable)	1	3.13
2	3	9.38
3	11	34.38
4	11	34.38
5 (Extremely Valuable)	6	18.75

Note. Responses to survey question "How valuable do you feel asthma action plans are for use at your school?"

Oral Defense

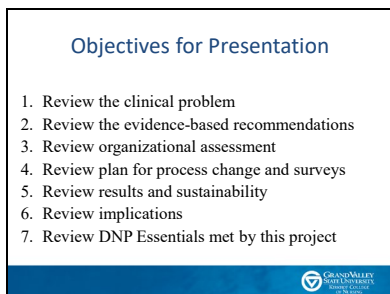
Slide 1



Slide 2




Slide 3




Slide 4

Introduction

- Asthma is a complex and chronic respiratory disorder which affects 14.2% of children in Michigan
- Only 41% of Michigan students with asthma have an asthma action plan on file with the school they attend



(Michigan Department of Health and Human Services (MDHHS), 2016; MDHHS, 2017)




Slide 5

Significance

- Children with asthma are more likely to miss school, visit their doctors or the emergency department, or be hospitalized
- One in five Michigan students with asthma miss more than six days of school each year due to their disease, and 81% of asthma hospitalizations for Michigan students occur during the school year


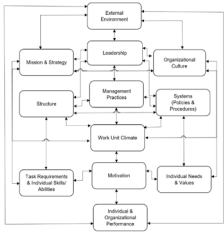
(American Academy of Allergy, Asthma & Immunology (AAAAI), 2015; MDHHS, 2017)



Slide 6

Framework:
Burke & Litwin

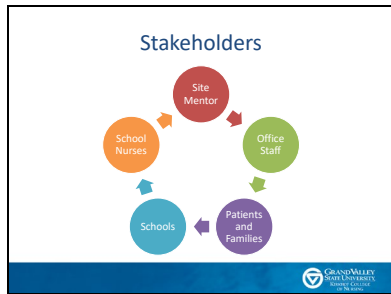
(Burke & Litwin, 1992)



Slide 7

SWOT Analysis	
<p>Strengths</p> <ul style="list-style-type: none"> • There still have a team process • All staff continue to receive a commitment to quality improvement • The office supports the program change • The office staff continues to support the program change • Physicians support of the program change • Equipment staff (Dorcas) are available to be implemented with ease • No major opportunities for a partner exist since the completion of the program • All staff are already working together • All staff are already working together • All staff are already working together • All staff are already working together 	<p>Weaknesses</p> <ul style="list-style-type: none"> • No process in place to provide a patient a copy of their AAP • No process in place to provide a patient a copy of their AAP • No process in place to provide a patient a copy of their AAP • No process in place to provide a patient a copy of their AAP • No process in place to provide a patient a copy of their AAP • No process in place to provide a patient a copy of their AAP • No process in place to provide a patient a copy of their AAP • No process in place to provide a patient a copy of their AAP • No process in place to provide a patient a copy of their AAP • No process in place to provide a patient a copy of their AAP
<p>Opportunities</p> <ul style="list-style-type: none"> • Supporting the AAP within the EHR • Supporting the AAP within the EHR • Supporting the AAP within the EHR • Supporting the AAP within the EHR • Supporting the AAP within the EHR • Supporting the AAP within the EHR • Supporting the AAP within the EHR • Supporting the AAP within the EHR • Supporting the AAP within the EHR • Supporting the AAP within the EHR 	<p>Threats</p> <ul style="list-style-type: none"> • Limited staff resources • Limited staff resources • Limited staff resources • Limited staff resources • Limited staff resources • Limited staff resources • Limited staff resources • Limited staff resources • Limited staff resources • Limited staff resources

Slide 8



Slide 9

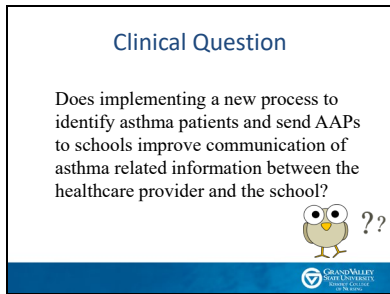
Assessment of Organization

- Currently less than 50% of patients with asthma have an AAP in the EHR
- No process in office to send AAP to schools
- Culture within the organization is willing to make changes for quality improvement efforts

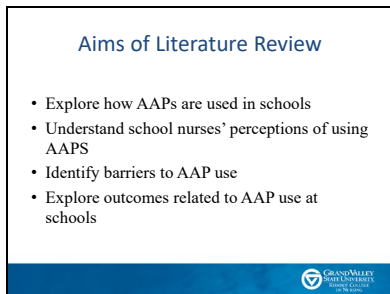
Slide 10



Slide 11




Slide 12



Slide 13

Review Method

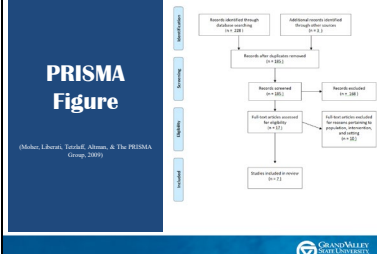
- PRISMA Framework
- CINAHL and PubMed databases
- English Language
- 2005-2018
- Keywords: asthma action plan, school, pediatric OR child




Slide 14

PRISMA Figure

(Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009)



The PRISMA flow diagram illustrates the search and selection process for the literature review. It starts with 100 studies identified through database searching (n=100) and 10 additional studies identified through other sources (n=10). After removing 10 duplicates (n=10), 100 studies were screened. 90 studies were excluded for reasons such as not meeting search criteria, not being peer-reviewed, or not being in English (n=90). 10 studies were included in the review (n=10).




Slide 15

Results: Literature Review

Seven studies met criteria

- 3 case studies
- 2 descriptive studies based on surveys
- 1 descriptive qualitative study
- 1 randomized community study

Descriptive Research (3 studies) without interventions
Multimodal interventions based on multiple stakeholders (3 studies)
Tool to evaluate AAP use by school nurses (1 study)




Slide 16

Category	Item	Description	Notes
Background	1. Asthma	Chronic respiratory disease characterized by airway hyperresponsiveness and inflammation.	Prevalence: 10-15% in children, 8-12% in adults.
	2. Asthma symptoms	Wheezing, coughing, chest tightness, and shortness of breath.	Often worse at night or in the early morning.
	3. Asthma diagnosis	Based on history, physical exam, and pulmonary function tests.	Diagnosis can be challenging due to variable symptoms.
	4. Asthma management	Includes controller medications (inhaled corticosteroids) and rescue medications (short-acting beta2 agonists).	Regular use of controller medications is essential for long-term control.
	5. Asthma education	Patients should be educated about their condition, symptoms, and proper use of medications.	Education improves adherence and reduces hospitalizations.
	6. Asthma action plans	Written plans that provide patients with specific instructions on how to manage their asthma.	Helps patients recognize and respond to changes in their symptoms.
	7. Asthma self-management	Patients should be encouraged to take an active role in managing their asthma.	Self-management programs can improve outcomes.
	8. Asthma triggers	Factors that can cause asthma symptoms, such as allergens, irritants, and stress.	Identifying and avoiding triggers is an important part of management.
	9. Asthma severity	Severity is determined by the frequency and intensity of symptoms and the need for rescue medications.	Severity can vary over time and between patients.
	10. Asthma complications	Complications include chronic bronchitis, emphysema, and asthma-related deaths.	Proper management can reduce the risk of complications.
Intervention	1. Asthma education	Providing patients with information about their condition and how to manage it.	Improves adherence and reduces hospitalizations.
	2. Asthma action plans	Written plans that provide patients with specific instructions on how to manage their asthma.	Helps patients recognize and respond to changes in their symptoms.
	3. Asthma self-management	Encouraging patients to take an active role in managing their asthma.	Self-management programs can improve outcomes.
	4. Asthma triggers	Identifying and avoiding factors that can cause asthma symptoms.	Helps reduce the frequency and severity of symptoms.
	5. Asthma severity	Monitoring and managing the severity of asthma symptoms.	Regular use of controller medications is essential for long-term control.
	6. Asthma complications	Preventing and managing complications of asthma.	Proper management can reduce the risk of complications.
	7. Asthma diagnosis	Accurately diagnosing asthma based on history, physical exam, and pulmonary function tests.	Diagnosis can be challenging due to variable symptoms.
	8. Asthma management	Using appropriate medications and techniques to manage asthma symptoms.	Regular use of controller medications is essential for long-term control.
	9. Asthma symptoms	Managing and reducing the frequency and severity of asthma symptoms.	Identifying and avoiding triggers is an important part of management.
	10. Asthma education	Providing patients with information about their condition and how to manage it.	Improves adherence and reduces hospitalizations.

Slide 17

Category	Item	Description	Notes
Background	1. Asthma	Chronic respiratory disease characterized by airway hyperresponsiveness and inflammation.	Prevalence: 10-15% in children, 8-12% in adults.
	2. Asthma symptoms	Wheezing, coughing, chest tightness, and shortness of breath.	Often worse at night or in the early morning.
	3. Asthma diagnosis	Based on history, physical exam, and pulmonary function tests.	Diagnosis can be challenging due to variable symptoms.
	4. Asthma management	Includes controller medications (inhaled corticosteroids) and rescue medications (short-acting beta2 agonists).	Regular use of controller medications is essential for long-term control.
	5. Asthma education	Patients should be educated about their condition, symptoms, and proper use of medications.	Education improves adherence and reduces hospitalizations.
	6. Asthma action plans	Written plans that provide patients with specific instructions on how to manage their asthma.	Helps patients recognize and respond to changes in their symptoms.
	7. Asthma self-management	Patients should be encouraged to take an active role in managing their asthma.	Self-management programs can improve outcomes.
	8. Asthma triggers	Factors that can cause asthma symptoms, such as allergens, irritants, and stress.	Identifying and avoiding triggers is an important part of management.
	9. Asthma severity	Severity is determined by the frequency and intensity of symptoms and the need for rescue medications.	Severity can vary over time and between patients.
	10. Asthma complications	Complications include chronic bronchitis, emphysema, and asthma-related deaths.	Proper management can reduce the risk of complications.
Intervention	1. Asthma education	Providing patients with information about their condition and how to manage it.	Improves adherence and reduces hospitalizations.
	2. Asthma action plans	Written plans that provide patients with specific instructions on how to manage their asthma.	Helps patients recognize and respond to changes in their symptoms.
	3. Asthma self-management	Encouraging patients to take an active role in managing their asthma.	Self-management programs can improve outcomes.
	4. Asthma triggers	Identifying and avoiding factors that can cause asthma symptoms.	Helps reduce the frequency and severity of symptoms.
	5. Asthma severity	Monitoring and managing the severity of asthma symptoms.	Regular use of controller medications is essential for long-term control.
	6. Asthma complications	Preventing and managing complications of asthma.	Proper management can reduce the risk of complications.
	7. Asthma diagnosis	Accurately diagnosing asthma based on history, physical exam, and pulmonary function tests.	Diagnosis can be challenging due to variable symptoms.
	8. Asthma management	Using appropriate medications and techniques to manage asthma symptoms.	Regular use of controller medications is essential for long-term control.
	9. Asthma symptoms	Managing and reducing the frequency and severity of asthma symptoms.	Identifying and avoiding triggers is an important part of management.
	10. Asthma education	Providing patients with information about their condition and how to manage it.	Improves adherence and reduces hospitalizations.

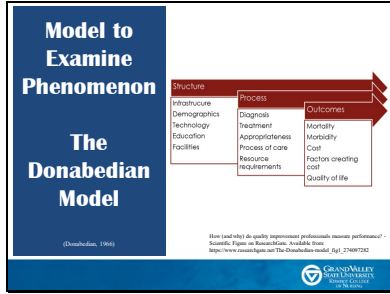
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Evidence for Project

- School nurses found AAPs useful in managing asthma care
- Multifactorial interventions to improve communication between healthcare providers and schools
- Electronic Communication (may not be possible, but in progress)

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Project Purpose & Objectives

- **Purpose:** To improve communication between healthcare providers and schools for children with asthma
- **Objectives:**
 - Every asthma patient seen will have an updated AAP
 - Send updated AAP to schools
 - Gain additional information from local schools about how they use AAPs

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Design

- Quality Improvement
 - A gap was identified
 - A plan was developed for change


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Setting & Participants

Setting:
Small private pediatric practice in Southern Lower Michigan. Panel size of 1,287

Participants:
58 Schools in county
Patients and families
Clinic staff
Site Mentor

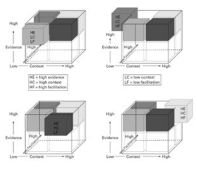


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Implementation Model

PARiHS Framework



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Implementation Steps

1. School Surveys
 - a. School Principal
 - b. School Nurse / Office Staff
 - c. Health Teacher
 - d. Other Teacher
 - e. Administrator
 - f. Other
2. Is there a published survey (e.g. LIPSE) in use at the school? (Please attach your survey)
3. Do you have all of the following?
 - a. Yes, but not all
 - b. Yes, but not all in school (not even school building)
 - c. Yes, but not all in classroom
 - d. No, they are not in use for the school
 - e. Other
4. How many direct contact visits did you (or a designee) make to the school? (Please only your survey)
5. How many
 - a. School Nurse
 - b. Teacher
 - c. Other
6. How many school buses in service plan for medical emergency work in an asthma action plan?

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Implementation Steps Continued

6. Follow-up School surveys
 - 1. What is the role of the person filling out the survey? (Please circle your answer)
 - a. School Principal
 - b. Office Manager / Office Staff
 - c. School Nurse
 - d. Other Teacher
 - e. Other Person
 - f. Other _____
7. Analyze data with statistician
8. Disseminate Findings
9. Defend Project

2. Have you worked on surveys in a school before, please check "Yes/No"?

Please write name: Yes / No

3. If yes, do you feel that asthma care for your students has benefited from before communication between the student's primary care provider and school? Please explain.

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Timeline

- IRB exemption for this project was granted
- Proposal and acceptance of project by advisors
- DRP students met with clinic office staff about process change
- DRP student completed calls to schools and released school surveys
- Implementation of intervention
- Met with office staff every Friday during intervention. Collected data and completed Office Process Change Evaluation Form.
- Final day of intervention
- Data were analyzed with statistician
- Follow-Up School Surveys were released
- Defended final project at Grand Valley State University

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Evaluation & Measures

- Weekly data collection
 - Number of AAPs sent to schools
 - Process change evaluations
- End of Intervention Chart Review
- Initial School Survey
- Follow-up School Survey

Address: _____
City: _____
State: _____
Zip: _____
Phone: _____


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Resources & Budget



Project of Interest	Amount	Source/Calculation
Office Staff	2,500.00	
Teacher	1,000.00	
Student	400.00	
First Aid Person	1,000.00	
Total	5,900.00	
Office Staff	2,500.00	\$40.00/Person
Teacher	1,000.00	\$100.00/Person
Student	400.00	\$40.00/Person
First Aid Person	1,000.00	\$100.00/Person
Total	5,900.00	



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Results of School Survey

- 55% Response Rate to electronic Survey
- Critical Information gained about current asthma practices in local schools
- Identified opportunities for improvement


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Asthma Care Providers in Schools

Table of Asthma Care Providers in School

Response	n	Percentage
Office Staff	25	78.1
Teacher	1	3.1
Student	4	12.5
First Aid Person	1	3.1
"No asthma issues at the school"	1	3.1

Note: Responses to survey question "Who normally does the routine asthma care (for example, medication inhalers, etc.) in this school?"




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Written Medical Emergency Plans

Medical Emergency Plans at School

Response	n	Percentage
Yes	20	62.5
No	3	9.38
Unsure	9	28.13

Note: Responses to survey question "Does your school have a written plan for medical emergencies such as an acute asthma attack?"




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Estimated AAP % at Schools

Estimated AAP on File at School for Asthmatic Children

Response	n	Percentage
< 25%	28	87.5
26 - 50%	2	6.25
51 - 75%	0	0
> 76%	2	6.25

Note: Responses to survey question "What do you estimate to be the percentage of children with asthma that have asthma action plans on file at the school?"




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AAP Value in School Setting

How Valuable are Asthma Action Plans to Schools

Response	n	Percentage
1 (Not very valuable)	1	3.13
2	3	9.38
3	11	34.38
4	11	34.38
5 (Extremely Valuable)	6	18.75



Note: Responses to survey question "How valuable do you feel asthma action plans are for use at your school?"



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Open Ended Questions


- Do you feel that asthma care for students would benefit from increased communication with primary care providers?
- How are AAPs utilized at your school?



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Results of Follow-Up School Surveys



- Sent to 3 schools
 - One school that received 2 AAPs
 - Two schools randomly selected that received one AAP from clinic
- No Perceived increase in AAPs during intervention period




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Process Change Results

- Fourteen AAPs sent to local schools from clinic at time of visit
- Thirteen schools received AAPs from the clinic
 - 1 school received two
 - 12 schools received one
- Five children did not have AAP sent from clinic at time of visit




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 **Discussion**

- Lack of healthcare professionals at schools
- Medical Emergency Plan lacking at almost 40% of local schools
- Not all schools desired more communication or valued AAPs


- Process Change well tolerated by Clinic Staff and easily integrated into workflow




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Limitations

- Short implementation period with multiple holidays and school breaks
- Small sample size
- Small Patient panel, lower rates of asthma at clinic
- EHR Limitations






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Implications



- Process Change was easily accomplished with minimal disruption to workflow
- Schools were open to improving care for asthmatic students
- Additional training may be needed for untrained medical care providers at schools
- Assistance with writing and educating school staff about medical emergency plans



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Dissemination of Results

- Office Presentation
- School Presentations
- Poster Presentations at Midwest Graduate Research Symposium and Michigan NAPNAP Spring Conference
- GVSU Defense
- ScholarWorks




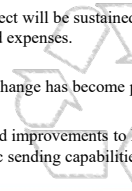
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Sustainability Plan

This project will be sustained with minimal effort and expenses.

Process change has become permanent.


Continued improvements to EHR AAPs and electronic sending capabilities



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American Association of Colleges of Nursing
DNP Essentials

<p>Essential I <i>Scientific Underpinnings for Practice</i></p> <p>Student applied diverse theories and framework to enhance project and use a systematic approach to a new task</p>	<p>Essential II <i>Organizational and Systems Leadership</i></p> <p>Student was a leader for project and participated in organizational and systems activities and provided valuable input to affect change</p>
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American Association of Colleges of Nursing

DNP Essentials

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

Student developed analytical skills and valuable experience with implementing a scholarly project and disseminating results

Essential IV
Information Systems Technology

Student used electronic survey to gather valuable information. Student also participated in committee to improve EHR AAPs

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American Association of Colleges of Nursing

DNP Essentials

Essential V
Advocacy for Healthcare Policy

Student met with state legislators on Advocacy Day and advocated for nursing practice and other children's health issues

Essential VI
Interprofessional Collaboration

Student was a member of an inter-disciplinary team to improve EHR. Also, gained experience leading a team which comprised of multiple different professionals with different medical backgrounds.

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American Association of Colleges of Nursing

DNP Essentials

Essential VII
Clinical Prevention and Population Health

The student's scholarly project focused on improving care for a specific population.

Essential VIII
Advanced Nursing Practice

Student designed, implemented, and evaluated intervention with nursing and other sciences, demonstrating foundational practice competencies.

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