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Developing a Program Evaluation Plan for Medicaid Prenatal Care Management Programs

Shardae Sims
University of Nebraska Medical Center

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Medicaid Prenatal Care Management Programs

Shardae Sims, College of Public Health

Health Promotion

Committee Members:

Committee Chair: Shannon Maloney, PhD.

Melissa Tibbits, PhD.

Drissa Toure, MD., PhD., MPH

Table of Contents

Abstract

Prenatal care management (PNCM) is an intervention that targets women during the perinatal period to improve birth outcomes. PNCM has the potential to address social determinants of health issues and gaps or barriers to care that could lower incidences of adverse birth outcomes in Nebraska. There is currently a gap in the literature for studies that fully assess the impact of prenatal care management programs and the program's ability to reach set goals. The purpose of this research is to develop an evaluation plan and potential implementation strategies that can be utilized by the Medicaid PNCM program in Nebraska. The three Nebraska Medicaid managed care organizations (MCO) were contacted to be interviewed regarding their current evaluation methods for their PNCM programs. Additionally, other community organizations that offer PNCM services were contacted to be interviewed for further guidance on evaluation methods for PNCM programs. Two MCOs and one community organization agreed to be interviewed, and their responses were used to generate a program description of PNCM programs. A process flow and logic model of the Medicaid PNMC program were created to assist in organizing and developing an evaluation plan proposal and a potential implementation plan.

Background

The economic and social impact of adverse birth outcomes such as Neonatal Intensive Care Unit (NICU) admissions, preterm delivery, and low birth weight can have lasting effects on a newborn and their guardians. Preterm delivery of a baby before 37 weeks of gestation could lead to long-term health and developmental issues. Preterm delivery and low birth weight can also lead to death (Center for Disease Control and Prevention, 2019). In addition, preterm delivery can lead to emotional and financial burdens for families and mothers (Center for Disease Control and Prevention, 2019a). The average cost of one NICU admission for a prematurely born infant is around $40,000 for Medicaid programs, and the expense is even higher for commercial insurance plans (McLauring et al., 2017).

According to the Office of Health Disparities and Health Equity (2020), inadequate prenatal care, poor environmental and economic conditions, and lifestyle choices are some potential contributors to adverse birth outcomes. In Nebraska, preterm labor rates were associated with the mother's education level and income status. Women who had less than a high school education experienced higher rates of preterm labor compared to women who attained higher levels of education. Similarly, women who earned an income 194% below the Federal Poverty Level experienced higher rates of preterm delivery than women who earned an income 194% above the Federal Poverty Level (Nebraska Department of Health and Human Services, 2020). Pregnant women who are eligible for Medicaid must be 194% below the Federal Poverty Level in Nebraska, which corresponds with the population at risk for high rates of preterm delivery.

Prenatal care can be a protective factor that prevents adverse birth outcomes. Delayed initiation of prenatal care or initiating prenatal care later than the first trimester is less likely to be

effective. Moreover, receiving no prenatal care during pregnancy is associated with higher incidence of adverse birth outcomes (Office of Health Disparities and Health Equity, 2020). In Nebraska, about 25% of the women that delivered in 2016 either delayed prenatal care until the second or third trimester or did not access prenatal care. In that same year, around 15% of the women who delivered received inadequate care during pregnancy (Nebraska Department of Health and Human Services, 2016).

These adverse birth outcomes do not occur equally throughout Nebraska populations; racial and ethnic minorities are disproportionately at risk. In the state of Nebraska, Hispanic, African American, and Native American/American Indian populations are less likely to initiate prenatal care in the first trimester than other racial and ethnic groups. Infant mortality rates are highest in the African American populations at rates more than double those of White populations. Native American/American Indian populations suffer from have higher incidence of infant mortality than White populations as well. African Americans, Native Americans/American Indians, Asians, and Hispanics were more likely than Whites to use Medicaid as a form of payment for inpatient hospital stays (Office of Health Disparities and Health Equity, 2020). Furthermore, Medicaid was the principal source of payment for 31% of deliveries in 2016 (Nebraska Department of Health and Human Services, 2016).

Pregnant women in Nebraska who experience social determinants of health issues, lack access to prenatal care, and live in poor economic or environment housing could experience higher occurrence of adverse birth outcome (Office of Health Disparities and Health Equity, 2020). There is potential for these populations to be reached by Nebraska Medicaid Managed Care Organizations (MCO) during pregnancy to prevent adverse birth outcomes. Prenatal care management is an intervention offered by Nebraska Medicaid MCOs that aims to address these

social determinants of health issues and barriers or gaps in care. Prenatal care management has shown promise in other maternity Medicaid populations. The Wisconsin Medicaid program concluded that this intervention had the potential to reduce incidences of low birth weight and preterm labor (Mallinson et al., 2019). Hillemeier et al. (2015) also concluded there was a reduction in risk of preterm delivery in Medicaid enrolled women who received prenatal care management services. Evaluating if prenatal care management is an effective solution to improve birth outcomes can potentially lead to improvements of the current program or adapting effective measures to similar populations.

Literature Review

Currently, there are limited evaluation plans that are specific to PNCM programs. Many of these studies center around the impact of PNCM programs on birth outcomes. The definition for prenatal care management was consistent throughout the literature and all the studies aligned with the Nebraska Medicaid definition of care management. The majority of the studies included elements of care management outlined in the Nebraska Department of Health and Human Services' (2020a) standards for Medicaid care management, which include the following: utilizing trained staff that makes referrals to community resources, providing health education, encouraging members to use self-management techniques, ensuring or coordinating access to care, assisting with arranging transportation to medical appointments, completing medication reconciliation, and any additional assistance needed by members who are eligible to be enrolled in care management.

Conversely, the terms used to describe prenatal care management varied throughout the studies. Nebraska uses Prenatal Care Management, while other studies use terms like Maternity

Care Coordination, Prenatal Care Coordination and other names that were program specific. Overall, Maternity Care Coordination was the most represented in the literature.

Almost half of the studies reviewed evaluated if prenatal care management was effective at improving birth outcomes. Hillemeier et al. (2015) examined the effectiveness of care management during pregnancy in North Carolina. The study found that participating in prenatal care management was associated with reducing preterm deliveries. Guo et al. (2016) explored the improvement of birth outcomes due to home visits by community health workers (CHW) in California. During the home visits, CHWs provided care management to pregnant women. CHWs' efforts were associated with higher birth weight and longer gestation periods.

A recent systematic review of thirty-three prenatal care management studies and their results concluded that the majority of studies saw a positive association between birth weight and prenatal care management utilization (Kroll-Desrosiers et al., 2016). Redding et al. (2015) set out to determine if care management during pregnancy would increase birth weight. The study utilized CHWs in Ohio to deliver care management to high-risk populations. There was evidence to support that women with high-risk pregnancies that utilized the services offered by CHWs delivered infants with a lower incidence of low birth weight than women who did not utilize the services offered by CHWs. A 2019 study in Wisconsin assessed the correlation between prenatal care management, birth weight and gestational age of women enrolled in Medicaid. The study concluded that the intervention was potentially effective at reducing incidence of low birth weight and preterm labor in the study population (Mallinson et al., 2019). Brown et al. (2017) analyzed the relationship between birth outcome and when care management was initiated. The study was conducted in Kansas and compared birth outcomes of those who received care

management during pregnancy versus those that did not. Those who received care management during pregnancy had better birth outcomes than those who received it postpartum.

The second half of the studies reviewed displayed elements of a more comprehensive program evaluation, such as participant satisfaction, PNCM team member collaboration, and impact on factors outside of birth outcomes. Mattock et al. (2017) evaluated recipients' satisfaction with a telephonic prenatal care management program in Massachusetts. Almost all of the recipients were satisfied with the services delivered. Similarly, Heitzman et al. (2019) gathered client's thoughts on the prenatal care management conducted by the Wisconsin Health Department. Overall, the clients reported a positive experience. The support from the prenatal care management team and referrals during pregnancy were cited as benefits of the program by the clients interviewed.

Another study regarding prenatal care management was conducted in North Carolina. Hillemeier et al. (2018) reviewed health care utilizations relationship to prenatal care management. The study found that engagement in care management showed an increase in prenatal care visits. Guo et al. (2019) explored the different relationships between prenatal care management teammates, clients, and providers in California. After interviews and focus groups with the prenatal care management teams were conducted, it was concluded that communication and collaboration between care management teams are important to the success of the intervention. Additionally, they concluded that the intervention was effective at empowering clients and bolstering the relationship between provider and client. None of these studies looked at the program in their entirety but assessed select elements of the PNCM program.

Methods

The main objective of this research project is to create an evaluation plan and propose an implementation plan. Initially, the three Nebraska Medicaid MCOs were invited to be interviewed. Two of the MCOs agreed to be interviewed and one declined to participate. Their responses were used to develop a program description, process flow, logic model and evaluation methods. During one of the interviews, an additional community organization was identified to be interviewed. The organization was reported to have collaborated with the MCO's PNCM program in the past. The organization was contacted to be interviewed but did not respond to the inquiry. As a result, another community organization was located by researching other organizations that offered similar services to the Medicaid PNCM program. The community organization that offered PNCM services was contacted and agreed to be interviewed. The interviews were approximately 30 minutes in length, recorded, and transcribed to simplify data analysis. To protect the interviewees and their organization's identities, the interviewee's responses were coded. In this study, the two MCOs will be referred to as MCO1 and MCO2. The community organization will be referred to as CO1.

The interviews (Appendix A) were structured to guide the discussion towards identifying program objectives, outcomes, and create an evaluation procedure to assess the efficiency of the PNCM program operating procedures. Evaluation methods from each program were combined to create an evaluation plan that analyzed each aspect of the Medicaid PNCM program. Implementation strategies such as frequency of data collection and sources for data evaluation measures were incorporated into the plan. In addition, these interviews were used to generate a program description, process flow, logic model, and define the elements of the PNCM programs.

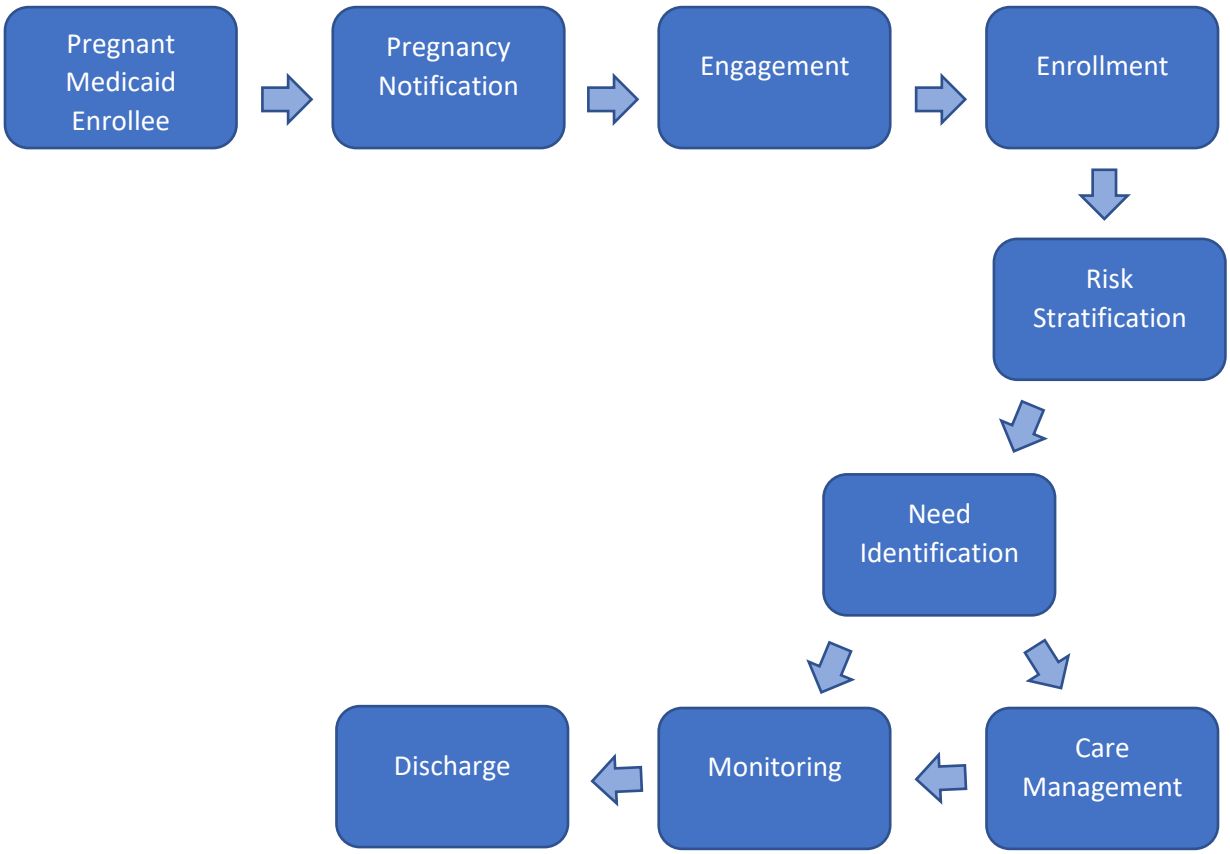

Figure 1. PNCM Process Flow.

The program description was divided into sections that represent each section of the Medicaid PNCM program which is illustrated in Figure 1. The definitions for each section will be discussed in the program evaluation plan. A logic model (Figure 2) was created to map the program components and assist in developing an evaluation plan.

Nebraska Medicaid Prenatal Care Management Program

The program aims to prevent adverse birth outcomes by providing care management to women during the perinatal period.

Inputs

Funding:
- Medicaid

Fixed Capital Infrastructure:
- Hospitals
- OBGYN clinics and offices
- Community organizations

Variable Inputs:
Personnel (FTE) dedicated to program:
- Care managers
- Care manager supervisors
- Medicaid contracted health care providers
- Nebraska Department of Health and Human Services Medicaid and Long-Term Care Staff

Partners/Stakeholders:
- Community Organizations

Materials & Equipment:
- Care management training material
- OBGYN training material
- Supplies, pens, notebooks, etc.
- Computers, desks, telephones, vehicles, etc.
- MCO office space
- Software/systems for claims, documentation, care planning and medical records

Figure 2. Nebraska Medicaid Prenatal Care Management Logic Model

Program Description

Pregnant Medicaid Enrollees

The required target population for the Medicaid PNCM program is pregnant Medicaid recipients. The target population is referred to as members within the Medicaid PNCM program. To be eligible for Medicaid, these women must meet income requirements by earning an income of 194% below the Federal Poverty Level. If the mother is not eligible for Medicaid, her unborn child can qualify through the 599 Child Health Insurance Program (599 CHIP), as long as the mother's income falls below 197% of the Federal Poverty Level. The goal of the Medicaid PNCM program is to prevent adverse birth outcomes by providing care management to women during the perinatal period.

The community organization interviewed serves a population that overlaps the target population of the Medicaid PNCM program and can refer those who are eligible to enroll in Medicaid. For CO1's PNCM program, the target population is referred to as participants, which represents their active engagement in their care. A significant difference between the MCOs and the community organization is that their target population includes pregnant women and their families and covers a smaller geographic region in Nebraska. The CO1's PNCM program goals are to decrease infant mortality and address systemic issues that perpetuate health disparities, particularly in African American populations.

Pregnancy Notification

The process of identifying women who are pregnant can vary. While the CO1 PNCM program identifies the target population only through direct referrals from healthcare providers or clinics, the sources of pregnancy notification for the Medicaid PNCM program include the following:

- Self-reporting from women
- Claims data indicating a pregnancy
- Pharmacy data indicating a pregnancy
- Direct provider referrals through a version of the Obstetric Needs Assessment Form (ONAF)
- Emergency department or inpatient admission or discharge notification indicating a pregnancy

The Medicaid PNCM program is required to enroll women who have high-risk pregnancies. Because of this, it is important to note that the Medicaid PNCM program prefers the ONAF pregnancy notification as it assists in meeting requirements to enroll women who are identified as having high-risk pregnancies. The ONAF includes questions that identify women who have high-risk pregnancies, pregnancy history, member contact information, and social determinants of health needs. In addition, MCO1 reported that providers receive an incentive for each completed ONAF that is received in a timely manner.

Engagement

Once MCO staff receive notifications of pregnancies, phone calls, email, field visits, and mailings are used to engage eligible women to be enrolled in the Medicaid PNCM program. Contact information is garnered from sources such as the ONAF, claims or pharmacy data, or other healthcare providers. Since the CO1 PNCM program only receives direct referrals, missing contact information for eligible women is not typically a concern.

The MCOs and the community organization interviewed engaged with Obstetrics and Gynecology (OBGYN) clinics, stakeholders, and other community organizations that encounter

the target population. MCO1 specified that OBGYN provider offices, community organizations, and Federally Qualified Health Centers are educated on the services of the PNCM program and how the program can help support the pregnant Medicaid population.

Enrollment

Women voluntarily participate in the PNCM programs. Both MCO and the community organization care management staff explain their PNCM programs to eligible women during initial contact and then women can choose either to agree or decline to be enrolled. Women are eligible to participate in the Medicaid PNCM program throughout pregnancy and 60 days after delivery or pregnancy termination. Women covered by 599 CHIP are only eligible to participate up until delivery. The CO1 PNCM program follows women throughout pregnancy and up until 366 days after delivery. At any time, women can choose to no longer participate in the PNCM programs.

Risk Stratification

Women enrolled into the Medicaid PNCM program are required to complete a risk stratification assessment. The assessment classifies women into low-, medium-, and high-risk categories. There were differences in how the MCOs conduct their risk stratification and who qualifies for care management. The CO1 PNCM program is not under the same requirements as the Medicaid PNCM program and does not require risk stratification.

MCO1 reported that their risk stratification assessment evaluates pregnancy risk and care management need. MCO1 provides care management to women that are in medium- and high-risk categories. Women who have a history of adverse birth outcomes or medical conditions are considered high-risk. Women who have social determinants of health needs are considered medium-risk. Women who have neither a history of adverse birth outcomes or medical

conditions or social determinants of health needs, are consider low-risk. The member's risk stratification also aligned with the type of staff that provided care management. Members in the medium-risk category are managed by care management staff with a background in social work. Members in the high-risk category are managed by care management staff with a nursing background in Obstetrics and Gynecology and or Labor and Delivery. Care management staff with a behavioral health background are available for consultation and collaboration for women with behavioral health needs or conditions. There is also care management staff with NICU nursing background that are assigned to manage infants that are admitted to the NICU.

MCO2 did not divulge the specifics of their risk stratification assessment. MCO2's did report that their care management staff also have nursing experience in Obstetrics and Gynecology or have a background in care management. The major known difference between the two MCOs is that MCO2 provides care management to women that fall into low-, medium-, and high-risk categories where as MCO1 only provides care management to women in the medium- and high-risk categories.

Needs Identification

Members and participants are also assessed to pinpoint areas of impact for the care management staff. The needs identification stage is revisited in both the Medicaid and CO1 PNCM programs as long as the member or participant is enrolled. MCO1 specified that the risk stratification is separate from the assessment of the member's needs. This stage is the first of three stages that have a cyclic nature in the PNCM programs. The needs identification assessment includes questions that gauge a member's medical and pregnancy history. There is also a portion of the assessment that evaluates if the member has social determinants of health issues. MCO2 did not share explicit details of their needs assessment. Other responses during the

interview indicated that medical and pregnancy history and social determinants of health are assessed when a member is enrolled in the Medicaid PNCM program.

The CO1 PNCM program has a different process to identify the needs of participants but does acquire similar information to that of the Medicaid PNCM program needs assessments. The program has an extensive intake process, which involves educating the participants on the goals, benefits, and their role in the program. The assessment questions inquire about medical history, health insurance, access to care, social determinants of health needs, and other factors. The participants in the CO1's PNCM program are also referred to Medicaid if eligible. This PNCM program also conducts prenatal surveys used to gauge participants' knowledge about pregnancy, infant mortality, parenting, and the ability to advocate for themselves and their child.

After delivery, postpartum follow-up is another important aspect of the program for the Medicaid PNCM program. A delivery notification will prompt the care manager to contact the member for postpartum outreach. Results of the birth outcome, emerging conditions associated with postpartum, and reassessment of other factors discussed during enrollment are reviewed with women after delivery. This time period is crucial as a mother may no longer qualify for Medicaid eligibility after delivery and their discharge from the Medicaid PNCM program is soon approaching.

Care Management

After needs are assessed, the member or participant and their care manager collaborate to set health goals, which are documented in a care plan. Designing a care plan is a collaborative and person-centered process between the member or participant and their care manager. Areas of impact identified in the previous stage should directly correlate with the member's goals documented in the care plan. Then a care management activity will be matched to the goal.

For example, if a member or participant reports that she has a food insecurity issue, there should be a corresponding goal in her care plan that addresses this issue. Next, the care manager will select the appropriate care management activity. In this case, it is likely that the care manager will refer the member or participant to community resources or social services to help address the member's or participant's reported food insecurity.

The Medicaid PNCM program follows the National Committee for Quality Assurance (NCQA) standards for documentation and guidance on designing care plans. MCO1 specified that when a member grants permission, the care plan is shared with rest of the care team or the member's healthcare providers, caregivers, or other case workers that are involved in members' care. The care plan is dynamic and should be consulted and updated to reflect the member's progress. Additionally, the care management stage is revisited based on changes in a member's or a participant's needs and information shared during follow-up outreaches. This is the second of the three stages included in the cyclic nature of the PNCM programs. The services offered through care management are relatively similar between the Medicaid and CO1's PNCM program. The majority of the care management activities are listed below.

Care Management Activities:

- Care planning
    - Self-management techniques
    - Goals related to:
        - Gaps and barriers to care
        - Disease management
        - Social determinants of health needs
    - Share care plan with care team

- Coordinating care
    - Compliant with prenatal and postpartum care appointments
    - Emergency department or inpatient discharge, follow up with providers after discharge
    - Coordinating appointments and follow up with different care team members
    - Connecting with new medical providers
        - Specialist
        - OBGYN
        - Pediatrician
- Medication reconciliation
    - Ensure compliance with medications
- Connecting with community resources and social services to address social determinants of health
    - Transportation (Medicaid sponsored and or public transportation)
    - Food insecurity (SNAP, WIC, foodbank/pantry)
    - Financial assistance
    - Housing assistance (Housing Authority)
    - Domestic violence assistance
- Breastfeeding support
    - Referral to breastfeeding support
    - Assist in obtaining a breast pump
- Health education

- 17-Alpha-Hydroxyprogesterone Caproate (Makena and 17P)
- TDAP vaccination
- Healthcare Effectiveness Data and Information Set (HEDIS)
- Flu shot
- Kick count
- Importance of prenatal and postpartum care
- Breastfeeding
- Tobacco cessation

Care management activities cover a broad area of opportunities to fit the needs of the member or participant. Women are offered health education for activities such as the importance of preventive vaccinations and prenatal and postpartum care. Care management activities also connect women to social services or medical care through assisting members or participants in navigating the health care systems or the network of social services within their communities. Women can receive more hands-on services such as their care manager attending appointments to assist the member with advocating for their needs or providing disease management education.

The Medicaid PNCM program has care management activities that are unique to its program. There are specific objectives to improve member TDAP vaccination rates to prevent whopping cough in infants. Preterm delivery prevention through increasing member rates of Makena and 17P utilization is another focus for the Medicaid PNCM program. MCO1 disclosed that members who might clinically benefit for Makena and 17P are identified and education is provided on the benefits of the therapy. Another distinguishing characteristic of the Medicaid PNCM program is the receival of notifications for inpatient and emergency department admissions or discharges. There is an opportunity to coordinate care for members once

discharged from the hospital or emergency department. Members are contacted after their release for a needs reassessment and care management activities are applied based on the member's request. Care managers are also responsible for checking member's compliance on Healthcare Effectiveness Data and Information Set (HEDIS) measures. This care management activity is another opportunity for care managers to identify gaps in care and ensure members are completing recommended medical care.

Monitoring

The monitoring aspect of the PNCM program refers to continual monitoring of the care management activities that are shared with the member or participant. Both the Medicaid and CO1's PNCM programs monitor and track the plan of care developed in the care management stage, which is used to track member's or participant's progress on agreed upon goals. High importance is placed on members or participants attending prenatal and other appointments with specialists or behavioral health providers. Additionally, both Medicaid and CO1's PNCM programs also provide incentives to members and participants for participating in health promoting activities. Scheduled outreaches are used to follow up with the member or participant to reassess their needs. Outreach frequency can range from every week to every month depending on the needs of the member or participant. During these outreaches, the needs identification and care management stages will be revisited, but not in the same capacity as the initial outreach. Care management activities are continually monitored to ensure they continue to meet the member's or participant's needs. This stage is the last of the three in the cyclic nature of the PNCM programs.

The Medicaid PNCM program receives information regarding a member's admission or discharge from the hospital or emergency department including a notification of delivery.

Typically, there is an additional notification for deliveries that result in NICU admissions. These notifications require an outreach effort to the member for follow-up. MCO1 explained there is a designated care manager that will provide care management to infants admitted to the NICU. Minimal detail was provided about NICU care management during the interview. CO1's PNCM program is notified of the participant's delivery through a different process that was not explicitly discussed during the interview.

Another feature of the monitoring portion of the Medicaid PNCM program is staff training and auditing. MCO1 and MCO2 shared that their care managers all have previous professional experiences in areas such as the medical field or in social work that would prepare them to provide care management. During their employment at the MCO, care managers undergo training on the Medicaid PNCM program goals and how to deliver care management to meet contractual requirements. Ongoing professional development, training, and education is provided to staff members related to care management delivery and OBGYN topics. Care managers' documentation and member outreaches are also monitored. MCO supervisors conduct chart audits to ensure documentation and care plans meet NCQA standards. The supervisors also audit member outreaches with the permission of the member enrolled in the Medicaid PNCM program.

CO1's PNCM program also has onboarding and ongoing training and monitoring procedures that are similar to the Medicaid PNCM program. Staff members' documentation and data entry is monitored on a regular basis. Plus, prior to hiring, staff must have maternal and child health experience and the ability to build rapport with the target population. Before working with the participants, the staff are trained on system involvement and maternal and child health topics. CO1 also has a process in place to provide continual training for their staff.

Discharge

The final step in a PNCM program is a member's or participant's discharge from the program. Ideally, a member or participant would benefit from staying enrolled in the PNCM program for the duration of their pregnancy until they are either the 60 or 366 days postpartum depending on the program, but the member can terminate their participation in the program at any time. The termination of a member's pregnancy discharges members from the Medicaid PNCM program as well.

The details of the discharge process of the Medicaid and CO1's PNCM programs were not specifically discussed during the interview. The most notable difference regarding discharge for the CO1's PNCM program is conducting discharge surveys to assess participant's reason for leaving the program. While there is not a comparable discharge survey for the Medicaid PNCM program, there is a satisfaction survey that is conducted with members in general for the Medicaid program.

Program Evaluation Plan

Evaluation Description

The evaluation plan has ten sections to examine each element of the program and its overall outcome. These metrics were determined based on the interview responses of the MCO and CO1's representatives. The metrics in the evaluation plan correspond to the output and outcomes section in the Medicaid PNCM program logic model (Figure 2). The evaluation will mainly focus on the infant's mother's experience in the Medicaid PNCM program. Evaluation metrics related to infants will center around birth outcome. While NICU care management is a part of the prenatal care management program, the only related metric that is included is NICU

admissions. Not enough detail was provided during the interview process to further analyze the NICU care management element of the program.

The evaluation plan was structured to be user friendly. Each metric has a corresponding numerator, denominator, data source, and frequency of analysis to guide the user. Designated MCO staff such as a data analyst or a quality department staff members can use the plan to know what measure to evaluate, how to evaluate the measure, and how often an analysis should be conducted. Care managers will also be involved in the data collection process. Their role will consist of being responsible for accurately documenting and reporting on metrics specified in the plan. Other MCO Administrative staff members and or the care managers' supervisors will also be involved in the data collection and management process for the program evaluation.

The evaluation plan will be conducted throughout the course of a year. Sampling methods can be modified based on the metric being assessed. As many women eligible for and enrolled in the Medicaid PNCM program as possible should be included in the sample population to increase representativeness of the results. The frequency of analysis varies from monthly, quarterly, and annually based on the measure and the timeliness of data. Data sources more easily accessible will be used more frequently and less accessible will be checked less frequently. The frequency of reviewing these sources of data will be specified in the evaluation plan.

Data sources include:

- Care manager documentation and reporting
- Claims data
- Pharmacy data

- Birth certificate data
- Hospital data
- Medicaid enrollment data
- PNCM program enrollment data
- Pregnancy notification referral sources
- MCO Administrative staff tracking

Evaluation Plan

Pregnant Medicaid Enrollee				
Definition: Pregnant women who are eligible for Medicaid (Income below 194 % of the Federal Poverty Level) or pregnant women who are eligible for Medicaid through 599 CHIP (Income below 197% of the Federal Poverty Level).				
Medicaid Eligibility				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Percentage of women who are eligible to enroll in the PNCM program that are enrolled in Medicaid	Number of pregnant women enrolled in Medicaid	Number of pregnant women enrolled in Medicaid and pregnant women covered by 599 CHIP	Pregnancy notification referral sources, Medicaid enrollment data, MCO Administrative Staff tracking	Annually
599 CHIP/Medicaid Eligibility				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Percentage of women who are eligible to enroll in the PNCM program that are covered by 599 CHIP	Number of pregnant women covered by 599 CHIP	Number of pregnant women enrolled in Medicaid and pregnant women covered by 599 CHIP	Pregnancy notification referral sources, Medicaid enrollment data, MCO Administrative Staff tracking	Annually
Pregnancy Notification				
Definition: The notification of a member's pregnancy.				
Notification Source				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis

Percentage of pregnancy notifications from members	Number of pregnancy notifications from members	Number of total pregnancy notification referrals	Care manager documentation and reporting	Monthly
Percentage of pregnancy notification forms (ONAF) received from provider	Number of pregnancy notification forms (ONAF) received from provider	Number of total pregnancy notification referrals	MCO Administrative Staff tracking	Monthly
Percentage of pregnancy notifications received from inpatient admission or discharge	Number of pregnancy notifications received from inpatient admission or discharge	Number of total pregnancy notification referrals	Care manager documentation and reporting	Monthly
Percentage of pregnancy notifications received from emergency department admission or discharge	Number of pregnancy notifications received from emergency department admission or discharge	Number of total pregnancy notification referrals	Care manager documentation and reporting	Monthly
Percentage of pregnancy notifications received from generated reports	Number of pregnancy notifications received from generated reports	Number of total pregnancy notification referrals	MCO Administrative Staff tracking	Monthly
Notification Source's Relationship to Member Engagement				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Notification sources' relationship to member enrollment	Number of members who agreed to enroll that were referred via ONAF form	Total number of members who agreed to enroll	Care manager documentation and reporting	Annually
Notification sources' relationship to member declining to be enrolled	Number of members who declined enrollment that were referred via ONAF form	Total number of members who declined to enroll	Care manager documentation and reporting	Annually

Notification sources' relationship to member enrollment	Number of members who agreed to enroll that were identified via inpatient admission or discharge	Total number of members who agreed to enroll	Care manager documentation and reporting	Annually
Notification sources' relationship to member declining to be enrolled	Number of members who declined enrollment that were identified via inpatient admission or discharge	Total number of members who declined to enroll	Care manager documentation and reporting	Annually
Notification sources' relationship to member enrollment	Number of members who agreed to enroll that were identified via emergency department admission or discharge	Total number of members who agreed to enroll	Care manager documentation and reporting	Annually
Notification sources' relationship to member declining to be enrolled	Number of members who declined enrollment that were identified via emergency department admission or discharge	Total number of members who declined to enroll	Care manager documentation and reporting	Annually
Notification sources' relationship to member enrollment	Number of members who agreed to enroll that were identified via generated reports	Total number of members who agreed to enroll	Care manager documentation and reporting	Annually
Notification sources' relationship to member	Number of members who declined enrollment that were identified	Total number of members who declined to enroll	Care manager documentation and reporting	Annually

declining to be enrolled	via generated reports			
Notification sources' relationship to member enrollment	Number of members who agreed to enroll who self-reported pregnancy	Total number of members who agreed to enroll	Care manager documentation and reporting	Annually
Notification sources' relationship to member declining to be enrolled	Number of members who declined enrollment who self-reported pregnancy	Total number of members who declined to enroll	Care manager documentation and reporting	Annually
Engagement				
Definition: The process of engaging with women who are eligible for the prenatal care management program and engaging stakeholders that connect with the women eligible for the PNCM program.				
Member Engagement				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Length of time it takes to reach member	Average number of days taken from when pregnancy notification is received until member is contacted for the first time	N/A	Care manager documentation and reporting	Quarterly
Attempts made to contact target population	Number of contacts used to attempt to engage women eligible for the PNCM program	N/A	Care manager documentation and reporting	Annually
Events used to engage target population	Number of outreach events used to engage with women eligible for the PNCM program	N/A	MCO Administrative Staff tracking	Annually
Stakeholder Engagement				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis

Events used to engage stakeholders to improve understanding on the PNCM program and increase potential referrals or engagement of women eligible for the PNCM program	Number of outreach events used to engage and educate OBGYN clinics and providers on the PNCM program goals and benefits for the target population	N/A	MCO Administrative Staff tracking	Annually
Event used to engage stakeholders to improve understanding on the PNCM program and increase engagement and enrollment in the PNCM program	Number of outreach events used to engage with potential partners to meet the PNCM program goals and promote engagement with women eligible for the PNCM program	N/A	MCO Administrative Staff tracking	Annually
Enrollment				
Definition: Member's voluntary decision to accept or decline to be enrolled in the PNCM program.				
Member Enrollment				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Percentage of women who agreed to enroll in the PNCM program	Number of members who agreed to be enrolled in PNCM program	Total number of members contacted to be enrolled in the PNCM program	Care manager documentation and reporting	Annually
Percentage of women who declined to enroll in the PNCM program	Number of members who declined to be enrolled in PNCM program	Total number of members contacted to be enrolled in the PNCM program	Care manager documentation and reporting	Annually
Tracking Enrollment Outreaches				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis

Average amount of contacts it takes to enroll member	Average number of outreaches taken to enroll member	N/A	Care manager documentation and reporting	Monthly
Average length of time taken to enroll member	Average number of days taken from when pregnancy notification is received until member is enrolled	N/A	Care manager documentation and reporting	Monthly
Outreach Type Ability to Enroll Member- Field Outreach				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Percentage of initial enrollment field outreaches calls that result in member enrollment	Number of initial enrollment field outreaches resulting in member enrollment	Total number of initial enrollment field outreaches	Care manager documentation and reporting	Quarterly
Percentage of initial enrollment field outreaches that result in inability to reach member	Number of initial enrollment field outreaches resulting in inability to reach member	Total number of initial enrollment field outreaches	Care manager documentation and reporting	Quarterly
Percentage of initial enrollment field outreaches that result in member declining enrollment	Number of initial enrollment field outreaches resulting in member declining enrollment	Total number of initial enrollment field outreaches	Care manager documentation and reporting	Quarterly
Outreach Type Ability to Enroll Member- Telephone Outreach				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Percentage of initial enrollment telephone calls that result in	Number of initial enrollment telephone outreaches resulting in	Total number of initial enrollment telephone outreaches	Care manager documentation and reporting	Quarterly

member enrollment	member enrollment			
Percentage of initial enrollment telephone calls that result in inability to reach member	Number of initial enrollment telephone outreaches resulting in inability to reach member	Total number of initial enrollment telephone outreaches	Care manager documentation and reporting	Quarterly
Percentage of initial enrollment telephone calls that result in member declining to be enrolled	Number of initial enrollment telephone outreaches resulting in member declining enrollment	Total number of initial enrollment telephone outreaches	Care manager documentation and reporting	Quarterly
Demographic Information of PNCM enrollees				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Demographic characteristics of women who enroll in the PNCM program	Stratification of racial and ethnic groups (White, African American, Native American/American Indian, Asian, and Hispanic) of the PNCM program enrollees	N/A	Medicaid enrollment data linked to PNCM enrollment data	Annually
Demographic characteristics of women who did not enroll in the PNCM program	Stratification of racial and ethnic groups (White, African American, Native American/American Indian, Asian, and Hispanic) of women who did	N/A	Medicaid enrollment data linked to PNCM enrollment data	Annually

	not enroll in the PNCM program			
Demographic characteristics of women who enroll in the PNCM program	Stratification of age ranges of the PNCM enrollees	N/A	Medicaid enrollment data linked to PNCM enrollment data	Annually
Demographic characteristics of women who did not enroll in the PNCM program	Stratification of age ranges of women who did not enroll in the PNCM program	N/A	Medicaid enrollment data linked to PNCM enrollment data	Annually
Demographic characteristics of women who enroll in the PNCM program	Stratification of city and zip code of the PNCM enrollees	N/A	Medicaid enrollment data linked to PNCM enrollment data	Annually
Demographic characteristics of women who did not enroll in the PNCM program	Stratification of city and zip code of women who did not enroll in the PNCM program	N/A	Medicaid enrollment data linked to PNCM enrollment data	Annually
Risk Stratification				
Definition: The stratification of members into low, medium, and high-risk categories to guide type of staff engaging with members and services offered to members.				
Risk Stratification of Women enrolled in the PNCM program				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Percentage of women enrolled in the PNCM program categorized as low-risk	Number of women enrolled in the PNCM program categorized as low-risk	Total number of women enrolled in the PNCM program	Care manager documentation and reporting	Monthly
Percentage of women enrolled in the PNCM program categorized as medium-risk	Number of women enrolled in the PNCM program categorized as medium-risk	Total number of women enrolled in the PNCM program	Care manager documentation and reporting	Monthly
Percentage of women enrolled in the PNCM program	Number of women enrolled in the PNCM program	Total number of women enrolled in the PNCM program	Care manager documentation and reporting	Monthly

categorized as high-risk	categorized as high-risk			
Needs Identification				
Definition: The use of assessments or informal interviews to assess member's pregnancy history, medical history, current pregnancy, and social determinants of health needs.				
Needs Identification				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Percentage of women enrolled with a history of adverse birth outcome	Number of PNCM enrollees with a history of adverse birth outcome	Total number of women enrolled in the PNCM program	Care manager documentation and reporting	Monthly
Percentage of women enrolled with a history of pregnancy complication	Number of PNCM enrollees with a history of pregnancy complication	Total number of women enrolled in the PNCM program	Care manager documentation and reporting	Monthly
Percentage of women enrolled with at least one diagnosed medical condition that affects physical and/or behavioral health	Number of PNCM enrollees with at least one diagnosed medical condition that affects physical and/or behavioral health	Total number of women enrolled in the PNCM program	Care manager documentation and reporting	Monthly
Percentage of women enrolled with at least one social determinants of health need	Number of PNCM enrollees with at least one social determinants of health need	Total number of women enrolled in the PNCM program	Care manager documentation and reporting	Monthly
Percentage of women enrolled that are currently experiencing a pregnancy complication	Number of PNCM enrollees that are currently experiencing a pregnancy complication	Total number of women enrolled in the PNCM program	Care manager documentation and reporting	Monthly
Care Management				
Definition: Services that support physical, psychological, and social determinants of health needs.				
Tracking Referrals				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis

Percentage of referrals made to social services related to food insecurity	Number of referrals made to social services related to food insecurity	Total number of referrals	Care manager documentation and reporting	Quarterly
Percentage of referrals made to social services related to domestic violence	Number of referrals made to social services related to domestic violence	Total number of referrals	Care manager documentation and reporting	Quarterly
Percentage of referrals made to disease management services	Number of referrals made to disease management services	Total number of referrals	Care manager documentation and reporting	Quarterly
Percentage of referrals made to breastfeeding support services	Number of referrals made to breastfeeding support services	Total number of referrals	Care manager documentation and reporting	Quarterly
Percentage of referrals made to tobacco cessation support services	Number of referrals made to tobacco cessation support services	Total number of referrals	Care manager documentation and reporting	Quarterly
Percentage of referrals made to social services related to financial assistance	Number of referrals made to social services related to financial assistance	Total number of referrals	Care manager documentation and reporting	Quarterly
Percentage of referrals made to Medicaid sponsored transportation resource	Number of referrals made to Medicaid sponsored transportation resource	Total number of referrals	Care manager documentation and reporting	Quarterly
Percentage of referrals made to social services related to housing assistance	Number of referrals made to social services related to housing assistance	Total number of referrals	Care manager documentation and reporting	Quarterly
Tracking Makena and 17P Utilization				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis

Percentage of women enrolled in the PNCM program that utilized Makena and 17P	Number of PNCM enrollees that utilized Makena and 17P	Number of women enrolled in Medicaid that utilized Makena and 17P	Care manager documentation and reporting, pharmacy data, claims data	Quarterly
Percentage of women not enrolled in the PNCM program that utilized Makena and 17P	Number of members not enrolled in the PNCM program that utilized Makena and 17P	Number of women enrolled in Medicaid that utilized Makena and 17P	Care manager documentation and reporting, pharmacy data, claims data	Quarterly
Care Planning				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Percentage of care plans that meet NCQA standards	Number of PNCM enrollees that have a care plan that meets NCQA standards	Total number of members enrolled in the PNCM program	Care manager documentation and reporting, chart auditing	Monthly
Percentage of care plans that do not meet NCQA standards	Number of PNCM enrollees that have a care plan that does not meet NCQA standards	Total number of members enrolled in the PNCM program	Care manager documentation and reporting, chart auditing	Monthly
Monitoring				
Definition: The monitoring of care plan goals, care management activities, and member's pregnancy and birth outcome by routine member outreach. This also includes monitoring, training, and auditing care managers for competency.				
Tracking Health Promoting Activities				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Percentage of women enrolled in the PNCM program that completed the influenza vaccination	Number of PNCM enrollees who completed the influenza vaccination	Number of women enrolled in Medicaid that completed the influenza vaccination	Care manager documentation and reporting, claims data	Quarterly
Percentage of women not enrolled in the PNCM program that completed	Number of members not enrolled in the PNCM program who completed	Number of women enrolled in Medicaid that completed the influenza vaccination	Care manager documentation and reporting, claims data	Quarterly

the influenza vaccination	the influenza vaccination			
Percentage of women enrolled in the PNCM program that completed the TDAP vaccination	Number of PNCM enrollees who completed the TDAP vaccination	Number of women enrolled in Medicaid that completed the TDAP vaccination	Care manager documentation and reporting, claims data	Quarterly
Percentage of women not enrolled in the PNCM program that completed the TDAP vaccination	Number of members not enrolled in the PNCM program who completed the TDAP vaccination	Number of women enrolled in Medicaid that completed the TDAP vaccination	Care manager documentation and reporting, claims data	Quarterly
Percentage of women enrolled in the PNCM program that completed pregnancy related HEDIS measures	Number of PNCM enrollees that completed pregnancy related HEDIS measures	Number of women enrolled in Medicaid that completed pregnancy related HEDIS measures	Care manager documentation and reporting, claims data	Quarterly
Percentage of women not enrolled in the PNCM program that completed pregnancy related HEDIS measures	Number of members not enrolled in the PNCM program that completed pregnancy related HEDIS measures	Number of women enrolled in Medicaid that completed pregnancy related HEDIS measures	Care manager documentation and reporting, claims data	Quarterly
Percentage of women enrolled in the PNCM program that initiated prenatal care	Number of PNCM enrollees who initiated prenatal care	Number of women enrolled in Medicaid that initiated prenatal care	Care manager documentation and reporting, claims data	Quarterly
Percentage of women not enrolled in the PNCM program that initiated prenatal care	Number of members not enrolled in the PNCM program who initiated prenatal care	Number of women enrolled in Medicaid that initiated prenatal care	Care manager documentation and reporting, claims data	Quarterly
Percentage of women enrolled	Number of PNCM enrollees	Number of women enrolled	Care manager documentation	Quarterly

in the PNCM program that completed a postpartum follow up	who completed a postpartum follow up	in Medicaid that completed a postpartum follow up	and reporting, claims data	
Percentage of women not enrolled in the PNCM program that completed a postpartum follow up	Number of members not enrolled in the PNCM program who completed a postpartum follow up	Number of women enrolled in Medicaid that completed a postpartum follow up	Care manager documentation and reporting, claims data	Quarterly
Care Plan Monitoring				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Percentage of care plan goals that were completed by enrolled members	Number of goals that PNCM enrollees completed before member's discharge	Total number of goals for members who are enrolled in the PNCM program that were created before member's discharge	Care manager documentation and reporting	Monthly
Scheduled Outreach				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Percentage of scheduled routine outreaches that were completed	Number of scheduled routine outreaches that were completed	Total number of scheduled routine outreaches	Care manager documentation and reporting	Monthly
Percentage of scheduled routine outreaches that were not completed	Number of scheduled routine outreaches that were not completed	Total number of scheduled routine outreaches	Care manager documentation and reporting	Monthly
Care Management Staff Background				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Percentage of PNCM care managers with prior OBGYN or	Number of PNCM care managers (provide care management to	Total number of PNCM care managers	MCO Administrative Staff tracking	Annually

NICU nursing experience	members) with prior OBGYN or NICU nursing experience			
Percentage of PNCM care managers with prior behavioral health experience	Number of PNCM care managers (provide care management to members) with prior behavioral health experience	Total number of PNCM care managers	MCO Administrative Staff tracking	Annually
Percentage of PNCM care managers with prior care management experience	Number of PNCM care managers (provide care management to members) with prior care management experience	Total number of PNCM care managers	MCO Administrative Staff tracking	Annually
Monitoring Care Management Staff Capabilities				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Percentage of PNCM care managers that proved capable of providing care management	Number of PNCM care managers who proved capable of providing care management	Total number of PNCM care managers	MCO Administrative Staff tracking (call audits)	Annually
Opportunities for PNCM care managers to stay up to date on providing care management to OBGYN population	Number of training events for PNCM care managers to continue learning how to provide care management, particularly to OBGYN populations	N/A	MCO Administrative Staff tracking	Annually
Ratio of women eligible to be enrolled in PNCM	Number of women eligible to be enrolled in	Number of PNCM care managers	MCO Administrative Staff tracking	Monthly

compared to number of PNCM care managers	the PNCM program			
Discharge				
Definition: Member's discharge from the PNCM program.				
Discharge				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Time spent enrolled in care management	Average length of time member spent enrolled in the PNCM program	N/A	Care management documentation and reporting	Quarterly
Reasons for declining to be enrolled in the PNCM program	Survey reasons member would like to decline to be enrolled in care management	N/A	Care management documentation and reporting	Annually
Program Outcome				
PNCM Enrollees Birth outcome				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Percentage of PNCM enrollees' deliveries that resulted in preterm delivery (delivery before 37 weeks)	Number of PNCM enrollees' births resulting in preterm delivery (delivery before 37 weeks)	Total Number of PNCM enrollees' births	Claims or hospital data linked to PNCM enrollment data	Monthly and annually
Percentage of PNCM enrollees' deliveries that resulted in infant admission to NICU	Number of PNCM enrollees' births resulting in NICU admission	Total Number of PNCM enrollees' births	Claims or hospital data linked to PNCM enrollment data	Monthly and annually
Percentage of PNCM enrollees' deliveries that resulted in infant mortality (infant death in the 365 days after delivery)	Number of PNCM enrollees' births resulting in infant mortality (infant death in the 365 days after delivery)	Total Number of PNCM enrollees' births	Claims or hospital data linked to PNCM enrollment data	Annually

Percentage of PNCM enrollees' deliveries or pregnancy care that resulted in in maternal mortality (maternal death during pregnancy or in the 365 days after delivery)	Number of PNCM enrollees' births or pregnancies resulting in maternal mortality (maternal death during pregnancy or in the 365 days after delivery)	Total Number of PNCM enrollees' births	Claims or hospital data linked to PNCM enrollment data	Annually
Percentage of PNCM enrollees' deliveries that resulted in infant born with low birth weight (less than 5lbs and 8 oz)	Number of PNCM enrollees' births resulting in low birth weight (less than 5lbs and 8 oz)	Total Number of PNCM enrollees' births	Claims or hospital data linked to PNCM enrollment data	Monthly and Annually
Reducing non-emergent Emergency Department Admission				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Percentage of PNCM enrollees admitted to emergency department for non-emergent reasons	Number of PNCM enrollees admitted to the emergency department for non-emergent reasons	Total number of pregnant Medicaid recipients admitted to the emergency department for non-emergent reasons	Claims or hospital data linked to PNCM enrollment data	Monthly and Annually
Percentage of women not enrolled in the PNCM program admitted to emergency department for non-emergent reasons	Number of women not enrolled in the PNCM program admitted to the emergency department for non-emergent reasons	Total number of pregnant Medicaid recipients admitted to the emergency department for non-emergent reasons	Claims or hospital data linked to PNCM enrollment data	Monthly and Annually
PNCM Eligible Birth Outcome				
Metric	Numerator	Denominator	Data Source	Frequency of Analysis
Percentage of deliveries paid	Number of Medicaid births	Total Number of Medicaid births	Claims or hospital data	Monthly and annually

by Medicaid that resulted in preterm delivery (delivery before 37 weeks)	resulting in preterm delivery (delivery before 37 weeks)		linked to Medicaid enrollment data	
Percentage of deliveries paid by Medicaid that resulted in infant admission to NICU	Number of Medicaid births resulting in NICU admission	Total Number of Medicaid births	Claims or hospital data linked to Medicaid enrollment data	Monthly and annually
Percentage of deliveries paid by Medicaid that resulted in infant mortality (infant death in the 365 days after delivery)	Number of Medicaid births resulting in infant mortality (infant death in the 365 days after delivery)	Total Number of Medicaid births	Claims or hospital data linked to Medicaid enrollment data	Annually
Percentage of deliveries or pregnancy care paid by Medicaid that resulted in in maternal mortality (maternal death during pregnancy or in the 365 days after delivery)	Number of Medicaid births or pregnancies resulting in maternal mortality (maternal death during pregnancy or in the 365 days after delivery)	Total Number of Medicaid births	Claims or hospital data linked to PNCM enrollment data	Annually
Percentage of deliveries paid by Medicaid that resulted in infant born with low birth weight (less than 5lbs and 8oz)	Number of Medicaid births resulting in low birth weight (less than 5lbs and 8oz)	Total Number of Medicaid births	Claims or hospital data linked to PNCM enrollment data	Monthly and Annually

Discussion

A comprehensive evaluation plan was produced by broadening the organizations interviewed to more than the MCOs that conduct the Medicaid PNCM program. Comparing and contrasting elements of each program pinpointed areas of opportunity for development or that require further evaluation. Organizing the evaluation into the different aspects of the Medicaid PNCM program established boundaries to assure the evaluation of the entirety of the program.

While data collection for the program evaluation plan was successful, more information could be acquired with additional interviews to better analyze the Medicaid PNCM program. One challenge that presented itself while developing the evaluation plan was the data collection methods. In the Medicaid PNCM program, care managers are one of the primary contributors to evaluation data, which subjects the data to human error. Accurate documentation from care managers is fundamental to successfully assessing the program. Fortunately, care managers follow NCQA standards for documentation and there is a monitoring and auditing process in place to ensure accuracy. Additionally, the data sources such as claims, birth certificates, and medical records may not be accessible in a timely manner and may limit the frequency of analysis for certain evaluation metrics. The proposed frequency of analysis should accommodate for the delays in the receipt of these data.

Certain elements of the Medicaid PNCM program may be difficult to evaluate. The program hinges on the success of each component functioning as it should. Evaluating the PNCM program is an intricate process because many elements are not under the control of the program. Communication and coordination between members, care managers, partners, stakeholders, and providers are important to the success of the program. The program is also

dependent on the behaviors of the member and requires the member to consistently cooperate to be able to properly evaluate the impacts of the program.

Evaluating the impact of the program on the member's birth outcome and other factors is a complicated matter. Ideally, the program evaluation would be representative of the pregnant Medicaid population, but data is more accessible for the PNCM enrollees. Due to this the evaluation plan tends to focus on PNCM enrollees. Selection bias may occur, and the results of the evaluation would not be applicable or representative of the Nebraska Medicaid populations. Furthermore, the women who agree to enroll in the PNCM program could be experiencing confounding factors such as attending prenatal care appointments, living in a disruptive environments, or engaging with another organization that provides care management that can complicate how the results are interpreted or generalized. These factors could be mitigated by collecting additional information about the PNCM enrollees' demographics, life circumstances and medical care for a more extensive analysis.

Key stakeholders of the Medicaid PNCM program are OBGYN providers. It is imperative that these providers understand the program and comply in referring eligible women to the program. Capitalizing on the relationship that women build with their OBGYN providers is an opportunity to prime the potential member before even engaged by the MCO. Endorsement from the OBGYN community in Nebraska could improve member enrollment and retention rate in the program. High importance is already placed on obtaining the ONAF, which gives the MCOs the opportunity to intervene on high-risk pregnancies and makes the process of contacting members more convenient, but further action could be taken to engage eligible women. Housing a care manager within OBGYN offices could be a potential opportunity for the member to associate their connection with their OBGYN provider with the Medicaid PNCM program. Thus,

furthering the notion that their care managers are a part of their care team during the perinatal period.

In summary, the Medicaid PNCM program presents a unique opportunity to collect and analyze real time data to better understand the needs of the Nebraska Medicaid maternal and child population. The evaluation plan created in this study is a blueprint that can drive data collection and analysis capable of identifying health disparities of Medicaid pregnant enrollees. The results of this study are a preliminary step in the process to improve the Medicaid PNCM program to better benefit those enrolled and prospective enrollees in the program.

References

Brown, K.K., Johnson, C., Spainhower, M., Phillips, N. F., Maryman J. (2017). Is Timing of Enrollment Associated with Birth Outcomes? Findings from a Healthy Start Program in Kansas. Maternal Child Health Journal 21(Suppl 1): 25. https://doi-org.library1.unmc.edu/10.1007/s10995-017-2405-x

Center for Disease Control and Prevention. (2019). Premature Birth. Retrieved from https://www.cdc.gov/reproductivehealth/features/premature-birth/

Center for Disease Control and Prevention. (2019a). Preterm Birth. Retrieved from https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pretermbirth.htm

Guo, Y., Pimentel, P., Lessard, J., Rousseau, J., Lee, J., Bojorquez, Y., Silva, M. & Olshansky, E. (2016). A Community-Based Home Visitation Program's Impact on Birth Outcomes. MCN, The American Journal of Maternal/Child Nursing, 41(1), 16–23. doi: 10.1097/NMC.0000000000000203.

Guo, Y., Bender, M., Rousseau, J., Kehoe, P., Lee, J., Pimentel, P., Bojorquez, Y., Silva, M., Olshanksy, E. (2019). Relationships within MOMS Orange County care coordinated home visitation perinatal program. *Public Health Nurs*. 00: 1– 7. https://doi-org.library1.unmc.edu/10.1111/phn.12689

Hillemeier, M. M., Domino, M. E., Wells, R., Goyal, R. K., Kum, H. C., Cilenti, D., Whitmire, T., Basu, A. (2015). Effects of maternity care coordination on pregnancy outcomes: propensity-weighted analyses. Maternal and child health journal, 19(1), 121–127. doi:10.1007/s10995-014-1502-3

Hillemeier, M. M., Domino, M. E., Wells, R., Goyal, R. K., Kum, H. C., Cilenti, D., & Basu, A. (2018). Does maternity care coordination influence perinatal health care utilization? Evidence from North Carolina. *Health services research*, *53*(4), 2368-2383.

Heitzman, M., Weitzel, J., Kroll, S., Zabler, B. (2019). Client experiences in a prenatal home visiting program: A prenatal care coordination program evaluation. *Public Health Nurs*. 36: 653– 659. https://doi-org.library1.unmc.edu/10.1111/phn.12631

Kroll-Desrosiers, A. R, Crawford, S. L., Moore Simas, T. A., Rosen, A. K., Mattocks K. M. (2016). Improving Pregnancy Outcomes through Maternity Care Coordination: A Systematic Review. Women's Health Issues, 26 (1), 87-99. https://doi.org/10.1016/j.whi.2015.10.003

Mallinson, D. C., Larson, A., Berger, L. M., Grodsky, E., Ehrenthal, D. B. (2019). Estimating The effect of Prenatal Care Coordination in Wisconsin: A sibling fixed effects analysis. *Health Serv Res*. 00: 1– 12. https://doi-org.library1.unmc.edu/10.1111/1475-6773.13239

Mattocks K. M., Kuzdeba J., Baldor R., Casares J., Lombardini L., Gerber M. R. (2017). Implementing and Evaluating a Telephone-Based Centralized Maternity Care Coordination Program for Pregnant Veterans in the Department of Veterans Affairs. Women's Health Issues, 27(5), 579-585. https://doi.org/10.1016/j.whi.2017.05.005

McLaurin, K. K, Wade, S. W., Farr, A. M., Franklin, J. (2017). Medicaid and Commercially

Insured Preterm Births in the United States. *Pediatrics.* https://doi.org/10.1542/peds.140.1_MeetingAbstract.72

Nebraska Department of Health and Human Services. (2016). Nebraska 2016 Vital Statistics Report. Retrieved from http://dhhs.ne.gov/Reports/Vital%20Stats%20Report%202016.pdf

Nebraska Department of Health and Human Services. (2020). Premature Birth. Retrieved from http://dhhs.ne.gov/2020%20Needs%20Assessment/2%20-%20Premature%20Birth.pdf

Nebraska Department of Health and Human Services. (2020a). Quality Strategy for Heritage Health and the Dental Benefit Program 2020. Retrieved from http://dhhs.ne.gov/Documents/NE%20Quality%20Strategy.pdf

Office of Health Disparities and Health Equity. (2020). Nebraska Health Disparities Report 2020. *Nebraska Department of Health and Human Services*. Retrieved from http://dhhs.ne.gov/Reports/Health%20Disparities%20Report%202020.pdf

Redding, S., Conrey, E., Porter, K., Paulson, J., Hughes, K., Redding, M. (2015). Pathways Community Care Coordination in Low Birth Weight Prevention. Maternal Child Health Journal, 19(3), 643–650. https://doi-org.library1.unmc.edu/10.1007/s10995-014-1554-4

Appendix A

PNCM Interview Questionnaire

The purpose of this interview is to develop a description of the Nebraska Medicaid prenatal care management (PNCM) programs. Additionally, the interview will be used to identify program objectives, outcomes, and evaluation procedure to produce an evaluation to assess the efficiency of the operating procedures of the PNCM program.

I am going to ask you some questions about the PNCM program. I will be asking questions regarding program objectives, program processes and current evaluation procedures. I will be using this information to design an evaluation plan for prenatal care management. This interview will take about 30 minutes. If there are any questions that you cannot answer or do not want to answer, just say "pass" and we will move on. You are not obligated to complete this interview and if at any point you want to stop, just let me know and we will stop.

Your identity and your organization's identity will be held in confidence. Each interviewees response will be coded and unidentifiable. Each interview will be recorded unless the interviewee declines to be recorded. The recording will be used for transcription purposes only and will be deleted once the interview is transcribed.

Interview Questions:

Member Outreach

1. Please provide a description of the PNCM program.
2. Please describe services offered to pregnant women through the PNCM program?
3. Can you provide a timeline of events from engaging eligible pregnant women to unenrolling her from the PNCM program?
4. When would be the optimal time to engage pregnant women in the PNCM program?
5. How long does it take to contact eligible women to participate in PNCM?
6. How is the PNCM program promoted among eligible women, healthcare providers or other services?

Program Goal Measurement

1. What measures are used to assess the PNCM program outcomes measured?
2. What measures are used to assess the PNCM program objectives measured?
3. What type of data is used to assess the impact of the PNCM program?
    a. Claims
    b. Member satisfaction surveys
    c. Medical records
    d. Other data sources (please specify)
4. How are these data sources used to evaluate the different aspects of the PNCM program?
5. How often are these data sources used to collect and analyze PNCM program related data?
6. Has there been any challenges using these data sources to evaluate the PNCM program?

7. How will Medicaid expansion affect the PNCM program? Will evaluation methods change to accommodate for the changes?
8. Does the program have any needs related to evaluation?

Staff

1. Are staff hired or trained with previous experience to be able to conduct PNCM?
2. How are staff trained to meet the PNCM program objectives?
3. How are staff monitored to ensure they are meeting the PNCM program objectives?
4. Is there another individual or organization that would be helpful for me to interview regarding the PNCM program?