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Keisia N. Sobers-Butler, MS, BSBA, RN, CMCN
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DNP FINAL REPORT: THE IMPACT OF THE CARE COORDINATION
MANAGEMENT TOOL ON CHILDREN WITH SPECIAL HEALTH CARE NEEDS

by

KEISIA SOBERS-BUTLER, MS, BSBA, RN, CMCN

A DNP Final Report submitted in partial fulfillment
of the requirements for the degree of
Doctor of Nursing Practice
School of Nursing

Collen Marzilli, PhD, DNP MBA, RN-BC, CCM, PHNA-BC, CNE, Committee Chair

College of Nursing and Health Sciences

University of Texas at Tyler
May 2021

The University of Texas at Tyler
Tyler, Texas

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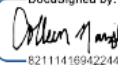
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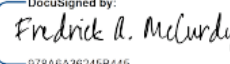
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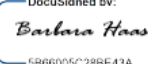
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Your love and support made this possible! I love you all to the moon and back!

Dedication

For my amazing, beautiful, talented daughter, Bailey. The sky is the limit.

With Love,

Mom

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Abstract

DNP FINAL REPORT: THE IMPACT OF CARE COORDINATION ON THE PATIENT-CENTERED MEDICAL HOME

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Children with Special Health Care Needs (CSHCN) population, account for 30% of spending or \$233.5 billion of the costs (Bui et al., 2017). Identifying barriers to care in the CSHCN population can be multi-faceted and complex incorporating high utilization of time, and clinical resources. This project aims to evaluate the impact of care coordination, and utilization on the CSHCN population through a Patient-centered Medical Home, use of embedded case management assessing this population through using the evidence-based Care Coordination Management Tool (CCMT). CSHCN (N=117) and families were assessed using the CCMT at every interaction from September 1, 2020 – November 30, 2020. All

assessment data was recorded in Driscoll Health Plan (DHP) EPIC electronic medical record (EMR). Eight RNs completed assessments on 117 CSHCN at each encounter. Utilization indicates a decrease of 13% or \$280,172.38. Measurement of coordination activities were 41% parent education, 29% communication improvement, 21% investigation of services, 7% authorization, and 1% authorization review. By category, 29% of needs were related to utilization authorizations, 23% related to disease education, 16% referral for community resources, 18% education on Medicaid and 14% related to a behavioral health follow-up. This project reveals that assigned case managers utilizing a standardized evidence-based tool can impact costs of care, parent satisfaction, and quality of life for the CSHCN patient.

Chapter 1 Development of the Clinical Question and Problem Identification

Background and Significance

According to Bui et al. (2017), healthcare spending has increased by \$933.5 billion from 1996 to 2013. Among the Children with Special Health Care Needs (CSHCN) population, 30% of all children healthcare costs are associated with this population. Identifying barriers to care in the CSHCN population can be complex and requires a high utilization of time and clinical resources. CSHCN are defined as 1% of all children and youth within the US and Canada (Cady, Bushaw, Davis, Mills, & Thompson. 2020). Diagnoses include children 0-18 with congenital anomalies, technology dependence, multiple chronic conditions, with severe or moderate neurologic and/or functional impairment (Cady et al., 2020).

Many pediatric patients with chronic disease have challenges within the current healthcare system. In primary pediatric offices, amongst the CSHCN population, there are missed care coordination opportunities between the healthcare team(s) and patient families, ineffective decisions among specialty provider(s), decreased quality outcomes, duplication of services and supplies, fragmented costs, and increased utilization of services (Bachman, Comeau, & Jankovsky, 2015). According to Lit and McCormick (2015), 41% of CSHCN have unmet care coordination needs in a pediatric practice setting. In the wake of these deficits, parents undertake the expectation to perform care coordination activities for their child's multiple specialty visits, post-hospitalization appointments, pharmacy refills, special need programs, supply orders, and transportation (Bachman, Comeau, & Jankovsky, 2015).

Alternatively, many healthcare providers and caregivers in this population utilize agenda-focused communication, with limited parental involvement, and solicitation during treatment. These challenges can prevent optimal health. Most healthcare opportunities involve pediatric patient or families' knowledge of the disease and maintenance, communication with and among healthcare providers, multiple cost streams associated with disease maintenance, and access to care. Without the presence of an identified care coordination team, through the establishment of Patient-Centered Medical Homes (PCMH), parents are ill informed, and are not empowered to ask questions. Many times, in PCMH, a nurse or social worker will serve as an "embedded" contact or support person to communicate between the provider and patient/family. An alternative to meet the unique demands of self-care and management among chronic patients is the PCMH.

According to Hadland (2013), in ambulatory settings, a PCMH is defined as a model of care that consists of access, family-centeredness, and continuity for special needs patients between acute settings, comprehensiveness, coordination, support and cultural effectiveness. The concept of the PCMH offers patients and families improved quality of life, enhanced coordination of care, centralized access, trust and empowerment. It also offers a higher level of communication and coordination between provider, patient and families. Incorporating PCMH offers measurable outcomes to the Medicaid and Medicare health system with decreased costs, improved resource utilization, and access to care. Terms associated with a PCMH include care coordination, case management, dedicated primary care physician and nurses, coordinated efforts with subspecialists, dedicated utilization management staff, and frequent appointments with increased time allotted. PCMH can be considered an umbrella term that is inclusive of

Registered Nurses or Social Workers that assist families with coordination of care. These licensed personnel are additional support staff that are Case Managers who are employed by a managed care organization (MCO) to provide care coordination in a controlled outpatient environment.

As stated by Litt and McCormick (2015), care coordination is a core component of the PCMH. According to Malouin and Merten (2010), characteristics that define the pediatric PCMH include the following:

- Practice ensures each patient access to comprehensive, integrated care.
- Patients/Families are active participants.
- Practice is patient-centered, relationship-oriented.
- Team approach which implies multidisciplinary team
- System Integration with continuous improvement
- Information technology to support optimal patient care, performance management, patient education, and enhanced communication.
- Culturally sensitive, community oriented, population-perspective focus
- Commitment to provide patients with full access to care and coordination.
- Quality focused: Evidence-based medicine and clinical decision support tools

For the CHSCN population, care ‘transitions’ related to age (pediatric to adult providers), from a hospital admission to discharge, and from a lower acuity care to higher acuity care, are mechanisms that support and are synonymous with the innerworkings of a PCMH.

Consequences of not having a PCMH include a special needs population who will lack access to providers, continuity of care, support and education for disease process. These consequences will develop a framework that will become detrimental to successful health, patient and system

outcomes. The environment of the PCMH promotes satisfaction or dissatisfaction of the patient or family, toxic or supportive healing, confusion or clarity of illness, failure and/or improvement of health, increased or decreased hospitalizations and costs of care, compromised or integrated quality of life, and increased/decreased confidence or autonomy for successful management of chronic illness.

Internal Evidence

Internal evidence for a Pediatric Medicaid MCO in South Texas identifies similar opportunities. The organization has a total of 217,000 complex children and women enrolled in Medicaid. Of those, 117 are considered medically dependent and meet the institutional level of care. Currently, the Department of Health and Human Services (governing body for Texas Medicaid) requires a health plan to operate patient centered medical homes, and dedicated nursing staff case managers to coordinate care. In addition, the mandate requires a health plan to contact these families at minimum once per month, and to visit their homes face to face, four times a year. There are fifteen PCMHs in current operation.

The requirements for a provider to enroll as a PCMH are based on their volume of MCO special need members. Volumes are then identified as a Category 1, Category 2, or Category 3 PCMHs. Category 1 PCMH has greater than 25 patients, Category 2 has greater than 50 patients, and Category 3 has greater than 100 patients assigned to their practice panel.

Each PCMH, has assigned embedded case managers that split their job assignment between the PCMH office and their home office. The concern for this organization:

- Increasing CSHCN cost utilization
- Fifteen case managers associated with six Nueces practices.
- Role confusion among PCMH practices and MCO staff

- Care Coordination activities varied among the embedded staff in the PCMH.
- No scripting or standard documentation between patient, families and providers

Utilization is defined as decreased regulatory contact, missed specialty appointments, increased emergency room visits, readmission for physical and behavioral diagnoses, and increased identification of members that were unable to contact during telephonic or face-to-face outreach. Over a three-year period of data and care coordination management, analysis has identified that these children with account for >18% of total spend. Current data also indicates this population has frequent missed appointments, and increased costs utilization (admissions, Emergency Room (ER) visits, home health services, pharmacy and supplies).

In a recent retrospective pre- and post-study review of costs for this MCO, utilization metrics from a historical period prior to managed care involvement (June 2014 through May 2015), was compared with current period utilization metrics (June 2017 through May 2018), in which recipients are actively managed (South Texas MCO, 2019). The same members were identified for data collection periods. For CSHCN, the PCMH approach resulted in a 34% overall medical Per Member Per Month (PMPM) reduction and a cost avoidance of approximately \$14 Million (M) (South Texas MCO, 2019). Reduced Admits/1000, Behavioral Health (BH) Admits/1000, Readmission rates, and Emergency Department (ED) Visits drove this reduction (South Texas MCO, 2019). There was a 30% increase in PCP visits, which facilitate management and coordinate care through Individual Service Plan (ISP) and PCMH (South Texas MCO, 2019). As a result of this information, it was determined that embedded case managers assigned to a PCMH of this South Texas MCO demonstrated behaviors that led to successful outcomes for CSHCN. Some of the indicators included maintenance of the PCMH schedule of incoming managed care members, proactively identifying scheduling conflicts, or

needs for referrals to specialty clinics, therapies and supplies, and acting as a liaison between the provider of the practice and the family/member.

Support from an interdisciplinary team at an assigned PCMH for CSHCN would be expected to result in reinforcement of self-care maintenance, monitoring, and management thereby decreasing costs, increasing quality of life, and parent satisfaction. The implication for practice in this MCO is standardization of care coordination practices for the CHSCN population through PCMH continuous quality improvement and intentional embedded care coordination interventions, will lead to reduced utilization, increased coordination of care, access transition, and support.

External Evidence

Treadwell and Giardino (2014), stakeholders of a Pediatric Medicaid MCO organization in Texas, incorporated an embedded RN case manager weekly into the workflow of a pediatric PCMH. Results indicated increased quality of care for the patient, decreased costs, and increased communication with parents over a six-month period.

According to Cady et al. (2020), PCMH utilize embedded complex RN care coordinators to assess, provide telephonic coordination and support, and reduce unplanned utilization. To evaluate the effectiveness of coordination, claims and medical records data are used (Cady et al., 2020).

In a pediatric medical home, the Care Coordination Management Tool (CCMT) is widely used as the gold standard for evaluating the effectiveness of pediatric activities, care coordination, resource utilization, and outcomes (Ferrari, Ziniel, & Antonelli, 2015). In the study by Zanello et al... (2017), a prospective cohort study with primary care providers in a patient centered medical home administered the CCMT tool over a 9-month period to CSHCN

(0-16 years of age). This standardized tool allowed providers to complete a series of questions after each encounter with the patient that identified care coordination needs or activities. Results through multivariate analysis identified strong correlation of CSHCN to specialist and improved outcomes in several domains to include decrease in hospitalizations and prevented emergency room use. The evidence suggests the CCMT is of value to quantitatively describe care coordination activities and outcomes.

Therefore, the question arises, in families of CSHCN enrolled in a PCMH (P), how does the use of the Care Coordination Management Tool (I) compared to no enrollment of the PCMH and use of the Coordination Management Tool (C) affect costs of care for CSHCN (O1), utilization of services (O2), care coordination interventions (O3) and parent satisfaction (O4) within a three-month period?

Chapter 2 Evidence Synthesis and EBP and Change Models

The three databases identified for the systematic search, including CINAHL, PUBMED and Cochrane (see Appendix B). All databases were searched utilizing the following key words in the same order: Health Home, Medical Home, Patient Centered Care, Children with Special Healthcare Needs, Children with Special Health Care Needs, Quality of Life, Cost Control, Const Analysis, Parents of Children with Special Healthcare Needs, and Parents of Children with Special Health Care Needs. The result of each database was CINAHL- four; PUBMED –six; and Cochrane – four, and hand searching - two. All included the following limits: English language, human, abstract/full text, and pediatric population. Criteria included the CHSCN population, the targeted outcomes of utilization, quality of life, and parent satisfaction, and PCMH. Final yield for the systematic search across all databased was twelve studies (see Appendix C).

Critical Appraisal

Sixteen studies were selected for critical appraisal. Twelve articles were evaluated using Rapid Critical Appraisal (RCA) (see Appendix A). General Assessment Overview (GAO) and RCA checklists (RCAC) were completed for each study and keeper studies were then added to the evidence table (see Appendix A). There were three Level 1 Systematic Review Articles, two Level II Randomized Control Trials, one Level III Controlled trial without randomization, three Level IV Case-control or Cohort Studies, one Level V Systematic review of qualitative or descriptive study, and two Level VI Qualitative or descriptive studies selected.

Evaluation

Data from the evaluation tables was extracted to create synthesis tables. The level of evidence synthesis table indicated (see Table 1, Appendix B). A synthesis of the twelve articles

indicated most used interventions within a PCMH setting, three used evidence-based practice (EBP) care coordination with CCMT, two used parent report to drive outcomes, and one reviewed the comfort level of a provider when assessing CSHCN (see Table 3, Appendix B).

Synthesis and Recommendation

For the scope of this evidence-based implementation project, CCMT was the standard used to measure the effectiveness of coordination for CSHCN. For eight of the twelve studies, PCMH was the independent variable. For three articles, care coordination management tool was the independent variable. For one study, caregiver support was the independent variable. Eight of the articles used embedded care coordination, and one used the National Quality Assurance (NCQA). The outcomes (i.e., dependent variables) across the studies were improved care coordination, improved quality outcomes and reduced costs (see Table 4, Appendix B). The most effective interventions were use of the Care Coordination Tool (CCMT) and the PCMH for increased access and coordination (see Table 3, Appendix B). Most of the studies followed their participants for an average two years, more than fulfilling the three-month timeframe as designated in the T of the PICOT question. According to Annis et al. (2016), the investment of managed care health plan personnel in a PCMH, improves access to high-quality care at a reduced cost. In this study, quality of life and care are defined as decreased admissions, increased school attendance, and self-management of chronic diseases. In the study by Berry, Barovechi, Mabile and Tran (2017), evaluation on how to improve the function of a pediatric patient- centered medical home (N=15) to support the CHSCN population was identified. The researchers implemented care coordination services utilizing the Medical Home Index (MHI) quality improvement indicators over a two-year period. Results of this study indicated ten of the fifteen practices targeted, participated in the interventions and revealed significant improvement

in QI process for the practices. The overall implication of practice for this result was funding of Care Coordination Embedded Case Managers can reduce costs and improve quality through the MHI indicators.

Identification of variables helped to delineate all roles and monitor outcomes of cost and care coordination management. Based on the evaluation and synthesis tables, the recommendation is to provide care for the CSHCN population in a focused PCMH with the added support of embedded case management indicates decreased costs, and increased quality and coordination of care for my current practices.

Evidence-based Theory and Practice Models

Riegel, Jaarsma, and Stromberg (2012) state self-care is an essential component to the management of chronic illness. The Self-Care of Chronic Illness Theory (SCIT) defines self-care maintenance, self-care monitoring, and self-care management as additional core components necessary for the management of chronic disease. SCIT has been utilized in many studies related to the coordination and care of chronic patients. SCIT first evolved as a middle range theory from adult clinical practice of heart failure (Riegel et al., 2012). The foundation of SCIT was adapted from Dorothea Orem's grand theory of self-care (Riegel et al., 2012). According to the Society of Pediatric Nurses (2019), families must be equipped to provide and support self-management activities for the CSHCN.

Self-care maintenance, the first component of SCIT is described as the experience of the patient. It can be individualized to the environment, culture, and age of the chronic patient. Self-care monitoring is the second component of SCIT. This component correlates to the status of one's health. It is identified as the motivation, confidence and skill necessary for medical intervention or monitoring for the state of optimal health. The last component of SCIT is self-

care management. It is described as the experience of the patient and system. Other factors as indicated by Riegel et al. (2012) that can impact self-care experiences are skill, motivation, confidence, habits, function, cognition, support from others, and access to care.

Relationship of Theory and Practice

Essential characteristics of SCIT, transition, and support for the patient and system are required to achieve the optimal care of chronic illness. The first component requires coordination to be individualized. Secondly, coordination of care in the PCMH should be structured and built on previous visits. Third, action-oriented steps are merged as specific, measurable, attainable, realistic and timely goals. The patient, status of health, and system reflect the core influence of the relationship of the PCMH and SCIT (see Table 1, Appendix F). Intention of the process is purposeful with buy-in from the patient and family to ensure successful integration of concepts.

Stevens Star Model of Knowledge Transformation

Stevens Star Model of Knowledge Transformation (SSMKT) closely matches the Evidence-Based Model for the implementation of the PCMH. This graphic is a representation of the application to the EPIP. Each number signifies a state of being for the project. The circle with star points identifies the different stages of the process and the fluidity of the steps from beginning to end. The implementation of this project identified the relationships between chronic illness, and the management of CSHCN, utilizing transition and support provided to those enrolled in a PCMH. The repurposed figure created for this EPIP is reflective of the SCIT framework and its cyclical progression of the project (Appendix F). The star in the middle of the circle represents the chronic CSHCN.

Stage 1. Systematic review of PCMH is identified as Step 1 for the EPIP.

Stage 2. Evaluation of body of evidence

Stage 3. Identify practice guidelines that are systematic, specific, with correlation of evidence and recommendation.

Stage 4. Organization and Individual Clinical Changes, innovation and integration into sustainable system

Stage 5. Decreased costs, increased quality of life and increased parent satisfaction.

Change Model

Bullock and Batten's Change Model (1985) demonstrates the process of the phases of planned change through transformation of patterns, predictability, and analyzation. The Bullock and Batten phase of planned change was used to develop the implementation plan of the PCMH EPIP. The first step was exploration, followed by planning, action, and then integration (Montano, 2018). Exploration verified the need for change and acquisition of any specific resources necessary for the change to go ahead. Planning was an activity involving key decision makers and technical experts. Decisions were completed and actions were sequenced in a change plan. The plan was signed off by integral stakeholders and leadership before moving into action phase. Actions were completed according to the plan; with feedback mechanisms that allowed for re-planning and other reconsiderations to keep the project on task. The final phase was integration. This phase was started once the change plan has been fully actioned. Integration aligned the change with other areas in the organization; and formalized them via established mechanisms such as policies, rewards and company updates.

Leadership Model

Transformational Leadership Model was the visual representation chosen for the elements of this project. As a system leader to drive performance excellence, a leader must use purposeful thinking and joint coordinated actions of staff (Zaccagnini & White, 2015).

Transformational leadership guided the implementation of this EPIP by ensuring the following foundational elements (Kendrick, 2011):

- Idealized Influence
- Inspirational Motivation
- Intellectual Stimulation
- Individual Consideration

Chapter 3 Project Design and Methodology

In previous chapters, the need for parents to have support from additional clinical staff was established for the CSHCN population. The objective of the following chapter is to incorporate discussions on the models, setting, workflow, population, culture, and stakeholders. After those discussions are established, a description of barriers and facilitators, patient inclusion, data management, budget planning, budget justification, return on investment, progress markers, and established implementation timeline are discussed. Key stakeholders of the PCMH are the patient, family, and the interdisciplinary team (providers, care coordinators/case managers, therapists, social workers, and nurses).

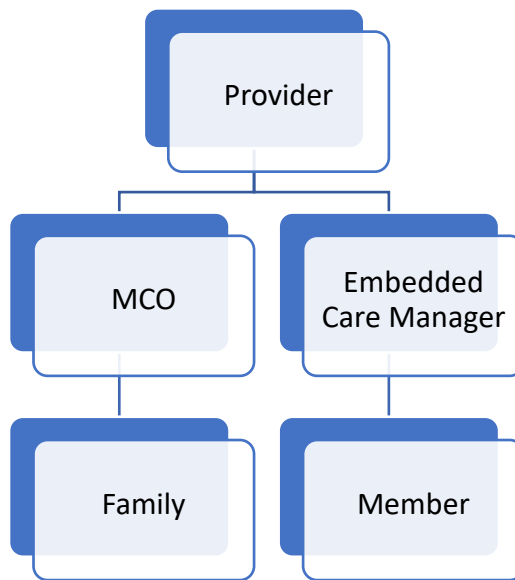
Description of Setting and Current Process

The environment a pediatric practice promotes confusion or clarity of illness, failure and/or improvement of health, increased or decreased hospitalizations and costs of care, compromised or integrated quality of life for the patient and family. These outcomes can lead to increased/decreased confidence or autonomy for successful management of chronic illness.

As a managed care organization (MCO), the setting for current case managers to coordinate care for the CSHCN varies. The CSHCN RN Case Managers work out of an office setting or out of a PCMH. They are assigned a “caseload” and follow those assigned patients using guidelines from the state. Communication and coordination vary depending on the experience of the individual, the volume of patients in the office assigned to the MCO, and the complexity of the patient being managed. The CSHCN Case Managers assist the patient with all requests for help related to complex needs. This list includes status or creation of prior authorizations for private duty nursing, personal care services (attendant care), durable medical equipment and supplies (DME), comprehensive assessments, follow up post-hospitalization

assessments, coordination of transportation with vendors, and specialty appointments. All patients assigned to this population receive twelve telephonic phone calls, four face-to-face visits, and at minimum, one state screening assessment and one annual individualized service plan. There are not current standardization or customization workflows for outreach. There are communication gaps, missed opportunities, assumptions, and lack of continuity in care between the MCO, the practice and the member as a result. Communication is delivered top down and rarely delivered to the patient from the provider directly. MCO's communicate with the family, but rarely communicate with the three entities together.

Figure 1. Current Process



Population

Curley (2016) indicates data-driven initiatives by health care leaders are essential to population health. The literature agrees that CSHCN are a unique population that needs more outcome driven data and measurement to affect quality. Lit and McCormick (2015) indicate 41% of CSHCN have unmet care coordination needs in a pediatric practice setting. Utilizing the PRECEDE-PROCEED Model (Curley, 2016) and social determinants of health (SDOH) will

lead to a meaningful and sustainable population intervention. The population for the EPIP is composed of 117 CHSN who are enrolled into case management. The population is 60% unassigned to a PCMH. The population is 100% on Medicaid. Children range in age from 0-21 years of age. The complexity of diagnoses varies between physical, intellectual disability, and behavioral health. The Complex Care Coordination tools are not used, and the embedded MCO case managers at a practice do not use a standard assessment.

Discussion of the Culture

According to the National Center for Cultural Competence (NCCC), providing needed services and supports for families with special health care needs are a core objective. In this population, for a child having a disability, or family member accepting the disability, awareness of the diagnosis can cause disengagement. The implications for not developing a cohesive cultural identity will cause a breakdown of relationship, engagement and distrust. This can be a barrier to the success of the EPIP as the family may not attend appointments.

On the other hand, many of the children in this population have parents who are currently coordinating their care for multiple specialty visits, transportation, durable medical equipment and supplies, and pharmacy refills. The population is 98% Hispanic, and 65% of the members live in a two-parent home with other generations of family. The primary language is Spanish. The parents of this population are first generation Americans, naturalized citizens, or undocumented. The Hispanic culture has an awareness and seeks medical advice as a cultural group. A barrier to this project is utilizing the Emergency Room for non-emergencies. This is an example of quickly seeking medical care although not all circumstances require an emergent response.

Stakeholders

Differentiating between telephonic case management and embedded case management in an ambulatory setting can be challenging, as the MCO employs both. The embedded MCO case manager is active in the care of the members in practice and can serve as a key stakeholder or facilitator to continuity of care. Many times, families of CHSCN are not aware of the supports available from provider offices or the MCO. Active stakeholders are the family, patient and MCO. They are directly affected by the result of intense care coordination. The indirect or passive stakeholders are the community PCMH, and their medical team. System stakeholders include the senior partners of the PCMH, the medical director and chief medical officer.

Barriers and Facilitators

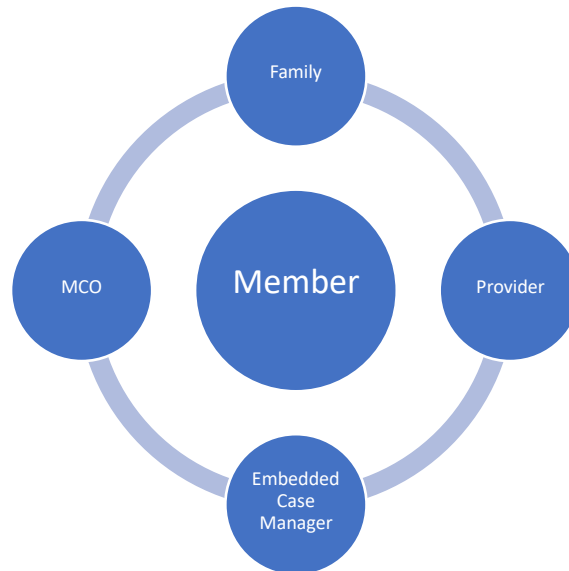
In the study by Antonelli and Antonelli (2004), the primary objective was to identify CHSCN costs for un-reimbursable care coordination services in a pediatric ambulatory setting. Results indicated 50% of CHSCN population was reviewed, 51% of all encounters were attributable to coordinating care for problems not considered medical (MCO authorizations, school consultations, behavioral vs. physical barriers) and 25% of all encounters involved only 11% of the most complex clinic. These results lead to staff verbalizing improvement in teamwork and communication. The implication for practice was standardization of care coordination practices, reduction of costs for the CHSCN population and continuous quality improvement. Barriers to the success of this EPIP were communication, staff illness, and the Public Health Emergency, COVID-19 pandemic.

Patient Inclusion

For CHSCN, communication and care transitions related to age (pediatric to adult providers), from a hospital admission to discharge, and from a state of chronic health to acute

needs, are mechanisms that are synonymous with care coordination and the innerworkings of a PCMH model. Consequences of not having a PCMH model include a special needs population who will lack adult access to providers, continuity of care, support, and education for disease process. Utilizing the CCMT allowed the measurement of case management interventions, resource needs, and outcomes (Antonelli, 2004). It also allowed the member/patient and family to incorporate their individualized person-centered goals into the care plan. Effective February 2020, MCO staff was not allowed to make face to face visits or work in PCMH's. As a result, the population shifted to all CSHCN that are medically dependent. Communication between the patient, family, and MCO case manager was completed by telephone or via virtual meetings on zoom (telehealth).

Figure 2. Suggested Process



Budget Planning

The level of risk associated with this project is low. The embedded case manager (CM) is responsible for care coordination interventions assigned to children seen in patient-centered medical home (PCMH) over a 90-day period. There is a lower contingency reserve of \$500

added to the project budget. The internal staff capital is one FTE CM, one FTE trainer, and one DNP Project Manager. The annual salary is \$75,000 for the Case Manager (CM) RN and Trainer, respectively. The cost for the CM is \$17,307 for the time. The proposed budget is \$39,913 which includes the following divisions (see Appendix J):

- Staffing
 - Internal Case Manager (CM – 12 weeks)
 - Internal Industry Mentor (Provider/MD- 6 hours)
 - Internal IT Professional Build (8 hours)
 - Internal CM Trainer (8 hours)
 - DNP Project Manager (40 hours)
- Training
 - One 4- hour day
- Equipment/Other
 - Laptop (2)
 - Table
 - Chair
 - Paper/Binder
 - Room
- Transportation
 - Mileage Stipend (1 CM, 1 Internal Trainer)

Prior to implementation of the project, the training hours for internal staff was projected at four hours. After implementation, an additional four hours over four days (1 hour lunch and learns) was provided to staff. Total training was eight hours.

Budget Justification

The embedded case manager will be responsible for care coordination interventions with the members of the MCO assigned over a 90-day period. The budget planning includes training, coordinating resources, and continuity of care for the members. The budget is included in the workflow of existing case managers in their job role. There are no additional funds needed for care coordination activities to ensue. This includes proactively researching members of the MCO on Tuesday and Thursday, authorizations, completion of the comprehensive assessments and utilization of the care coordination tool.

Return on Investment

By assessing the evidence for interventions, outcomes, validity, and reliability achieved, implementation of a quality project can lead to improvements in the CSHCN population (Vitale & Curley, 2016). This project was a value-based return on investment. Current utilization costs are \$780K per month for a membership of 117 Medically Dependent CSHCN. Decreased utilization costs of 5% for May-August 2020 indicate an estimate savings of \$120K, and annual savings \$1.4M. This project provided standardized communication between providers and family, increased support and branding for the organization. It also provided increased coordination, care, efficiency, and satisfaction for the provider, patient, and team member.

Progress Markers

From Fall 2018 to September 2020, bi-weekly meetings took place for continuity and to ensure project success. Virtual weekly touchpoints were ongoing with the case managers, and bi-weekly touchpoints with the providers of the PCMH. However, timeframe of assignment, training, workflows was adjusted due to the Pandemic, COVID-19.

Implementation Timeline

The topic for this EPIP was established in June 2018. Evidence selection was conducted between February 7, 2019, and February 27, 2019. RCT and cohort studies with high validity, reliability, and applicability were selected and appraised. GAO and RCACs completed with summary of individual evidence established in table by March 4, 2019. Evidence and synthesis table with strong evidence for implementation of case management interventions was applied to Tables. By April 1, a new topic was established, and a revised PICOT and search was completed.

Key stakeholders were identified and recruitment invitations for a workgroup was completed by December 3, 2018. The scope of this project question focused on patient centered medical homes as an umbrella term for care management, coordination of care and the impact that it has on costs, quality of life, and parent satisfaction over a 90-day period for CSHCN.

The original timeline for implementation was March 2021. Due to the public health emergency declaration in January of 2021, the project was placed on hold indefinitely. Key stakeholders continued to meet throughout the summer and a new date of implementation was identified as September 1, 2020. Training of the RN Case Managers was completed in August and the first date of actual use of the CCMT remained the planned date of September 1, 2020.

Model Comparison

Metathinking is a continuum process to identify, challenge, and review current practices, knowledge, experiences, and expectations through a strategic lens thereby informing project planning. According to Melnyk and Fineout-Overholt (2019), evidence-based practice is sustained by creating an environment that translates research into practice through systematic integration and implementation of evidence-based practice (EBP) models. Relationships for the Evidence-based Practice (EBP), Logic, Change, and leadership models are described by cause

and effect, action, interactions and reactions of stakeholders of CSHCN, processes, statistical significance, and collaboration. Perspectives in metathinking analysis of this EPIP for CSHCN, includes the point of view of stakeholders, providers, patients, caregivers, and the PCMH practice.

Each model (EBP, Change, Leadership and Logic) is used to translate research into practice by creating a visual representation of cyclical and operational processes associated with determination of EBP measurable outcomes and evaluation of sustainability for the CSHCN EPIP. The cyclical process of the EBP Model, Stevens Transformation of Knowledge validated research, clinical expertise and patient choice (Melnik & Fineout-Overholt, 2019). The Change Model, Bullock and Battens, demonstrated the repeated cyclical process whereas the Transformational Leadership Model, represented the elements necessary for a system leader to perform (Zaccagnini, & White, 2015). The Logic Model reflected the purposeful integrated approach of EBP variables to include input output, process indicators, stakeholders, assumptions, and goals (short, medium, and long). The comparison indicated that each variable of a model is interdependent on the other. The concept of the PCMH offered patients and families improved quality of life, enhanced coordination of care, centralized access, trust and empowerment. It also offered measurable outcomes to Medicaid, and the health system to include decreased costs, improved resource utilization and access to care.

Key stakeholders of the PCMH are the patient, family, and the interdisciplinary team (providers, care coordinators/case managers, therapists, social workers, and nurses were integral parts of the logic models. Internal stakeholders included care management activities, policies, procedures, and practice guidelines, hired by the MCO. Outputs of the Logic Model included training of stakeholders, policies, procedures, and workflows of use of the Care Coordination

Management Tool (CCMT). Outcomes included short term goals such as buy in, informed care coordination team and established baseline data. Medium outcome goals included reporting, measured consistency, identified population, tracking, and awareness. Long term outcomes included sustainability of EPIP, to be measured within 45 days of implementation Strengths, weaknesses, opportunities and threats analysis of PCMH interventions.

Data Management

According to Siwicki (2018), “patient-centric data integration” is foundational to identifying a single population and their healthcare platform. Translation into practice, means leveraging social determinants of health data and other data sources to proactively instead of reactively meet the needs of a population.

During Fall 2020, DHP case managers provided coordination to the MDCP population enrolled in a case management via telehealth or by telephone over a 90-day period. The CCMT was administered during every interaction with the patient or family. After a 90-day period, (December 2020) utilization service type and utilization costs was analyzed for change.

CCMT is an interventional clinical tool that collects data used to identify and measure care coordination activities that occurred and/or outcomes that were prevented because care coordination was provided. It also collects data that provide information on time and staff needed to complete the care coordination activities. It is adaptable and can be used in both clinical and nonclinical settings. The CCMT informed the clinician of next steps of an adaptation process. The variables of measurement are driven by the following key indicators:

- Measurement of utilization service type for MDCP patients
- Measurement of utilization costs for the MDCP patients
- Measurement of time spent with individual patients.

- Measurement of domain frequency of CCMT

Pre and post descriptive data elements of the MDCP Population (PCMH status), the CCMT (number of assessments completed, and frequency of domains selected), utilization of service type (ER visit, admissions, etc.), and utilization of costs was collected. The date for the above measurements was June - August 2020 and September 2020- December 2020. Internal data management includes the following categories:

- Eligibility
 - TMHP
 - 834 HHSC File
 - Deidentified
- EPIC Database
 - CCMT Assessment
- Monthly Claims Data
 - Cost
 - Service Type
- EPIC Reporting (Daily)
 - CCMT Frequency
 - CCMT Category

Proprietary data information for healthcare platform included internal software for MDCP, Epic Healthy Planet (for retrieval of clinical information, provider and staff documentation on MDCP orders), and Epic Tapestry (for retrieval of utilization costs through claims data). All data was protected by internal firewall, stored, and owned by Driscoll Health Plan. Data for the CCMT assessment is fully identifiable to the Case Manager and staff as it is

routine work to assist patient and families. The data is protected by assignment of role log in. Non-clinicians do not have access. The data analysis for this project will be deidentified by characters to protect patient health information.

The raw data entered by staff via EPIC to the CCMT captured all activity. The categories for measurement included the following: Identified care coordination needs; patient level of care complexity, level of concern by parent/guardian, effectiveness of encounter, outcomes prevented, care coordination activities, time spent with patient, and time spent by staff member.

Chapter 4 Project Implementation, Outcomes, Impact, and Results

Process Milestones

The data stewardship plan was based on evidence-based decision making and communication, identification of project milestones, adherence to GANTT chart, frequent PDSA cycles and validation of data. Progress was monitored through achievement of progress markers. In addition, weekly touchpoints took place with the case manager, bi-weekly with IT, and key C-suite stakeholders. At Checkpoint one, December 2018, approval was granted and buy-in was secured by stakeholders. During this time, EBP evaluation and systematic review and appraisal was simultaneously occurring. July 2019, PICOT was approved by faculty and by November 2019, evaluation for IRB was submitted and deemed not applicable for quality improvement. By Spring 2019, Implementation meetings began with internal IT stakeholders.

The Public Health Emergency COVID-19 altered the implementation of the DNP project following proposed guidelines. By February 2020, all Medicaid employees were restricted and remain unable to visit PCMH and patient's homes. As a result, a decision was made to continue with guidance from faculty and system mentors to complete the CCMT tool using the same population virtually.

By Summer of 2019, the CCMT was created in the EPIC EMR system. Training was completed by August 2019 virtually due to the COVID-19 restrictions. Project began September 1, 2020, and completed November 30, 2020. Evaluation of metrics was completed December 28, 2020, with all system and C-suite stakeholders.

Project Implementation

During Summer 2020, DHP case managers provided coordination to CSHCN who were eligible for the Medically Dependent Children Program (MDCP) enrolled in a patient-centered

medical home. The CCMT was administered during the required monthly telephonic calls or face to face or as needed visits. Due to COVID-19 restrictions, the CCMT was only conducted utilizing telephonic communication or via telehealth. As a result, PCMH interactions were limited and not captured for data.

Each case manager was assigned MDCP CSHCN patients. CSHCN (N=117) and families were assessed with the CCMT at every interaction from September 1, 2020 – November 30, 2020. All assessment data was recorded in Driscoll Health Plan (DHP) EPIC electronic medical record (EMR). After a 90-day period, utilization service type and utilization costs were analyzed for change.

Project Results

This project aimed to assess the impact and effectiveness of care coordination utilizing pre- and post-data elements retrieved from the Health Information exchange (HIE) DHP EPIC electronic medical record. The overarching goal demonstrated a reduction of 13% of overall costs associated with the care of CSHCN, reduction in utilization of personal care services and private duty nursing, and increased parent satisfaction through coordination of care.

Eight Case Manager RNs completed assessments on 117 CSHCN at each encounter. The total number of encounters completed for patient needs was 1150. By category, 29% of needs were related to utilization authorizations, 23% related to disease education, 16% referral for community resources, 18% education on Medicaid and 14% related to a behavioral health follow-up. The total number of encounters completed for complexity was 247 of which 67 were unique members. The breakdown for complexity was 70% static (no change), 8.5% increase in level of care, and 8% decrease in level of care. The total number of Level of Concern encounters count was 630 with 49% indicating no change in level of concern, and 48% decrease concern

after CCMT completed. Measurement of coordination activities were 41% parent education, 29% communication improvement, 21% investigation of services, 7% authorization, and 1% authorization review. The effectiveness of the encounters indicates 73% state effective, 20% state ineffective and the balance not answered. There were 675 total encounters for this measure with all 117 CSHCN reporting.

Prevented outcome responses were grouped into five different categories: Stress/Dissatisfaction, Prior authorization/existing service, Lack of permanency planning, emergency services, and other. Prevented Outcome activities indicate a total of 2046 encounters of which patient dissatisfaction was avoided 51% of the time, and gaps in care were avoided 31% of the time. Hours spent on care coordination activities per member indicate 766 total hours spent for average of three hours per member in a three-month range.

Outcomes Measured and Analysis

The outcomes of patient needs, medical complexity and prevented outcomes were assessed. Every patient (n=117) received at least one CCMT encounter monthly and depending on acuity and need. Because of the delimited characteristics, age, sex, and diagnosis was removed from the data analysis.

For the patient, outcomes will include the quality of life (experience) enhanced care, trust of the interdisciplinary team, and empowerment to patients to manage their care. For the system, outcomes will include costs, resource utilization of MDCP and the patient-centered medical home (PCMH), frequency of coordination of care, and access.

Although utilization indicates a significant decrease, it is noted that utilization is trending downward due to the COVID-19 pandemic, less parents using emergency room services, therapy, private duty nursing and/or other long-term services and supports. The projected goal

was 5% or a savings of \$120K over a 90-day period. By Category, Emergency room use decreased by 16% or \$ 784. Hospital utilization decreased by 9% or \$32K. Private Duty Nursing/Personal Care Services (attendant care) reduced by 10% or \$167K. Durable medical equipment (DME)/supplies decreased by 20% or \$80K. Overall, actual savings indicate \$280K or 13% reduction in costs.

Chapter 5 Project Sustainability Discussion, Conclusions, and Recommendations

Collaboration amongst colleagues is critical to ensuring successful and sustainable patient outcomes. By creating a culture of inquiry to encourage innovation, evidence-based tools to coordinate care, while developing and refining processes to guide MCOs to deliver unparalleled service, and quality.

The organizational analysis results for EBP readiness indicate DHP is on their way. With the results of the CCMT, and the sustainability score for this project is 100.1. This is inclusive of a staff score of 52, process scores of 31.2, and an organizational score of 16.9. DHP is headed in the best direction to present this to Texas Medicaid Policy development as a sustainable EBP resource.

At the state level, in the healthcare policy, this quality improvement project will be implicated in future development for Texas Medicaid. Currently, there are ten MCOs that operate with Medically Dependent Children Programs under CSHCN, if this program demonstrates this result in 90-days, it will be useful as a mandatory intervention for all MCOs.

Likewise, at the local level, for DHP, the implications of the success of this project indicate its use in other complex disciplines such as disease management programs for patients that are complex, adults with same diagnosis, and the Behavioral Health high risk complex members.

Limitations of the quality improvement include short timeframe, patients who did not answer their phone, declined to answer questions, and small sample.

Conclusion

SCIT is essential to the successful management of chronic illness. The incorporation of an EBP care coordination tool, and the SCIT framework will benefit nurses, benefit patients, and

the healthcare system by providing outcomes driven to support existing gaps of practice. The measurement of successful transition and support in a PCMH utilizing CCMT promotes individualized, structured, mentored, and purposeful actions.

The final evaluation of this DNP project was based on pre- and post- data elements retrieved from the EPIC EMR. With intent, CCMT demonstrates the effectiveness of measuring care coordination/case management, prevented outcomes, and improved utilization in a fragile population. The overarching goal was to equip nurses with a standardized tool that allows efficiency, increased communication, discovery, and EBP. Through its success, CCMT has demonstrated costs reductions, improvement in the quality of life for the individual, decreased anxiety for the care giver, and a tool that takes the guess work out of managing a fragile population.

Recommendations

More quality improvement review and research are needed post Pandemic period for a non-biased evaluation. However, this is a call for action and unity regarding the complex patient's needs and the primary medical home, CCMT is recommended to promote health and well-being of patients and families. Although not included due to COVID-19 pandemic, the PCMH continues to provide a footprint of continuous improvement across multiple practice settings. The implications are endless for the CCMT and PCMH integration. Incorporation of CCMT into presentations during the 88th Legislative Session for the Health and Human Services will continue to make the most fragile population of CSHCN at the forefront of the discussion.

Chapter 6 DNP Practice-Scholar Role Actualization

Role Impact

My strengths are futuristic, communication, strategic, ideation, and woo. Persistence is the individual commitment needed to achieve a goal. Clifton (2007) states futuristic people choose their words carefully. In this strength, creating SMART (specific, measurable, attainable, realistic and timely) goals, preparing for transition and delays using open connections (ideation) builds strengths. Strategic strengths are outcome oriented. The use of these strategic strengths allows for new idea generation and foresight; providing clear thoughts where others see complexity. Communication and Woo will serve me well as I challenge stakeholders and physicians to implement the interventions needed to successfully implement my project. This population requires someone with tenacity, foresight, and strong communication skills. I believe I will be successful in changing the way we care for chronic children through implementation of Evidence-based care coordination standards.

Emotional intelligence requires personal and social competence. My overall emotional intelligence is 82 In personal competence, I am 77, and in social competence, my score is 88. I will rely heavily on social awareness and relationship management to implement this process from the stakeholder perspective. Using the Care Coordination Management tool as an intervention, has required me to strengthen my personal competence through development of self-management strategies such as “sleeping on something” before deciding, counting to 10 and controlling self-talk.

My plan to diffuse EBP within my organization includes a partnership with Texas A&M Corpus Christi. I reached out to the Graduate Student recruiter to develop a community partnership for my Associate degree nurse leaders. This allows for future education and ignition

of the spirit of learning. In addition, I will continue to review the literature and utilize EBP to implement sustainable quality improvement.

DHP is working to develop a VP role for me. I am extremely fortunate to work for an organization that recognizes my talent and contribution. My future goals include an executive leadership role here, and an opportunity to teach Nursing Leadership/Community nursing courses at a four-year nursing institution.

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Appendix A: Systematic Search

Figure A1: CINAHL

<input type="checkbox"/>	S18	S10 AND S16	Search modes - Find all my search terms	View Results (33) View Details Edit
<input type="checkbox"/>	S17	S9 AND S13 AND S16	Search modes - Find all my search terms	View Results (1) View Details Edit
<input type="checkbox"/>	S16	S14 OR S15	Search modes - Find all my search terms	View Results (562) View Details Edit
<input type="checkbox"/>	S15	"parents of children with special healthcare needs"	Search modes - Find all my search terms	View Results (7) View Details Edit
<input type="checkbox"/>	S14	parents of children with special health care needs"	Search modes - Find all my search terms	View Results (562) View Details Edit
<input type="checkbox"/>	S13	S9 AND S12	Search modes - Find all my search terms	View Results (3) View Details Edit
<input type="checkbox"/>	S12	(MM "Cost Control+") OR (MH "Costs and Cost Analysis+")	Search modes - Find all my search terms	View Results (101,565) View Details Edit
<input type="checkbox"/>	S11	S9 AND S10	Search modes - Find all my search terms	View Results (2) View Details Edit
<input type="checkbox"/>	S10	"quality of life"	Search modes - Find all my search terms	View Results (144,028) View Details Edit
<input type="checkbox"/>	S9	S5 AND S8	Search modes - Find all my search terms	View Results (24) View Details Edit
<input type="checkbox"/>	S8	S6 OR S7	Search modes - Find all my search terms	View Results (826) View Details Edit
<input type="checkbox"/>	S7	"children with special healthcare needs"	Search modes - Find all my search terms	View Results (89) View Details Edit
<input type="checkbox"/>	S6	""children with special health care needs""	Search modes - Find all my search terms	View Results (749) View Details Edit
<input type="checkbox"/>	S5	(S1 OR S2) AND (S3 AND S4)	Search modes - Find all my search terms	View Results (905) View Details Edit
<input type="checkbox"/>	S4	S1 OR S2	Search modes - Find all my search terms	View Results (2,296) View Details Edit
<input type="checkbox"/>	S3	(MM "Patient Centered Care")	Search modes - Find all my search terms	View Results (12,379) View Details Edit
<input type="checkbox"/>	S2	"medical home"	Search modes - Find all my search terms	View Results (2,112) View Details Edit
<input type="checkbox"/>	S1	"health home"	Search modes - Find all my search terms	View Results (194) View Details Edit

Appendix A: Continued

Figure A2: COCHRANE

-	+	#1	"health home"	S	MeSH	Limits	53
-	+	#2	"medical home"			Limits	158
-	+	#3	"patient centered care"			Limits	844
-	+	#4	("health home");ti,ab,kw OR ("medical home");ti,ab,kw	S		Limits	180
-	+	#5	("health home");ti,ab,kw OR ("medical home");ti,ab,kw AND ("patient centered care");ti,ab,kw	S		Limits	62
-	+	#6	"children with special health care needs"			Limits	27
-	+	#7	"children with special healthcare needs"			Limits	4
-	+	#8	("children with special health care needs");ti,ab,kw OR (children with special healthcare needs);ti,ab,kw AND (patient centered care);ti,ab,kw	S		Limits	25
-	+	#9	(children with special health care needs);ti,ab,kw AND (medical home);ti,ab,kw	S		Limits	13
-	+	#10	(children with special health care needs);ti,ab,kw AND (health home);ti,ab,kw	S		Limits	21
-	+	#11	"quality of life"			Limits	94025
-	+	#12	("Children with special health care needs");ti,ab,kw OR ("Children with special healthcare needs");ti,ab,kw AND ("quality of life");ti,ab,kw	S		Limits	25
-	+	#13	(costs control);ti,ab,kw OR (costs and cost analysis);ti,ab,kw	S		Limits	17716
-	+	#14	(medical home);ti,ab,kw AND (children with special health care needs);ti,ab,kw AND (quality of life);ti,ab,kw AND (costs);ti,ab,kw	S		Limits	0
-	+	#15	parents of children with special health care needs			Limits	197
-	+	#16	(parents of children with special health care needs);ti,ab,kw AND (medical home);ti,ab,kw	S		Limits	6
-	+	#17	medical home AND quality of life AND parent of children with special health care needs			Limits	68
-	+	#18	medical home AND quality of life AND parent of children with special health care needs AND costs			Limits	43
-	+	#19	health home AND quality of life AND parent of children with special health care needs AND costs			Limits	48

Appendix A: Continued

Figure A3: PUBMED

#18	Add	Search (((("parents of children with special healthcare needs") OR "parents of children with special health care needs") AND ((("cost control") OR "costs") AND "cost analysis")) AND "quality of life") AND (((("health home") OR "medical home")) AND "patient centered care")	0	13:10:08
#17	Add	Search ("parents of children with special healthcare needs") OR "parents of children with special health care needs"	1017	13:09:36
#16	Add	Search "parents of children with special healthcare needs"	696	13:09:23
#15	Add	Search "parents of children with special health care needs"	991	13:09:06
#14	Add	Search (((("cost control") OR "costs") AND "cost analysis")) AND ((((((("health home") OR "medical home") AND "patient centered care")) AND (((("health home") OR "medical home")) AND "patient centered care")) AND ((("children with special healthcare needs") OR "children with special health care needs")) AND "quality of life")	0	13:08:42
#13	Add	Search ((("cost control") OR "costs") AND "cost analysis"	50100	13:08:27
#12	Add	Search ((((((("health home") OR "medical home") AND "patient centered care")) AND (((("health home") OR "medical home")) AND "patient centered care")) AND ((("children with special healthcare needs") OR "children with special health care needs")) AND "quality of life"	3	13:06:46
#11	Add	Search "quality of life"	296914	13:06:16
#10	Add	Search ((((((("health home") OR "medical home") AND "patient centered care")) AND ((("children with special healthcare needs") OR "children with special health care needs")	60	13:05:34
#9	Add	Search ("children with special healthcare needs") OR "children with special health care needs"	1047	13:05:21
#8	Add	Search "children with special healthcare needs"	115	12:38:04
#7	Add	Search "children with special health care needs"	956	12:37:52
#6	Add	Search (((("health home") OR "medical home")) AND "patient centered care"	1545	12:32:37
#5	Add	Search "patient centered care"	19617	12:32:27
#4	Add	Search (("health home") OR "medical home"	2913	12:31:55
#3	Add	Search "medical home"	2753	12:31:00
#2	Add	Search "health home"	172	12:30:33

Appendix B: Critical Appraisal & Synthesis

Table B1: Evaluation of Studies

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CLINICAL QUESTION: In families of children with special health care needs (CSHCN) enrolled in a PCMH (P), how does the use of the CCMT (I), compared to no use of the CCMT (C), affect costs of care (O1), utilization of services (O2), and parent satisfaction (O3), over a 90-day period (T)?

	Citation: author(s), date of publication & title	Purpose of Study	CF	Design/ Method	Sample/ Setting	Major Variables Studied & Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence [study strengths and weaknesses] Recommendations	Role of Ethics	Application to Population and Protocol Frame in terms of any Cultural Concerns

1	Annis, A et al. (2016). Do patient-centered medical home access and care coordination measures reflect the contribution of all team members? A systematic review. <i>Journal of Nursing Care Quality</i> , 31(4), 357-366.	Determine the extent of access and care coordination in a patient-centered medical home amongst team members.	Chronic Care Model	SR Methods: Key Words: FCC, NCQA, CSHSCN, PCMH Language: English Timeframe: Published 8/2007- 8/2014 Database searched: Cochrane, CINAHL, Medline Yield: 643	N = 42 studies Types of Studies: Cohort, RCT, SR Stratified by Clinic, practice, outcome, PCMH.	IV – PCMH tool DV1- Access DV2 - Care Coordination IV- Quality Improvement survey DV1: Provider has open appointments, multi-site practices available, direct line to nurse care coordinator to resolve barriers. DV2: coordination of care for patient-scheduling of appointments, communication liaison with provider, scheduled patient follow-up, coordination with specialty provider appointments, supplies, medications	DV1, DV2 Using PCMH tool	Frequency	N=38/42 studies identified commonality in practice access and care coordination IV1 – 22/42 used the PCMH tool. DV1 = 17/42 had physician access readily available DV2 – 22/42 had coordination of care with appointments, increased communication with clinic, continuity with providers, follow-up on supply orders and therapy visits.	LOE I - SR Strengths: NCQA is a n EBP quality indicator for PCMH. No harm or risk identified in this study. Longitudinal Limitations: Definition of PCMH varies. Others may have categorized information differently. <ul style="list-style-type: none"> • some studies were broad, • lack of specificity for roles identified. Recommendations: <ul style="list-style-type: none"> • Results indicated increased overall quality. Implication: practice leaders are to continue to conduct literature reviews and seek opportunities to implement CC when beneficial.	Provider comfort level with communication and their own cultural biases towards helping others; Concern: Communication that is person-centered evaluating social determinants of health (SDOH)
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	Citation: author(s), date of publication & title	Purpose of Study	CF	Design/ Method	Sample/Setting	Major Variables Studied & Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence [study strengths and weaknesses] Recommendations	Role of Ethics	Application to Population and Protocol Frame in terms of any Cultural Concerns
2	Drummond, et al. (2012). Coping among parents of children with special health care needs with and without a health care home. <i>Journal of Pediatric Health Care</i> , 26(4), 266-275.	Explore the health care home as a process of care related to parental coping with day-to-day demands of raising a CSHCN	BH Model of HS FW	RCT Random digit sample of residential telephone numbers was delivered to CSHCN US population over 14-month period. Assigned PCMH provider with CSHCN member for greater than one-year. Data was collected from NSCH from 4/2007 – 7/2008. Exclusions CSHCN >18 years old, and less than 12 months of illness; siblings Five-item screener <ul style="list-style-type: none"> • Time • Listed • Sensitive to needs. 	N = 18,352 sample. Mean Age: 10.5 [SD] 4.74 Response N= 9435 (51.4%)	IV – 5-item screener (relationship) PCMH <ul style="list-style-type: none"> a. Enrolled in PCMH. b. Received help with coordinating care. c. Need extra help coordinating care. DV – Parental Coping Definitions: IV – 5-point survey provided to families of CSHCN and PCMH. DV – coping success of parents with CSHCN. DV2 – FCC DV3 – Predictive Coping	CHSCN Telephonic Qualitative Survey	Bivariate Tests = Logistic Regression used to determine the relationship between PCMH and coping Chi-square tests-calculated the relationship between care coordination and parental coping. Kruskal-Wallis Testing-relationship between FCC and parental coping	IV1- PCMH av2 (2, N = 17,768) = 587.41. bv2 (2, N = 16,702) = 6.09. cv2 (2, N = 16,708) = 5.35 <ul style="list-style-type: none"> a. $p < .001$ b. $p = .048$ c. $p < .001$ DV – Coping v2 (8, N = 16,692) = 6.97; $p < 0.001$. Chi Square (FCC): N= 17, 874 = 895.408, $p < .001$ Logistic Regression: OR =0.96 CI =0.94 - 0.97 $P < .001$	LOE: II Strengths: <ul style="list-style-type: none"> • Results are consistent with previous studies around family-centered care. • Included households from every state. No harm or risk identified in this study. Limitations: <ul style="list-style-type: none"> • \$10 stipend provided for response (Bias) • Large sample size • Limited evidence for the validity of the item used to measure coping. • Omission of respondents who did not have a land line. • Language was not translated. Recommendation: Implication: <ul style="list-style-type: none"> • Coping is related to parental satisfaction and 	N/A	Parental Stigma, Access to care, resources; Communication and SDOH

				<ul style="list-style-type: none">• Provided information. Helped the parent/partnership				Logistic Regression – predict parental coping.		increased quality for CSHCN.		
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	Citation: author(s), date of publication & title	Purpose of Study	CF	Design/ Method	Sample/Setting	Major Variables Studied & Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence [study strengths and weaknesses]) Recommendations	Role of Ethics	Application to Population and Protocol Frame in terms of any Cultural Concerns
3.	Treadwell, J., et al. (2014). Collaborating for care: Initial experience of embedded case managers across five homes. <i>Professional Case Management</i> , 19(2), 86-92	To identify if embedded care coordination affected costs, role satisfaction and quality improvement in a PCMH.	Chronic Care Model	QIP Compare five PCMH before and after. EM over 6- month implementation	N = 5 PCMH	IV – Embedded CC DV1 - Costs DV2 - Role Satisfaction DV3 – QI Definition: IV- Assigned Care Coordinator to specific practice DV1- dollars associated with care DV2 – Ability to do job with ease and self-gratification DV2 – quality improvement for patient/organization	Baseline recorded Pre/Post 5-point Likert.	<i>Mann-Whitney U test Fischer's Test</i>	<i>UCL= 222.2</i> <i>X: 77.8</i> <i>LCL= 66.6</i> <i>UCL= 177.4</i> <i>MR= 54.3</i> <i>LCL= 0</i> Change comparison over 5-month period: <i>p= <.05</i> <i>Site H - p= .2892</i> <i>Site I p= .0009</i> <i>Site J p= .4765</i> <i>Site K p= .0034</i> <i>Site L p= .1892</i>	LOE: VI: QIP Strengths: Improvement in Mean score compared to baseline identified Reduction in overall admissions. No harm or risk identified in this study. Limitations: Small Number of PCMH Recommendations: Future studies should explore CSHCN population; increase sample size. Impactful to CSHCN overall costs of care. Implication for my nursing practice is that EM increases quality, parental satisfaction, and decreased costs.		Reductions in expense, decreased PMPM claim cost, admissions/1000. Reduced variation in days/1000. Quality projects attained significant improvements in 4/5 sites., Practice staff as well as CM described satisfaction with the EM.

	Citation: author(s), date of publication & title	Purpose of Study	CF	Design/ Method	Sample/Setting	Major Variables Studied & Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence [study strengths and weaknesses]) Recommendations	Role of Ethics	Application to Population and Protocol Frame in terms of any Cultural Concerns
4	Hadland, S., et al. (2014). A systematic review of the medical home for children without special health care needs. <i>Maternal and Child Health Journal</i> , 18(4), 891-898.	Assess the evidence associating the medical home with beneficial health outcomes among healthy children.	NI	SR Peer Reviewed- Independently assessed by two reviewers with standardized data extraction form Methods: Key Words Pediatric, PCMH: Language: English Timeframe: Published 1975-2011 Database searched: PUBMED, Cochrane Medline Yield: 4856 citations. 83 articles examined	N=9 studies Types of Studies: PR, RS, CS including PCMH.	IV – PCMH DV1 – Primary care services DV2 Health care utilization DV3 – child wellbeing Definition: IV- assigned pediatric medical home DV1 – primary pediatrician DV2 – coordination of services/ costs DV3 – quality of life for CSHCN	Individual Aggregate; Standardized data extraction form independently by two reviewers.	Frequency	IV – 2/9 of studies concluded likely to receive preventive medical care. DV1 -1/9 of studies indicated access and anticipatory guidance. DV2:3/9 studies identified DV2. 2/9 studies indicated Emergency department to seek care; 1/9 studies indicated identification of developmental screenings; immunization completed. DV3- 2/9 studies indicated higher health-	LOE: 1 - SR Strengths: <ul style="list-style-type: none"> • Reflects positive association with PCMH and CSHCN. • No harm or risk identified in this study. • Duplicate studies removed; bias lessened by standardized data extraction tool. Limitations: <ul style="list-style-type: none"> • Sample size is limited. Recommendations: <ul style="list-style-type: none"> • PCMH for CSHCN leads to cost effectiveness, parent satisfaction and improved quality. Implication: <ul style="list-style-type: none"> • impactful to 	N/A	Provider Communication: SDOH; Parental Stigma associated with complex needs child

									<p>related quality of life.</p> <p>No variable: 1/9 studies showed no protective effect of the PCMH to prevent hospitalization.</p> <p>Commonality: positively associated with PCMH and better outcomes.</p>	<p>patients we serve.</p>		
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	Citation: author(s), date of publication & title	Purpose of Study	CF	Design/ Method	Sample / Setting	Major Variables Studied & Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence [study strengths and weaknesses]) Recommendations	Role of Ethics	Application to Population and Protocol Frame in terms of any Cultural Concerns
5.	Antonelli, R., et al. (2004). Providing a medical home: the cost of care coordination services in a community-based, general pediatric practice. <i>Pediatrics</i> , 113(5), 1522.	Identify CHSCN costs for unreimbursable CC services in a PCMH.	Chronic Care Model	Measurement tool (Data Collection for CSHCN and Non-CSHCN) Identification of Patient Name, Organ System, Activity Code of CC- Phone, Fax, Face to face, Chart Review, Time, Spent, Associated Staff Unique patients over 95-day period	PCMH N=444.	IV: PCMH DV: Costs Definition: IV- PCMH type of pediatric center focused on CSHCN DV – inpatient/outpatient admissions, supplies, therapies, pharmacy costs	Training provided to all staff on the use of the measurement tool. Encounters were assigned an “attribute” to record all time spent with CSHCN parents and patients and reason for PCMH visit.	Frequency	51% of encounters were attributable to CC for problems not considered medical...	LOE: III Strengths: Identified office-based CC as an essential part of PCMH model; Staff verbalized improvement in teamwork and communication. No harm or risk identified in this study. Limitations: Not all CC data was recorded, no formal mechanism for on call CC was built into the study. Shared CC function was not accounted for. Recommendations: Provides for standardization of CC. Implication for my nursing practice to move forward with EPIPs regarding the use of CC for care of CSHCN in PCMH. Outcomes driven and impactful.	N/A	Standardization of care coordination practices can reduce costs for the CHSCN population continuous quality improvement
6.	Berry, S., et al. (2017). Enhancing state medical Home Capacity through a care coordination technical assistance model. <i>Maternal and Child Health</i>	To evaluate and improve the function of a pediatric patient-centered medical home to support the CHSCN	CSHS CC model on Medical home capacity as defined by MHI.	MHI Indicators included Family feedback Cultural Competence. 7-year longitudinal study.	N=76.	IV: CC DV: Costs Definition: IV- Coordination of care DV – Costs associated	Ten of the fifteen practices targeted participated in the interventions for 2 years.	Statistical Significance	MHI scores = SAS 9.4. $SS = p \leq 0.05$ for main effects and ≤ 0.10 for interaction terms.	LOE: IV Strengths: All staff w trained. Quarterly meetings on MHI were held. No harm or risk identified in this study.		

	<i>Journal, 21(10), 1949-1960.</i>	population by implementing CC.		Quality Standards parents surveyed on: Medication Health, Development, Therapies. BH and duration of problem > 12 months		with CSHCN – admissions, supplies, therapies, pharmacy costs.)	Annually two AI meetings to monitor progress were held		The mean clinic MHI-SV score improved from 19.70 to 34.15 on a scale of 10–50.	<p>Limitations: Bias; the MHI tool is subjective; Literacy of the parents completing the MHI tool</p> <p>Recommendations: Impactful to care outcomes and practice. Implication for my nursing practice: Funding of Care Coordination Embedded Case Managers can reduce costs and improve quality through the MHI indicators.</p>		
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	Citation: author(s), date of publication & title	Purpose of Study	CF	Design/ Method	Sample/Setting	Major Variables Studied & Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence [study strengths and weaknesses]) Recommendations	Conclusion	Role of Ethics	Application to Population and Protocol Frame in terms of any Cultural Concerns
7.	Vanderboom, T., et al. (2015). Key factors in patient-centered care coordination in ambulatory care: Nurse care coordinators' perspectives. <i>Applied Nursing Research</i> , 28(1), 18-24.	Identify factors influencing nurse CC.	Patient-centered care model.	<p>Analysis of existing data using a qualitative descriptive design from various practice settings in a focus group.</p> <p>Focus group completed 90-minute interview with specific questions related to care coordination interventions for chronic patients.</p> <p>Inclusion criteria: RN CC for at least 6 months.</p>	N=13 (Nurse CCs) from clinical sites across the US.	<p>IV – CC DV – Patient outcomes DV2 – Cost DV3 – Quality</p> <p>Definitions IV- Coordination of care DV-outcomes DV2 – Costs associated with CSHCN – admissions, supplies, therapies, pharmacy costs.) DV3 – standards of care</p>	Sorting and coding of data using qualitative analysis from interview survey	Nvivo 9	<p>Qualitative results were presented into two study aims: Aim 1: Characteristics of patient perception of the benefit of care coordination Aim 2: themes that emerged -Multiple complexity a. -Limited family support b. -Limited financial resources c. -Language/culture d. -Early disease trajectory</p>	<p>LOE: VI</p> <p>Strengths: Provided importance of complex health problems, limited social support and language on patients needing CC. No harm or risk identified in this study. Reviewed by IRB and determined exempt.</p> <p>Limitations: One focus group was conducted. Socio-demographic information was not obtained. Patient perceptions were not examined.</p> <p>Recommendations: Increased outcomes, and</p>	The most effective CC intervention were holistic, patient-centered, with identification of community resources		

										<p>coordination leads to better impact in community.</p> <p>Implications for nursing: Quality indicators = targeted, individualized interventions for CSHCN; Building and sustaining relationships in a PCMH</p>		
8.	<p>Kuhlthau, K. A., et al. (2011). Evidence for family-centered care for children with special health care needs: A systematic review. <i>Academic Pediatrics, 11</i>(2), 136-143.</p>	<p>The purpose of the study was to conduct a systematic review of evidence for Family-centered care (FCC) and children with special health care needs (CSHCN).</p>	<p>Patient-centered care model.</p>	<p>Systematic Review of the evidence</p> <p>Initial search yielded 4886 articles, 2828 were US only.</p> <p>Three evaluators utilized same inclusion criteria. Medline, CINAHL, PSYCHINFO and SSCL databases. Dows and Black checklist of rapid critical appraisal.</p>	<p>N=</p>	<p>IV – FCC DV- health, DV1 Well-being DV2 Satisfaction DV3 cost DV4 access</p> <p>Definitions: IV- Family Centered Care DV – health-absence of sickness DV2 – satisfaction; needs are met; content DV3 – utilization (admissions/pharmacy, therapy, supplies)</p>	<p>Independent review of the literature-using search, inclusion, exclusion criteria.</p>	<p>Frequency</p>	<p>LOE: I</p> <p>Strengths: Systematic review provided value of community services to support patient's psychosocial as well as physical needs. Parents agreed of CC for CSHCN. No harm or risk identified in this study.</p> <p>Limitations: Examined US studies</p>	<p>Evidence is associated with improved outcomes in several domains (quality, costs, satisfaction, health, and well-being.</p>		

						D4 – availability of providers				<p>and studies published in English. Variable studies included some lacked control subjects or were purely the findings of cross-sectional surveys.</p> <p>Recommendations: Impactful to care outcomes and practice.</p> <p>Implication for my nursing practice: This type of study of EBP can be impactful and lead to better outcomes for families of CSHCN.</p>			
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	Citation: author(s), date of publication & title	Purpose of Study	CF	Design/ Method	Sample/Setting	Major Variables Studied & Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence [study strengths and weaknesses]) Recommendations	Conclusion	Role of Ethics	Application to Population and Protocol Frame in terms of any Cultural Concerns
9.	Looman, W., et al. (2015). Effects of a telehealth care coordination intervention on perceptions of health care by caregivers of children with medical complexity: A randomized controlled trial. <i>Journal of Pediatric Health Care</i> 29(4), 352-363. Doi: 10.1016/j.pedhc.2015.01.007	Evaluate the effect of advanced practice registered Nurse (APRN) telehealth CC for CSHCN and Caregiver perceptions of health.	Behavioral Model of Health service – Anderson (1968)	Randomized controlled trial – Level II Three study groups: (a) a usual care control group; (b) an APRN-delivered, telephone-based care coordination intervention group; and (c) an APRN delivered, telephone plus interactive video-based CC intervention group CMC ages 2 to 15 years (N=148) were enrolled in a three-armed 30-month study.	N=148	IV – Telehealth DV – CSHCN/CMC Care Definitions: IV - care provided virtually (technology) DV- CSHCN care	The intervention consisted of access to an APRN care coordinator who was on-site full-time during business hours and available to caregivers through telehealth technology (telephone or telephone plus Web-based video).	ANOVA	ANOVA F test variance with $p < .05$. there were identified group differences in satisfaction scores at year 1 and year 2.	LOE: II Strengths: High satisfaction scores than control group; CC role identified unmet needs of group. No harm or risk identified in this study. IRB approved. ○ Limitations: Subjects recruited from a single clinic, participation was voluntary, selection bias. ○ Non-English-speaking participants excluded. The age and complexity varied, so conclusions were not	APRN Telehealth was associated with higher ratings on measures of the overall health care, care coordination adequacy, provider, and provider communication. It was also effective in improving ratings of caregi		

										<p>available for all ages.</p> <p>Recommendations: Impactful to care outcomes and practice. Implications for Telehealth is an alternative that provides holistic care for families and CSHCN.</p>	<p>ver experiences with health care providers.</p>		
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	Citation: author(s), date of publication & title	Purpose of Study	CF	Design/ Method	Sample/Setting	Major Variables Studied & Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence [study strengths and weaknesses]) Recommendations	Conclusion	Role of Ethics	Application to Population and Protocol Frame in terms of any Cultural Concerns
10.	Zanello, E. P., et al. (2017). Care coordination for children with special health care needs: A cohort study. <i>Italian Journal of Pediatrics</i> , 43(Suppl 1), 18.	Evaluate the effect of Family Pediatrician activities and CC for CSHCN.	Not identified	Prospective Cohort Study Over 9-month period, providers administered (CCMT). Inclusion criteria CSHCN, age (0 to 16), family providers, initial hospital discharge. CCMT allowed the providers to complete a series of questions after each encounter with the patient that identified care coordination activities.	CSHCN (n=82) Pediatric physicians (n=61)	IV- Family pediatric CC Activities DV – Increased CC DV1 – Consistent discharge DV2 – parent satisfaction Definition: IV- family care coordination DV1 discharge that is done consistently DV2 – parent opinion	CC1MT	Multivariate	Multivariate analysis; identified strong correlation of CSHCN to specialist.	LOE: IV Strengths: Successful as intentional involvement was as the goal and this study did prevent inappropriate use of services, which was consistent with the baseline results of the CCMT tool. Limitations: Participation compliance was low, study included recall, and loss to follow-up biases. Recommendations : Impactful to care outcomes and practice Implication for my nursing practice significance of the interventions with decreased hospitalizations.	Improved outcomes in several domains to include decreased in hospitalizations and prevented emergency room use.		

	Citation: author(s), date of publication & title	Purpose of Study	CF	Design/ Method	Sample/ Setting	Major Variables Studied & Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence [study strengths and weaknesses]) Recommendations	Conclusion	Role of Ethics	Application to Population and Protocol Frame in terms of any Cultural Concerns
11.	Knapp, C., et al. (2010). Factors that affect parent perceptions of provider-family partnership for children with special health care needs. <i>Maternal and Child Health Journal</i> , 14(5), 742-750.	Three aims: Determine which factors were associated with family/provider partnership. Investigated mediating effects on outcomes; relationship between family/provider	Chronic Care Model	Knapp, Madden, and Marcu (2010) created a descriptive design using random-digital survey to collect data on measures related to care, care coordination, family-centered care, insurance, impact on family, demographics from households for CSHCN. The survey was conducted over a 21-month period. Participants were screened for CSHCN less than 18 in the household and the sample population was	n=40,723 or 750 households.	IV- FPP DV1- Emergency visits DV2 – Transition preparedness DV3 – screenings Definitions: IV- Family Practice DV-Visits not predicted DV2- transition DV3- screening for disease	Measure was analyzed using factors associated with family-provider partnership. Including MCHB outcome measures: Insurance, screening, organized services and transition.	Descriptive bivariate, and multivariate; STATA 10.0	$p < 0.001$ Table 1 – Sample Characteristics $p < 0.598$ - gender $p < 0.003$ – poverty Table 2 – FPP CI = [0.47-1.75] Table 3 – FPP odds ratio (adequate insurance, early screening, organized service, and transition preparedness) OR = [2.75, 1.28, 3.95, 5.07]	LOE: V Strengths: Engagement of family and provider; significant association between access and screenings. No harm or risk identified in this study. Limitations: Lack of information on MCHB core outcomes. Recommendations: Impactful to care outcomes and practice. Implication for my nursing practice family partnerships with providers increase quality, parent satisfaction, and decreased costs. Provides information on CSHCN and FPP relationships.	Results indicated overwhelmingly that FPP are positive and significant factors for the MCHB outcomes.		

	Citation: author(s), date of publication& title	Purpose of Study	CF	Design/ Method	Sample/ Setting	Major Variables Studied & Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence [study strengths and weaknesses]) Recommendations	Conclusion	Role of Ethics	Application to Population and Protocol Frame in terms of any Cultural Concerns
12.	Moyer, V., et al. (2014). An intervention to improve transitions from NICU to ambulatory care: Quasi-experimental study. <i>BMJ Quality & Safety</i> , 23(12), E3	Standardize process of discharge for NICU infants with complex diagnoses.	Not Identified	Quasi-experimental cohort design Concurrent cohort design for NICU infants over an 18-month period. Infants were identified by one geographic area (pod) of the NICU. One pod received the intervention, while infants in two other pods received routine discharge care.	N=244	IV- CC DV- Infant's health DV1 – parent satisfaction Definitions: IV – Coordination of care DV1 – parent opinion of CC	Discharge	Frequency	Anova test variance with $p < 0.001$.	LOE: IV Strengths: Family and provider involvement; assessment of health literacy. No harm or risk identified in this study. Limitations: Sample size is limited Recommendations: Implication for my nursing practice improved communication and support for parents of CSHCN.	Primary outcomes included deaths, sick visits, and unplanned readmissions and missed appointments within 1 month of discharge.		
CF=Conceptual Framework; CC = Care Coordination; CSHCN – Children with special health care needs; CCMT= Care Coordination Management Tool; CMC= Children with Medical Complexity; CM= Case Management; EM = Embedded; DV = Dependent Variable ; IV = Independent variable; LOE = Level of Evidence; MD = Medical Doctor; NCQA- National Committee for Quality Assurance; PMPM – Per Member Per Month; PS = Parent Satisfaction; PCMH – Patient-centered medical home; RCT = Randomized Controlled trial; QOL = Quality of life ;SR = Systematic Review; QP = Quality Improvement Project; PMPM = per member per month;													

Table 2: Levels and Types of Evidence

Table B2: Level and Type of Evidence

Study	1	2	3	4	5	6	7	8	9	10	11	12
Level I: Systematic Review	X			X				X				
Level II: Randomized Controlled Trial		X							X			
Level III: Controlled trial without randomization					X							
Level IV: Case-Control or Cohort study						X				X		X
Level V: Systematic review of qualitative or descriptive studies											X	
Level VI: Qualitative or descriptive study (includes Evidence implementation projects)			X				X					
Level VII: Expert opinion or consensus												
1= Annis et al. (2016); 2 = Drummond et al. (2011); 3= Treadwell et al. (2014); 4 = Hadland et al. (2014); 5 = Antonelli et al. (2014), 6 = Berry et al. (2017); 7= Vanderboom et al. (2015); 8 = Kuhlthau et al. (2011); 9 = Looman et al. (2015); 10 =Zanello et al. (2017); 11 = Knapp et al. (2009); 12 = Moyer et al. (2014)												

Table 3: Synthesis of Interventions

Table B3: Synthesis of Interventions

Study	1	2	3	4	5	6	7	8	9	10	11	12
Interventions												
EM	X	X	X		X				X	X	X	X
NCQA	X											
CC		X		X	X	X	X	X		X		
CHSCN Survey		X										
CCMT				X	X					X		X
PCMH	X	X	X	X	X	X				X	X	
FCC								X		X		
FPP											X	
Telehealth									X			

1= Annis et al. (2016); 2 = Drummond et al. (2011); 3 =Treadwell et al. (2014); 4 =Hadland et al. (2014); 5 = Antonelli et al. (2014), 6 = Berry et al. (2017); 7= Vanderboom et al. (2015); 8 = Kuhlthau et al. (2011); 9 = Looman et al. (2015); 10 =Zanello et al. (2017); 11 = Knapp et al. (2009); 12 = Moyer et al. (2014)

Interventions: Care Coordination – CC; NCAQ Tool – NT; Embedded Care Coordinator- EM; CCMT Care Coordination Management Tool; PCH- Patient Centered Medical Home; FCC= Family Centered Care; FPP – Family Provider Partnership

Table 4: Synthesis of Outcomes

Table B4: Synthesis of Outcomes

Study	1	2	3	4	5	6	7	8	9	10	11	12
Outcomes												
O1- Costs	-	-	↓	↓	↓	-	-	↓	-	↓	↓	-
O2- Quality	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
O3 -Parent Satisfaction	-	↑	↑	-	-	-	-	↑	↑	↑	↑	↑

1= Annis et al. (2016); 2 = Drummond et al. (2011); 3 =Treadwell et al. (2014); 4 =Hadland et al. (2014); 5 = Antonelli et al. (2014), 6 = Berry et al. (2017); 7= Vanderboom et al. (2015); 8 = Kuhlthau et al. (2011); 9 = Looman et al. (2015); 10 =Zanello et al. (2017); 11 = Knapp et al. (2009); 12 = Moyer et al. (2014)

↓ = Indicate Decrease
 ↑ = Indicate Increase
 - = Indicate not identified in study

Interventions: Care Coordination – CC; NCAQ Tool – NT; Embedded Care Coordinator- EM; CCMT Care Coordination Management Tool

PICOT Outcome Goals: Outcome 1 – O1 Decrease Costs; Outcome 2 – O2 Increase Quality; Outcome 3 - O3, Increase Parent Satisfaction

Table 5: Synthesis of Studies with Similar Findings

Table B5: Synthesis of Studies with Similar Findings

No	Study Author	Medical Model	Population	Study Design	Intervention	Major finding that addresses PICOT
3	Treadwell et al. (2014)	5 PCMH	CSHCN	Quality Improvement	Embedded CC	Decreased costs, increased quality
4	Hadland et al. (2014)	9 PCMH Articles	CSHCN	Systematic Review	Embedded CC	Decreased costs, increased quality, parent satisfaction (coping), CCMT
6	Berry et al. (2017)	76 PCMH	CSHCN	Cohort	Embedded CC	Increased Quality, CCMT
8	Kuhlthau (2011)	CC	CSHCN	Systematic Review	FCC	Increased access, Quality, satisfaction, decreased costs
10	Zanello (2017)	PCMH	CSHCN	Cohort	CC	Decreased costs, increased quality, increased satisfaction, CCMT
11	Knapp (2011)	PCMH	CSHCN	Qualitative	CC/FPP	Increased access, Quality, satisfaction, decreased costs
1= Annis et al. (2016); 2 = Drummond et al. (2011); 3 =Treadwell et al. (2014); 4 =Hadland et al. (2014); 5 = Antonelli et al. (2014), 6 = Berry et al. (2017); 7= Vanderboom et al. (2015); 8 = Kuhlthau et al. (2011); 9 = Looman et al. (2015); 10 =Zanello et al. (2017); 11 = Knapp et al. (2009); 12 = Moyer et al. (2014)						
CC = Care Coordination DC = Decreased Cost PS = Patient Satisfaction PCMH = Patient-Centered Medical Home; CHSCN = Children with Special Health care Needs FPP= Family provider partnership						

Based on the evaluation and synthesis tables, the recommendation is to provide care for the CSHCN population in a focused PCMH using CCMT will aid in support of this population. Results indicate this leads to decreased costs, and increased quality and coordination of care for my current practices.

Appendix C. Logic Model

Table C1: Logic Model

<p>Program Name: University of Texas at Tyler, Doctor of Nursing Practice- Nursing Leadership</p> <p>An Evidence-based practice improvement project (EPIP): For Children with Special Health Care Needs a patient-centered medical homes versus non-patient-centered medical home affect costs, quality of life, and parent satisfaction over a 90-day period?</p> <p>Student Name: Keisia Sobers-Butler, MS, RN- Senior Director of Population Health Services</p> <p>DNP-Nursing Leadership Student,</p> <p>Managed Care Organization (MCO) -Driscoll Health Plan</p> <p>Program Goal: To decrease costs (emergency room visits, inpatient admissions, durable medical equipment, therapies and pharmacy spend) related to care of CSHCN, and to increase quality outcomes, provider/patient engagement, and parent satisfaction.</p>

Appendix C: Continued

Resources/Inputs		
	Necessities List	Wish List
Human Resources	<ol style="list-style-type: none"> 1. Case Managers – RN/SW assigned to Patient-centered medical home (PCMH) practice to assist with care management activities, policies, procedures, and practice guidelines, hired by MCO. 2. Primary Care Physicians – PCMH provider dedicated to Facility, MCO success/EPIP. 3. Practice Manager – Manages PCMH facility that supports MCO requirements; trainer of electronic medical record (EMR) 4. MCO Manager – Manages Case Manager and guides care management activities. 5. Care Team Members – PCMH facility (certified medical assistant (CMA)) aligns to PCMH goals. 6. MCO Health Home Coordinator – Manages contracts/claims for PCMH providers identified by MCO. 7. EPIP Stakeholder (s) – Chief Medical Officer of MCO 	<ol style="list-style-type: none"> 1. Other ancillary staff that can support EPIP: Transition Specialist; Nutritionist; Resource Coordinator. 2. Motivated and supportive care team 3. All care team members are knowledgeable of patient population, needed care, and EPIP outcomes. 4. No Turnover during EPIP timeline
Office Supplies	<ol style="list-style-type: none"> 1. PCMH Facility Computer/EMR 2. PCMH Facility Printer/Shredder 	<ol style="list-style-type: none"> 1. Dedicated Computer for MCO Staff 2. Dedicated Printer for MCO Staff 3. Laminated Signage

	3. Signage Notification of MCO Staff Availability	
Organization Resources	<ol style="list-style-type: none"> 1. PCMH Facility provide space for MCO Staff. 2. Weekly Meetings/Ongoing Support 3. Care Coordination Measurements 4. Reporting 5. Remote Location set up for MCO staff (transportation to community sites) 6. Claims Run of Payment – 90 Day from date of service (Admissions/ER Visits, Therapies, DME Equipment, Pharmacy) 	<ol style="list-style-type: none"> 1. Dedicated MCO Space 2. Community Huddles daily with PCMH and MCO case Manager 3. Real-time reporting and notification of costs associated with CSHCN assigned to practice. 4. Street Smart GPS tool activated in all locations. 5. Providers submit all claims in less than 90 days for payment.

OUTPUTS		OUTCOMES		
Activities	Audience(s)	Short-Term	Mid-Term	Long-Term
<ul style="list-style-type: none"> • Training: <ul style="list-style-type: none"> ○ Policies, Procedures, Clinical Guidelines for PCMH and MCO Staff ○ EPIP and Timeline 	<ul style="list-style-type: none"> • MCO Case Manager • PCMH Provider • PCMH Staff • Families of children with 	<ul style="list-style-type: none"> • Buy in from all stakeholders. • Communicate expectations of EPIP. • Create an informed care coordination focused culture through EBP DM 	<ul style="list-style-type: none"> • CSHCN have coordinated and measurable effort with quality outcomes as evidenced by increased assessments and goal completion. • Providers are informed of care coordination needs for CSHCN as documented by increased referrals to embedded SC from baseline. 	<ul style="list-style-type: none"> • Determine sustainability of EPIP by evaluation of data within 45 days of EPIP closure. • Informed provider as evidenced by completion of CCMT on every Driscoll Health Plan CSHCN patient 90 days after implementation.

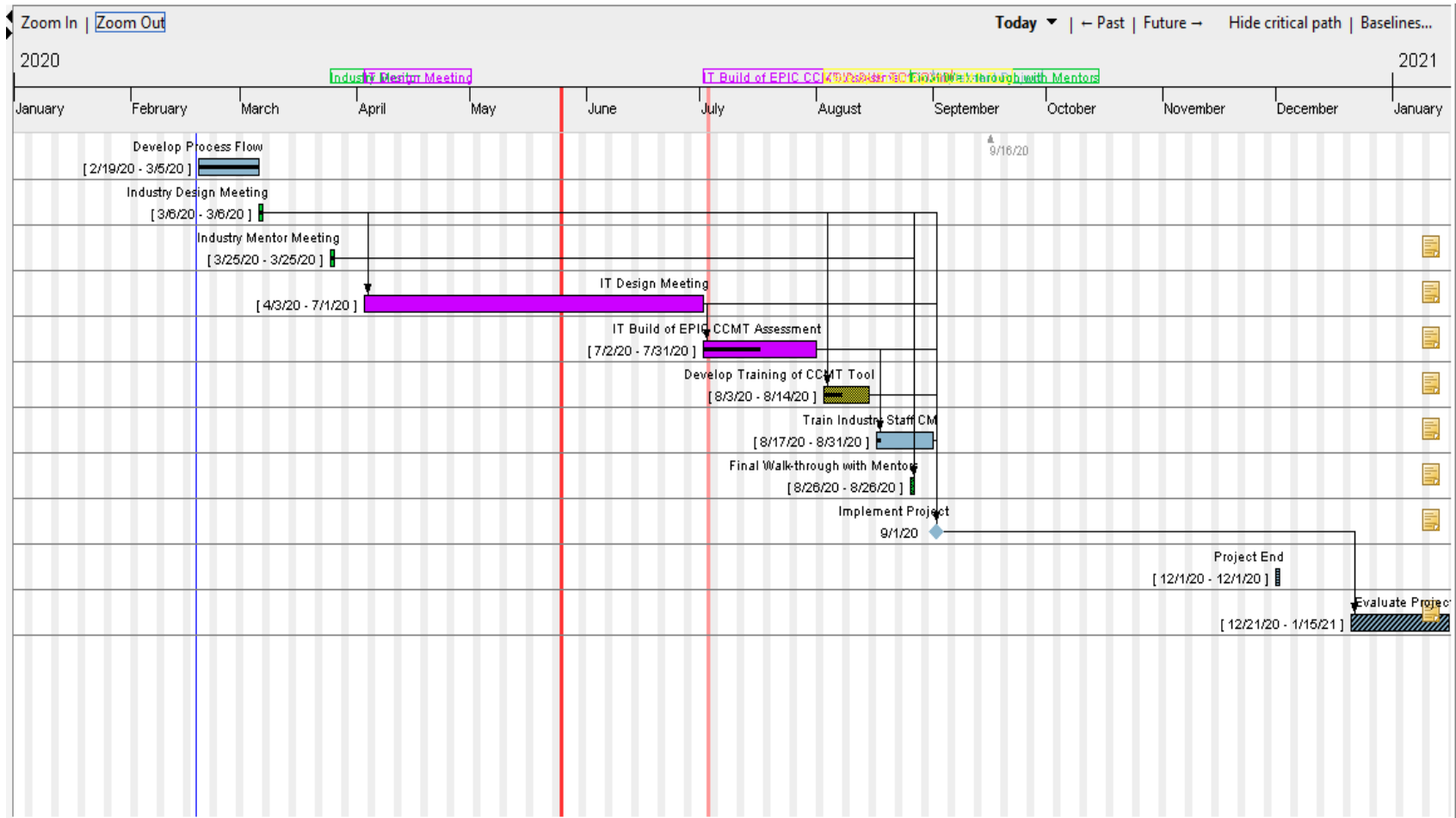
<ul style="list-style-type: none"> ○ EMR Access ○ Claims Education ○ Reporting ● Distribution of Care Coordination Management Tool Training (CCMT) to staff and MCO care manager delivered face-to-face with PowerPoint demonstration. <ul style="list-style-type: none"> ○ 	<ul style="list-style-type: none"> special health care needs (CSHCN) ● CSHCN 	<p>for patient and practice.</p> <ul style="list-style-type: none"> ● Determine documentation and reporting standards. ● Establish baseline data. <ul style="list-style-type: none"> ○ # of CSHCN in practice ○ Costs associated with population in practice. ○ PCMH staff ○ MCO staff 	<ul style="list-style-type: none"> ● CSHCN patients experience right service at right time for right reason as evidenced by reduced lapse of service authorizations, continuity of care in authorizations, and verbalization of parents/family/providers. ● Evaluate and Adjust behaviors/practices/procedures. <ul style="list-style-type: none"> ○ Reporting of CCMT Tool ○ Consistency of documentation ○ MCO Panel of CSHCN members ○ Knowledge level of Provider and Case Manager 	<ul style="list-style-type: none"> ● After 90 days of implementation, statistically sound evaluation of baseline and post data show CCMT intervention: <ul style="list-style-type: none"> ○ Decreased Costs for Driscoll CSHCN ○ Standardization of care coordination activities using CCMT tool for Driscoll CSHCN. ○ Training of other identified practices to become PCMHs for Driscoll CSHCN within one year of implementation (sustainability).
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Stakeholders				
<ul style="list-style-type: none"> • Providers and staff at PCMH • Parents/Patients who have CSHCN. • MCO – Care Manager, Chief Medical Officer, DNP Student (EPIP) Owner 				
Process Indicators				
<p>Project timeline and Checkpoints</p> <p>There are meetings held every other Tuesday for two hours with Stakeholders of EPIP.</p> <p>Training will take place in the December 2019. There will be a full-day session for the case managers assigned to the PCMH and three lunch training sessions for all PCMH staff. Training will be evaluated and ongoing to account for any attrition or questions.</p> <p>The cases managers are currently working in the practice but do not utilize the tool. They will continue to provide the PCMH with 30 hours of representation weekly.</p>				

External Influencing Factors	
Environmental/Setting	<p>Outcome indicators will include.</p> <ul style="list-style-type: none"> ● PCMH Clinic Office in Corpus Christi <ul style="list-style-type: none"> ○ Seven MD Providers ○ Three Mid-Level Providers ○ Three Registered Nurses ○ Five Case Management Assistants
Setting	<ul style="list-style-type: none"> ● Pediatric Practice with >1000 CSHCN members assigned to Driscoll Health Plan (MCO)
Times	<ul style="list-style-type: none"> ● M – F 8:00 -5:00 pm (Office Closes 11:30 – 1:00 PM daily)
Audiences targeted.	<ul style="list-style-type: none"> ● CSHCN and their families ● PCMH Providers ● MCO Case Managers
Influences/Programs	<ul style="list-style-type: none"> ● All participating PCMHs receive alternative payment models or incentive for accepting CSHCN patients on their panel. All PCMH have a designated level: <ul style="list-style-type: none"> ○ Level 1 = Less than 10 patients ○ Level 2 = Greater than 10 patients, but less than 25 ○ Level 3 = Greater than 25 Patients ● The CCMT intervention is a new EBP intervention to be added to practice for the duration of the EPIP by the MCO.
Assumptions	
<ul style="list-style-type: none"> ● Higher costs are associated with CSHCN. ● Care Coordination is needed in provider offices for CSHCN. ● There is a difference in care between PCMH and Primary Pediatrician offices ● Communication is a barrier to care for parents and providers. ● Parents are dissatisfied with their current providers. ● CSHCN do not have a quality of life 	

Appendix D. Gantt Chart

Figure D1: Gantt Chart



Appendix E. Applied Models

Figure E1: Evidence-based Model

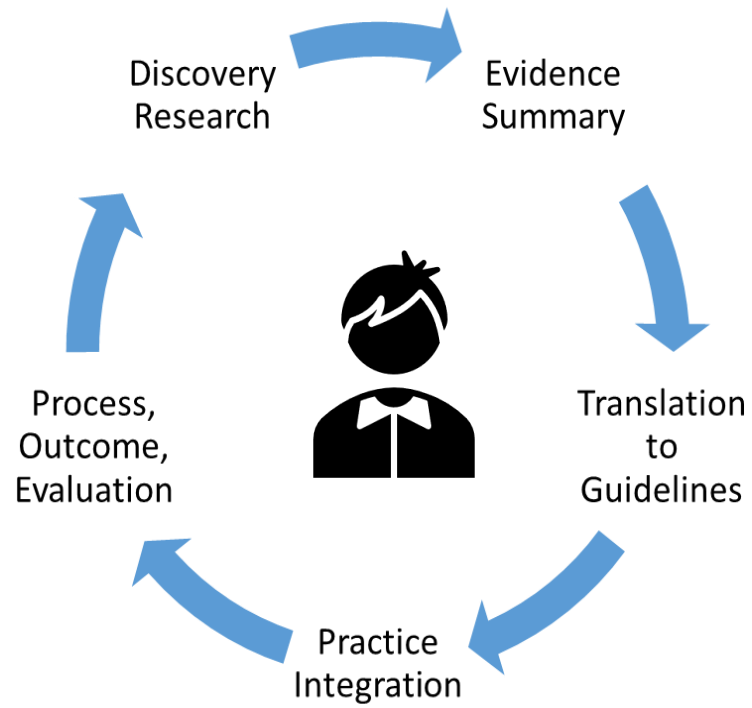


Figure E2: Applied Change Model

Bullock and Batten's Planned Change



Bullock and Batten (1985)

Appendix F: Organizational Letter of Approval

To: Fredrick Mc Curdy
Cc: Beliveau, Jessica

Hi Fred. Absolutely, please use the tool. Please let us know if there are any questions about its adaptation or implementation. We would also be interested to hear any findings, results, and experiences that you have. It is being implemented across the United States. Thank you for reaching out. Rich

Sent from my iPhone

On Sep 28, 2019, at 12:07 PM, Fredrick Mc Curdy <Fredrick.McCurdy@dchstx.org> wrote:

Richard,

Our Senior Director of Population Health is completing her research for her Doctorate in Nursing. She and I have talked about the CCMT and she would like to use the tool in one portion of her project on care coordination activities in a patient centered medical home model for children with special healthcare needs that we have created at Driscoll Health Plan. I am writing on her behalf to obtain your permission to move forward on using the CCMT. I hope that you will give her permission to use your tool. You may write or call me at the telephone numbers listed in my signature block.

Sincerely,

Fred McCurdy, MD, PhD, MBA

STAR Kids Medical Director

615 N. Upper Broadway, Suite 200C

Corpus Christi, TX 78401

Office: (361) 694-5398

Mobile: (806) 236-9620

Fax: (361) 808-2186

Email: fredrick.mccurdy@dchstx.org

Website: www.driscollhealthplan.com

Appendix G. Leadership Model

Figure G1: Leadership Model



Appendix H: Project Implementation Forms/Protocol

Table H1: Project Implementation

<p>PICOT Question: PICOT Question: In families of Children with special healthcare needs (CSHCN) (P), how does a patient-centered medical home (I) vs. non-patient-centered medical home(C) affect costs (O1), Quality of life (O2), and parent satisfaction (O3) over a three-month time frame (T)?</p>	
<p>Team Leader: Keisia Sobers-Butler, Senior Director of Population Health Services, DNP Student</p>	
<p>Team Members:</p> <p>Karl Serrao, MD, Chief Medical Officer.</p> <p>Fred McCurdy, MD, MBA, PhD, STAR Kids Medical Director.</p> <p>Tam Flaherty, MSN, RN, Director of Quality.</p> <p>Iris Gutierrez, RN, Director of Service Coordination STAR Kids.</p> <p>Lisa Marshall, Provider Incentives.</p> <p>Megan Craig, Health Home Coordinator</p> <p>Joe Cecil, VP Member Operations.</p> <p>Mid-Level Manager: Valerie Dees, RN</p> <p>Case Managers: Crystal Garcia, LMSW, Kathleen Stevens, RN; Elizabeth Lopez, CHW</p>	

CSHCN Patients for a specific Patient-Centered Medical Home (PCMH)				
<i>Agency Contact/Mentor Contact Info: Driscoll Health Plan; Fred McCurdy, MD, MBA, PhD, Medical Director,</i>				
<i>Service Coordination, Faculty Mentor: Colleen Marzilli, PhD, DNP, RN</i>				
Preliminary Checkpoint A	<ul style="list-style-type: none"> ○ Describe the chosen Change model and how it will guide the implementation project. ○ Stevens’s STAR Model of Knowledge Transformation is the chosen change model. The model reflects the cyclical progression of individualization of care, clinical expertise and patient preference based on setting (Melnyk & Fineout-Overholt, 2019). ○ The figurative description of this model is a circle that has five points that indicate the stages of knowledge transformation, with 	<p>Notes: Met with stakeholders to discuss opportunities for improvement, better quality metrics, reduced costs, provider incentives – (Former Employer, Jan. 2018)</p> <p>Topic Choices included:</p> <ul style="list-style-type: none"> • Emergency Room Visits • Catastrophic Patients (High Dollar) • Patient-centered Medical home (PCMH) • Admissions/Re-Admissions • Provider Engagement • Pharmacy Spend • Private Duty Nursing 	<p>OUTCOMES (Process & Completion):</p> <p>Topic Established June 2018 (Embedded Case Management in Patient-centered Medical Home) – Former Employer</p> <p>Topic Revised April 2019</p>	<ul style="list-style-type: none"> • Which studies (external evidence) led you to this plan? Evidence Tables: • PCMH studies that reflected children with special health care needs (CSHCN) • Quality Improvement for CSHCN • What internal evidence led you to this plan? <ul style="list-style-type: none"> • Provider Participation lacking • CM Direction is not standardized. • CM Direction for case management is not evidence-based.

	<p>a star in the middle. The Star in the middle is reflective of the patient, and each stage reflects the journey.</p> <ul style="list-style-type: none"> ○ Stage 1: Discovery/Research ○ Stage 2: Evidence Summary (Synthesis of the Evidence) ○ Stage 3: Translation to based Evidence-Practice Guidelines ○ Stage 4: Practice Integration ○ Stage 5: Process, Outcome, and Evaluation ○ This model will guide EPIP by providing a concise, systematic process for transformation. 	<p>1:1 Established Meeting with Faculty Advisor</p> <ul style="list-style-type: none"> ○ April 2019 ○ May 2019 ○ June 2019 		<ul style="list-style-type: none"> • Cost savings and quality potential • Better patient outcomes • Increased parent satisfaction
<p>Preliminary Checkpoint B</p>	<ul style="list-style-type: none"> ○ Who are the stakeholders for your project? <ul style="list-style-type: none"> ○ Active (on the implementation team) & Supportive (not 	<p>Key Stakeholders:</p> <ul style="list-style-type: none"> • Karl, CMO • Fred, Med. Director • Providers of PCMH • Tam, Quality 	<ul style="list-style-type: none"> • 2:1 meeting with Fred/Karl 12/3/18. • All stakeholders aware of project & their roles within project 12/3/18. • <u>Buy-in secured, verbal approval provided December 10, 2018.</u> 	<ul style="list-style-type: none"> • Recruitment of Inter-professional team. Completed December 3, 2018. • Evaluation for IRB approval 11/2019.

	<p>on the team, but essential to success)</p> <ul style="list-style-type: none"> ○ Identify project team roles & leadership. ○ Begin acquisition of any necessary approvals for project implementation and dissemination (e.g., system leadership, unit leadership, ethics board [IRB]) ○ Approvals needed/date obtained/posted on BB. ○ HIPAA regs met? ○ <i>Consult with Agency Contact/Mentor</i> 	<p style="text-align: center;">Passive</p> <p>Stakeholder:</p> <ul style="list-style-type: none"> ● Joe, P- VP Operations ● Finance ● IT ● Quality ● Mid-level managers ● Adm. Assistants (3) ● Director of Service Coordination <p style="text-align: center;">Active</p> <p>Stakeholder:</p> <ul style="list-style-type: none"> ● Megan, Health Home Coordinator ● Case Managers: Kathleen, Crystal, Liz ● Mid-level Manager: Val Dees ● Patient-Centered Medical Home Provider/Staff (PCMH) ● CSHCN from PCMH 	<ul style="list-style-type: none"> ● All HIPAA regulations are met by Health Plan standards for members (patients) and providers. 	
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<p>Checkpoint</p> <p>One</p>	<ul style="list-style-type: none"> ○ Hone PICOT question & assure team is prepared. ○ Build EBP knowledge & skills. ○ <i>Consult with Agency Contact/Mentor</i> 	<p style="text-align: center;">Stevens Star Model of Knowledge Transformation</p> <p style="text-align: center;">Stage 1 - Discovery</p> <p style="text-align: center;">PICOT Question</p> <ul style="list-style-type: none"> ○ Health Home Team established to meet bi-weekly. 5/2018 ○ Strong engagement and excitement from Director of Quality, Chief Medical Officer, Quality Analytics, and Provider Relations 8/2018 ○ Developed PICOT for Case Management in PCMH on December 3, 2018. ○ PICOT question. Revised April 1, 2019. ○ Reviewed new PICOT question with Industry mentor April 1, 2019. ○ Meeting Cadence established July 2019(bi-weekly Tuesdays) 	<p>Stakeholders know PICOT question and WHY it is important.</p> <p style="text-align: center;"><i>2:1 meeting with Fred/Karl.</i></p> <ul style="list-style-type: none"> ○ Completed Plan and final review and approval of PICOT question with Industry mentor July 2019. ○ Approval granted by Chief Medical Officer and STAR Kids Director on December 10, 2018 to proceed with PCMH as most viable project to implement. 	<ul style="list-style-type: none"> ● Scope of EBP question presented. PCMH is a unique clinical setting that affords care management/ coordination of care. The impact on costs, quality of life, and parent satisfaction is not known for CSHCN over a claim cycle.
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<p>Checkpoint Two</p>	<ul style="list-style-type: none"> ○ Conduct systematic search for evidence & retain studies that meet criteria for inclusion. ○ Connect with librarian. ○ Meet with implementation group - TEAM BUILD ○ <i>Consult with Agency Contact/Mentor</i> 	<p style="text-align: center;">Stevens Star Model of Knowledge Transformation</p> <p style="text-align: center;">Stage 2 - Research</p> <ul style="list-style-type: none"> ○ Conducted Systematic search of CINAHL, PubMed and Cochrane completed on: <ul style="list-style-type: none"> ○ June 20,2018 ○ November 15, 2018 ○ March 29, 2019 ○ Utilizing a systematic approach, key words were identified from the components of the PICOT question. Determining the keywords were the precursor to the systematic search. There were three databases chosen to review the literature. ○ The three databases identified for the search were CINAHL, PUBMED and Cochrane. All databases were searched on the same day utilizing the following key words in the same order: Because the project is a relatively new topic, interventions were 	<p>Stakeholders readily see how PICOT question drove systematic search.</p> <p>Search results (see notes column)</p> <ul style="list-style-type: none"> ● <i>2:1 meeting with Fred/Karl.</i> ● <i>Full meeting with all stakeholders – August 2019</i> ● <i>Established Weekly Meetings (Wed. Night) with faculty mentor.</i> ● Created momentum for project by defining the transformation change model. Demonstrated how Steven’s STAR Model will link evidence to practice. 	
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		<p>searched first, followed by population, and then outcomes. The key words used in the search were: Health Home, Medical Home, Patient Centered Care, Children with Special Healthcare Needs, Children with Special Health Care Needs, Quality of Life, Cost Control, Const Analysis, Parents of Children with Special Healthcare Needs, and Parents of Children with Special Health Care Needs. The final search included language, human, abstract/full text, and pediatric population.</p> <ul style="list-style-type: none">○ Ongoing Meetings to discuss EPIP Summer 2019.○ Next meeting with implementation group scheduled October 8, 2019 and November 5, 2019		
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<p>Checkpoint Three</p>	<ul style="list-style-type: none"> ○ Critically appraise literature (including evaluation, synthesis & recommendation) ○ Meet with group to discuss how completely evidence answers question and drives the project plan. ○ If needed pose follow-up questions and re-review the literature as necessary ○ <i>Consult with Agency Contact/Mentor</i> 	<p style="text-align: center;">Stevens Star Model of Knowledge Transformation</p> <p style="text-align: center;">Stage 3 - Evidence</p> <p style="text-align: center;">Recommendation from Evidence</p> <ul style="list-style-type: none"> ○ Implementation Meeting Group Scheduled bi-weekly established July 2019. ○ The evaluation table for this EPIP has a total of eight articles from an initial yield of fifteen studies. All eight articles have a Rapid Critical Appraisal and General Appraisal Overview listed in the appendix. ○ Success will be measured by sustainability of EPIP and staff survey – Jan 2020. 	<p>Synthesis tables tell the tale.</p> <p>Applicability spoken to – feasibility, cost, etc. (MUST INCLUDE SYNTHESIS TABLE IN REPORTS – DICMUSS IN TEXT AS TABLE # AND PLACE AFTER REFERENCES)</p> <p style="text-align: center;"><i>2:1 meeting with Fred/Karl.</i></p> <ul style="list-style-type: none"> ● A synthesis of the literature indicates of the eight studies, two were systematic reviews, one was a Randomized Control Trial, and five were Descriptive/Qualitative surveys of the PCMH population. The T in the Picot question was met as most of the studies followed the participants longitudinally and on average five years. Based on the evaluation and synthesis tables, the recommendation is to provide care for the CSHCN population in a focused PCMH with the added support of embedded case management indicates decreased costs, and increased quality and coordination of care for my current practices. 	
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<p>Checkpoint Four</p>	<ul style="list-style-type: none"> ○ Meet with group. ○ Summarize evidence with focus on implications for practice & conduct interviews with content experts as necessary to benchmark. ○ Begin formulating detailed plan for implementation of evidence. ○ Include who must know about the project, when they will know, how they will know. ○ <i>Consult with Agency Contact/Mentor</i> 	<p style="text-align: center;">Stevens Star Model of Knowledge Transformation</p> <p style="text-align: center;">Stage 4 – Translation into Practice</p> <p style="text-align: center;">PLAN FOR</p> <p>IMPLEMENTATION: Provide Protocol Specifics, Dates & Progress Outcomes</p> <p style="text-align: center;">May 2019- 2:1 Meeting with Fred/Kar</p> <p>1. Team Leader hosted: All Stakeholder Meeting – July 2019</p> <ul style="list-style-type: none"> ● Strategy Process identified to determine the best PCMH. ● Megan presented overview of all PCMH (17) practices on PP. 	<ul style="list-style-type: none"> ● Implications for practice: <ul style="list-style-type: none"> ○ Access to Care <ul style="list-style-type: none"> ▪ Education for families ▪ Education for PCMH staff ▪ Measured Coordination of Care ▪ Resources provided for CSHCN population. ▪ Evidence-based practice interventions ▪ Comprehensive person-centered care between provider and family ● Implications for system: <ul style="list-style-type: none"> ○ Cost Utilization ○ Appropriate Level of Care Designation 	
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		<ul style="list-style-type: none"> • Reviewed characteristics of each practice: <ul style="list-style-type: none"> ○ Membership of CSHCN ○ Costs ○ Access to Care ○ Navigation and Coordination ○ Communication and Huddle • Implication Notification of Faculty Member - September 2019 • Implication of all stakeholder meeting completed August 2019/September 2019 • Get Permission to use CCMT Tool (Assigned to Stake Holder Fred) – September 2019 • Request Staff Input and Vision for EPIP – September 2019 • Identify Education Plan/Training for CM and PCMH Staff – October 2019 <ul style="list-style-type: none"> ○ Training - Training will take place in the December 2019. There will be a full-day session 		
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		<p>for the case managers assigned to the PCMH and three lunch training sessions for all PCMH staff. Training will be evaluated and ongoing to account for any attrition or questions.</p> <ul style="list-style-type: none"> • The cases managers are currently working in the practice but do not utilize the tool. They will be continuing to provide the PCMH with 30 hours of representation weekly. • Meet with other Depart Heals involved – October 2019. • Assigned CM and PCMH Staff Meet and Greet – Completed September 2019 		
Checkpoint Five	<ul style="list-style-type: none"> ○ Define project purpose- connect the evidence & the project. 	LAUNCH PLAN FOR IMPLEMENTATION:	Careful collection of baseline data (these would be your project completion outcomes).	Request feedback from key stakeholders on progress

	<ul style="list-style-type: none"> ○ Define baseline data collection source(s) (e.g., existing dataset, electronic health record), methods, & measures ○ Define post project outcome indicators of a successful project (process & completion) ○ Gather valid & reliable outcome measures. ○ Write data collection protocol. ○ Write the project protocol (data collection fits in this document) ○ Finalize any necessary approvals for project implementation & dissemination (e.g., system leadership, unit leadership, IRB) ○ <i>Consult with Agency Contact/Mentor</i> 	<ul style="list-style-type: none"> ● Logic Model meeting with all Stake holders - October 2019 <div style="text-align: center;">  <p>Sobers-Butler%20K%20Logic%20Model</p> </div> <ul style="list-style-type: none"> ● Weekly On-going Meetings with Faculty Mentor established (Wednesdays @9pm) ● Weekly meetings established with Fred/Karl ongoing: May- August 2019 ● Project purpose statement: To identify utilization metrics of a specific population, CSHCN in a PCMH practice setting against metrics of children not in a specific setting and determine the impact. ● Data collection protocols will include meetings with all key stakeholders bi-weekly to determine: <ul style="list-style-type: none"> ○ Internal Evidence <ul style="list-style-type: none"> ▪ Quality Management ▪ Risk Management 	<p>HOW do the baseline data influence your plan – do they demonstrate your clinical issue?</p> <p style="text-align: center;"><i>Influence of current Information for Driscoll Health Plan (DHP) as a managed care organization (MCO).</i></p> <p>In a recent retrospective review of DHP, utilization metrics from a historical period prior to managed care involvement (June 2014 through May 2015) were compared with current period utilization metrics (June 2017 through May 2018), in which recipients are actively managed. The same members were identified for data collection periods. For CSHCN patients, the PCMH approach resulted in a 34% overall medical Per Member Per Month (PMPM) reduction and a cost avoidance of approximately \$14M. Reduced Admits/1000, Behavioral Health (BH) Admits/1000, Readmission Rates, and Emergency Department (ED) Visits drove this reduction. Furthermore, there was a 30% increase in PCP visits, which facilitate management and coordinate care through Individual Service Plan (ISP) and PCMH.</p> <p>As a result of this MCO, care coordination is an overarching umbrella of the PCMH. If a PCMH is provided the support of an embedded Case Manager, is</p>	
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		<ul style="list-style-type: none"> ▪ Claims Data ▪ Clinical Systems ▪ Operational Systems ▪ EMR ▪ Surveys (Employee) ○ External Evidence <ul style="list-style-type: none"> ▪ Literature <ul style="list-style-type: none"> • PCMH Survey • Parent Survey • CCM T <table border="1" data-bbox="703 966 1129 1339"> <tr> <td>Other Resources: Admin. Asst. (to record all minutes and create standard agenda items) PCMH Support Staff</td> <td>19</td> <td>10/20</td> </tr> </table>	Other Resources: Admin. Asst. (to record all minutes and create standard agenda items) PCMH Support Staff	19	10/20	<p>the impact greater than a regular provider office?</p> <p style="text-align: center;">Protocol Process October 2019</p> <p style="text-align: center;">Baseline Data Collection</p> <table border="1" data-bbox="1157 492 1690 1416"> <tr> <td>Notify PCMH to be used in EPIP-</td> <td>019</td> <td>8/2</td> </tr> <tr> <td>Hours of CM Staff -PCMH</td> <td>019</td> <td>9/2</td> </tr> <tr> <td>PCMH Provider/Staff involvement</td> <td>019</td> <td>9/2</td> </tr> <tr> <td>CSHCN members to be included from electronic health record (EHR) EPIC and Harmony Systems. 1. Population: Driscoll Health Plan (DHP) STAR Kids Members active ages 0-21 2. Timeframe (Eligible in PCMH for greater than 90 days)</td> <td>019</td> <td>9/2</td> </tr> <tr> <td>Pre-Survey to establish baseline</td> <td>2019</td> <td>10/</td> </tr> <tr> <td>System to collect data. i. Excel</td> <td>2019</td> <td>11/</td> </tr> </table>	Notify PCMH to be used in EPIP-	019	8/2	Hours of CM Staff -PCMH	019	9/2	PCMH Provider/Staff involvement	019	9/2	CSHCN members to be included from electronic health record (EHR) EPIC and Harmony Systems. 1. Population: Driscoll Health Plan (DHP) STAR Kids Members active ages 0-21 2. Timeframe (Eligible in PCMH for greater than 90 days)	019	9/2	Pre-Survey to establish baseline	2019	10/	System to collect data. i. Excel	2019	11/	
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Pre-Survey to establish baseline	2019	10/																							
System to collect data. i. Excel	2019	11/																							

		<ul style="list-style-type: none"> Establish separate bi-weekly meetings with IT team by October 2019 to gather valid and reliable outcome measures. Establish key objectives for specific roles: <p style="text-align: center;">Implementation Week 1 – Week 12: Assigned Case Manager: The CM will provide face to face interactions with CSHCN and families at PCMH; assess for care coordination opportunities, provide oversight to DHP members with focus on quality outcomes and cost containment.</p> <p style="text-align: center;">Resources Needed:</p> <ol style="list-style-type: none"> PCMH Facility <p>Computer/EMR</p> <ol style="list-style-type: none"> PCMH Facility <p>Printer/Shredder</p> <ol style="list-style-type: none"> Signage Notification of MCO Staff Availability <p style="text-align: center;">PCMH Provider- To support DHP initiatives for CSHCN, coordinate care, the PCMH Provider will act as HUB to other specialists, provide real time</p>	ii. Access Database		
			Validity of Reliable Outcomes:	12/2019	
			<ul style="list-style-type: none"> CSHCN Survey MHI Survey 	Start 1/1/19	
			Data Collection Protocol:		
			Target Population: CSHCN DHP STAR Kids Patients Ages 0-21	12/2019	
			In Person Contact: Designated CM's and PCMH personnel to interact with members during their Scheduled visit	1/1/2020-3/31/2020	
			Surveillance: 1. CM Personnel will monitor all utilization data (Acute/Chronic) to include ER Visits, Admissions, Pharmacy, Supplies, and Therapy Claims in the	1/1/2020-3/31/2020	

		<p>appointments and consultations as needed.</p> <p>PCMH CSHCN- The families/patient will accept case management for coordination of care with DHP using a Care Coordination Management tool, and liaison to Case Management.</p> <p>Team Leader: Oversee implementation. Ensure CM and PCMH staff have received training and assignment checkoff prior to go live date. Keep stakeholders informed, anticipate barriers and correct.</p> <ul style="list-style-type: none"> • Short-term goals <ul style="list-style-type: none"> • Buy in from all stakeholders. • Communicate expectations of EPIP. • Create an informed care coordination focused culture through EBP DM for patient and practice. • Determine documentation and reporting standards. • Establish baseline data. 	<p>EPIC/Harmony EMR through setup of notifications</p>		
			<p>2. CM will participate in Morning Huddle and follow designated scheduled created by mid-level regional manager.</p>	<p>1/1 /2020- 3/31/2020</p>	
			<p>3. CM will provide information to patient/family and provider on care planning, education, monitoring, using the framework of Riegel’s Middle Range Theory of Self-care of Chronic Illness:</p> <ul style="list-style-type: none"> • Self-Care • Self-Monitoring • Self-Care Management 	<p>1/1 /2020- 3/31/2020</p>	
			<p>4. Team leader will ensure.</p> <p>a. Baseline measurements are</p>		

		<ul style="list-style-type: none"> ○ # of CSHCN in practice ● Costs associated with population in practice. <ul style="list-style-type: none"> ○ PCMH staff ○ MCO staff ● Long-term goals <ul style="list-style-type: none"> ● Informed provider as evidenced by completion of CCMT on every Driscoll Health Plan CSHCN patient 90 days after implementation. ● After 90 days of implementation, statistically sound evaluation of baseline and post data show CCMT intervention: <ul style="list-style-type: none"> ● Decreased Costs for Driscoll CSHCN ● Increased Quality of life for Driscoll CSHCN ● Increased Parent Satisfaction for Driscoll CSHCN ● Standardization of care coordination activities using CCMT tool for Driscoll CSHCN. ● Training of other identified practices to 	<p>obtained from CSHCN patients.</p> <ul style="list-style-type: none"> b. Validity tools are accessible and complete. c. Availability for questions and barriers to care during and after implementation. 		<p style="text-align: center;">Post-Project Outcomes: Expected outcomes of improved quality intervention utilizing Evidence-based practice.</p>
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		<p>become PCMHs for Driscoll CSHCN</p> <p>Resources Needed:</p> <ol style="list-style-type: none"> 1. PCMH Facility 2. Weekly Meetings/Ongoing Support 3. Care Coordination Measurements 4. Reporting 5. Remote Location set up for MCO staff (transportation to community sites) 6. Claims Run of Payment – 90 Day from date of service (Admissions/ER Visits, Therapies, DME Equipment, Pharmacy) <ul style="list-style-type: none"> • Successful outcome indicators: <ul style="list-style-type: none"> ○ Project Completed within timeframe ○ O1: Identified reduction of costs (Admission/ER Visits, DME Equipment) ○ O2: Identified Improved Quality of Life for Patient (increased coordination, life experience, 		
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		<p>decreased absences in School, management of chronic disease, etc.) Measured by CSHCN Survey.</p> <ul style="list-style-type: none"> ○ O3: Increased parent satisfaction (communication with provider, knowledge gap closure, etc.) ● System Outcome: Claims Data (90-day cycle) ● Finalize any necessary approvals for project implementation & dissemination – November 2019. <p><i>Projected Go Live Date – January 2020- March 2020</i></p>						
Checkpoint Six (about mid-way)	<ul style="list-style-type: none"> ○ Meet with implementation group. ○ Discuss known barriers & facilitators of project. ○ Discuss strategies for minimizing barriers & 	<p>Key Implementation Group Schedule Standard Agenda</p> <table border="1" data-bbox="678 1154 1129 1377"> <tr> <td data-bbox="678 1154 926 1230">Identify Project Barriers</td> <td data-bbox="926 1154 1129 1230">12/17 /2019</td> </tr> <tr> <td data-bbox="678 1230 926 1377">Identify Project Facilitators</td> <td data-bbox="926 1230 1129 1377">Completed September 2019</td> </tr> </table>	Identify Project Barriers	12/17 /2019	Identify Project Facilitators	Completed September 2019	<p>Data collection plan complete and everyone knows about it...and the next steps for the project.</p> <p><i>See Calendar in 2nd column</i></p>	<p>Request feedback from key stakeholders on progress</p>
Identify Project Barriers	12/17 /2019							
Identify Project Facilitators	Completed September 2019							

	<p>maximizing facilitators.</p> <ul style="list-style-type: none"> ○ Finalize protocol for implementation of evidence, include timeline. ○ Identify resources (human, fiscal, & other) necessary to complete project. ○ Supply Agency Mentor (& Faculty) with written IRB approval & managerial support ○ Begin work method of dissemination of initiation of project & progress to date to educate stakeholders about project - get help from support staff. ○ Include specific plan for how evaluation will take place: who, what, when, where & how and communication mechanisms to stakeholders 	<p>CM: Kathleen, Liz, and Crystal Mid- Level Manager: Val Dees</p>				
		<p>Review Timeline Dates and Project/Progress dates for Stakeholders</p>	<p>19 /19 19 19</p>	<p>10/7/ 10/22 11/5/ 11/19</p>		
		<p>Request for additional resources if needed</p>	<p>19 19</p>	<p>12/3/ 12/17</p>		
		<p>Commun ication with key stakeholders – PowerPoint</p>		<p>Ongo ing Monthly- Prepared by Megan; collaboratio n form CM and regional mid-level manager</p>		
		<p>Data Collection Plan</p>	<p>19</p>	<p>12/1/</p>		
	<p>Finalize Protocol</p>	<p>19</p>	<p>12/17 /19</p>			

	<ul style="list-style-type: none"> ○ Consult with Agency Contact/Mentor 	<p>Dissemination of Knowledge EPIP Immersion Training (Lunch and Learn)</p>	<p>11/2019 12/2019</p>		
		<p>Develop Evaluation Plan for outreach and management of Case Management Functions</p> <ul style="list-style-type: none"> ○ Training for CM ○ Training for PCMH Staff 	<p>11/2019, 12/2019</p> <p>*Lunch and Learns*</p> <p>Review and Teach back for PCMH staff.</p> <p>Ongoing assessment for CM Staff</p>		
<p>Checkpoint Seven</p>	<ul style="list-style-type: none"> ○ Meet with implementation group to review proposed stakeholder dissemination. ○ Make final adjustment to dissemination plan with support staff. 	<p>Review pertinent protocol specifics, dates & progress outcomes by 11/2019</p> <p>Team leader will have weekly huddle with CM by 12/2019</p> <p>Team leader will have weekly huddle mid-level manager (DHP)</p>	<p>Collect data on progress outcomes to date and include in report.</p>	<p>Request feedback from key stakeholders on progress during bi-weekly meetings.</p>	

	<ul style="list-style-type: none"> ○ Inform stakeholders of start date of implementation. ○ Address any concerns or questions of stakeholders (active & supportive) ○ Consult with Agency Contact/Mentor 	and PCMH practice liaison by 11/2019.		
Checkpoint Eight	<ul style="list-style-type: none"> ○ LAUNCH EBP implementation project ○ Follow project protocol rigorously. ○ Collect Baseline Data ○ Deliver Evidence-based Intervention. ○ Record process outcomes & lessons learned. ○ Consult with Agency Contact/Mentor 	<p>Progress Outcomes – are things working as you thought they would – why or why not (reflection)</p> <p>Touchbase with Implementation Group in weekly huddle – Dates TBD</p>	Keep a journal of lessons learned and your responses to them Ongoing.	Request feedback from key stakeholders on progress during bi-weekly meetings.
Checkpoint Nine	<ul style="list-style-type: none"> ○ Mid-project: Schedule meeting with all key stakeholders to review progress 	Progress Outcomes – are things working as you thought they would – why or why not (reflection)	Collect data on further progress outcomes to date and include in report by 3/2020.	Request feedback from key stakeholders on progress during bi-weekly meetings.

	<p>outcomes and lessons learned (and associated adjustments to protocol) to date.</p> <ul style="list-style-type: none"> ○ Do not forget to include any issues, successes, aha & triumphs of project to date. ○ <i>Consult with Agency Contact/Mentor</i> 	<ul style="list-style-type: none"> • Continue aggregation and review of process and outcomes data. • Document lessons learned, ah has, successes, etc. • Meet with Industry Mentor May 2020. 		<ul style="list-style-type: none"> • Collect data on further progress outcomes to date and include in final table report. • Journal on lessons learned and respond appropriately to key personnel.
<p>Checkpoint Ten</p>	<ul style="list-style-type: none"> ○ Complete final data collection for project evaluation ○ Analyze baseline compared to final data; create graphics for distribution of results. ○ Present project progress and completion results via poster 	<p>Stevens Star Model of Knowledge Transformation Stage 6 – Process, Outcomes, Evaluation</p> <p>Completion Outcomes data collection.</p> <p>Analyze the baseline to completion data change? Did your implementation work?</p> <p>Evaluate progress outcomes -report on success of project implementation process.</p>	<p>Completion outcomes (analyze pre/post)</p> <p>Process outcomes (did project process go well/not)</p> <ul style="list-style-type: none"> • <i>Meeting with IT and other stakeholders to extract information – March- April 2020</i> 	<p>Request feedback from key stakeholders on progress during bi-weekly meetings.</p> <ul style="list-style-type: none"> • Analyze pre/post data from Claims, MHI, CCMT Tools

	<p>presentation to stakeholders.</p> <ul style="list-style-type: none"> ○ <i>Consult with Agency Contact/Mentor & Agency Leadership</i> 	<ul style="list-style-type: none"> • Compile file data collection June 2020. • Compare baseline to final data. • Review final project and data with Industry Mentor – May 2020. • Review final project and data with Faculty Mentor – May 2020. • Present project final progress to stakeholders – May 2020 		<ul style="list-style-type: none"> • Evaluate success and opportunities. • Request feedback from key stakeholders on final progress
Checkpoint Eleven	<ul style="list-style-type: none"> ○ Review project success, including progress & completion outcomes, lessons learned, and any new questions generated from process. ○ <i>Consult with Agency Contact/Mentor & consider new questions</i> 	<p>Provide Final Evaluation Report to Faculty & Agency contact, including Next Steps for sustainability June 2020.</p> <ul style="list-style-type: none"> • Submit findings for publication. • Consider new clinical ideas. 	<ul style="list-style-type: none"> • Dissemination includes making sure that everyone is aware of the implementation process successes, completion outcomes and any caveats (lessons learned) along the way. • Dissemination includes beyond the organization (poster) 	<ul style="list-style-type: none"> • Future Goal: Publication 2021.

Appendix I: Project Budget

Table I1: Project Budget

Total INCOME	-	-
EXPENSES	Actual	Difference
Project Planning		
	5,000	5,000
	640	640
	1,400	1,400
	1,500	
	1,500	1,500
	420	420
	17,307	17,307
	3,000	3,000
	30,767	30,767
	1,976	1,976
	1,920	1,920
	2,500	2,500
	1,000	1,000
	250	250
	1,500	1,500
	9,146	9,146
Total EXPENSES		39,913

Appendix J: Project Marketing

Figure J1: Summary of Project

Summary of the CCMT Project

- The purpose for the project is to determine if care coordination activities, identified issues, provided interventions, improved the member outcomes and utilization
 - If this is true, health home should do even better...
- The CCMT Tool is going to be used to capture the activities that you have not historically received credit
- Measures the outcomes of those efforts that have traditionally been difficult to measure
- The CCMT Tool should capture those care coordination activities provided to meet identified needs
- We anticipate that it will reflect that care coordination activities improve member outcomes
- Therefore, members Health Homes receive additional care coordination and better outcomes than those not in a health home

Figure J2: Project Participation

MDCP/PDN Team Participation

- Complete CCMT Tool with all service coordination activities
 - Any Phone Contact or Visit Contact with the Member/LAR
 - Any Phone Contact or Visit Contact with a Provider
 - Incoming faxes, emails, texts regarding a member
- Complete the CCMT Tool as a summary of the activities performed as above after usual documentation process has been completed
- Complete the CCMT Tool as completely as possible
 - Avoid use of “other” or N/A when possible
 - If other or N/A is selected in the tool, complete explanations in the tool
- Utilize accompanying descriptive documents to achieve data consistency

Figure J3: Project Description

CCMT Complexity Tool

- The Care Coordination Complexity Tool will be used as a reference to provide consistency for selecting a member level for question 2- Level of Complexity
- Used to identify the **intensity** of Care Coordination activities that the member requires
 - Care Coordination vs Service Coordination. Not the same
 - Can change from encounter to encounter based on Care Coordination needs



CCMT Care
Coordination Complexity Tool

Figure J4: Project Review

Review of the CCMT Tool

- CCMT Dictionary
 - this tool was developed to provide a question by question description of the questions in the CCMT tool and describe the use of the answer selections
 - Intended as a reference to accompany the use of the CCMT Tool to ensure consistency in the application of the tool across the team
- Reference the CCMT Dictionary as we look at a demo of the CCMT Tool in Epic



CCMT Dictionary

Figure J5: Project Training Process

Process

- Contact and assess members per regulatory requirements and as needed
- Document all contact and assessments in Harmony/Epic per DHP workflows
- Complete the CCMT Tool in Epic at the completion of each contact with or about the Member/LAR
 - Create a New Patient Outreach Encounter in the member Healthy Planet Chart
 - Complete the info in the Contact section of Call Initiation Tab
 - Complete the Track Patient Outreach section of the Call Initiation Tab
 - **Select DHP CCMT Assessment in the Contacted About field
 - Complete the CCMT Tool in the Care Management tab and save
 - Create brief note that the CCMT tool was completed
 - Sign the Encounter
- Repeat for ANY activities or contacts with or about the member/LAR

Figure J6: Project Training

CCMT Tool in Epic



Figure J7: Project Training

Epic Call Initiation Tab and Report Tracking

The image displays two screenshots of the Epic EMR interface. The left screenshot shows the 'Call Initiation' tab selected, with a sub-tab 'Contacts' active. Below the navigation bar, there is a list of enrollment forms such as 'AA/PCA Care Enrollment', 'Asthma Care Enrollment', and 'Behavioral Health Care Enrollment'. The 'Contacts' section shows 'No contacts' and includes buttons for 'Incoming Call', 'Outgoing Call', and 'Other'. The right screenshot shows the 'Track Pt Outreach' tab selected. It features a 'Track Pt Outreach' section with a dropdown menu for 'Contacted via' (set to 'Telephone') and a 'Contacted about' dropdown menu. The 'Contacted about' dropdown is circled in green, and a red arrow points to the 'DHP CCMT Assessment' option. Below this, there is a 'Next contact' field with the date '8/15/2020' and buttons for 'Restore' and 'Close'.



Figure J8: Project Training

CCMT Tool in EPIC

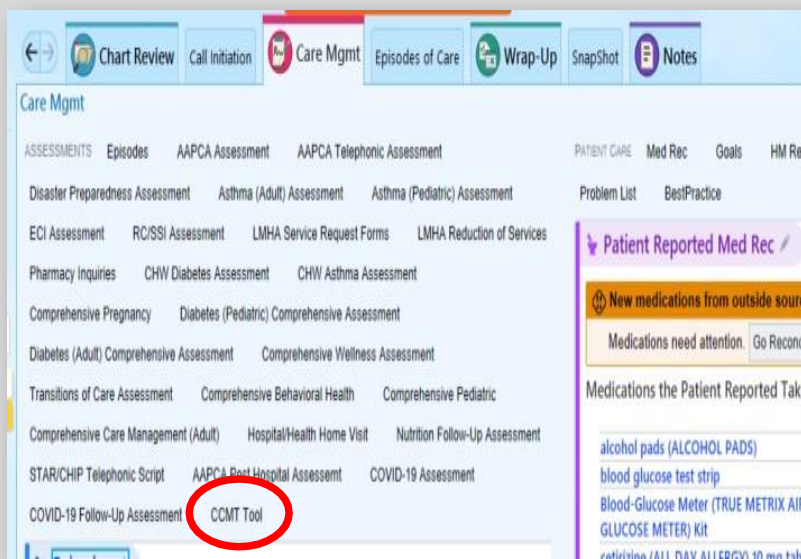


Figure J9: Project Training

Final Thoughts for Trainees

Wrap Up

- It's a new tool
- First use in MCO process
- Gaps will be identified
- Tool cannot be changed but our dictionary can be enhanced
- Your feedback will help make this project and ongoing use more successful
- Consistency is KEY to the accuracy of the data and success of the project
- This tool gives you the opportunity to show all the awesome things you do and how long it takes to do them!

Appendix K. Project Results

Figure K1: Health Home

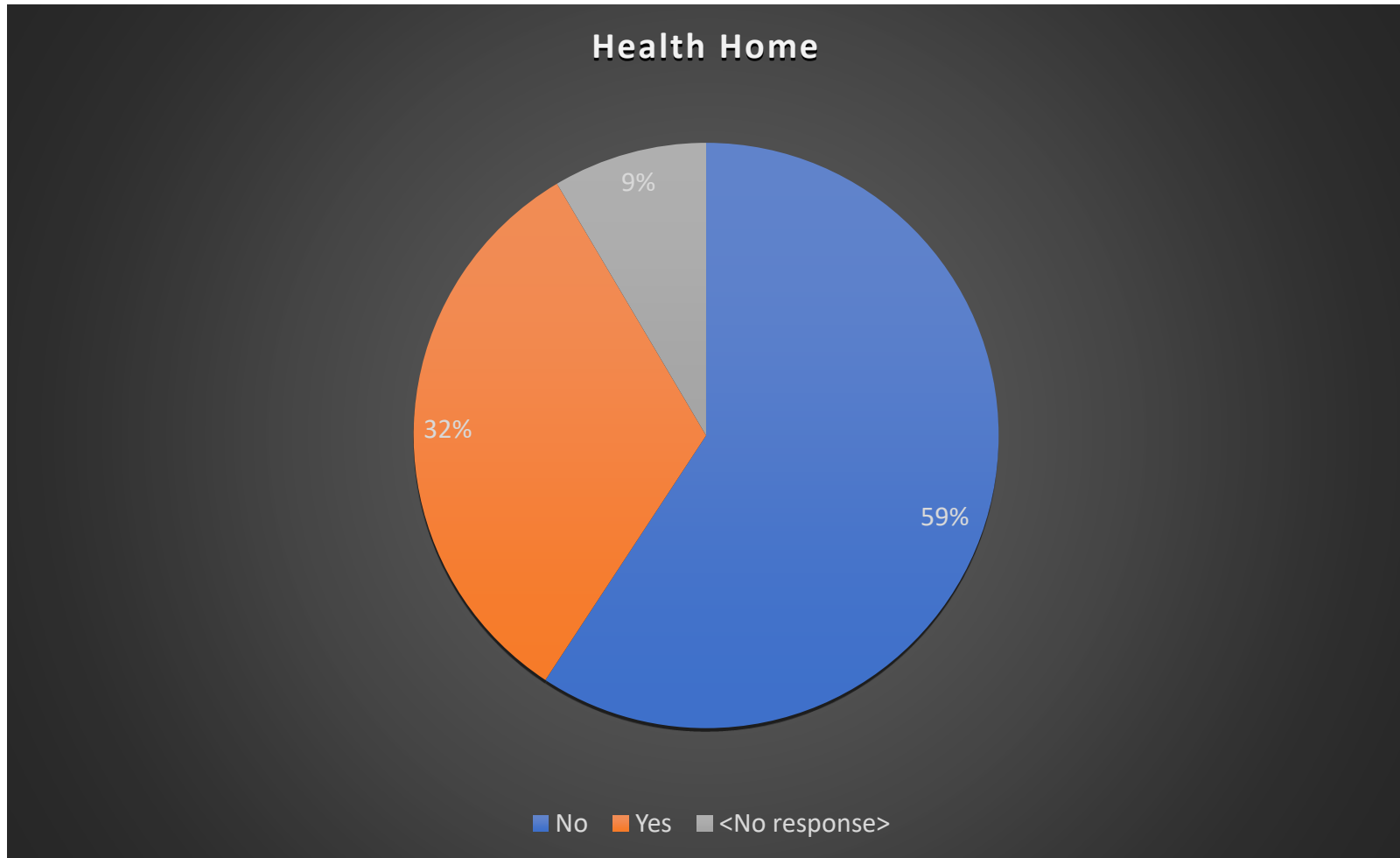


Figure K2: Summary of Prevented Outcomes

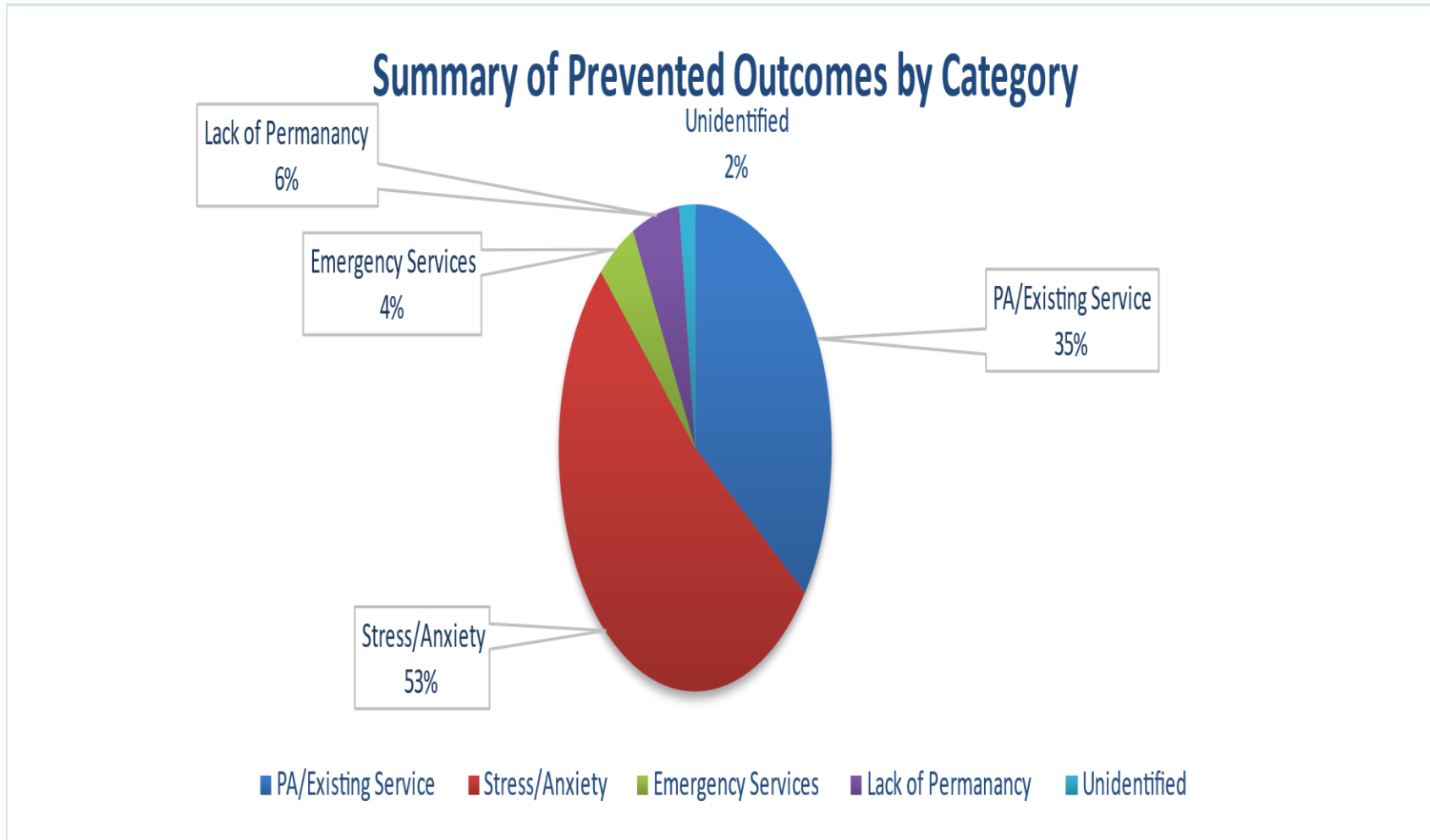
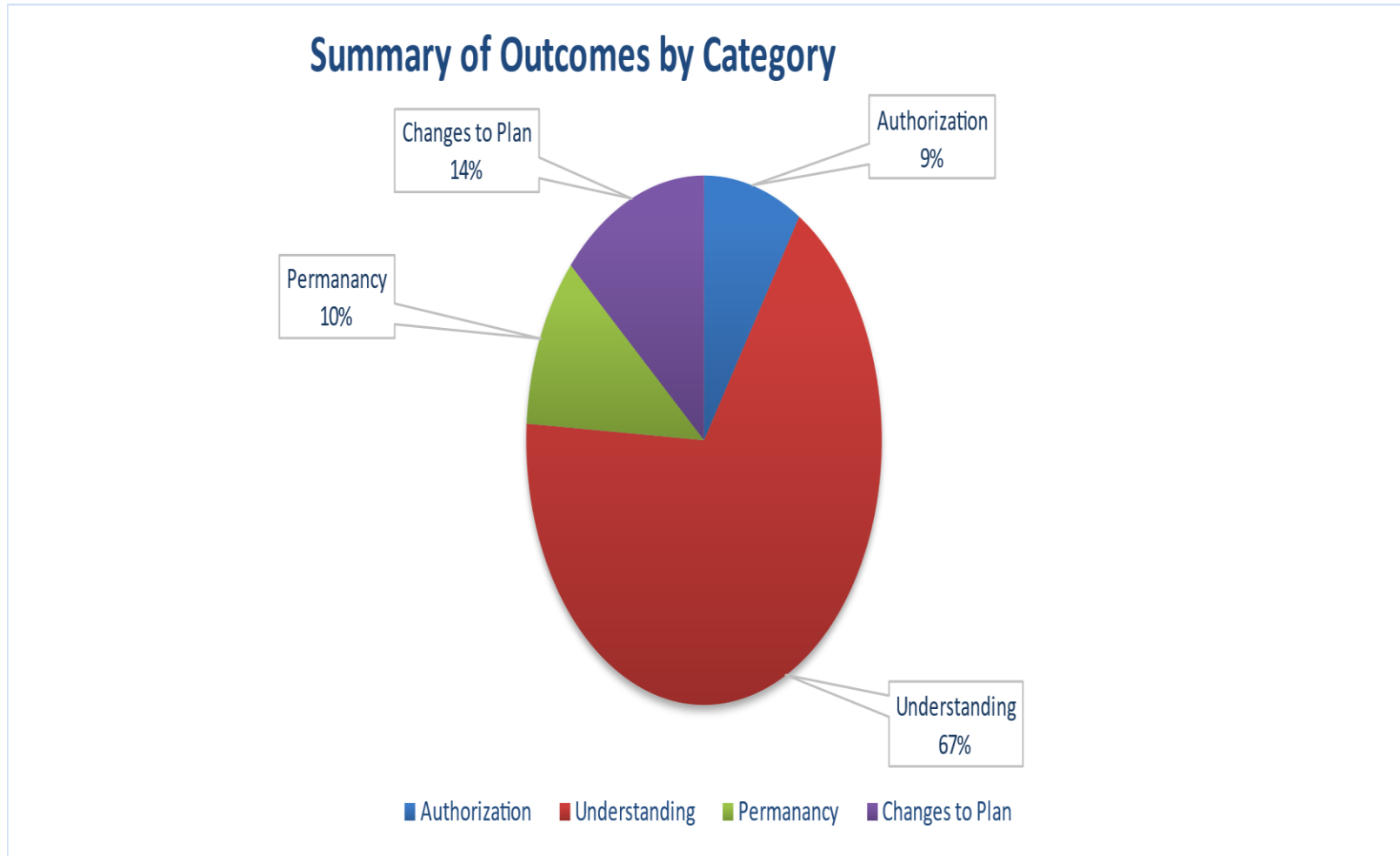
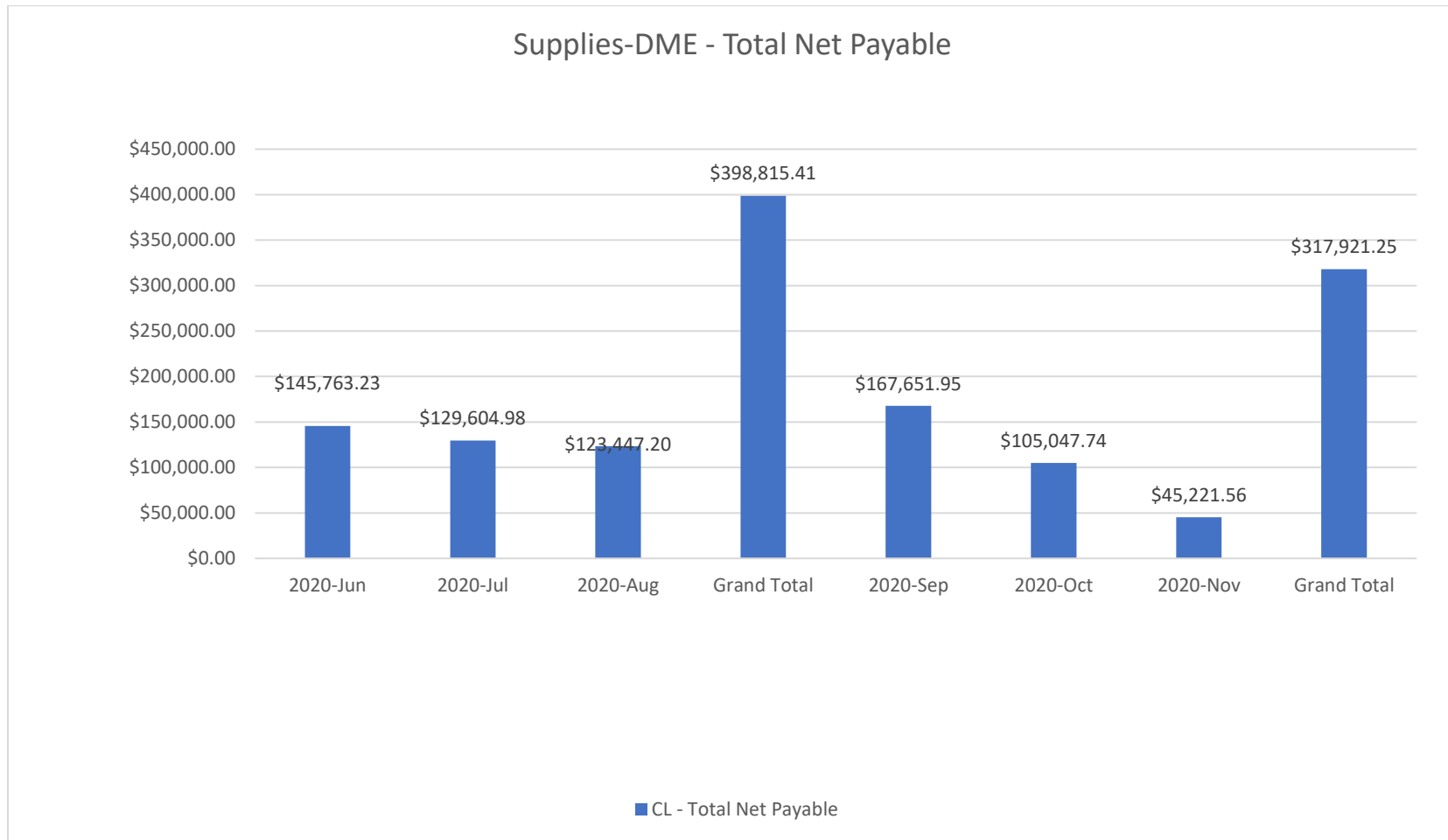


Figure K3: Summary of Prevented Outcomes



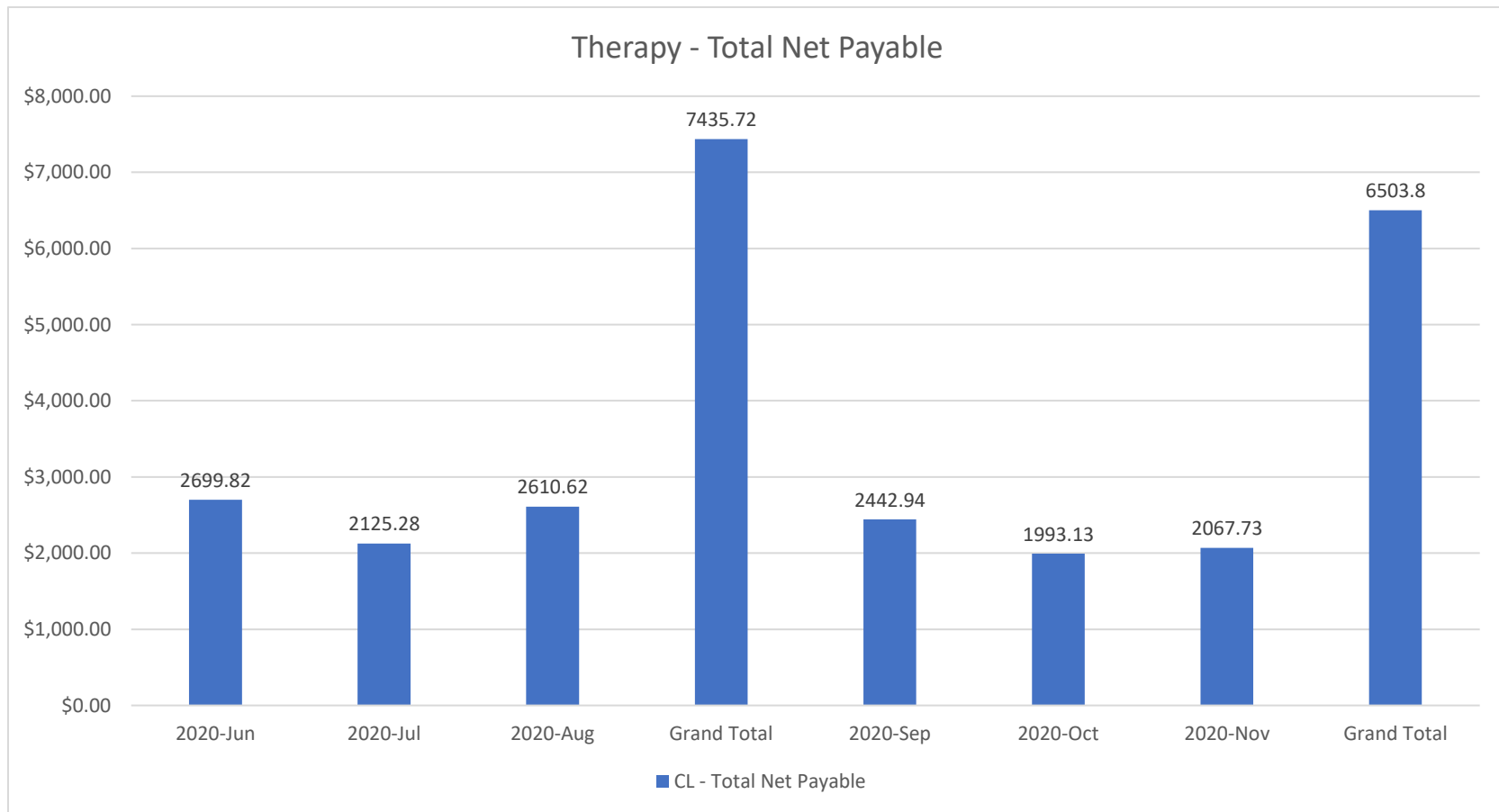
Appendix K: Continued

Figure K4: Costs of Supplies



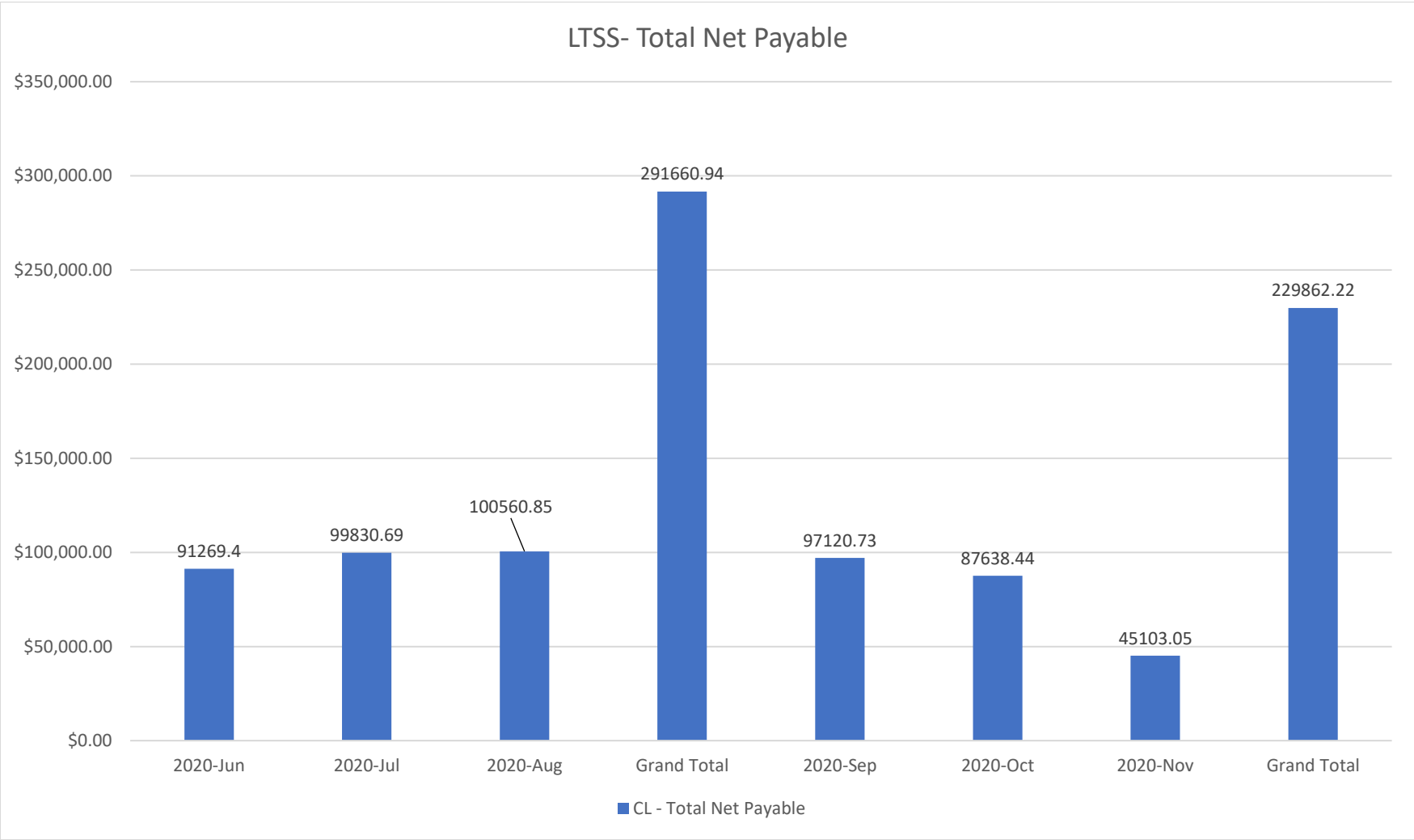
Appendix K: Continued

Figure K5: Costs of Therapy



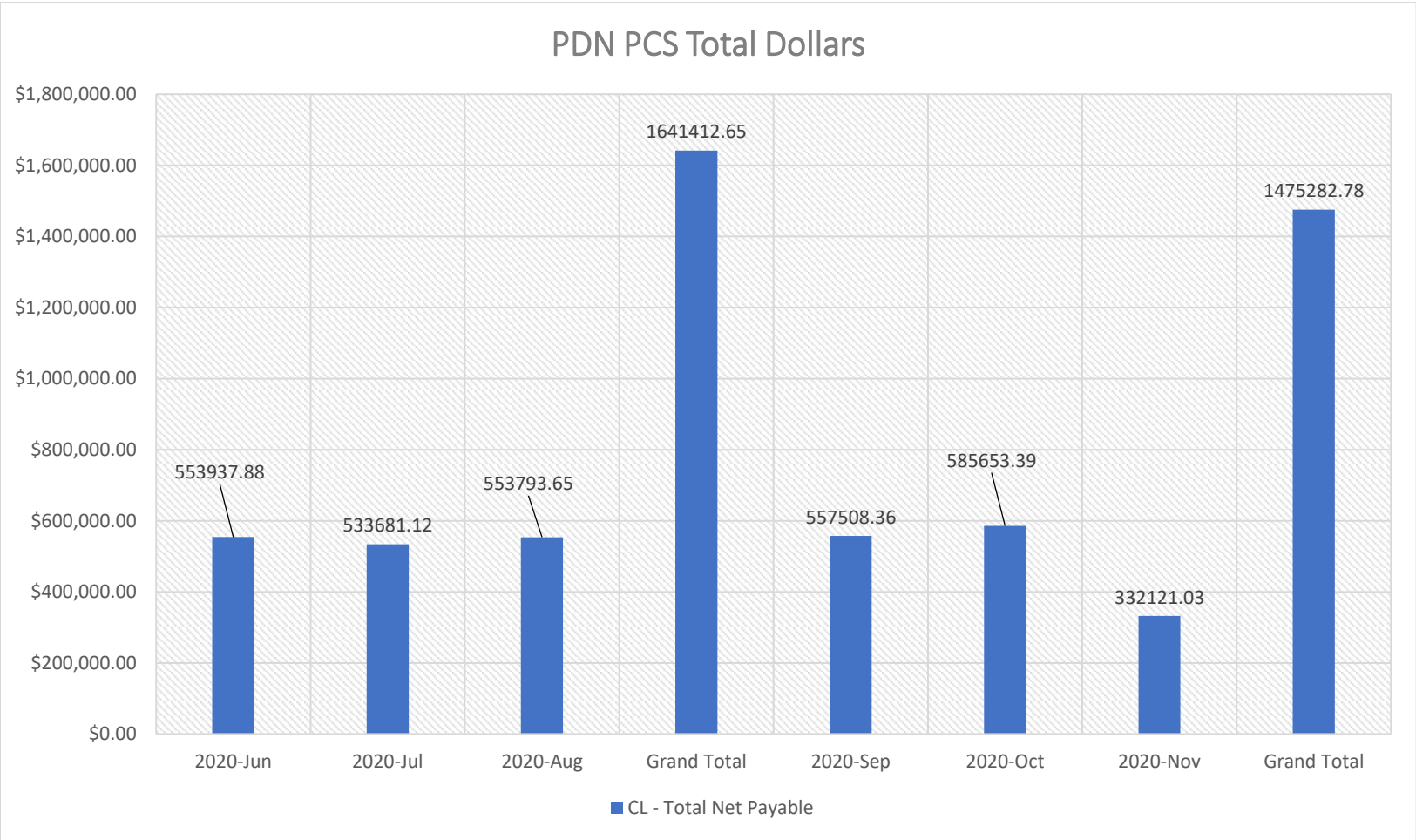
Appendix K: Continued

Figure K6: Costs of LTSS



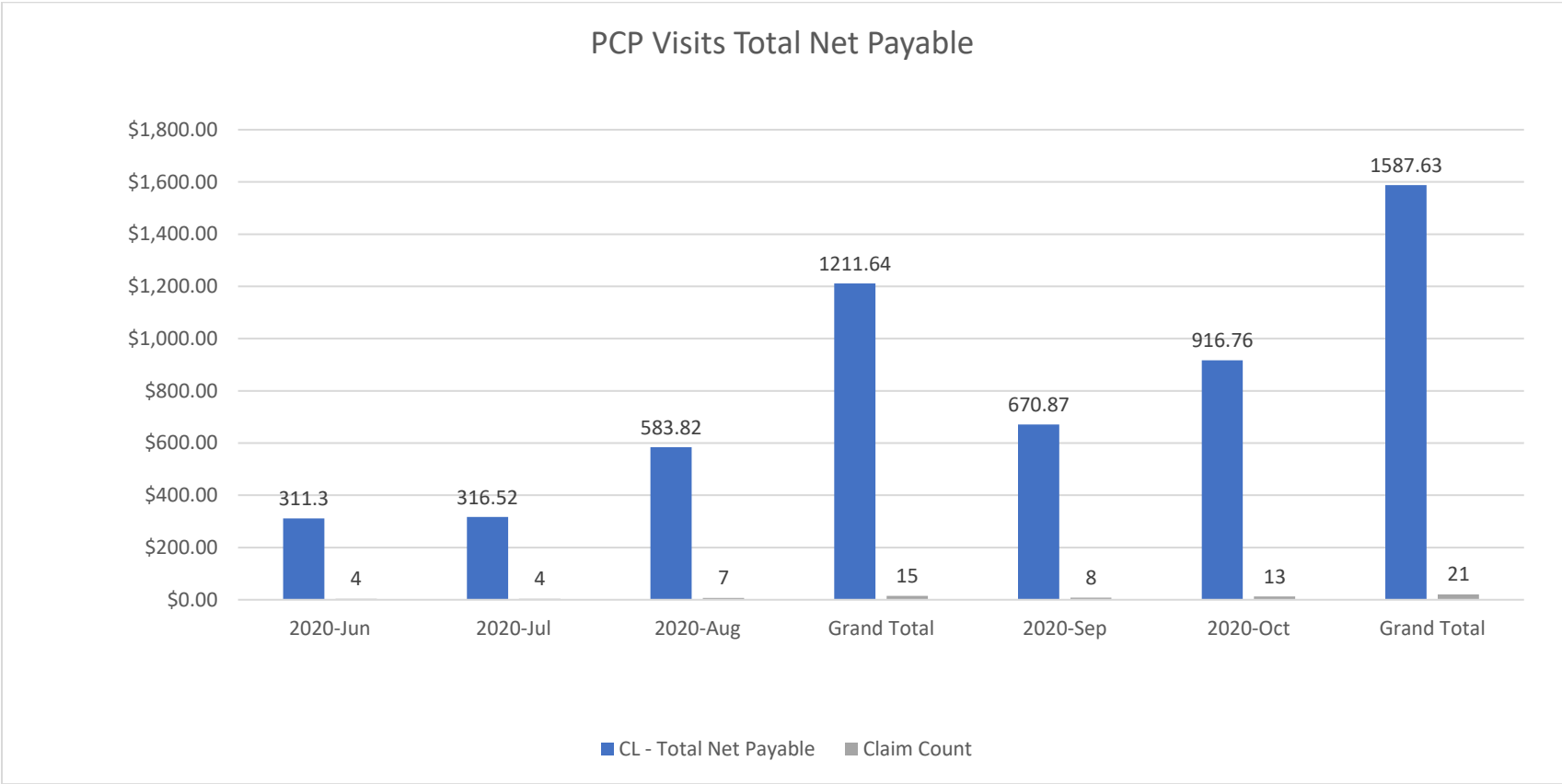
Appendix K: Continued

Figure K7: Costs of PDN/PCS



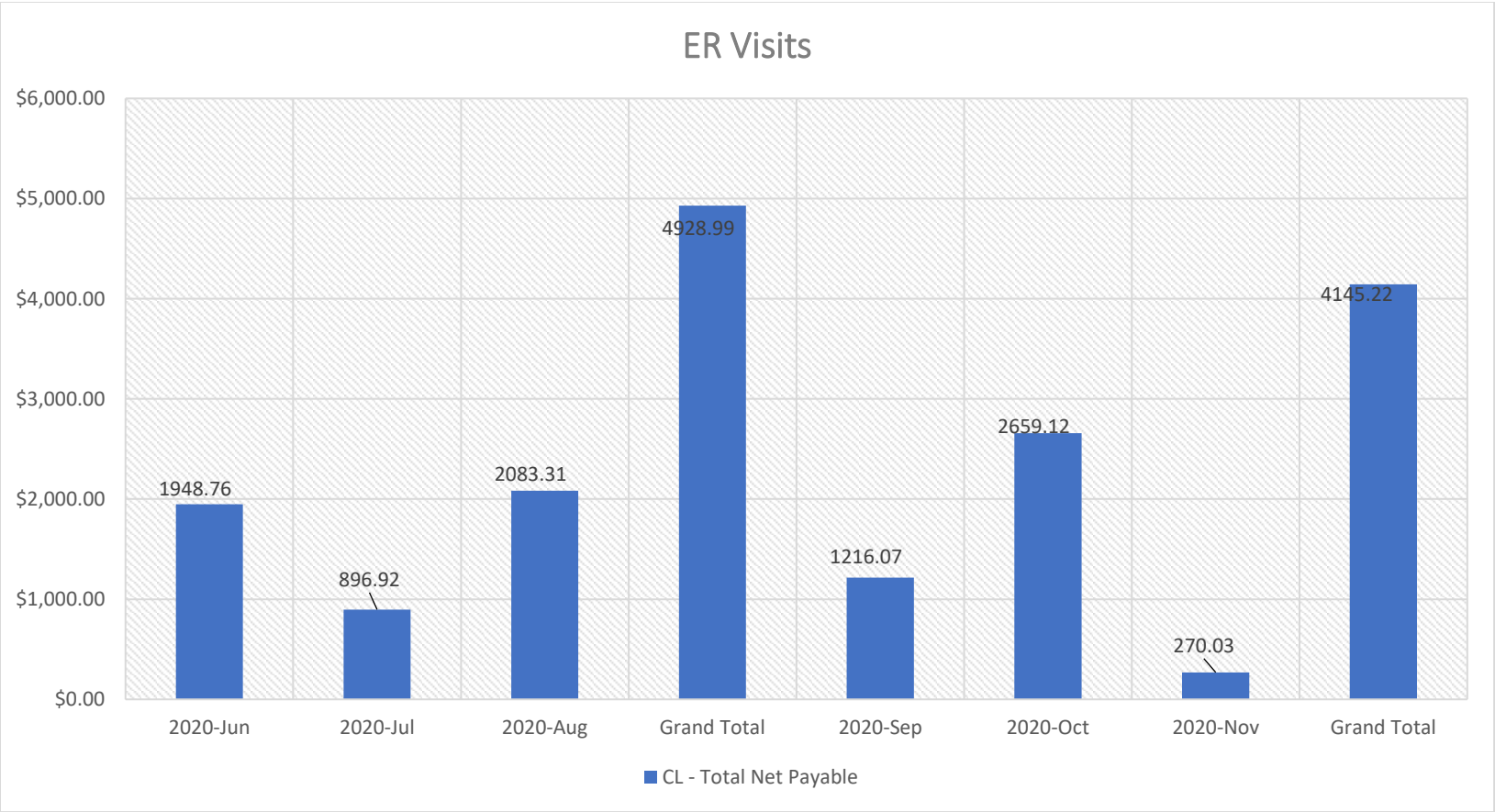
Appendix K: Continued

Figure K8: Costs of PCP Visits



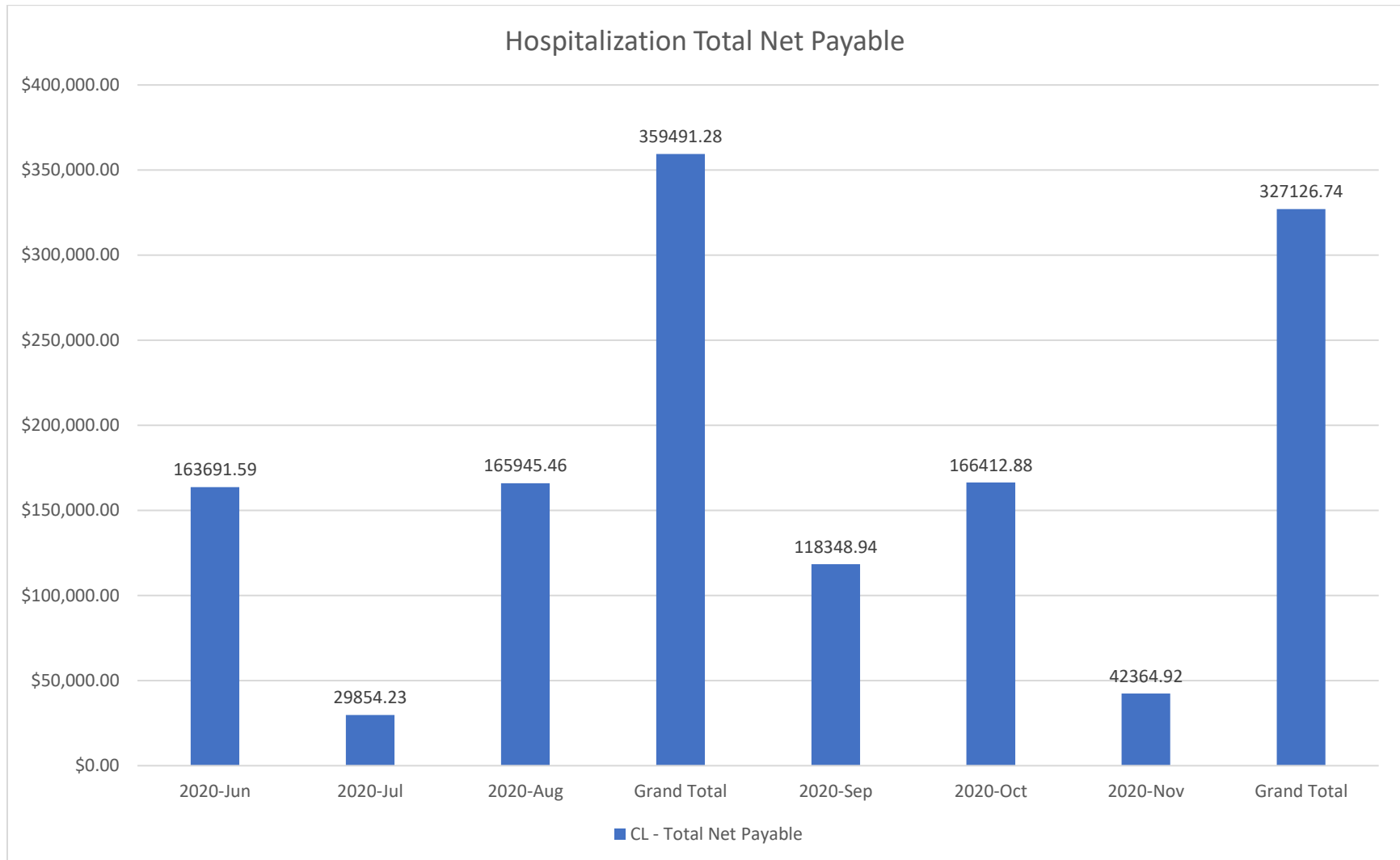
Appendix K: Continued

Figure K9: Costs of ER Visits



Appendix K: Continued

Figure K10: Costs of Hospitalizations



Appendix L: Sustainability Forms

First section: Spread Planner (p. 11-13 of the document in assigned readings)

1. Leadership for Spread

- a. Is improvement in this area a key strategic initiative within the organization?
 - i. Yes. The medical director of the complex program wanted to do a QI project around the effectiveness of Care Coordination. Our organizational strategies include operational efficiency and risk stratification. My DNP project, implementation of the Care Coordination Management Tool (CCMT), allows both objectives to be measured. It also creates standardization and documentation of care coordination activities. The DNP project was pitched to the Complex Medical Director, and then to my boss, the Chief Medical Officer.
- b. Which executive(s) are responsible for the spread? The chief medical officer and the complex medical director.
 - i. Are they passionate about it? Yes, both are passionate. Specifically, the complex medical director had previous knowledge of the CCMT tool and wanted to figure out a way to implement into our complex population. Prior to me, he did not have a change agent.
 - ii. Is success in spreading this improvement part of their goals/performance evaluation? Yes, the long-term utilization goal of the CCMT tool is to add additional users through our Behavioral Health (BH) complexity program. The goals also impact the organizational goals of operational efficiency and risk stratification by standardizing communication in practice.
- c. Is there a person or team who will manage the day-to-day spread activities, and who is that? Yes, primary managers of this project are the Manger of the Complex RN Team and Nurse Educator/Informatics Analyst.
 - i. Do they or team have sufficient time specifically dedicated to spreading this improvement? Yes, they are having weekly meetings with the end-user and the reporting team to ensure accuracy of application.
- d. Do organizational goals align with the new system? Yes, the CCMT will provide a measure of the effectiveness of care coordination by providing a standard documenting tool for all complex RN interactions. The CCMT was implemented in the EPIC EMR.

Organizational goals relate to operational efficiency and cost stratification. Do goals sufficiently align with organizational goals to motivate leaders and new adopters? Yes, it does. The Complex RN Manager had buy in before the start of the project. The concern for the complex team was they were not efficient in documentation and there were not standard guidelines in place. This tool allows the alignment and motivation to ensure the complex RN team uses the CCMT on every interaction. Upon validation of its success, the CCMT will then be implemented in the BH program.

2. Set-Up for Spread

- a. What is the target population? Complex RN Care Managers are completing the tool; the population is Complex medically dependent children assigned on their caseload.
- b. Has successful pilot site(s) implemented the new system? Yes, the pilot is currently ongoing. Implementation date was 9/1/2020.
- c. Who are the key groups in the target population who make the adoption decision? The RN Care Manager and Manager of the Complex team will be the driving forces to changing status quo.
- d. What is your initial strategy to reach all sites? The initial strategy was to create buy in through shared vision in a dedicated meeting space for the RN Care Managers, the Manager of Complex Care, and the Informatic Analyst/Trainer (s). I also asked for their assistance with the implementation plan. Early on, the analyst/trainer (s) became champions to the project. There is not one specific site for the project. It involves data sharing and completion after speaking with parents/patients who meet criteria for the Medically Dependent Children Program (MDCP). It is one team responsible.
- e. What are your plans to establish two-way communication between those leading spread and the pilot site(s)? Weekly meetings with the Manager of the Complex Team, and the Analyst/trainers. I also had a meeting recently 11/2/2020 with the end-user of the CCMT tool, the Care Manager for feedback.
- f. What is the initial strategy for reward and recognition of participation and progress? The meeting on 11/2/2020 was a luncheon to ask, how are things going? We made it fun with team building and each nurse received a gift card for his or her work.
- g. Where are resources available? The analyst/trainer (s) are key to the success and sustainability of the project as they communicate and develop ongoing reporting of the CCMT tool. I also have available, the Manager of the team, and one administrative assistant that chronicles the data. I am fortunate as all the data/reporting is in the EPIC EMR.

My industry mentor, the complex medical director, also has a relationship with Boston Children's and the author of the CCMT tool. That is an invaluable resource to ensure we as a system keep the integrity of the intent of the application of the CCMT.

3. Strengthening the Social System

- a. Who are the key messengers to help explain the new system to the target population? The analyst/trainers are the key messengers of this project.
 - i. How will you identify them? I manage them and made this project a part of their responsibility, as they are responsible for all training and reporting for my area.
 - ii. What technology will you use to help them? Fortunately, the CCMT is embedded into the EPIC platform HER. All reporting will be derived from input of the CCMT assessment. They have full access.
 - iii. How will you continue your relationship with them? I have weekly meetings to discuss progress.

- iv. How will you provide feedback? I provide constructive feedback during the weekly meetings addressing any data or performance concerns.
- b. Can communities of practice be established to facilitate discussions among peers? N/A
 - Are these communities needed for your spread work? N/A
 - i. How will you provide a time and place for people to interact? Although not a community space, I am providing a bi-monthly touch in with me and the Manager meets with the team twice a week to answer questions. This allows for a proactive implementation with sustained results.
 - ii. What will motivate them to form communities? The team of RN Care Managers are motivated to help the families and patients that have extreme complexity. They work closely together and have figured out ways to use best practice when completing the tool. I did not have to motivate.
 - iii. How will you encourage communication and feedback among the group? I have done that through the establishment of bi-monthly with bi-weekly huddles and myself with their manager.
 - iv. How can you support them? I am always available by phone or email. Fortunately, at my level in the organization this is a group implementation project. The team is excited to be a part of it.
 - v. What technology will you use to help them? Email and Telephone.
- c. What tools or methods did the successful pilot sites use that can make it easier for the new teams to make changes? The bi-weekly meetings with the leadership team have been helpful per report of the Case Managers.
 - i. How will you transfer those tools, methods and knowledge to other teams? The change will be easily implemented into the BH program when the time comes. I now have history of the tool, and its results.
 - ii. How will you share documents? A training curriculum with PowerPoint and testing was developed for implementation 1. These documents will be shared with the analysts/trainers taking lead.
 - iii. How will you encourage new teams to hear from pilot site teams? By email/telephone
 - iv. How will you enable an “all teach, all learn” environment? By being open and transparent. Providing clear direction of the goal with opportunities for Q&A.
 - v. How will you encourage pilot site teams to learn from new teams? The new team will be encouraged in the beginning to go to our training team or their leader for any concerns or questions.
- d. How will the leadership stay involved and connected to the front-line teams? I have weekly meetings with the Manager team; this is a place where CCMT tool can be discussed. If urgent, I can be contacted via jabber, email, or cell phone.gw

4. Developing a Communication Plan

- i. How will awareness of the initiative be communicated? A 4-hour training class with materials was presented after buy-in was obtained from the Care Managers.

- ii. Have the benefits been documented? Yes, the benefits of the CCMT include operational efficiency, measurable care coordination outcomes and standardized documentation.
Is comparative data available? Yes, pre- and post-utilization data of services are available. Measurement of care coordination effectiveness is not.
- iii. What channels will be used to raise awareness in the target population? A discovery meeting to get buy in then a 4-hour training.
- iv. How will technical knowledge be communicated? Training class stated above. The training curriculum is developed by Richard Antonelli, founder of the CCMT tool. My team (informatic analyst and trainers) worked to provide high-level overview, cheat sheet, PowerPoint, and evaluation quiz. The EPIC team created the CCMT tool so that it would easily be accessible for MDCP patients with a single sign on.
 - 1. Have potential changes and ongoing learning been documented in a succinct format? Yes, we are keeping track of any changes to the reporting data. Making the information more detailed.
 - 2. What face-to-face interactions are planned? Due to COVID, no face-to-face interactions will be completed in person.
 - 3. How will successful sites be involved to supply technical support? The EPIC team and my internal team support all programs.
- v. How will key measures be communicated to leadership? Since I am a part of leadership, I receive access to all data reports. Thus far, the feedback received from the team is positive. I then have communicated these updates to the Medical Directors.
- vi. How will assessment of progress and results be communicated back to the pilot units? N/A

5. Developing the Measurement and Feedback System

- i. How will outcomes be measured? Pre and Post Data for utilization of services for the MDCP population. Quantity of CCMT assessments completed, and review of increase or reduction of services.
- ii. How will the rate of spread be monitored? The spread is limited to only the group of care managers on the team.
- iii. Who will be responsible for collecting, plotting and sharing the data? All data is stored in the EPIC EMR. It is easier to track, trend, and report.
- iv. What information / reports will be used to monitor and refine the spread strategy? CCMT report was created that will demonstrate all activities, how many completed, all utilization and outcomes post implementation.
- v. How will measures and analyses be fed back to the pilot units to support and encourage further progress? There are no pilot units planned for this project.
- vi. How will pilot units be rewarded and recognized for participation and progress? There are no pilot units planned for this project.

Second Section:
Assessing Readiness for Spread (p. 14-15- see for instructions on rating this)

Steps	Score
Step 1: Has the organization defined a goal for spread?	5
STEP 2: Has the organization selected a spread team?	5
STEP 3: Was the pilot team successful?	5
STEP 4: Is the planned change (spread goal) in the organization's strategic plan?	2
STEP 5: Are measures (spread action plan) in the organization's performance improvement plan / agreement?	5
STEP 6: Can staff maintain the data registry?	5
STEP 7: Is someone in leadership responsible for spread?	5
STEP 8: Are there potential major distractions affecting spread? (rate item 5 if no distractions; 1 if many OR a singular major distraction)	1
STEP 9: Does the executive director really believe in the proposed model, and the need to implement it within the health center system of care?	5
STEP 10: Did you answer 'yes' comfortably to all the questions above?	5

Third Section:

Sustainability Scoring System (p. 18-20- see these pages for instructions)

Process- Highlight your score or put it in the box to the left. Select ONE score from each section that best aligns with your project implementation. Total this section at the end.

Score		Benefits beyond helping patients
8.4	8.7	The change improves efficiency and makes jobs easier
	4.7	The change improves efficiency but does not make jobs easier
	4.0	The change does not improve efficiency but does make jobs easier
	0.0	The change neither improves efficiency nor makes jobs easier
Score		Credibility of the results
9.1	9.1	Benefits of the change are immediately obvious, supported by evidence and believed by stakeholders
	6.3	Benefits of change not immediately obvious, even though supported by evidence and believed by stakeholders
	3.1	Benefits of change not immediately obvious, even though supported by evidence. Not believed by stakeholders
	0.0	Benefits of change neither immediately obvious, supported by evidence nor believed by stakeholders
Score		Adaptability of improved process
7.0	7.0	Process can be adapted to other organizational changes and there is a system for continually improving process
	3.4	Process can be adapted to other organizational changes but there is no system for continually improving process
	2.4	Process unable to adapt to other organizational changes, but there is a system for continually improving process
	0.0	Process unable to be adapted to other organizational changes, and no system for continually improving process
Score		Effectiveness of system to monitor progress
6.7	6.7	System in place to identify evidence of progress, monitor progress, act on it and communicate results
	3.3	System in place to identify evidence of progress and act on it, but results are not communicated
	2.4	System in place to identify evidence and monitor progress. Results communicated but no one acts on them
	0.0	No system in place to identify evidence of progress, monitor progress, nor act on or communicate it
31.2		PROCESS TOTAL SCORE (Total highlighted scores)

Staff

Score		Staff involvement and training to sustain process
11.0	11.0	Staff involved from beginning of the change and adequately trained to sustain the improved process
	4.9	Staff involved from beginning of the change but not adequately trained to sustain the improved process

	6.3	Staff not involved from beginning of the change but are adequately trained to sustain the improved process
	0.0	Staff neither involved from beginning of the change nor adequately trained to sustain the improved process
Score		Staff attitudes towards sustain change
11.0	11.0	Staff feel empowered as part of the change process and believe the improvement will be sustained
	5.1	Staff feel empowered as part of the change process but do not believe the improvement will be sustained
	5.1	Staff do not feel empowered as part of the change process but believe the improvement will be sustained
	0.0	Staff neither feel empowered as part of the change process nor believe the improvement will be sustained
Score		Senior leadership engagement
15.0	15.0	Organizational leaders take responsibility for efforts to sustain the change process, and staff generally share information with and actively seek advice from the leader
	6.2	Organizational leaders do not take responsibility for efforts to sustain the change process, but staff generally share information with and seek advice from leader
	5.7	Organizational leaders take responsibility for efforts to sustain the change process, but staff typically do not share information with or seek advice from the leader
	0.0	Organizational leaders do not take responsibility for efforts to sustain change process, and staff typically do not share information with and seek advice from the leader
Score		Clinical leadership engagement
15.0	15.0	Clinical leaders take responsibility for efforts to sustain change process, and staff generally share information with and actively seek advice from the leader
	6.7	Clinical leaders take responsibility for efforts to sustain change process, and staff generally share information with and actively seek advice from the leader
	5.5	Clinical leaders take responsibility for efforts to sustain the change process, but staff typically do not share information with or seek advice from the leader
	0.0	Clinical leaders do not take responsibility for efforts to sustain change process; staff typically do not share information with and seek advice from the leader
52		STAFF TOTAL SCORE

Organization

Score		Fit with organization's strategic aims and culture
7.2	7.2	A history of successful sustainability and improvement goals are consistent with organization's strategic aims
	3.3	A history of successful sustainability but improvement and organization's strategic aims are inconsistent
	3.5	No history of successful sustainability but improvement goals are consistent with organization's strategic aims
	0.0	No history of successful sustainability; improvement goals and organization's strategic aims are inconsistent
Score		Infrastructure for sustainability
9.7	9.7	Staff, facilities and equipment, job descriptions, policies, procedures and communication systems are appropriate for sustaining the improved process
	4.4	Appropriate level of staff, facilities and equipment but inadequate job descriptions, policies, procedures and communication systems for sustaining the improved process
	3.3	Appropriate level of staff, facilities and equipment but inadequate job descriptions, policies, procedures and communication systems for sustaining the improved process
	0.0	Staff, facilities and equipment, job descriptions, policies, procedures and communication systems are all not appropriate for sustaining the process
16.9		ORGANIZATION TOTAL SCORE

Total Sustainability Score

Process Score	31.2
+ Staff Score	52
+ Organization Score	16.9
Sustainability Total Score	100.1

Fourth section:

**Change Achievement Success (CAS) Indicator (See p. 20-22 for instructions)
Score 0-5 for each box of each set of questions. See instructions for relative weighting.**

Local Change Management	
1.1 Formal change leadership	
<ul style="list-style-type: none"> Is responsibility / authority for making change assigned to one person, who reports to senior management? Do they have the time and the technical, people and political skills to plan and carry through the change and adapt to surrounding changes? 	5
<i>Relative importance weighting</i>	1.5
1.2 Formal change team	
<ul style="list-style-type: none"> Do the right mix of people make up a “change team”? Do they have sufficient time and skills to help carry through the change? Is it likely that over 60% of the team will remain in the team until change is completed? 	5
<i>Relative importance weighting</i>	1.5
1.3 Planning	
<ul style="list-style-type: none"> Is there a plan for the change, with flexibility to adjust to a changing situation? Does this have measurable objectives and a timetable of actions with responsibilities? Is there an agreed process for reviewing and replanning at regular intervals, including input and assistance from senior management? 	5
<i>Relative importance weighting</i>	1.5
1.4 Progress measurement, reviews, and reporting	
<ul style="list-style-type: none"> Have progress indicators been designed to give feedback about the change? Is this data regularly reported and used in reviews, adjusted to the changing situation? Are there regular meetings and ways to communicate with management and “key others” about the change? 	4
<i>Relative importance weighting</i>	1
1.5 Other resources	
<ul style="list-style-type: none"> For change and change team, is there sufficient finance, access to expertise, training as needed, data support and other resources necessary? 	5
<i>Relative importance weighting</i>	1
The Nature of the Change	
2.1 Complexity	
<ul style="list-style-type: none"> Does the change require little new learning or skills? Does it involve people from similar occupational groups? 	5

<ul style="list-style-type: none"> • Does it affect or concern few different “interest groups” or stakeholders? • Is it a single, shortchange? • Is success independent of sub-changes being completed and is there flexibility? 	
<i>Relative importance weighting</i>	1.5
2.2 Compatibility, advantage, tested, and trialability	
<ul style="list-style-type: none"> • Is change compatible with our values and operating procedures, and has a clear advantage over the current situation? • Have similar changes been made elsewhere, and is this knowledge and evidence used to make the change? • Has the change been tested in the organization on a small scale and lessons used to help the full change? 	4
<i>Relative importance weighting</i>	1.5
2.3 Cost benefit	
<ul style="list-style-type: none"> • Are there credible numbers showing the change will lower recurrent operating costs, and require few “investment” resources to carry through, relative to savings (including little extra personnel time), as calculated, and perceived? 	5
<i>Relative importance weighting</i>	.5
Organizational Content	
3.1 Link between the change and the environment	
<ul style="list-style-type: none"> • Is there a process for “linking” the change to critical environmental pressures, or people responsible for planning and adjusting the change to relate to the environmental pressures? 	4
<i>Relative importance weighting</i>	.5
3.2 Harnessing the other changes	
<ul style="list-style-type: none"> • Has an assessment been made of other changes in the organization, and linked to the change to strengthen it? • Is the change related to what “wants to happen in the organization” and emergent movements? 	5
<i>Relative importance weighting</i>	1.5
3.3 Senior Management	
<ul style="list-style-type: none"> • Do top management authorize the change and provide resources? • Have they set measurable objectives and time targets for the change? • Will one top manager formally supervise the change and receive reports of progress and problems? 	5
<i>Relative importance weighting</i>	1
3.4 Middle Management	
<ul style="list-style-type: none"> • Are some middle managers required to support the change? • Are these middle managers genuinely convinced that the change is needed and accountable for helping the change to be achieved? • Will the change help them meet objectives and do they spend time and resources to remove obstacles? • Is there a mechanism for keeping them regularly informed about the progress and consequences of the change? 	5
<i>Relative importance weighting</i>	1
3.5 Other leaders	
<ul style="list-style-type: none"> • Is it known which other formal / informal leader’s opinion is needed to progress change? • Has action been taken to influence their opinion, and do they have a positive attitude to the change? 	5

<ul style="list-style-type: none"> Is there one or more respected professional who actively advocates for the change and is involved in the change (a "change champion")? 	
<i>Relative importance weighting</i>	1
3.6 Rationale and tension for the change	
<ul style="list-style-type: none"> Are those affected by the change dissatisfied with the current situation and believe the change will improve things? Has evidence or good reasons been provided that the change will improve the situation of concern to them? Has a vision of intended future been presented and believed possible? 	4
<i>Relative importance weighting</i>	1.5
3.7 Change culture and attitudes	
<ul style="list-style-type: none"> Is the organization "change friendly"? Are changes like the one in question normally welcomed? Are personnel comfortable with change like this one? 	4
<i>Relative importance weighting</i>	1
3.8 Change saturation	
<ul style="list-style-type: none"> Personnel are not exhausted from and currently responding to many other changes The change does not add another burden to people's already over- stretched "change coping capability" 	4
<i>Relative importance weighting</i>	1
External Context	
4.1 Customer Pressure	
<ul style="list-style-type: none"> Are there pressures from customers for a change, and how much will or does the change respond to these? 	0
<i>Relative importance weighting</i>	0.5
4.2 Political Pressure	
<ul style="list-style-type: none"> Is there pressure from local or national politicians for the change, and how much do they support it? 	0
<i>Relative importance weighting</i>	0.5
4.3 Economic Pressure	
<ul style="list-style-type: none"> Does the change respond positively to current economic or market pressures on the organization? 	5
<i>Relative importance weighting</i>	1.5
4.4 Other external pressures	
<ul style="list-style-type: none"> Is there other very strong pressure, to which the organization must respond if it is to survive? Assess whether the change will help the organization respond to this pressure or not. 	4
<i>Relative importance weighting</i>	1
Total Score	105

My DNP has been successfully implemented following the Bullock and Batten Change (Explore, Plan, Action, and Integrate) model. This helped facilitate buy-in, planning, and quick implementation with a committed leadership team. I am fortunate to be the lead decision maker which allows for EPIC integration.