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An Evaluation of a Care Conference Model and Improvement in the Transition Process for Medically Complex Pediatric Patients between Inpatient and Outpatient Care

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An Evaluation of a Care Conference Model and Improvement in the Transition Process for Medically Complex Pediatric Patients between Inpatient and Outpatient Care

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Abstract

Medically complex and/or fragile pediatric patients are high utilizers of health care dollars. This population represents less than one percent of the general pediatric population, yet they account for more than 30% of pediatric healthcare costs. These patients tend to have longer lengths of stay in the hospital, high readmission rates, and lower healthcare satisfaction scores. They also have multiple transitions between inpatient and outpatient care which increases the opportunity for medical errors. Research has shown that care conferences attended by key stakeholders tend to reduce readmissions and healthcare utilization while improving satisfaction rates and patient outcomes. Research also shows that efficient transitions of care processes improve patient outcomes through reduced errors while also improving satisfaction rates of patients, families, and providers. This project focused on both the evaluation of a process to streamline care coordination conferences as well as transitions of care for medically complex patients between inpatient and outpatient care. In order to streamline care conferences, standard work was written to standardize processes with the goal of increasing their perceived value and improving attendance. Results of a pre-implementation survey showed primary care providers desired more involvement throughout the course of hospitalization for their medically complex pediatric patients. A new process was begun where resident physicians notified primary care providers when these patients were admitted. A post-implementation survey showed improved satisfaction with communication.

Keywords: transitions of care, care coordination, pediatric patients, medically complex, primary care providers, hospitalists, secure text
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Executive Summary

Background

Medically complex and/or fragile pediatric patients are high utilizers of health care resources. Representing less than one percent of the general population, they account for more than 30% of pediatric healthcare costs, 15% to 33% of overall healthcare costs, 34% of all pediatric Medicaid health expenditures, 47% of the total spent on hospital care by Medicaid, and 71% of unplanned 30-day readmissions. They also tend to have longer lengths of stay in the hospital, higher readmission rates, and frequent emergency department visits. Often they require multiple healthcare providers, increasing the risk of miscommunication between providers or providers and families leading to suboptimal outcomes for patients due to medication errors and duplicated services.

Purpose

The organization where this Doctor of Nursing Practice (DNP) project occurred utilizes hospitalists to care for admitted pediatric patients, making communication between multiple providers challenging. It is especially challenging during admission and discharge when attempting to reliably and effectively communicate transfer information. Also of concern was patients who met criteria were not having needed care conferences. There was also a desire for more inclusion of primary care providers (PCPs) when admitting medically complex patients. These concerns led to the focus of this project which was two-fold: to evaluate streamlined care conference processes and to improve transitions of care communication between hospitalists and residents with PCPs for medically complex patients.

Significance

A review of the literature was performed which focused on care coordination as well as transitions of care for medically complex pediatric patients. The result of the review found coordinated care can lead not only to cost reductions related to healthcare utilization but improved health outcomes and increased parent and provider satisfaction. Studies also found involvement of the PCP in care coordination can lead to better patient outcomes. Transitions of care literature found lack of shared health information and involvement in discharge plans leaves primary care providers feeling frustrated and unprepared to assume or resume care of these fragile patients. These frustrations were confirmed by a survey sent to area PCPs, where a repeated theme was the desire for more communication with hospitalists and residents when medically complex patients are admitted.

Current Practice

Currently in the organization, there are no standard processes for communicating with PCPs when medically complex pediatric patients are admitted. The organization has been working on improving communication between hospitalists and PCPs when these patients are discharged and has seen improvement. However, PCPs have stated a desire for more communication throughout the course of hospitalization. For care conferences, there was no standard format, conferences
were considered to be too long while providing little value, and key stakeholders were often not in attendance. It was determined these conferences could make a valuable contribution to the patient’s care and the conference model needed improvement.

New Evidence

Respondents to the survey sent by the DNP student provided useful feedback and gave direction for this project. The PCPs admitted an average of just under three patients each month, and of those approximately 43% are medically complex. Sixty-seven percent of respondents were unfamiliar with the care coordination conferences at the organization, with 80% stating they would like more involvement with these meetings. Of those who were familiar, 62.5% were either not at all satisfied or somewhat satisfied with the conferences.

As for communication upon admission of a medically complex patient, 80% of respondents were either not at all satisfied or somewhat satisfied. Twenty percent of respondents stated they were very satisfied. Themes from comments related to communication included a desire for notification upon admission; appreciation of communication upon discharge, with the caveat that clearer responsibilities for follow-up labs, tests, and referrals to specialists is needed; and the need for a standardized discharge process and reports.

Intervention

It was determined more communication between inpatient and primary care providers was needed for medically complex pediatric patient admissions. After meetings with a pediatrician, a hospitalist, a resident, and the pediatric resident chiefs, it was determined the best way to notify PCPs of an admission was to have the physician residents send a secure text to the PCP. For the care coordination conferences, standard work was written by the care coordination committee. A baseline average from August, September, and October of 2016 was chosen to be used as a comparison to the same three months in 2017. The new care conference process was initiated in August 2017.

Cost Analysis

Costs to implement this project were minimal. Time was the largest cost. In-kind donations by the student included an organizational assessment, a literature review, creation of a dashboard and business plan, and meetings with key stakeholders. Other costs included monthly fees for use of Survey Monkey, committee meeting time for care coordination team members, consultations with key stakeholders for the transitions of care project, and the time spent by PCPs to fill out the survey.

Considerations

Care coordination and improved communication is a necessity for improving patient outcomes and decreasing health care utilization. Improving the care coordination conferences through streamlining and standardization should result in a more valuable process for all key stakeholders. When providers and family members have the opportunity to meet to discuss
questions, concerns and plans of care, safety and patient outcomes improve leading to increased family, patient, and provider satisfaction.

Recommendations

Recommendations for this organization include continuing to improve care coordination for medically complex patients both while admitted and when transitioning between the hospital and primary care. Those involved in the care coordination conferences need to continue to evaluate and modify practices to ensure the meetings are streamlined and valuable. It will also be important to begin to regularly include PCPs in care coordination conferences and notify them when their medically complex patients are admitted. By ensuring all key stakeholders are involved in care processes for medically complex patients, the organization will likely provide better care, reduce utilization costs, and improve patient outcomes and satisfaction.
An Evaluation of a Care Conference Model and Improvement in the Transition Process for
Medically Complex Pediatric Patients between Inpatient and Outpatient Care

Medically complex and/or fragile pediatric patients are high utilizers of health care resources. Although they represent less than one percent of the general population, they account for more than 30% of pediatric healthcare costs (Murphy & Clark, 2016). These medically fragile patients also account for 15% to 33% of overall healthcare costs (approximately $50-$110 billion annually), 34% of all pediatric Medicaid health expenditures (approximately $1.6 billion), 47% of the total spent on hospital care by Medicaid, and 71% of unplanned 30-day readmissions (Berry et al., 2014; Murphy & Clark, 2016). Often they also have longer lengths of stay in the hospital, higher readmission numbers, and frequent emergency department visits (Berry et al., 2014).

These medically complex patients require multiple healthcare providers, increasing the risk of communication errors between not only the providers but between providers, patients, and families. The issue of reducing communication errors has become so important it is now one of The Joint Commission’s national patient safety goals (Gordon et al., 2015). The Joint Commission requires accredited organizations to have systems in place to reduce the risk of communication error (Gordon et al., 2015). One method being utilized in healthcare organizations to improve communication and coordination of care is the use of care conferences. A care conference is a time for key stakeholders to meet to discuss the plan of care and/or have questions answered as they relate to these medically complex patients.

For pediatric patients, care conferences allow families and providers to meet together at a set time to discuss concerns, plans of care, or discharge plans. Attendees often include parents or caregivers, hospitalists, specialists, nursing, care managers, parents or caregivers, and other key
stakeholders involved in caring for the patient. Research has shown that care conferences attended by key stakeholders and families lead to reduced hospital utilization, improved discharge planning, fewer bed days, and ultimately reduced overall healthcare costs (McClain, Cooley, Keirns & Smith, 2014; Peter et al., 2011).

Another critical area for improving the health outcomes of this patient population relates to transitions of care. Transitions of care refers to the movement of patients from one type of setting or provider (e.g. hospital) to a different setting or provider (e.g. outpatient or primary care). For medically fragile pediatric patients who face recurrent hospitalizations, this often becomes a time of stress and frustration (Auger, Kenyon, Feudtner, & Davis, 2014; Balaban, Weissman, Samuel, & Woolhandler, 2008).

Coordinating patient care during these transitions is often challenging, especially as it relates to communication between providers. While timely transfer of pertinent information is the goal and can lead to better health outcomes, experiencing delayed or inaccurate information is all too common and may result in decreases in continuity, patient safety, and satisfaction (Kripalani et al., 2007; Leyenaar et al., 2016). Therefore, assessing current processes for transitions of care is essential if they are to improve.

Although there is a substantial amount of literature discussing the importance of both care coordination and transitions of care, the majority of published studies focus on adult populations. Although researchers are expanding the number of studies for pediatric patients, there are still few high-level studies to be found. However, the literature which focuses on these areas does support both care coordination and quality transitions of care processes. This Doctor of Nursing Practice (DNP) project used literature focused on improving processes in both areas to support changes to current practices in a local freestanding Midwestern children’s hospital.
Care coordination and transitions of care are challenging for healthcare organizations, including the organization where this DNP project took place. This project focused on two separate but related areas. One part of the project included an evaluation of efforts to streamline the care conference process at the organization. The second, and more extensive, focus was determining methods to improve communication between pediatric hospitalists (hospital physicians) and pediatric primary care providers when a medically complex patient transitions between the hospital and primary care. Evidence from the literature as well as theoretical and implementation models were the foundations of this project.

**Problem Statement**

One of the challenges in studying this population is the lack of standardization of what constitutes the description of “medically complex”. Although there is no universal description of what constitutes medically complex or fragile, these children often have involvement of multiple organ systems or technology dependency requiring care from multiple providers (Peter et al., 2011). For the purposes of this DNP project, medically complex was defined as any patient cared for by two or more physicians (a hospitalist and one other), had a length of stay longer than 24 hours, and was admitted to a non-critical care unit.

There was concern among leadership and providers at this organization that some patients who met these criteria were not having needed conferences. This results in missed coordinated care opportunities by key stakeholders and potentially higher readmission rates, poorer patient outcomes, and lower satisfaction with care by both providers and families (Shen et al., 2013). Conferences were also viewed as unorganized and too long which resulted in lower attendance by healthcare providers. Lack of involvement by key stakeholders in care coordination can result in less optimal outcomes for patients due to the loss of communication opportunities.
(Auger et al., 2016; Nageswaran et al., 2014). Therefore, the care conference format at this organization was being revisited to determine better processes, increase attendance, and improve patient outcomes as well as satisfaction scores.

Another challenge at this children’s hospital was the transition of care for medically complex pediatric patients from inpatient to outpatient or primary care. Transition processes were not standardized, and often primary care providers lacked pertinent information needed to assume or resume their care. A review of the literature determined recommended information to be included as well as preferred timing and methods of communication when transferring care from one provider to another.

The importance of improving the transition experiences for this vulnerable population led to the clinical question for this DNP project: Does implementation of a revised discharge / transition process, in combination with a pediatric care coordination conference, improve pediatric transition experiences between inpatient and outpatient primary care compared to transition experiences prior to implementation? This project evaluated the new processes for the care coordination conferences by comparing pre- and post-implementation data. The project also determined best practices for improving discharge and transitions of care processes based on evidence-based practices found in the literature as well as methods used successfully on other units in this healthcare organization.

**Evidence Based Initiative**

To determine best practices and evidence-based processes for both care coordination and transitions of care, a literature review was undertaken. Transitions between inpatient and primary care was the primary focus of the project; therefore, improving these processes by identifying evidence-based methods was the principal focus of the literature review. However,
literature related to care coordination served as a foundation for evaluating the care coordination conference process currently being reassessed at this organization.

Several databases were used in the search for relevant studies and resulted in a total of 367 potential articles (see Appendix A). Different combinations of search terms were used and for most searches, date ranges were between 2012 and 2017 to ensure information was relevant. The Hierarchy of Evidence Table for Intervention Studies (see Appendix B) was used for this review. This table classifies studies according to research design and assigns levels from one to seven with one being the highest level (Fineout-Overholt, Melnyk, Stillwell, & Williamson, 2010). The final result of the literature review was eleven articles which met inclusion criteria. There were three systematic reviews (Level I), one randomized controlled trial (Level II), three retrospective cohort studies (Level IV), and four studies with various designs and methodologies (see Appendix C).

The focus of the literature review was to evaluate the importance of care coordination. It also concentrated on evidence-based methods to improve patient discharge processes and transitions of care for medically complex pediatric patients. Another goal was to review outcomes related to communication and involvement of the primary care provider in transition processes, timeliness of communication, discharge summaries, and readmissions for this population. The results of the review found coordinated care can lead not only to cost reductions related to healthcare utilization but improved health outcomes and increased parent/caregiver and provider satisfaction (Peter et al., 2011).

Care coordination is especially vital during patient discharge from inpatient care. Communication failures between providers may be the root cause for approximately 60% of sentinel events (Solan, Sherman, DeBlasio & Simmons, 2016). Timely transfer of pertinent
information is essential and can lead to better health outcomes, while experiencing delayed or inaccurate information can result in decreased care continuity, patient safety, and satisfaction with care (Kripalani et al., 2007; Leyenaar et al. 2016).

As previously stated, the primary focus of the literature review was on transitions of care. The review found four recurrent themes: communication and involvement of the primary care provider (PCP), timeliness of communication, complete discharge summaries, and 30-day readmissions. Although these areas were developed separately, the repeated theme throughout the literature was the importance of communication between hospitalists and PCPs. This was especially true for medically complex pediatric patients at discharge.

This Midwestern pediatric hospital employs hospitalists to care for admitted patients. While having hospitalists and specialists is often beneficial, communication between multiple providers can be challenging (Solan et al., 2016). It is especially challenging during discharge for reliably and effectively communicating transfer information and follow-up responsibility between hospitalists, specialists, and PCPs (Kripalani et al., 2007; Solan et al., 2016).

Lack of shared health information and involvement in discharge plans leaves primary care providers feeling frustrated and unprepared to assume or resume care of these fragile patients (Leyenaar et al., 2015; Shen et al., 2013). Research has shown that involvement of the primary care provider in care coordination can lead to better patient outcomes (Brittan et al., 2015; Nageswaren, Radulovic & Anania, 2014). However, Solan et al. (2016), Kripalani et al. (2007), and Leyenaar et al. (2015) found direct communication between hospitalists and PCPs to be infrequent and inconsistent.

Themes from these studies pertinent to this DNP project were problematic aspects of communication, provider role perceptions, and post-discharge responsibilities. Role perceptions
involved PCPs feeling devalued, lack of understanding of hospitalist role, and differing perceptions and expectations related to role responsibilities. Also found was a lack of consensus following hospital discharge related to responsibilities, such as follow-up on pending laboratory tests. Phone calls (especially for medically complex pediatric patients) followed by an email or discharge summary were found to be most beneficial (Kripalani et al., 2007; Solan et al., 2016). Direct communication allowed for two-way conversations and the ability to ask and answer questions which benefitted both the PCP and the patient (Leyenaar et al., 2015). The providers in Leyenaar et al.’s (2015) study suggested the use of a template to ensure pertinent details were included, that it be concise, and that it contain clear headings.

These studies underscore the importance of clear communication and determining responsibility for post-discharge follow-up. Kripalani et al. (2007) found 41% of discharged patients in one study had pending test results with nearly 10% seen as potentially actionable or urgent. The authors found another study in which 75% of patients had laboratory reports returned post-discharge, 15% of which had abnormal results, and 60% of the providers were unaware of this information (Kripalani et al., 2007).

Another common theme in the literature review was readmissions. The 30-day readmission rate is increasingly used as an indicator of quality patient care. Past studies have indicated that anywhere from 20%-50% of pediatric readmissions are preventable (Brittan, Shah, & Auger, 2016). Improved transitions between hospital and outpatient care has the potential to control costs and reduce readmission rates, especially for medically complex pediatric patients (Brittan et al., 2015). This is important as medically complex patients have higher numbers of emergency department visits and longer lengths of stay (Berry et al., 2014; McClain et al., 2014).
Auger, Kenyon, Feudtner, and Davis (2014) performed a systematic review to determine pediatric transition practices and interventions which reduced hospital readmissions and post-discharge emergency department utilization. Findings from the review found six interventions that showed a reduction in readmissions or emergency department use, and four of those included enhanced post-discharge follow-up. However, Coller, Klitzner, Lerner and Chung (2014) found documentation of a PCP follow-up plan to be associated with a significant increase in 30-day readmissions. According to the authors, many readmissions may not be preventable, and increased 30-day readmissions may actually represent improved mortality rates and overall access to care (Coller et al., 2014).

As noted in the literature review, care coordination and efficient patient discharge and transition processes are imperative for better patient outcomes. Improved processes are essential for pediatric patients who are medically complex, as they often have multiple providers involved in their care. Although these processes are often fragmented, they can be improved with the use of evidence-based practices and the support of all involved, resulting in safer, quality care. To increase the likelihood of success for this DNP project which looked to improve processes, use of evidence-based models was foundational.

**Conceptual Models**

To improve both implementation and sustainability, this project was based on both a theoretical and an implementation model. The theoretical model used was the I$_2$E$_2$ formula, which is a framework geared toward leadership in organizations wanting to bring about lasting change. The implementation model for this project was the Institute for Healthcare Improvement’s Plan-Do-Study-Act (PDSA) model. These models are described in the following sections.
Theoretical/Conceptual Framework – I\textsubscript{2}E\textsubscript{2}

I\textsubscript{2}E\textsubscript{2} was created to help leaders understand the fundamentals of successful, large-scale change in an organization, is cyclical. It is based on four elements: inspiration (I\textsubscript{1}), infrastructure (I\textsubscript{2}), education (E\textsubscript{1}), and evidence (E\textsubscript{2}) (Felgen, 2007). The essence of this framework is to focus leadership’s energy on essential issues in the organization (see Appendix D).

According to Felgen (2007), change begins with Inspiration (I\textsubscript{1}) which ignites a strong desire to see change happen. Inspiration is followed by evaluating Infrastructures (I\textsubscript{2}) to ensure all aspects of the organization advance the vision for change. In order to sustain change, Education (E\textsubscript{1}) of individuals is essential to ensure early success in their new job responsibilities. Finally, Evidence (E\textsubscript{2}) evaluates how effectively the three previous elements brought about change. I\textsubscript{2}E\textsubscript{2} also helps leaders create action plans when an organization is ready to commit to change by providing a formula which ensures all planning and implementation activities are comprehensive and inclusive (Felgen, 2007).

**Inspiration (I\textsubscript{1})**

Inspiration is the first element of the framework and helps those in the organization understand that the benefits of change outweigh the risks. Felgen (2007) states the best inspiration links the new collaborative vision to something already in existence. Inspiration should also be linked to appreciation, where contributions are acknowledged thereby reinforcing the idea that each individual has something valuable to contribute. Questions for this phase include: (a) how will this change enhance the integrity of the organization; (b) how will the experience of patients, families, and colleagues improve; (c) how will this change make individual practice more effective; and (d) what good things are already happening that we can connect to the new vision (Felgen, 2007)?
**Infrastructure (I₂)**

In the I₂E₂ framework, it is vital to integrate the concepts and principles of the vision into the existing practices, processes, and systems of the organization (Felgen, 2007). Good infrastructures in an organization can reduce fragmentation and distraction through unifying practices, standards, systems, processes and work groups (Felgen, 2007). When creating the action plan, there are three levels of infrastructure to consider: strategic, operational, and tactical.

**Strategic Level**

Strategic thinking evaluates the overall direction of the organization and determines how best to create unity in both the organization and community at large. This level is where organizational culture is addressed and where leaders ensure the mission, vision, and values statements live in the organization. Important questions to ask at this level include: (a) what can be done to support the core business; (b) how could integrating the newest innovations positively affect the organization; and (c) in what ways does relationship-based care support our mission, vision, and values (Felgen, 2007)?

**Operational Level**

The operational level is where the vision is achieved in departments and units throughout the organization (Felgen, 2007). Operational considerations clarify how the strategic plan can be achieved through roles, relationships, policies and systems. Creation of oversite teams helps define accountability for changes and are where individuals in the organization may bring innovative recommendations. Questions for this project included: (a) what unit practices are already in place which will advance the vision for change; (b) what new systems or processes could support the new vision; and (c) whose support should be enlisted when making changes at different levels (Felgen, 2007)?
**Tactical Level**

The tactical level focuses on daily practices, routines, and standards. Felgen (2007) states this level is where the vision is experienced by patients, families, and colleagues as it exhibits those mechanisms put into place to achieve the strategic plan. It is also where leadership has the greatest circle of influence. Questions to ask at this level include: (a) how to assist individuals in translating the vision into reality as they care for patients and families; (b) what is needed to support caregivers and those in supportive roles; and (c) what commitments can be made to support healthy work relationships (Felgen, 2007)?

**Education (E₁)**

Organizational change often affects both the roles of employees and those leading the change. Leaders are prepared for clinical or technical changes but not as adequately prepared for the interpersonal relationships or critical and creative thinking skills required (Felgen, 2007). When determining education needs for those in the organization it is essential to focus on interpersonal, technical, and critical thinking skills. Felgen (2007) states when individuals are clear about their roles, and individual practice supports their roles, they are more willing to develop competencies which will ensure their success. Clarity also encourages individuals to carry out their part of the mission, and these individuals often emerge as leaders within their peer group (Felgen, 2007).

**Evidence (E₂)**

Finally, Evidence (E₂) assesses how successful the Inspiration (I₁), Infrastructure (I₂), and Education (E₁) efforts were in impacting change. Evidence should not be used as a critique but should inspire commitment to successful changes and renewed efforts to redesign those which were not (Felgen, 2007). Change leaders should also remember that enduring cultural change
often requires three to five years of concerted effort (Felgen, 2007). Evidence also helps monitor the impact of patient and family satisfaction, staff retention, and patient quality indicators. When looking at the evidence, the following questions should be asked: (a) how will it be determined that we have sustained the vision for change; (b) what key processes are most important to capture; (c) how will the evidence collected be used for future I₂E₂ cycles; (d) who will manage the collection, analysis, and dissemination of the new data; and (e) how will those in the organization know the vision has become reality (Felgen, 2007)?

Ultimately, the I₂E₂ formula is about relationship-based care. Its cyclical nature puts change leaders into position for continual review of progress, determining what was successful and what could be improved or expand that success (Felgen, 2007). I₂E₂ is also a reminder that change is a dynamic process which requires continual commitment to the organizational vision. Ultimately, leading sustainable change requires leaders to understand that change is constant and continuous (Felgen, 2007).

**Implementation Model – Institute for Healthcare Improvement’s Plan-Do-Study-Act Model for Improvement**

When implementing this project, the Institute for Healthcare Improvement’s Plan-Do-Study-Act (PDSA) model was used (Appendix E). This model is a tool used to accelerate improvement. The model has two parts: three questions to be addressed in any order, and the PDSA cycle which is used to determine whether or not the change has been an improvement (Institute for Healthcare Improvement [IHI], 2017). The three questions for this model are: (1) what are we trying to accomplish; (2) how will we know that a change is an improvement; and (3) what change can we make that will result in improvement (IHI, 2017)?
The PDSA Model for Improvement has several steps to guide the implementation process (IHI, 2017). The first step is to ensure the correct people are on the process improvement team. Members should include the following: individuals knowledgeable in systems leadership, those with technical expertise, persons with day-to-day leadership (drivers of the project), and the person acting as the project sponsor. Following this, the three questions listed above need to be addressed. This is done through setting aims which are time-specific and measurable, establishing quantitative measures, and determining the changes most likely to result in improvement (IHI, 2017).

The PDSA cycle is where the change is planned, evaluated, and potentially scaled up in the organization (IHI, 2017). The first step (plan) is where plans are made for testing and data collection. Steps include stating the question, predicting the result, identifying the data to be collected, and developing a plan to test the change. During the second step (do), the team performs the test on a small scale, documents information, and begins to analyze data. The following step (study) is where results are analyzed and compared to predictions, and data are summarized. During the final step (act) the change is adapted, adopted, or abandoned (IHI, 2017).

Implementing the change is the next step in the process. Once the change is initiated on a small scale, it may be implemented on a larger scale, often after multiple PDSA cycles. However, implementation may be done without multiple cycles if smaller scale implementations were successful. This process leads to the final step which is spreading the change to other areas of the organization or even to other organizations. The PDSA model is ideal to use for implementation of this DNP project as this system is already in use at the
organization. This model supports the importance of assessing the needs of the organization and the feasibility of the project prior to implementing any change in an organization.

**Needs and Feasibility Assessment of the Organization**

Successfully implementing and sustaining change in any organization is challenging. Several factors must be accounted for, including organizational culture and the external environment. To assess the hospital’s culture and readiness for change, an organizational assessment was performed using the Burke-Litwin causal model (see Appendix F) along with a strengths, weaknesses, opportunities and threats (SWOT) analysis (see Appendix G).

**Burke-Litwin Causal Model**

The Burke-Litwin causal model is divided into two main categories: transformational and transactional dynamics (Burke & Litwin, 1992). Transformational variables (external environment, mission and strategy, leadership, and organizational culture) are depicted in the upper half of the model. These are changes which are caused by interactions with internal and external environments and require new behaviors from organizational members. Transactional changes, shown on the lower half of the model, are usually short-term “reciprocity agreements” between employees or groups (Burke & Litwin, 1992, p. 530). Transformational change often begins at the leadership level and transactional change at the management level (Burke & Litwin, 1992).

According to Burke and Litwin (1992), to bring about change in an organization, two main factors must be considered. The first is to develop a thorough understanding of the way an organization functions, and the second is to determine how an organization might deliberately be changed. The Burke-Litwin model attempts to do that by introducing twelve factors which influence an organization’s culture and openness to change. These twelve variables were used to
assess the children’s hospital to determine its readiness for change. After assessing the organization, it was determined this project would be supported.

One of the goals of this organization is to become a national leader for health by the year 2020 with an overall goal to make health care better. The strategic plan calls for certain steps to attain this goal. These include driving exceptional value, growing with purpose, transforming the model of care, and leading new health solutions. Improvement in the coordination of care conferences and improving communication between hospital physicians and PCPs are congruent with this organization’s strategy to improve the quality and safety of the care it provides.

Quality at this organization is measured in several ways, including external regulatory agencies and rating companies. Agencies and companies such as the Centers for Medicare and Medicaid Services, the Agency for Healthcare Research & Quality, and Leapfrog continually measure the organization’s quality (Spectrum Health, 2016). The organization’s quality is also measured through accrediting bodies such as the Joint Commission which has a series of standards that hospitals must follow to earn accredited status (Spectrum Health, 2016).

Quality indicators which are regularly tracked by the children’s hospital include: 30-day readmission rates, inpatient fall rates per 1,000 days, central line blood stream infections, catheter-associated urinary tract infections, ventilator-associated events, pain assessment / intervention / reassessment, hand hygiene compliance, and average length of stay. Nursing quality patient satisfaction indicators include care coordination, pain, courtesy/respect, patient education, and responsiveness. Although many indicators are listed, this is not an exhaustive list. These measures reinforce the organization’s commitment to safe, quality care for patients.

According to the hospital compare website (Medicare.gov, n.d.), the healthcare system meets or exceeds the averages of other comparable health systems overall. The organization,
which is part of a six billion dollar health system, is also financially sound. The health system releases their financial statements on their website in an effort to be transparent (Spectrum Health, 2017).

Another way to measure an organization’s performance is through surveys which rate patient’s healthcare experiences. As previously stated, the organization participates in the Consumer Assessment of Healthcare Providers and Systems (CAHPS) surveys. The CAHPS surveys consist of 18 measures related to patient experience, and focus on aspects of the pediatric inpatient experience which are important to patients and their families (AHRQ, n.d.). Recently, scores from two of the survey questions related to communication with providers were lower than desired. These scores supported formation of the care conference committee whose objective was to improve the conference structure and process. Goals of the committee include increased satisfaction scores by improving communication between providers as well as between providers and parents.

**Strengths, Weaknesses, Opportunities and Threats Analysis**

When doing any type of organizational assessment, it is important to perform a strengths, weaknesses, opportunities, and threats (SWOT) analysis (see Appendix G). A SWOT analysis was completed at the organization to assess the culture as it pertains to organizational change. As previously stated, the organization’s culture embraces change at all levels, supports use of evidence-based practice, and has developed a new system for improving the implementation and evaluation of quality improvement projects.

Strengths of the organization also include strong physician engagement, being financially sound, and the equality and importance of everyone’s role. Opportunities for growth include better communication between providers as well as providers and families, improved patient
transition experiences, higher attendance at care conferences, and improved child hospital CAHPS scores related to communication. Other opportunities related to this DNP project include creation of a dashboard and a business plan to help the organization determine next steps.

However, weaknesses and barriers were discovered as well. These include lack of support from some pediatric specialists related to care conferences, poor communication patterns, and lack of a standardized discharge process for medically complex patients. Potential threats and challenges include the inability to engage key stakeholders and improve care conferences, as well as a lack of improvement in discharge/transition process for medically complex patients. Another potential barrier is the November 2017 implementation of a new electronic medical record system for the healthcare system. Training and implementing this new system has the potential to overshadow the work being done with this DNP project and make it difficult to proceed in a timely manner. Therefore, it is essential to have a project plan in place.

**Project Plan**

This Doctor of Nursing Practice project focused on two separate but related areas. One part of the project included an evaluation of efforts to streamline the care conference process at a freestanding Midwestern children’s hospital. The second, and more extensive focus was determining methods to improve communication between pediatric hospitalists (hospital physicians) and pediatric primary care providers when a medically complex patient is transitioned from the hospital to primary care.

**Purpose of Project**

This Doctor of Nursing Practice project was two-fold and focused on medically complex pediatric patients at a Midwestern children’s hospital. The clinical question for this project was: Does implementation of a revised discharge / transition process, in combination with a pediatric
care coordination conference, improve pediatric transition experiences from inpatient to outpatient primary care compared to transition experiences prior to implementation?

Objectives

Improving both the care coordination process and discharge / transition process was attempted through attainment of the following objectives by the DNP student:

1. Create and send a questionnaire link to PCPs to determine satisfaction with the transitions of care/discharge process for medically complex patients by August 21, 2017

2. Standardize the transition process through the development of an evidence-based method to improve communication between hospitalists, residents, and pediatric primary care providers by August 30, 2017

3. Resend the questionnaire link to PCPs to determine satisfaction with the transitions of care communication and process for medically complex patients on October 23, 2017

4. Evaluate and display provider satisfaction based on provider questionnaire results related to standardizing discharge processes by November 6, 2017

5. Determine whether a change was made with the new care conference content and design through displaying of pre-determined metrics (length of stay, 30-day readmissions, improved child CAHPS scores) by November 6, 2017

6. Create a dashboard to show the effectiveness of improving the care conference process and integrating the new transition process for PCPs and hospitalists by November 25, 2017

7. Disseminate a business plan to determine next steps for the organization and given to the Director of Pediatrics and primary care physicians by November 30, 2017
Type of Project

This DNP project had two separate but related areas of focus. The first area was the streamlined process for the care coordination conference. This part of the project was a formative evaluation. Formative evaluations are conducted during the development or improvement of a project. The objective was to determine whether the new processes improved the care conference format and attendance. Because the new processes were already being established, this would indicate a formative evaluation is needed.

The second part of this project was considered quality improvement. Quality improvement projects consist of systematic and continuous actions leading to measurable improvements in health care services as well as the health status of the targeted population (Health Resources and Services Administration [HRSA], 2011). One crucial measure of quality is the extent to which patients’ needs and expectations are met, such as through coordination of care (HRSA, 2011). The quality improvement goal was to standardize the discharge process and transitions of care based on evidence found in the literature and the stated needs of key stakeholders.

Setting and Resources Utilized

This DNP project took place in a Midwestern freestanding children’s hospital for the care conferences. This organization is the region’s largest children’s hospital, serving 37 counties, is a level-one trauma center, and earned Magnet® redesignation in 2014. The organization has over 150 pediatric specialty physicians in over 40 pediatric specialties, with 7,600 inpatients and 190,000 outpatients annually. It has received several awards for its work and is ranked nationally in six pediatric specialties. It is also part of a six billion dollar health system,
comprised of a hospital group and a medical group, allowing access to acute, post-acute, and primary care settings, as well as a health plan.

For the standardization of the transition process, the setting included acute, post-acute, and primary care settings. Resources included creation of pre- and post-implementation surveys, using the results to determine better processes. Questionnaires were created on the SurveyMonkey® website. Additional resources included time (approximately five minutes) for PCPs to complete the questionnaires, as well as education of hospitalists and physician residents on the use of a new process. Education on the new process was provided by the DNP student. Detailed budget and resource information can be found in the budget section of this paper as well as Appendix H.

**Design for the Evidence-based Initiative**

The I2E2 model (Felgen, 2007) was used as a guide for implementing this project as follows:

- **Inspiration (I1):** Inspiration evaluates processes already in place and determines ways to improve them (Felgen, 2007). Care coordination conferences were being held at this organization for medically complex children. However, processes were in need of improvement and there were challenges related to stakeholder attendance. Leadership and staff in the organization formed a committee to determine best practices for streamlining care conference processes. Standard work was created and new processes implemented.

  Another concern was lack of a standardized process for discharging this population from inpatient to primary care. Both inpatient providers and staff, as well as primary care providers, desired to improve this process. The Neonatal Intensive Care Unit at this organization developed a successful discharge process and this process,
combined with research found in the literature, was used as a foundation to improve the discharge / transition process between the hospitalists and PCPs.

- **Infrastructure (I₂):** Infrastructure integrates the concepts and principles of the vision into existing practices, processes, and systems of the organization, thereby reducing fragmentation of care (Felgen, 2007). By incorporating strategic, operational, and tactical infrastructures previously discussed, the DNP interventions supported the mission, vision, and values of the organization, advanced the vision for improvement, and supported caregivers in providing the best and safest care possible.

- **Education (E₁):** Organizational change often requires new ways of practice, and education helps clarify each individual’s new role (Felgen, 2007). Implementing new processes for both care coordination and discharge / transitions of care required education for all stakeholders involved.

- **Evidence (E₂):** Evidence assesses how successful the Inspiration (I₁), Infrastructure (I₂), and Education (E₁) efforts were in impacting change and can inspire greater commitment to the new processes (Felgen, 2007). For the care coordination process, baseline data from August, September, and October 2016 was compared to the same months in 2017. Data included length of stay, 30-day readmission rate, and two Child CAHPS domains related to communication. Implementation of the new process occurred from August through October 2017. Data was compared to pre-implementation metrics beginning November 2017.

    The design for improving communication during transitions of care involved several steps. Pre- and post-implementation surveys were created to determine satisfaction levels with the transitions process and requested suggestions for
improvement. Through the pre-implementation survey results, meetings with stakeholders, and an in-depth literature review, a standardized transition process was created. Following implementation of the new process, post-implementation surveys were sent to key stakeholders to determine if improvements in communication occurred. Quality improvement metrics illustrated any changes in satisfaction.

Participants

This DNP project required involvement from several disciplines. Participants included hospitalists, primary care providers, physician residents, nursing, care management, social work, and other caretakers involved in caring for medically complex pediatric patients. Participants implemented the new processes and gave feedback to the care coordination committee and to the DNP student. Although parents were in attendance for the care conferences, they were not directly involved in this project. Another vital participant was the Director of Pediatrics for the children’s hospital, who oversees the care conference committee and had oversight of this project through mentoring the DNP student.

Measurement: Sources of Data and Tools

Data for this project came from a variety of sources. Data relating to length of stay and 30-day readmissions were sent to the Director of Pediatrics from process improvement, biostatistics, and data analytics. Child CAHPS survey scores are displayed on the organization’s internal website, and additional data needs were requested from patient experience analysts within the organization. Data for the discharge / transitions process was gathered by the DNP student from the questionnaires. Results were displayed using bar graphs, pie charts, and a dashboard which displayed results from each question.
Steps for Implementation of Project

The goal of this DNP project was to determine if the use of a standardized transitions process, along with improved care conference processes, improved transition experiences for medically complex pediatric patients from inpatient to primary care. The objectives were to improve and evaluate the satisfaction of primary care providers by standardizing transition processes, and to create a business plan for the organization. To ensure the goals and objectives were met for this project, the following steps were taken. A timeline for this project can be found in Appendix I.

1. A desired timeframe for receipt of discharge information by primary care providers was determined from information obtained through conversations with providers and evidence in the literature and completed on August 12, 2017.

2. A questionnaire was created containing Likert scales and open-ended questions to compare pre-implementation and post-implementation outcomes by August 13, 2017.

3. Meetings with the primary care providers were scheduled to determine current processes related to transitioning (discharging) medically complex pediatric patients from inpatient (hospital) to outpatient care (pediatrician) and were concluded by August 17, 2017.

4. The pre-implementation de-identified questionnaire was sent to primary care providers participating in the project to determine their view of current discharge and transition processes on August 21, 2017.

5. A meeting was scheduled with the Director of the Neonatal Intensive Care Unit and a patient navigator to evaluate transition (discharge) processes currently used with success on August 23, 2017.
6. A meeting was scheduled with a pediatric medical resident participating on the care coordination committee to discuss DNP project on September 19, 2017.

7. A meeting was scheduled with a hospitalist to determine current processes related to transitioning medically complex pediatrics and improving communication with PCPs on September 22, 2017.

8. A process was created, based on literature review evidence and primary care providers’ requests which standardized the transition process on September 22, 2017.

9. A meeting was scheduled with the chief residents to discuss the process of contacting PCPs when their medically complex pediatric patients are admitted to the hospital on September 25, 2017.

10. The new medically complex pediatric transition process was implemented over approximately six weeks, from September 22, 2017 to October 31, 2017.

11. A meeting with the medical residents to discuss the secure text notification of an admission was held on October 19, 2017.

12. A post-implementation de-identified questionnaire was sent to participating primary care providers to compare pre- and post-intervention results on October 20, 2017.

13. Analyses were completed to determine whether improvements were seen in communication satisfaction by November 03, 2017.

14. A dashboard was generated to show whether the intervention/project made any change, capturing questionnaire results and organizational quality data by November 25, 2017.

15. A business plan was generated to show whether the intervention/project made any change, capturing questionnaire results and organizational quality data, and to suggest
subsequent steps and action plans with potential return on investment by November 30, 2017.


Project Evaluation Plan

This project was evaluated in several ways. Thirty-day readmissions, length of stay, and satisfaction with communication on the Child CAHPS scores were measured and displayed through quality improvement methodologies such as bar graphs and pie charts. These data were collected by data analytics, a biostatistician, patient experience analysts, and process improvement specialists. Graphs and charts were created and sent to the Director of Pediatrics who oversees the care conference committee on a monthly basis. The goal of reduction in patient length of stay by 10% was not met. However, when compared to the baseline date of the previous year, a reduction in 30-day readmissions by 10% was met for the month of August, which was the most current data available.

Due to the low number of returned patient surveys, improvement in Child CAHPS scores were determined by attainment of desired percentages in the following two domains: the item Communication with Doctors (Parent) with a meets expectations rate of 81% and exceeds rate of 86%, and the item Informed about Child’s Care with a meets expectations rate of 81% and exceeds rate of 86%. The results for the Communication with Doctors (Parent) question shows three months met or exceeded expectations but there was much variability in results. For Informed about Child’s Care, the results were similar to the above although the overall satisfaction rate appears to be improving and in June (the most recent data available) the organization exceeded expectations with a rate of 88.9%.
The objective for the discharge / transitions of care portion of the project was to design an evidence-based process to improve communication between hospitalists and primary care providers. Pre- and post-surveys determined whether provider satisfaction with the transitions process improved. Surveys contained Likert-style, yes/no format, and open-ended questions. Data from these surveys were collected by the DNP student through use of the SurveyMonkey® tool. Results were displayed using bar graphs and other quality improvement methodologies. Success was determined by improvement in mean scores of provider satisfaction with the new discharge process. Findings were placed on a dashboard to show changes in quality, perception, and satisfaction.

This project had strong support from leadership and resources necessary for success were available. Deliverables for this project included an evaluation of the new care conference process, development of an evidence-based process to improve transitions for medically complex pediatric patients, a dashboard, and a business plan to help the organization determine next steps.

In addition to evaluating the care conference and transitions outcomes, this project was evaluated through the lens of the American Association of Colleges of Nursing DNP Essentials (2006). Also addressed with this project were nurse executive competencies of the American Organization of Nurse Executives (American Organization of Nurse Executives [AONE], 2015). The ways in which these essentials and competencies were met is addressed later in this paper.

**Ethics and Human Subjects Protection**

An application for this project was submitted to both the Grand Valley State University (GVSU) Human Research Review Committee for Institutional Review Board (IRB) and the organization’s IRB. The IRB for Grand Valley State University determined the project was
quality improvement and not research. This project was also deemed non-research and approved by the organization’s IRB (see Appendix J).

**Budget**

Costs for this DNP project included time needed by the DNP student to create pre- and post-implementation questionnaires and educate hospitalists and pediatricians on the new process (see Appendix H). Surveys were created with the SurveyMonkey® software, with minimal costs. The average hourly rate for pediatricians in the area was determined to be $89 (Salary.com, 2017) and the approximate time to complete the survey questions was five minutes. Final physician cost included the number of physicians responding to the survey as well as time spent with the hospitalist and physician residents to educate about the new process. Finally, costs related to creation of a dashboard and a business plan for the organization was determined. However, this was a one-time cost occurrence as this was for the DNP project itself.

Other resources included time invested at monthly meetings by care conference committee members, including a care manager, process improvement specialists, a hospitalist, a floor nurse, a medical resident, a quality improvement specialist, and the DNP student. Overseeing this committee is the Director of Pediatric Services, who was also a mentor for this project. For the transition process, resources included meeting time of the DNP student and the Director of Children’s Critical Care Services and a discharge navigator to discuss the Neonatal Intensive Care Unit’s discharge process. The DNP student also met with pediatricians, physician residents, and hospitalists to discuss changing the communication process.

The budget shows similar data in both the revenue and expenses columns. This was done to show the time of those supporting this project is considered an in-kind donation (revenue) while also an expense as they are taken away from their regular practices while meeting with the
DNP student or filling out the questionnaire. Although not included in the budget table, there is a potential cost savings of just under $35,000 over three months if a 2% reduction in both length of stay and 30-day readmissions is achieved. This was ascertained by determining the cost of one patient day ($3982) and multiplying by the average length of stay for medically complex patients at this organization (4.6 days). There were 45 medically complex pediatric patients readmitted in August, September, and October of 2016. Reducing both length of stay and readmission by 2% would be 44 patients and 4.5 days, resulting in a cost savings of $35,829 over a three month period. A 2% reduction was chosen as opposed to the 10% reduction by the care coordination committee due to the short timeframe of this project. A 10% reduction, the long term goal of the care coordination committee, would result in a cost savings of $156,603.06 over a three month period.

**Stakeholder Support / Sustainability**

Prior to implementing change in an organization, it is essential to perform a stakeholder analysis. A stakeholder is a person, group, or organization with an interest in an organization, and can affect or be affected by the organization’s actions or policies (BusinessDictionary.com, 2017). One way to do this analysis is through a stakeholder analysis and creation of a power versus interest grid. When a stakeholder analysis is performed, stakeholders are generally placed into one of four categories (see Appendix K).

Those who are key players should be managed carefully, as they have high power and high interest in the project and can affect the project’s implementation or outcomes (Bryson, Patton, & Bowman, 2011). Key stakeholders for this project included primary care physicians, medical residents, hospitalists, and leadership at the organization. Subjects are those who have a high interest in the project but low power, and it is important to ensure their involvement if they
will be affected by the changes (Bryson et al., 2011). Subjects for this project include patients and families, primary care office staff, care managers and staff at the organization, and other pediatric offices.

Context setters have high power but low interest (Bryson et al., 2011). It is essential to increase their attention if their disinterest could form barriers to the project. Context setters include regulatory agencies, accrediting bodies, and payors. Finally the crowd are those who have little interest or power in the project (Bryson et al., 2011). Although they require the least amount of effort, they should be informed about the project and its outcomes. Examples would be families without medically complex children, or media sources.

This project has been verbally supported throughout the time spent in the organization. Both inpatient providers and staff, as well as primary care providers, have shown strong interest in improving both care conference structures and transition processes. The Director of Pediatrics will continue to have oversite of the care coordination committee after DNP project completion. Educating the resident physicians and PCPs on the new transition process, as well as having strong support from key stakeholders, will likely improve acceptance of changes made as well as increase sustainability of this project.

**Project Outcomes**

The outcomes for this DNP project were both expected and surprising. The first objective was to create and send questionnaires to PCPs to determine satisfaction with transitions of care for medically patients which was accomplished (Appendix L). The pre-implementation survey (see Appendix M) elicited responses from 15 PCPs out of a possible 74 for a response rate of 20.3%. Questions were Likert-style (1=”not at all satisfied” to 5=“extremely satisfied”), yes/no, and multiple choice, with some questions asking for written comments. Responses
showed a genuine desire for more PCP inclusion upon admission of medically complex pediatric patients. This included more involvement in care coordination conferences as well as notification when they are admitted.

Lack of familiarity with the care conference process was surprising, with 67% of respondents (n=10) stating they were unfamiliar with care conferences at this organization and 80% (n=12) preferring more involvement. Of those with knowledge of the care conference process, 25% (n=2) were not at all satisfied, 37.5% (n=3) were somewhat satisfied, 25% (n=2) were satisfied, and 12.5% (n=1) very satisfied.

Discharge practices overall were satisfactory, although comments showed room for improvement related to pending labs and tests or follow-up appointments. Survey results showed 14.3% (n=2) of providers were extremely dissatisfied with discharge processes, 42.9% (n=6) were somewhat satisfied, 28.6% (n=4) were satisfied, and 14.3% (n=2) were very satisfied. Comments supported the desire for more information prior to patients being seen by the PCP post-discharge. There was also acknowledgment that better communication and processes could reduce readmissions although numbers supporting that were lower than expected. Results showed 57.1% (n=8) felt they affected readmission rates while 42.9% (n=6) felt they did not.

One of the unintended consequences of this project was the decision to have resident physicians notify PCPs upon admission of a medically complex patient. This resulted in meeting the second objective of standardizing the transition process by developing a method to improve communication. Results from the satisfaction with communication upon admission question showed 20% (n=3) of respondents were very dissatisfied, 60% (n=9) were somewhat satisfied, and 20% (n=3) were very satisfied. A repeated theme found throughout the comments of the survey was the desire for more communication and collaboration with residents and hospitalists.
when medically complex patients are admitted. Reasons given for this included the ability to clarify questions, elicit concerns, prevent readmission, and to address barriers the patient and family may face.

To meet objective number three, the survey was resent to PCPs several weeks after implementing the project. Results from the post-survey (Appendix N) were not drastically different from pre-project results and their display met the fourth objective. The results could be due to the relatively short timeframe for implementation of the project. Another limitation was only having four responses which meant a return rate of only 5%. The focus of the post survey was to determine whether there was any improvement in communication between hospitalists and resident physicians with pediatricians in the community. Following up on the desire of PCPs for more involvement when medically complex pediatric patients were admitted to the healthcare organization, it was determined that resident physicians should notify the PCPs by secure text when admitting one of these patients. Figure I shows that while 50% of respondents felt there had been an improvement in communication, another 50% felt there was no difference.

![Chart showing communication improvement](chart.png)

Figure I. Perception of communication improvement.

There was also interest in determining what methods were used to contact PCPs about new admissions to the organization. Figure II shows that secure text messages were most
common. This was encouraging as this was the method determined to be the most efficient and effective, and indicated the new process was being followed.

![Means of Notification](image)

*Figure II. Most common means of notification.*

Although the outcomes from this project do not demonstrate substantial changes, it is hoped that communication will continue to improve and over time PCPs will have more involvement with hospital providers when medically complex patients are admitted. Creation of a dashboard and business plan for the organization displayed the results of integrating a new transition process as well as the effectiveness of the new care conference process. These were disseminated to the organization at the end of the project and allowed attainment of objectives six and seven.

Objective five was met by determining whether a change was made with the new care conference content and design. The care coordination committee wrote standard work for care conference processes which were implemented in August 2017. The DNP student worked in partnership with biostatistics at the organization and found initial results from the change in processes brought minimal improvement. Processes are expected to become more streamlined and valuable as the new process becomes more ingrained in the health system. Although the target reduction of 10% for overall length of stay was not met, 30-day readmission rates were
shown to improve. Hopes are these metrics will continue to improve as processes become more ingrained into the organization.

Figure III shows the most current average length of stay data. Baseline data came from August, September, and October 2016. The reference line indicates the desired 10% decrease from baseline which was the reduction goal for this committee. One of the challenges discovered during this project was the difficulty in separating out metrics for length of stay for medically complex pediatric patients not admitted to the pediatric intensive care unit. This is something that will continue to be addressed but is beyond the scope of this project.

![Overall Average LOS](image)

*Figure III.* Length of stay data for medically complex pediatric patients.

Figure IV shows current data related to the overall 30-day readmission rates for medically complex pediatric patients. Similar to Figure I, the baseline data was taken from August, September and October 2016, and the reference line is a 10% reduction in those rates. The 30-day unplanned readmission rates for two pediatric hospitals in Michigan were 10.3% and 8.7% (Auger et al., 2016). As can be seen, the organization’s readmission rate is similar to the others, although readmission rates are generally higher for medically complex patients, as would be expected.
Figure IV. 30-day readmission rates with rates for medically complex pediatric patients.

Figures V and VI show results from the Child CAHPS surveys. One of the challenges of gathering survey data is the meager return rate of surveys, and this was seen during the project timeframe. The number of returned surveys during this project’s timeframe ranged anywhere from four to sixteen a month. Another challenge in survey return is parents of medically complex patients being uncertain which visit a survey is for, as these families often have multiple visits. Figure III shows results for parents understanding the physicians’ explanations, where 83% is meeting their expectations and 86% is exceeding them. The illustration shows satisfaction is rising in this area.

Figure V. Results of Child CAHPS survey related to understanding physician explanations.
The second Child CAHPS question that was studied was related to parents being informed about their child’s care. To meet parent expectations the satisfaction rate must be 81%, and to exceed them the rate must be 86%. June shows the organization exceeded expectations, but this result is not consistent although satisfaction seems to be improving.

![Satisfaction Survey Overall Response](image)

**Figure VI.** Results of Child CAHPS survey related to being informed about child’s care.

Although this project does not demonstrate substantial changes, it is hoped that communication will continue to improve and that over time PCPs will have more involvement with hospital providers when medically complex patients are admitted. This increased involvement of PCPs throughout the hospital course of these patients has the potential to improve communication with patient families, resulting in better patient outcomes and satisfaction with care. Figure VII compares baseline data to the most current data available. A business plan summarizing the findings was also created for the organization and can be seen in Appendix O.
This project began with the question: Does implementation of a revised discharge / transition process, in combination with a pediatric care coordination conference, improve pediatric transition experiences between inpatient and outpatient primary care compared to transition experiences prior to implementation? The outcomes described above show that even in the short timeframe of this project, improvements, although slight, were seen. This supports the importance of sustaining this work in the hopes that long term results will show continued improvement in length of stay and 30-day readmissions as well as improved communication between providers and with patients and families.

**Implications for Practice**

Children who are medically complex or fragile are high utilizers of health care resources. Research has shown that care conferences attended by families and key stakeholders leads to reduced hospital utilization, improved discharge planning, fewer bed days and ultimately reduced overall healthcare costs (Peter et al., 2011). Lack of involvement by key stakeholders in care coordination can result in less optimal outcomes for patients related to miscommunication errors (Auger et al., 2015; Nageswaran et al., 2014). Higher patient readmission rates, longer
lengths of stay in the hospital, and lower patient and family satisfaction rates are often the result (Brittan et al., 2015).

The pediatric literature shows there is a gap related to effective strategies which improve communication between hospitalists and PCPs (Leyenaar et al., 2015). However, research has shown that involvement of the primary care provider in care coordination can lead to better patient outcomes (Brittan et al., 2015; Nageswaren et al., 2014). It has also shown coordinated care leads not only to cost reductions related to healthcare utilization but improved health outcomes and increased parent/caregiver and provider satisfaction (Peter et al., 2011).

Leaders within this Midwestern children’s hospital desired an improvement in both the care conference process as well as the process for transitioning medically complex pediatric patients from inpatient to primary care. Improving transitional care experiences for complex or fragile pediatric patients is of utmost importance. Improving communication and coordination between multiple providers reduces the chance for errors due to missing or incorrect patient information. This can lead to a reduction in hospital readmissions and length of stay, ultimately resulting in lower healthcare costs, but more importantly, increased patient satisfaction and higher quality care.

**Successes and Difficulties Encountered**

**Strengths**

The main strength for this project was working in an organization which supports continuous quality-improvement initiatives and leadership which reinforces the importance of providing evidence-based care. During the implementation of this project, questionnaires were created and sent to PCPs to obtain their perspective on communication and transitions of care with providers in the organization. Results led to a standardized process of physician residents
communicating with PCPs when medically complex patients were admitted. A post-
implementation survey showed communication had improved via secure text messages which
was a direct outcome of this project. Current metrics related to the new care coordination
conference structure were challenging to obtain, but attendance at conferences increased and
comments from those attending showed support for the changes.

An unintended consequence of this DNP project was the discovery of the importance of
PCP involvement in the care of their medically complex pediatric patients during
hospitalizations. This led to a slight change in focus of the project, where a plan and process was
created to improve communication with PCPs upon admission of a medically complex pediatric
patient. Notifying these providers allows them to address questions, concerns, and barriers
related to the patient. Improved communication could result in both shorter lengths of stay and
decreased readmission rates (Brittan et al., 2016; Brittan et al., 2015; Peter et al. 2011), as well as
improved Child CAHPS scores as responses to patient and family concerns will be better
informed. Results of this DNP project were displayed in both a dashboard and a business plan
and given to leadership to show the results and effectiveness of this project.

**Challenges**

As with any project, there were challenges when implementing this project. One of the
main challenges encountered was meeting with and getting buy-in from key stakeholders in the
organization. Another challenge was determining the best method for standardizing
communication with PCPs about admissions, discharges, and care conferences. This required
meetings with several stakeholders in an attempt to gain support for the new process. Getting a
good response rate to the questionnaires proved difficult, especially for the post-implementation
survey. Additionally, the limited amount of time available to implement this project left little opportunity to determine if any changes resulted in improvement.

Finally, the organization was in the midst of preparing to implement a new electronic health record system which limited personnel resources which might have otherwise been more available. Also, due to the size of the organization and the amount of data routinely gathered, reporting of results often lagged by two to three months. This lag made it challenging at times to get needed reports to determine if improvements were being made. This also resulted in the dashboard and business plan not having the most current metrics and information.

**Sustainability**

There is a strong likelihood this project will be sustainable following implementation of this DNP project. Improved communication between providers has long been desired, and with the foundation for this being already laid, long-term improvement should follow. Also, this DNP student has been asked to join a committee which will continue to address issues related to discharge / transitions of care for medically complex pediatric patients. There are also hopes the new electronic health record system will be more intuitive to discharge and transitions of care needs; if so, this will help ensure continued sustainability.

**Relation to other evidence / healthcare trends**

Improving transitions for patients has become a priority in healthcare. The Joint Commission now requires accredited organizations to have systems in place to reduce the risk of communication error (Gordon et al., 2015), a common issue when transferring patients from one setting or provider to another. Research has also shown that involvement of the primary care provider in care coordination can lead to better patient outcomes (Brittan et al., 2015; Nageswaren et al., 2014). As previously seen in the literature review, transitions of care for
medically complex patients is an important issue which must be addressed if patient outcomes and satisfaction are to improve.

**Limitations**

Time constraints were an important factor in implementing and evaluating this project. For the discharge / transitions of care portion of the project, less than two months was devoted to implementing the new process. This timeframe was not a long enough to determine whether changes were sustainable. For the care coordination portion of the project, insufficient numbers of returned surveys from patient families decreased the ability to determine whether expected targets were met. The organization was also in the process of preparing to implement a new electronic medical record system making it challenging to obtain data at times. Finally, the participants in the project were from a single healthcare system, potentially limiting the generalizability of the results.

**Reflection on Doctor of Nursing Practice Essentials and Competencies**

It was important to evaluate this project not only by its outcomes but through the lens of DNP essentials and nurse executive competencies. Therefore, this project was evaluated through the lens of the American Association of Colleges of Nursing DNP Essentials (2006). It also addressed nurse executive competencies of the American Organization of Nurse Executives (AONE). Descriptions of how the Essentials and competencies were attained follow.

**Doctor of Nursing Practice Essentials and Competencies**

The American Association of Colleges of Nursing’s DNP Essentials call for dissemination of nursing knowledge (American Association of Colleges of Nursing [AACN], 2006). Similarly, the American Organization of Nurse Executives (AONE) competencies for Nurse Executives also call for leadership and dissemination of nursing knowledge (AONE,
The DNP Essentials and the AONE Competencies have similar goals for DNP outcomes, and can be cross-walked to show how each were met.

Essential I (Scientific Underpinnings for Practice) prepares the DNP leader to integrate nursing science with knowledge from multiple sciences, use science-based theories to enhance health care delivery and evaluate the outcomes, and develop new practice approaches (AACN, 2006). Essential I was achieved by performing a literature search and using the knowledge gained to introduce a new discharge/transition process. Similarly, AONE Competencies 2E (Evidence-based Practice/Outcome Measurement and Research) and 2G (Performance Improvement/Metrics) were met through using evidence to establish new practices, designing and interpreting outcome measures, and by establishing quality metrics for a process needing improvement.

Essential II (Organizational and Systems Leadership for Quality Improvement and Systems Thinking) focuses on developing and evaluating care delivery models. This Essential focuses on ensuring accountability for the quality of care provided, using advanced communication skills to lead quality improvement and safety initiatives, and developing and implementing effective, system-wide initiatives which improve the quality of care delivery (AACN, 2006). Essential II was attained through working with multiple healthcare disciplines to improve the processes for transitions of care at the organization.

Essential III (Clinical Scholarship and Analytical Methods for Evidence-Based Practice) states key activities of DNP graduates include translation of research into practice, evaluation of practice, improvement of healthcare practices and outcomes, and participation in collaborative research (AACN, 2006). This Essential also calls for dissemination of findings from evidence-based practice and research to improve healthcare outcomes. Similarly, AONE Competency 1,
Communication and Relationship Building, calls for effective communication (AONE, 2015). Determining ways to improve the discharge and transitions processes at this organization through an organizational assessment and literature review ensured attainment of both this essential and competency, along with presentations, publishing in ScholarWorks, and possible future publication of this work.

Essential VI (Interprofessional Collaboration for Improving Patient and Population Health Outcomes) emphasizes the importance of collaborative practice between multiple healthcare specialties in today’s healthcare climate (AACN, 2006). AONE Competency I also focuses on communication and relationship building. Improving communication and collaboration between healthcare providers, identifying organizational barriers, and creating a change in a complex health delivery system enabled Essential VI to be met. AONE’s Competency I was met by creating collaborative relationships with a variety of healthcare professionals, both within the organization and the community, to improve the discharge and transition of medically complex patients.

Essential VII (Clinical Prevention and Population Health for Improving the Nation’s Health) states DNP graduates are well versed in the importance of improving the health of the nation (AACN, 2006). This project focused on reducing both readmission and length of stay rates for medically complex pediatric patients through improved processes and communication between inpatient and outpatient providers. AONE Competency V (Business Skills) focuses on financial, human resource, strategic, and information management. By performing a SWOT analysis, as well as a gap analysis, this competency was attained.

Finally, Essential VIII (Advanced Nursing Practice) asserts DNP prepared nurses have the ability to: conduct comprehensive and systematic assessments in complex situations; design,
implement and evaluate interventions; develop and sustain relationships with patients and other professionals in order to provide optimal care; demonstrate systems thinking in order to improve patient outcomes; and educate and guide others through situational transitions (AACN, 2006). Examples of how these were fulfilled through this DNP project include the identification of a process in need of improvement, addressing patient care delivery models through implementation of a quality improvement project, and acting as a change agent to improve the discharge process and communication between hospitalists/residents and primary care providers.

Essential VIII is similar to AONE Competencies III (Leadership) and IV (Professionalism). Subcategories of these AONE Competencies include foundational thinking, personal journey disciplines, succession planning, change management, and advocacy. Foundational thinking was shown by applying critical analysis to the organizational issue of discharge and transitions of care and pursuing new knowledge in these areas. Learning from setbacks, failures, and successes addressed the personal journey.

Throughout the DNP educational journey, systems thinking and change management were ingrained in the teachings thereby helping the DNP student gain knowledge of these areas. Advocacy was attained through representing patient, family and primary care provider frustrations with transitions of care and advocating for a better system to attain optimal health in the community. Finally, sustainability was learned throughout the course of implementing the DNP project as ways were sought to continue this work after project. To improve sustainability of a project it is important to disseminate the findings so others may replicate the successes and potentially avoid the barriers.
**Dissemination of Outcomes**

Plans for dissemination of this work include poster and podium presentations at various conferences as well as journal publications. The results of the project will also be shared with leadership at the healthcare organization where the project was implemented. This work will also be submitted to Grand Valley State University’s ScholarWorks. This dissemination will help to address the gaps in knowledge related to transitions of care for medically complex pediatric patients.

Pediatric patients who are considered medically fragile or complex are high utilizers of the health care system and require multiple healthcare providers. These higher numbers increase the potential for miscommunication, resulting in poorer outcomes. Many healthcare organizations have turned to care conferences to better coordinate care and ensure the patient and family understand the plan of care during their hospital stay as well as when they transition from inpatient to outpatient care. Transitioning from hospitalist to primary care is challenging, not only for the patient and family but for the providers as well.

Recommendations for improving discharge and transitions of care include clear and direct communication of treatment plans and follow-up; inclusion of the family and patient; and pertinent and timely information sharing between providers (Auger et al., 2014). By standardizing these processes, medically fragile pediatric patients are more likely to have better health outcomes with reduced hospital utilization and readmission rates. This should be the ultimate goal for those working in healthcare.
References


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doi:10.1016/j.evalprogplan.2010.07.001


doi:10.1097/01.NAJ.0000383935.22721.9c


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Appendix A
PRISMA 2009 Flow Diagram

### Table of Evidence

<table>
<thead>
<tr>
<th>Author, Year</th>
<th>Title</th>
<th>Theme</th>
<th>Population</th>
<th>Design and methodology</th>
<th>Sample Size</th>
<th>Intervention and/or measurements</th>
<th>Major findings</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auger, Kenyon, Feudtner, &amp; Davis (2013)</td>
<td>Pediatric hospital discharge interventions to reduce subsequent utilization: A systematic review</td>
<td>Discharge / Transition</td>
<td>Pediatric patients discharged from acute care facility</td>
<td>Systematic Review 10 RCT, 2 Pre-post, 1 quasi-experimental, 1 retrospective case control Level I</td>
<td>14 studies</td>
<td>Inclusion criteria included discharge process initiated in inpatient setting; study outcomes related to subsequent hospital utilization; child/adolescent focused; written/available in English</td>
<td>4 of the 6 positive interventions included both enhanced pt education and follow-up; appointing dedicated individual or coordinating hub reduces subsequent utilization; need personalized treatment plan and specific follow-up plan or resources</td>
<td>No meta-analysis as studies assessed different outcomes at different intervals; only 3 pediatric conditions identified so may limit generalizability; many discharge processes contained multiple interventions so cannot determine if one singular action may decrease readmission; readmissions, costs, &amp; ED visits may not be best measures of quality</td>
</tr>
<tr>
<td>Balaban, Weissman, Samuel, &amp; Woolhandler (2008)</td>
<td>Redefining and redesigning hospital discharge to enhance patient care: A randomized controlled study</td>
<td>Transitions of Care</td>
<td>Patients admitted to a small community teaching hospital</td>
<td>Randomized controlled study Level II</td>
<td>96 patients</td>
<td>Creation of low-cost Patient Discharge Tool; expansion of RN roles, restructuring of discharge responsibilities, Donabedian’s structure-process-outcome framework</td>
<td>Formulated the roles of transferring &amp; accepting parties; utilized medical providers who knew patients well (RN's @ primary care site); the Form provided written discharge information/intervention incorporated redundancy helping ensure implementation of discharge plan; the Form was transferred to primary care site two ways (electronically and patient carried); deepened role of primary care and inpatient RNs; costs to implement were low</td>
<td>No published guidelines on optimal time for follow-up visit; study conducted in single safety net system; health system serves primarily lower socioeconomic patients, not sure of effects on more affluent; intervention requires pt to have PCP &amp; office willing to do follow-up; study small in size &amp; not powered to examine important outcomes (reduced utilization, cost savings, health improvement)</td>
</tr>
<tr>
<td>Brittan et al. (2015)</td>
<td>Outpatient follow-up visits and readmission in medically complex children enrolled in Medicaid</td>
<td>Factors related to 30-day readmissions</td>
<td>Medically complex pediatric patients</td>
<td>Retrospective cohort study Level IV</td>
<td>2415 pediatric patients</td>
<td>Readmission between 4 &amp; 30 days after discharge; early postdischarge outpatient visits (&lt; or =3 days) &amp; readmission rate; outpatient visits between 4 &amp; 29 days &amp; readmission rate</td>
<td>Outpatient visits between 4 and 29 days had lower readmission rates than outpatient visits within 3 days of discharge</td>
<td>Findings may not be generalizable to other types of Medicaid enrollees, other geographic regions, or discontinuously enrolled Medicaid patients; could not categorize remaining readmissions as preventable or planned</td>
</tr>
<tr>
<td>Coller, Kitzner, Lerner, &amp; Chung (2013)</td>
<td>Predictors of 30-day readmission and association with primary care follow-up plans</td>
<td>30-day readmissions</td>
<td>Pediatric patients discharged between July 2008 &amp; July 2010</td>
<td>Retrospective cohort study Level IV</td>
<td>7,794 discharges with 1,457 patients having 30-day readmission</td>
<td>Chart review; looked at discharges followed by 30-day readmissions</td>
<td>15-18 yrs old, public insurance, or higher DRG severity scores increased odds of 30-day readmissions; 15% of 172 random medical records documented primary care follow-up plans; documented primary care follow-up plans associated with significantly increased odds of 30-day readmission; may be due to higher occurrence of recording primary care follow-up plans in patients at high risk for readmission, or may represent better access to care (more likely to have a primary care provider)</td>
<td>Cohort study from single center so may not be generalizable; relatively small numbers in primary care follow-up dataset; 30-day readmissions may be underestimated due to inability to determine number of patients admitted to another facility; planned hospitalizations not taken into account; preventable readmissions often cannot be reliably identified</td>
</tr>
<tr>
<td>Author, Year</td>
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<tr>
<td>Kripalani et al. (2007)</td>
<td>Deficits in communication and information transfer between hospital-based and primary care physicians</td>
<td>Discharge / Transition</td>
<td>Observational studies focused on hospitalist and PCP communication; controlled studies focused intervention efficacy</td>
<td>Systematic Review (55 observational, 18 controlled trials)</td>
<td>73 studies</td>
<td>Observational: 21 medical records audits, 23 physician surveys, 11 combined audit-surveys; Trials: 3 randomized, 7 nonrandomized with concurrent control, 8 pre-post design</td>
<td>Deficits in communication &amp; information transfer common, ascertainment important information for PCPs (diagnoses, pending labs/tests, follow-up plans, etc.); interventions often improved information transfer (e.g. standardized formats with pertinent information, hand delivery by patients, discharge summaries from hospital database)</td>
<td>High degree of variability in studies; limited outcome data for interventions; lack of high-quality investigations; generalizability of results uncertain (most studies outside of US, so different health systems)</td>
</tr>
<tr>
<td>Leyenaar et al. (2016)</td>
<td>Quality measures to assess care transitions for hospitalized children</td>
<td>Discharge / Transition</td>
<td>Hospitalized pts 2 mos to 18 yrs</td>
<td>Literature Review followed by retrospective chart review</td>
<td>927 charts reviewed; 624 = 3 children's hospitals, 303 = 2 community hospitals</td>
<td>Review of pediatric and adult transitions of care literature; development &amp; validation of new transitions of care quality measures</td>
<td>Development of 3 quality measures feasible to implement in both children's &amp; community hospitals in attempt to begin standardization of transitions of care; measures align with priorities for pediatric discharge</td>
<td>Pediatric evidence to guide measure development; sparse; transition care quality may be underestimated if documentation incomplete; findings may not be generalizable to all settings</td>
</tr>
<tr>
<td>Leyenaar et al. (2015)</td>
<td>Pediatric primary care providers' perspectives regarding hospital discharge communication: A mixed-methods analysis</td>
<td>Discharge communication between PCP and hospitalists (pediatric) and transitions of care</td>
<td>The Value in Inpatient Pediatrics Transitions of Care Collaborative which recruited 20 PCPs from 16 participating sites resulting in a total of 320 PCPs in sample</td>
<td>Mixed-methods analysis (surveys with Likert scale, 2 open-ended questions)</td>
<td>201 PCPs completed the questionnaires</td>
<td>Electronically distributed questionnaires w/open ended questions and 5-point Likert scale related to timeliness and completeness of discharge communication</td>
<td>No significant differences between surveyed groups (free-standing children's hospitals vs general hospitals) related to receipt of discharge communication; best practices were determined to be standardized discharge templates and direct personal communication</td>
<td>Response bias may influence generalizability; not a random sample of PCPs; possible coding misclassification on qualitative content; mixed-methods means may not be generalizable (specific to particular setting/context)</td>
</tr>
<tr>
<td>Peter, Chaney, Zappia, Van Veldhuisen, Pereira, &amp; Santamaria (2011)</td>
<td>Care coordination for children with complex care needs significantly reduces hospital utilization</td>
<td>Evaluation of the Ambulatory Care Coordination (ACC) Program for medically complex pediatric patients</td>
<td>Pre- and post-cohort evaluation</td>
<td>101 pediatric patients</td>
<td>Nurse-led model of care; INTERVENTIONS: telephone support, creation of integrated healthcare plan; proactive reassessment &amp; monitoring; facilitation of continuum of care; MEASUREMENTS: hospital utilization; utilization costs &amp; cost effectiveness</td>
<td>ACC program resulted in: greater reduction in bed days than ED visits or admissions (may indicate appropriate use of ED service); improved proactive coordinated discharge planning; increased satisfaction of parents/providers with 24/7 telephone support; positive cost benefits in relation to hospital utilization; unexpected outcome - able to now identify system barriers common to parent of medically complex children</td>
<td>Cost benefits encompassed inpatient services only; data collection only lasted 10 months - need longer duration to determine long term health and cost outcomes</td>
<td></td>
</tr>
<tr>
<td>Author, Year</td>
<td>Title</td>
<td>Theme</td>
<td>Population</td>
<td>Design and methodology</td>
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<tr>
<td>Shen et al. (2013)</td>
<td>Pediatric hospitalists collaborate to improve timeliness of discharge communication</td>
<td>Collaboration / Discharge</td>
<td>Pts discharged from hospitalist service</td>
<td>Quality Improvement Study</td>
<td>7 Pediatric hospitalist groups</td>
<td>Self-reported qualities of support, feedback, motivation, &amp; accountability; hospitalist-led rapid-cycle improvement across multiple sites in 12-month period; run charts demonstrated impact of QI project, and Statistical Process Control p-charts aided in displaying &amp; analyzing variation</td>
<td>All groups demonstrated improvement in monthly rates of documentation; communication with PCPs within 2 days increased from mean of 57% to 85%; clear evidence of shared learning and culture change</td>
<td>Not designed to study factors leading to success; accelerated timeline for improvement may have been reason why 3 groups were unable to sustain data collection; participation was voluntary &amp; initiated by hospitalists, so may have underestimated degree of administrative support necessary; PCP receipt of info &amp; patient outcomes not evaluated</td>
</tr>
<tr>
<td>Solan, Sherman, DeBlasio &amp; Simmons (2016)</td>
<td>Communication challenges: A qualitative look at the relationship between pediatric hospitalists and primary care providers</td>
<td>Discharge communication between PCP and hospitalists (pediatric)</td>
<td>PCPs and Hospitalists</td>
<td>Qualitative Study</td>
<td>PCPs (n=27) Hospitalists (n=150)</td>
<td>Open ended, semi-structured questions given to two focus groups</td>
<td>Poor communication hinders successful collaboration &amp; can cause tension between providers; PCPs feel devalued; PCPs, hospitalists and residents lack clear understanding of the others' roles; there is substantial variability in communication processes; there are unclear expectations related to discharge responsibilities; using technology to enhance communication is desirable for both groups</td>
<td>Single academic institution with single community of PCPs and hospitalists; some themes revolved around residents' roles so may not be generalizable to institutions without; may not be generalizable to organizations without standardized discharge summaries; possible selection bias</td>
</tr>
<tr>
<td>Wimsett, Harper &amp; Jones (2014)</td>
<td>Components of a good quality discharge summary: A systematic review</td>
<td>Discharge Summaries</td>
<td>Articles listing components of discharge summary from emergency department, hospitalists, and/or PCP at hospital discharge</td>
<td>Systematic Review</td>
<td>32 studies; 15 Level A or B</td>
<td>Studies grouped according to emergency department discharge summaries and level of evidence; quantitative synthesis not considered appropriate due to wide variability in studies</td>
<td>Common items in all quality discharge summaries included discharge diagnosis, treatment received, results of investigations, and required follow-up; adequacy of components in discharge summary determines quality</td>
<td>Article selection from single author (bias risk); only a quarter of studies included emergency department discharges and only one quantified importance of time, so applicability to emergency medicine limited to inpatient providers needs in discharge summaries</td>
</tr>
</tbody>
</table>
Appendix D

I²E² Model

Appendix E

Institute for Healthcare Improvement’s Plan Do Study Act Model

Appendix G

Strengths, Weaknesses, Opportunities, Threats (SWOT) Analysis

A Midwestern Freestanding Children’s Hospital

<table>
<thead>
<tr>
<th>STRNGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Strong overall physician engagement in safe practices</td>
<td>➢ Inadequate tracking of care conferences</td>
</tr>
<tr>
<td>➢ Financially healthy</td>
<td>➢ Poor communication between multiple providers for medically complex patients</td>
</tr>
<tr>
<td>➢ Emphasis on evidence-based practices</td>
<td>➢ Weak transitions processes</td>
</tr>
<tr>
<td>➢ Strong leadership</td>
<td>➢ Lack of buy-in from specialists, primary care providers</td>
</tr>
<tr>
<td>➢ Commitment to safe, quality care</td>
<td>➢ Lack of a standardized discharge process for medically complex patients</td>
</tr>
<tr>
<td>➢ De-emphasis on hierarchical structures, strong collaborative mindset</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPPORTUNITIES</th>
<th>THREATS/CHALLENGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Improved communication between providers</td>
<td>➢ Inability to engage key stakeholders</td>
</tr>
<tr>
<td>➢ Increased involvement of primary care providers</td>
<td>➢ Care conference process does not improve after change is implemented</td>
</tr>
<tr>
<td>➢ Improved transition experiences for medically complex / fragile pediatric patients from inpatient to outpatient care</td>
<td>➢ Care conference attendance does not improve after QI initiative</td>
</tr>
<tr>
<td>➢ Increased support of care conferences from all providers</td>
<td>➢ Inability to involve primary care physicians in care plans and discharge plans for medically complex patients</td>
</tr>
</tbody>
</table>
Appendix H

Budget for DNP Project

<table>
<thead>
<tr>
<th>Medically Complex Pediatric Patients</th>
<th>Transitions of Care between Inpatient and Outpatient Care</th>
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</thead>
</table>

### Revenue

<table>
<thead>
<tr>
<th>Project Manager Time (in-kind donation)</th>
<th>14,400.00</th>
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</thead>
<tbody>
<tr>
<td>Team Member Time:</td>
<td></td>
</tr>
<tr>
<td>Director of Pediatrics (Site Mentor)</td>
<td>3,350.00</td>
</tr>
<tr>
<td>Pediatricians (time spent completing questionnaire)</td>
<td>140.98</td>
</tr>
<tr>
<td>Primary Care Physician Site Lead</td>
<td>1,780.00</td>
</tr>
</tbody>
</table>

### Consultations

| Director of Critical Care Services (one time occurrence) | 134.00 |
| Clinical Nurse Specialist (one time occurrence)         | 47.00  |
| Hospitalian                                             | 102.00 |
| Chief Pediatric Residents                                | 24.30  |
| NICU Discharge Navigator                                | 27.07  |

**TOTAL INCOME**  
20,005.35

### Expenses

<table>
<thead>
<tr>
<th>Project Manager Time (in-kind donation)</th>
<th>14,400.00</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1,780.00</td>
</tr>
</tbody>
</table>

### Consultations

| Hospitalian                                             | 102.00  |
| Chief Pediatric Residents                                | 24.30   |
| NICU Discharge Navigator                                | 27.07   |
| SurveyMonkey® online software                           | 102.00  |
| Human Resources specialist (one time cost occurrence)  | 33.00   |
| Director of Operations (one time cost occurrence)       | 67.00   |
| Clinical Nurse Specialist (one time cost occurrence)    | 47.00   |
| Director of Critical Care Services (one time cost occurrence) | 67.00 |
| Laptop                                                  | 625.00  |

**TOTAL EXPENSES**  
20,765.35

**OPERATING INCOME**  
(760.00)
Appendix I

Timeline for Project Implementation

- Initiated conversations with providers to determine needs/desires through August 32, 2017
- Meetings with PCPs to discuss transitions issues through August 17, 2017
- Meeting with NICU patient navigator to discuss processes August 23, 2017
- Meeting with care coordination resident to discuss project September 10, 2017
- Meeting with chief hospitalist September 22, 2017
- Meeting with residents to discuss PCP notification October 19, 2017
- Created business plan November 05, 2017
- Handover of project November 30, 2017

- Initial questionnaire created August 23, 2017
- Sent pre-implementation questionnaire link August 21-September 03, 2017
- Began implementation of new admission process September 03, 2017
- Meeting with chief residents to discuss new process September 25, 2017
- Created dashboard November 07, 2017
- Sent post-implementation questionnaire link October 20-30, 2017
Appendix J

Internal Review Board Determination Letters

<table>
<thead>
<tr>
<th>DATE:</th>
<th>June 30, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>TO:</td>
<td>Amy Manderscheid, DNP, RN, CMSRN</td>
</tr>
<tr>
<td>FROM:</td>
<td>Grand Valley State University Human Research Review Committee</td>
</tr>
<tr>
<td>REFERENCE #:</td>
<td>17-271-H</td>
</tr>
<tr>
<td>SUBMISSION TYPE:</td>
<td>New Project</td>
</tr>
<tr>
<td>ACTION:</td>
<td>NOT RESEARCH</td>
</tr>
<tr>
<td>EFFECTIVE DATE:</td>
<td>June 30, 2017</td>
</tr>
<tr>
<td>REVIEW TYPE:</td>
<td>Administrative Review</td>
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</tbody>
</table>

Thank you for your submission of materials for your planned research study. Upon review of the aims and description of your study, it has been determined that this project DOES NOT meet the definition of covered human subjects research* according to current federal regulations. The project, therefore, DOES NOT require further review and approval by the HRRC.

According to your study description, you are conducting a scholarly project to evaluate if changes made in the process of care coordination will decrease length of stay and 30-day readmissions for medically complex patients and therefore, improve the transition process for medically complex pediatric patients from inpatient to primary care. The intent of the study is not to develop or contribute to generalizable knowledge. Therefore, it does not meet the definition of research according to the federal regulations. 45 CFR 46.102(d), states that “research is a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge”.

Should you change the aims and activities of your project such that it would then meet the definition of human subjects research, please cease any contacts with potential human subjects until such time as you submit the project protocol to the HRRC and receive the committee’s approval to proceed. Should you change the aims and activities of your project such that you are unsure if it meets the definition of human subjects research, please submit a new Non-Human Research Determination Form for review by the Office of Research Compliance and Integrity.

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

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

July 25, 2017

Amy Maderscheid DNP
750 Fuller Ave NE
Grand Rapids, MI 49503

SH IRB#: 2017-170

PROTOCOL TITLE: An Evaluation of a Care Conference Model and Improvement in the Transition Process for Medically Complex Pediatric Patients from Inpatient to Outpatient Care

SPONSOR: Investigator

Dear Dr. Maderscheid,

On July 25, 2017, the above referenced project was reviewed. It was determined that the proposed activity does not meet the definition of research as defined by DHHS or FDA.

Therefore, approval by Spectrum Health IRB is not required. This determination applies only to the activities described in the IRB submission and does not apply if changes are made. If changes are made and there are questions about whether these activities are research involving human subjects, please submit a new request to the IRB for a determination.

A quality improvement project may seek publication. Intent to publish alone is insufficient criterion for determining whether a quality improvement activity involves human subject research. However, please be aware when presenting or publishing the collected data that it is presented as a quality improvement project and not as research.

Please be advised, this determination letter is limited to IRB review. It is your responsibility to ensure all necessary institutional permissions are obtained prior to beginning this project. This includes, but is not limited to, ensuring all contracts have been executed, any necessary Data Use Agreements and Material Transfer Agreements have been signed, documentation of support from the Department Chair has been obtained, and any other outstanding items are completed (e.g. CMS device coverage approval letters, material shipment arrangements, etc.).

Your project will remain on file with the Office of the IRB, but only for purposes of tracking research efforts within the Spectrum Health system. If you should have questions regarding the status of your project, please contact the Office of the IRB at 616-486-2031 or email irb@spectrumhealth.org.

Sincerely,

[Signature]

Jeffrey Jones MD
Chair, Spectrum Health IRB

c: Tamara Van Kampen DNP Student, Quality Specialist
Appendix K

Stakeholder Power Interest Grid

CONTEXT SETTERS
(Keep Satisfied)
- Regulatory Agencies
- Accrediting Bodies
- Payors

KEY PLAYERS
(Manage Closely)
- Primary Care Physicians
- Hospitalists
- HDVCH Care Management

CROWD
(Minimal Effort)
- Media
- Families of Patients Who Are Not Medically Complex

SUBJECTS
(Keep Informed)
- Patients / Families
- Primary Care Office Staff
- HDVCH Unit Staff
- HDVCH Leadership
Appendix L

Pre-Survey Letter

Hello,

My name is Tamara Van Kampen and I am a Doctor of Nursing Practice (DNP) student at Grand Valley State University’s Kirkhof College of Nursing. I am working on my DNP project which will take place at Helen DeVos Children’s Hospital, where I am working with Judy Westers, Director of Pediatric Services. This project will focus on medically complex pediatric patients, (a patient who has a hospitalist as an attending, has 2 or more providers involved in their care while hospitalized, a length of stay longer than 24 hours, and has been admitted to HDVCH 5,6,7, or 9).

Part of this project will aim to improve the current communication and discharge / transition process between the medically complex patient’s hospital healthcare team and their primary care provider. I have done an extensive literature review related to this subject and hope to take what has been shown to be effective and use this as a foundation for improving the current processes at HDVCH. I am also hoping to model this project after the NICU discharge process currently used at HDVCH.

This invitation to participate is being sent to individuals who have a vested interest in improving the discharge / transition process for medically complex patients. Your participation is voluntary and your responses will remain anonymous. Results will be reported as collective data in aggregate. Waiver of consent will be issued based on completion of the attached questionnaire. Although the information provided is anonymous, it is transmitted in a non-secure manner so there is the remote chance that persons unaffiliated with this project could track information provided to the IP address of the computer from which it is sent. However, your personal identity cannot be determined.

If you have questions about this study you may contact me at mohrt@gvsu.edu. If you have questions concerning your rights as a participant, please contact the Spectrum Health IRB by telephone at 616-486-20331 or email at irb@spectrumhealth.org.

Thank-you!

Tamara Van Kampen, MSN, RN
Pre-Survey Questions

Question #1: How long have you been with your current employer? (n=15)

![Years with Current Employer](chart1.png)

Question #2: On average, how many patients do you have admitted (inpatient or observation) to Helen DeVos Children’s Hospital (HDVCH) each month? (n=14)

![No. of Patients Admitted by Provider](chart2.png)

Question #3: What percentage (approximately) of your hospitalized patients are considered medically complex? (inpatient stays longer than 24 hours on HDVCH 5, 6, 7, or 9, hospitalist as an attending, 2+ providers) (n=15)

![Percent Considered Medically Complex](chart3.png)
Question #4: How satisfied are you with the communication from your medically complex patients’ health care team when they are admitted to HDVCH? (n=15)

Question #5: Please indicate if you are familiar with the current care conference process at HDVCH. (n=15)

Question #6: If you indicated yes, how satisfied are you with the care conference process at HDVCH? (n=8)
Question #7: Would you prefer more involvement in the care conference process at HDVCH? (n=15)

![Pie chart showing 80.00% Yes and 20.00% No]

Question #8: How satisfied are you with current discharge communication from your medically complex patients’ health care team at HDVCH? (n=13)

![Bar chart showing satisfaction levels]

Responses:

- I rarely receive direct communication during admissions. Very often, the follow-up visit after a hospitalization is spent clarifying discharge instructions, figuring out various recommendations, etc. rather than having the opportunity to be proactive in moving care forward
- Varies somewhat relative to attending hospitalist
- As an RN care coordinator – my knowledge of discharge is dependent on looking at notes in Cerner. I can’t say that I have received anything beyond that
- I like when the residents perfect serve me and ask me to call them back re one of my patient’s admissions. It is especially helpful to be involved right from the start. Sometimes, the discharging attending will give me a PerfectServe sign-out of the hospital admission. This is very-much appreciated
- Verbal communication with complex patients who need follow-up within 24 hours would be nice as discharge summary not always available
- We rarely get communication that a patient is admitted or discharged. If I see a patient is admitted, I will attempt to reach out to the CM or SW once they have been assigned
Question #9: What is your preferred method of communication with hospitalists/specialists when a medically complex patient is being discharged? (n=13)

Responses:
- EPIC message
- Either of the two options checked would be fine although Faxed Discharge Summaries are acceptable
- In patient staff I feel are comfortable with contacting me as needed
- A perfect serve msg would be great
- Through epic

Question #10: How satisfied are you with the current discharge process overall (medication reconciliation, unresolved laboratory tests, pending treatments, follow-up appointments, etc.)? (n=14)

Responses:
- Frequent a discharge summary will discuss the primary problem for admission but leaves out other minor problems that may have been addressed. Nutrition, respiratory instructions, accuracy of medications are probably the 3 most confusing issues
The unresolved lab tests has a ways to go. Consultation with primary care physician as to need for specialty referral so as not to duplicate primary care management could improve.
Not aware of a process.

Question #11: What information do you feel is pertinent when a medically complex patient is being discharged to your practice? (n=15)

Responses:
- All of these are critical to a discharge – also, I feel the communication with a pcp during hospitalization may clarify questions or elicit concerns that have existed prior to visit.
- Dietary instructions, especially with changes in enteral feedings.

Question #12: Do you feel current discharge practices / communication affect readmission rates for medically complex patients? (n=14)

Responses:
- This is particularly true for admissions regarding respiratory/pulmonary processes. Often, a patient has at minimum 3 systems responsible for pulmonary care – outpatient PCP, inpatient primary attending and a pulmonologist. There are likely several respiratory...
therapists involved in care as well. Making sure everyone is on the same page and has input into the process may be helpful.

- Lack of communication at discharge increases rate of readmission for medically complex patients
- Unaware of a process
- Certainly good communication between providers will prevent a family coming back to the ED. A post-stay f/u phone call from me (as the patient’s familiar care coordinator) to answer questions, make sure meds are taken correctly, all instructions are understood etc. etc. will prevent a patient from readmission
- Arranging f/u visit
- If the patient or parent have barriers to follow up care and those are not addressed than it makes it difficult for ambulatory settings to follow up

Question #13: Do you feel there are other ways to improve communication or discharge processes? (n=13)

Other Ways to Improve Communication?

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<td>61.54%</td>
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Responses:

- Communication needs to occur. Currently it rarely does
- Involvement of PCP throughout hospital course. Knowledge of active outpatient specialists and consideration of need for their involvement during hospitalization
- A phone call or text with pertinent information and pending labs/follow up would be great as well as a detailed discharge summary
- Unknown
- I think team is making efforts to improve
- In a perfect world – it would be great to get a little report upon d/c. Maybe “top 3 noteworthy upon d/c.” e.g. get labs drawn, increase medication, new oxygen instructions etc.
- Allowing PCPs ability to communicate to hospitalist at beginning and end of admission
- Make is standard of care that the admitting resident touches base with PCP
- Communication is key. If the NCM’s consider a warm handover to be important at discharge- why would they not want one on admission? Especially if the ambulatory setting has barriers and the patient is admitted- they are a captivated audience so they can be addressed
Appendix N

Post-Survey Results

Question #1: How long have you been with your current employer? (n=4)

- <2 yrs: 2
- 2-5 yrs: 1
- 6-10 yrs: 2
- >10 yrs: 6

Question #2: On average, how many patients do you have admitted (inpatient or observation) to Helen DeVos Children’s Hospital (HDVCH) each month? (n=4)

- Provider A: 75%
- Provider B: 50%
- Provider C: 100%
- Provider D: 100%

Question #3: What percentage (approximately) of our hospitalized patients are considered medically complex? (inpatient stays longer than 24 hours on HDVCH 5, 6, 7, or 9, hospitalist as attending, 2+ providers) (n=4)

- Provider A: 75%
- Provider B: 50%
- Provider C: 100%
- Provider D: 100%
Question #4: How satisfied are you with the communication from your medically complex patients’ health care team when they are admitted to HDVCH? (n=4)

![Satisfaction Bar Chart]

Question #5: Do you feel there has been an improvement in communication in the last two months from residents and hospitalists at HDVCH when a medically complex pediatric patient is being admitted? (n=4)

![Improvement Bar Chart]

Question #6: What has been the most common means of communication of the admission of a medically complex pediatric patient? (n=4)

![Communication Methods Bar Chart]

Responses:
- None
- Secure text from residents
Question #7: Please indicate if you are familiar with the current care conference process at HDVCH. (n=4)

- 50% Yes
- 50% No

Question #8: If you indicated yes, how satisfied are you with the care conference process at HDVCH? (n=2)

- 100% Satisfied

Question #9: Would you prefer more involvement in the care conference process at HDVCH? (n=4)

- 75% Yes
- 25% No
Question #10: How satisfied are you with current discharge communication from your medically complex patients’ health care team at HDVCH?

Responses:
- Communication with inpatient is good. Communication with NICU is not so good.
- Usually I just get a TOC in my in-basket.

Question #11: What is your preferred method of communication with hospitalists/specialists when a medically complex patient is being discharged? (n=4)

Responses:
- Epic
Question #12: How satisfied are you with the current discharge process overall (medication reconciliation, unresolved laboratory tests, pending treatment, follow-up appointments, etc.)? (n=4)

Question #13: What information do you feel is pertinent when a medically complex patient is being discharged to your practice? (n=4)
Question #14: Do you feel current admission and discharge practices / communication affect readmission rates for medically complex patients?

Responses:

- Unknown

Question #15: Do you feel there are other ways to improve communication or discharge processes?

Responses:

- Always
- Involvement of PCP team throughout course, eyes on discharge medication schedule/routine/follow-up earlier in the admission process. Consider use of visiting nurses more frequently as part of follow-up.
Appendix O

Business Plan

This was a Doctor of Nursing Practice (DNP) student project which focused on transitions of care for medically complex pediatric patients. The project evaluated new care coordination conference processes and sought to improve communication between inpatient and outpatient providers. The overarching focus was to determine ways to increase involvement of primary care providers (PCPs) when their complex patients are admitted to the organization.

Medically complex pediatric patients are high utilizers of healthcare resources. Although only 1% of the pediatric population, they account for more than 30% of all pediatric healthcare costs, 34% of all pediatric Medicaid health expenditures, 47% of the total spent on hospital care by Medicaid, and 71% of unplanned 30-day readmissions (Berry et al., 2014; Murphy & Clark, 2016). These patients tend to have longer lengths of stay in the hospital, high readmission rates, and lower healthcare satisfaction scores (Brittan et al., 2015). They also have multiple transitions from inpatient to outpatient care, increasing the opportunity for medical errors. Research shows that efficient transitions of care processes improve patient outcomes through reduced errors while also improving satisfaction rates of patients, families, and providers.

Following an in-depth literature review and surveying pediatricians affiliated with the organization, it was determined PCPs desired more involvement upon admission of medically complex patients. Respondents to a survey sent by the DNP student provided useful feedback and gave direction for this project. PCPs admit an average of just under three patients each month, and of those approximately 43% are medically complex. Sixty-seven percent of respondents were unfamiliar with the care coordination conferences at the organization, with
80% stating they would like more involvement with these meetings. Of those who were familiar, 62.5% were either not at all satisfied or somewhat satisfied with the conferences.

As for communication upon admission of a medically complex patient, 80% of respondents were either not at all satisfied or somewhat satisfied. Twenty percent of respondents stated they were very satisfied. After meetings with a pediatrician, a hospitalist, a resident, and the pediatric resident chiefs, it was determined the best way to notify PCPs of an admission was to have the physician residents send a secure text to the PCP. Following implementation of this intervention, a follow-up survey was sent to the pediatricians. The results showed improvement in admission notification.

The goal for improving the care coordination process was to reduce both length of stay and 30-day readmission rates for medically complex pediatric patients by 10%. Preliminary data shows overall average length of stay did not show a 10% decrease. Overall 30-day readmission rates, however, did show a decrease of more than 10% from May through August 2017. It is hoped that improved processes will lead to a continued reduction in both metrics. Another goal was to improve Child CAHPS scores in two areas. The table below shows the preliminary data for this project.

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<th>DASHBOARD CARE COORDINATION CONFERENCE</th>
<th>Aug-16</th>
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<th>Mar-17</th>
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<td>Length of Stay (days)</td>
<td>5.8</td>
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<td>Medically Complex</td>
<td>19.5%</td>
<td>13.7%</td>
<td>11.1%</td>
<td>17.5%</td>
<td>20.3%</td>
<td>10.7%</td>
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<td>HDVCH Overall</td>
<td>8.8%</td>
<td>7.9%</td>
<td>8.2%</td>
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<td>(meets expectations rate 83%)</td>
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<td>Informed about Child’s Care (meets expectations rate 81%)</td>
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<td>(no. of surveys returned)</td>
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A reduction in both metrics is essential. A 2% decrease in both length of stay and 30-day readmissions would bring about a cost savings of approximately $35,800 over a three-month period. A 10% reduction, the long-term goal of the care coordination committee, over the same three month period would result in a cost savings of approximately $156,603.06.

One recommendation for this organization is to continue to evaluate and modify, when necessary, the care coordination conferences. This will ensure the meetings are streamlined and valuable. Another recommendation is to regularly include PCPs in care coordination conferences, and to continue to notify them when their patients are admitted. By ensuring all key stakeholders are involved in care processes for medically complex patients, the organization will be able to provide better care, reduce utilization costs, and improve patient outcomes and satisfaction.

References


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December 13, 2017

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