Maternity Bundled Payment:
A Literature Review

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Introduction

As students in the University of Washington Master of Healthcare Administration program, we are exposed to an array of research techniques, primarily in an informal capacity. It was our goal to refine our formal research skills by engaging with community members and current healthcare topics. The Bree Collaborative gave us the opportunity to do just that; take a deep dive into the world of healthcare payers as well as clinical maternity care. We accessed PubMed, google scholar, google searches and organization websites for our information gathering. This paper reads like a guidebook to the current market of maternity bundles and can be used to understand the intricacies of building bundle recommendations.

Background:

A bundled payment, also known as an episode of care, is a method of paying a healthcare provider or facility for a specific set of clinical services at a pre-determined rate. Most commonly, payment bundles are used in joint replacements such as total knees and total hips. These payments are structured primarily either as prospective payments or retrospective payments. Retrospective payments are the most common for bundled payments and includes reconciling the services against fee-for-service medical claims at the end of the care period and paying in one lump sum.[i] A prospective payment on the other hand is the process of developing a budget when specific service criteria are met. The payment or fee is distributed directly to providers or through an accountable care organization.[i] According to the Integrated Healthcare Association, it is best to "begin testing in a retrospective bundled payment model, which should reduce regulatory and administrative burdens. Beginning bundled payment programs through a retrospective approach will also allow payers to build a financial baseline against which a prospective payment can be negotiated more accurately in the future. By beginning in a retrospective bundle, payers can then more effectively transition to prospective bundled payment models later on".[i] [ii] In recent years many organizations have begun to explore the possibility of bundling maternity care as has been done with other episodes of care. For the 75 million women of childbearing age living in the United States, reproductive health and maternity care is likely at the forefront of their minds.[iii] Maternity care specifically represents close to a quarter of all hospitalizations in the United States and can include a wide array of services, including prenatal, labor, delivery and postnatal care.[iv] This paper will present available information about the benefits of bundled payments in maternity care, examples of maternity bundles in the public and private sectors including bundle timing, reasons for exclusion from a bundle and outcomes.

Potential Benefits of Maternity Care Bundled Payments:

In the push from volume to value in health care payments, it is vital that the maternity care systems in the United States implement changes to improve the efficiencies and lower costs. Currently, maternity care in the United States is fractured and provides lower quality care at a higher cost. The costs of a perinatal episode of care can range greatly and the costs of these services are typically unpredictable from a patient perspective.[v] One of the main drivers behind bundled payments in healthcare is the desire to lower costs overall. There are significant cost savings and quality care improvements associated with bundling episodes of care in many cases which has caused healthcare payers and organizations to explore using bundles in other clinical areas. In fact, in the case of these general bundles (joints, etc.) there is evidence to prove that bundles have reduced costs and variation, while improving the quality. However, it is difficult to determine specifically the impact of maternity bundled payments because their introduction to the healthcare sphere is recent.

Cesarean Sections as an Indicator for Success:

There is some evidence to suggest that bundled payments will lead to less cesarean sections (C-sections) overall, which ultimately could have positive impacts on maternal and infant safety as well as cost. Over the last 30 years, the rate of C-sections has increased dramatically from 21% to 32%.[vi] [vii] In a 2015 study the CDC confirmed that C-sections are far riskier for woman when compared to vaginal births, even finding higher rates of maternal mortality in C-section births than vaginal births. The study identified the top 4 causes of maternal mortality as maternal transfusion, ruptured uterus, unplanned hysterectomy, and ICU admission, all of which were increased with C-section (primary or repeat).[viii] Therefore, when a C-section is the mode of birth, there is an overall dip in quality. Additionally, the Center for Healthcare Quality and Payment Reform found that "average total payments for maternal and newborn care with cesarean births were about 50% higher than average payments with vaginal births for both Commercial payers ($27,866 vs. $18,329) and Medicaid ($13,590 vs. $9,131)."[ix] Throughout this paper C-section rates as a measure will be used as a general indicator of success in maternity programs.

Defining "Low-Risk"

Unless otherwise noted, the models in this paper cover "low-risk" pregnancies. Low-risk however is objective and has been difficult for the American healthcare system to define. In fact, "In the United States, identification of obstetric "low risk" is made more complicated by questions such as, at low risk for what? Most risk-assessment models are for preterm birth, perinatal morbidity and mortality, Cesarean delivery, or vaginal birth after Cesarean or uterine rupture. No risk-assessment models, or tools, specifically address the risk of maternal morbidity

and mortality."[x] Additionally, there is no determined set of universally accepted "high-risk" criteria across the healthcare industry. Therefore, it will be up to the organization that is implementing the bundled model to determine specific exclusionary criteria that are considered "high-risk." According to the American Pregnancy Association, "the term "high risk pregnancy" suggests that in order to have a healthy and successful pregnancy and delivery, extra care is needed. This is often the case if you suffer from a chronic illness or have other factors and conditions that may put you in the high-risk category. It is even possible to begin a normal pregnancy and develop conditions that put you into the high-risk category."[xi] [xii]

Current State: General Maternity Programs

Initially it is important to understand the current state of fee-for-service maternity programs in the United States. Specifically, the key services that are included in the current maternity programs could help to inform the considerations for the structure of maternity bundled payments in the future. Below are the notable services within various maternity programs in health systems across the United States:

Baptist Medical Center, San Antonio, TX:

- Concierge navigator program: patient navigators that are available in the 2nd and 3rd trimesters both in the hospital and post-delivery. These navigators are RNS and answer hospital related questions, help navigate the patient's way through the registration process, schedule classes, and facilitate Neonatal Intensive Care Unit consultations when necessary.
- Maternity classes and events for the following content: baby care, breastfeeding, childbirth series, early pregnancy class, boot camp for new dads, newborn care.
- Midwifery: Certified Nurse Midwives (CNM) that are focused on primary care issues, family planning and the gynecological needs of women throughout pregnancy, childbirth, the postpartum period, and care of the newborn. The CNM practices within a healthcare system that provides for consultation, collaborative management, or referral as indicated by the health status of the patient.
- Lactation services: a supportive environment where families can discuss their breastfeeding goals and concerns with trained lactation consultants. The consults also offer bra fittings, telephone assistance, weight checks, breast pump parts and accessories, Mother's Milk Bank Collection site.
- Neonatal Abstinence Syndrome (NAS) treatment: a team works with mothers and families after delivery to facilitate rehabilitation arrangements, provide lactation consultation and educational classes, and help connect moms with available community and government resources.[xiii]

Evergreen Health, Kirkland, WA:

- Personalized education classes (private or group) with the following content: pre-pregnancy classes, pregnancy health & wellness, exercise for pregnancy, birthing classes, breastfeeding and baby safety, family and relationships, and after baby is born.
- Midwifery: Certified Nurse Midwives (CNM) that offer 24/7 coverage, high quality and low intervention care plus genetic testing.
- Antepartum Care Unit: hospital unit that offers close monitoring of mother and baby for mothers with pregnancy complications.
- New parent support: a breastfeeding center (lactation consults), postpartum care center (appointment 3-4 days after delivery to assess mother/baby), 24/7 health line (RNs).[xiv]

The Johns Hopkins Hospital, Baltimore, MD:

- Childbirth education either online, group or individual with the following content: learn about labor, discover comfort techniques, learn about the unit.
- Breastfeeding classes and support groups: breastfeeding education, mom's support group (a free group to offer support to moms and nursing babies).
- Doulas: offers support before birth, during labor/birth, and after birth that is free of charge.
- Infant safety services: safety education and home safety products for purchase at below-retail costs.[xv]

Massachusetts General Hospital, Boston, MA:

- Childbirth and parenting Classes with the following content: stages of labor to postpartum, signs of labor, breathing/relaxation exercises, medical interventions such as anesthesia and C-section and immediate postpartum care and the newborn.
- Breastfeeding Classes: support for new mothers to discuss expectations, guidelines/recommendations, feeding cues, and benefits
- Infant CPR & Safety Classes
- Newborn Care Class: support to discuss newborn traits, behaviors, crying/comforting, feeding/diapering, bathing and health
- Infant Massage: support class to promote baby bonding
- Midwifery service
- Diabetes in Pregnancy Program: consists of endocrinologists, nutritionists, high-risk pregnancy specialists to discuss care treatment

- HOPE clinic: coordinated care for pregnant and parenting women with substance use disorder and their families; includes physicians, RNS, social workers, recovery coaches, and clinical care coordinators.[xvi]

Mayo Clinic, Rochester, MN:

- Breastfeeding support: offers lactation consults to new mothers.
- Education classes that consists of the following content: baby care basics, breastfeeding/pumping, childbirth preparation, infant passenger safety class (free of cost), and infant massage.[xvii]

Types of Maternity Bundled Payment Models:

There are 3 buckets of maternity bundle models that are presented in this paper:

1. Best practices, recommendations and pilot programs without reported outcomes: There are several organizations that have developed recommendations regarding the best practices for maternity bundled payments or have started pilot programs. These best practices, recommendations and pilot programs without defined results are very important as they give insight into the ideal state of these payment models.

2. Bundled payment models that have been implemented but do not have outcomes or data reported: These are recently rolled out models and because of the newness, there are no associated studies or specific cost, or quality outcome recorded or presented to the public.

3. Bundled payment models that have been implemented and have reported outcomes or data: In many cases these are the bundles that were first implemented into the market and give real tangible evidence for the value that maternity bundled payments might bring.

Best Practices, Pilot programs without Outcomes

The Complexities of Defining Maternity Bundled Payment Types:

Due to the intricacies and many variations that can come with pregnancies, labor, delivery, postpartum and infant care, maternity bundled payment structures are difficult to define. Additionally, these models for payments are relatively new in usage which causes limitations in determining the efficacy of the various types. There are several factors that go into developing a bundled payment model and in recent years recommendations and pilot programs have emerged, testing the types of bundles that could be implemented over the long-term.
Outlined below are a handful of examples:

Catalyst to Payment Reform

According to Catalyst to Payment Reform, there are three different types of maternity bundled payments that could be utilized to improve care coordination and quality as well as reduce cost.[xviii]

1. ***Bundle the hospital payment and the professional fee for labor and delivery into a single payment.***
   Combining the hospital and provider payment into one bundle encourages hospitals and providers to coordinate efforts to reduce rates of cesarean delivery and improve the quality of maternity care. Without bundled payments, hospitals do not have a financial lever to use with providers toward reducing unnecessary intervention in labor and delivery. Under a system where the facility pays the professionals, their practice can be better aligned with hospital quality goals.
2. ***Bundle the hospital delivery payment for both mother and infant into a single payment.***
   Creating a bundled payment that includes infant costs takes current facility case rates for delivery that cover the mother's expenses and adds on the infant's care immediately after delivery into the case. In essence this model adds into the bundle any neonatal/NICU expenses for term infants without pre-existing conditions. Additional payment for outliers, such as premature infants or those infants with known congenital anomalies, would be paid outside of the bundle.
3. ***A comprehensive, single bundled payment for a maternity care "episode."***
   A single, comprehensive payment for maternity care entails one risk-adjusted price paid for a pregnancy, from prenatal office visits, to ultrasounds, to lab work, through the actual delivery, including anesthesia. An episode of maternity care could also begin up to 40 weeks before birth and end 60 days post-discharge for the woman, and from birth through 30 days post-discharge for the baby in order to capture important prenatal and

postpartum support. 31 In addition, separately bundling inpatient and outpatient costs for a pregnancy can stimulate innovation in ambulatory prenatal care. 32 Provider(s) are paid this rate per pregnancy, regardless of the resources expended. Lower cesarean delivery rates and fewer complications will lead to higher margins for providers.[xviii]

HCP LAN

The HCP LAN White Paper on the other hand presents a slightly different set of models that have been introduced to the market.[xix]

1. ***Comprehensive bundle.***
   Several initiatives, led by both Medicaid and commercial payers, define the episode as the prenatal, labor and birth, and postpartum time frame and include care for the woman and, sometimes, the newborn. This strategy acknowledges the importance of support throughout the entire maternity care experience to ensure the best outcomes for the woman and her baby. It is agnostic as to both the birth site and who manages the birth, and whether the birth is vaginal or a cesarean, but it is typically priced assuming a hospital birth.
2. ***Comprehensive birth center/midwife bundle.***
   This provider-driven episode model includes the full continuum of services as in the comprehensive bundles, but is priced based on midwife management, and thus reflects the cost of a birth center birth. In this model, if a woman is referred to a hospital, then the hospital is paid a separate fee; the bundle is only for the midwife services and the fee for a birth center. In some cases, the midwife still manages the birth even if it is in the hospital, but the facility fee for the hospital is paid separately.
3. ***Blended rate for hospital labor and birth (regardless of delivery type).***
   Several purchasers and providers are implementing episodes framed specifically around hospital-based labor and birth, and which do not include costs for prenatal or postpartum care or care for the baby. This model blends cesarean and vaginal birth reimbursement rates into a blended case rate for hospitals. The primary goal is to decrease cesarean rates. Hospital payments and the clinical professional fees are the same regardless of the delivery method. The episode price also includes the costs of postpartum complications, but no other postpartum costs are included.[xix]

Center for Health Care Quality and Payment Reform

The Center for Health Care Quality and Payment Reform presented a different model that would include all clinicians and providers that would be needed to provide care throughout pregnancy and birth. The bundle would also include at least one hospital and one birth center. The details of the alternative payment model (APM) are detailed below from the info sheet they provided.[xx]

Under the APM, the Maternity Care Team would receive five different types of payments during the different phases of care:

1. *Monthly bundled payments for all pregnancy-related services needed prior to childbirth;*
2. *A standby capacity payment for hospitals in the community to support the minimum capacity needed to offer labor and delivery services on a round-the-clock basis, particularly for high-risk pregnancies;*
3. *A bundled/warrantied payment for labor and delivery services, regardless of whether the delivery occurs in a birth center or a hospital;*
4. *Monthly bundled payments for all post-partum care services for up to six months; and*
5. *Outlier payments for infrequent events and unusual circumstances that result in the need for more services or more expensive services.*[xx]

Integrate Healthcare Association (IHA)

In 2010, IHA embarked on a 3-year pilot to test the efficacy of bundling various types of episodes of care, including maternity care. The maternity bundles were divided into 2 different types of bundles, comprehensive maternity payments and a delivery only payment. To date, there is no data or outcomes that are accessible to the general public.[xxi]

	Delivery Only Definition	Comprehensive Definition
Episode Structure	Begins on date of admission	Begins 270 days prior to delivery
Warranty	Not Applicable	60 days postpartum
Standard Services	Only facility and professional services for labor and delivery included	Prenatal, labor and delivery, and postpartum services for both facility and professional services are included
Exclusions	Can be customized for patient qualifications, co-morbidities and severity markers	Can be customized for patient qualifications, co-morbidities and severity markers
Contracting	Health plan & hospital: Blended per diem (vaginal and cesarean)	Health plan, hospital & physicians: Plan pays hospital and hospital pays physicians

Fully Implemented Programs without Outcomes and Data

New York State Department of Health Medicaid -

In 2016, the New York State Department of Health a Value Based Payment Recommendation Report that outlines the details of maternity bundled payment structure in the state with the goal of moving up to 90% of payments from MCOs to providers in an effort to create value-based payments as opposed to fee-for-service for Medicaid patients only. Within the report there is a "Maternity Bundled Playbook" which offers specifics into the description and timing of episodes of care for maternity[xxii]. Below are the details regarding the New York maternity bundles:

- **Timeline of care and Services Provided:** The bundle will include all maternity care from the onset of the pregnancy to 60 days after discharge for the mother and 30 days after discharge for the infant
- **Population:** Medicaid Patients, women 12-65 years old qualifying
- **Accountable Entity:** N/A
- **Quality Metrics:** N/A
- **Exclusions:** There are several cases where a strict exclusion policy exists. Exclusion from the bundle are quoted below:

  1. General Exclusions: An incomplete set of claims within the episode time window (when there are gaps in Medicaid coverage for enrollment reasons). Orphan claims (e.g., where the delivery has a professional claim but no corresponding facility claim). A delivery is outside the timeframe of the VBP contract.
  2. Age: All maternity bundles where the women are younger than 12 or 65 and older at the time of the delivery will be excluded.
  3. Cost Upper and Lower Limit: To create adequate risk models, individual episodes where the episode cost is below the first percentile or higher than the ninety-ninth percentile are excluded.
  4. Stillborn & Multiple Live Births: During the pilot period (2016/2017), maternity bundles with stillborn or multiple live births will be excluded and the consequences on the bundle will be analyzed.[xxii]
- **Retrospective or prospective:** This is a retrospective payment model; payment looks back 9 months for all relevant claims. [xxii]

Ohio Medicaid Episode-Based Payment Model:

This is Medicaid bundle that covers low risk pregnancies and births. The Ohio Medicaid bundle provides strong examples of specific exclusion criteria which is an important aspect of bundle creation.[xix]

- **Timeline of care and Services Provided:** 40 weeks before delivery to 60 days postpartum for all relevant prenatal care and complications, delivery care, relevant care and complications through postpartum and readmissions relevant to the episode.
- **Population:** Mother only
- **Accountable entity**: Physician/group delivering the baby.
- **Quality Metrics**: *Linked to gain sharing: percent of episodes with HIV screening, percent of episodes with GBS (strep) screening, C-section gate, percent of episodes with follow up visit within 60 days. Quality metrics for reporting purposes only: % of episodes with gestational diabetes screening, % of episodes with hepatitis B screening, number of ultrasounds, % of episodes with chlamydia screening*[xxiii].
- **Exclusions:**

  Clinical exclusions:

  1. *Age: A perinatal episode is excluded if the patient is younger than 12 (<12) or older than 49 (>49)*
  2. *Left Against Medical Advice: An episode is excluded if a patient has a discharge status of "left against medical advice or discontinued care" on any inpatient or outpatient claim during the episode window.*
  3. *Death: An episode is excluded if the patient has a discharge status of "expired" on any inpatient or outpatient claim during the episode window or has a date of death prior to the end of the episode window.*

  Comorbidity: An episode is excluded if the patient has one of more of the following comorbidities during the specified time window. The comorbidities are:

  1. *Cancer under active management. Cancer under active management during the episode window or during the 90 days before the episode window*
  2. *CNS infection and poliomyelitis during the episode window or in the 90 days prior to the episode window*
  3. *Coma or brain damage in episode window or in the 90 days prior to the episode window*

4. *Cystic fibrosis during the episode window or in the 90 days prior to the episode window*
5. *Ectopic pregnancy during the episode window or in the 90 days prior to the episode window*
6. *End stage renal disease during the episode window or in the 90 days prior to the episode window*
7. *Human Immunodeficiency Virus (HIV) and other immunity disorder during the episode window or in the 90 days prior to the episode window*
8. *Intrauterine death or intrauterine hypoxia and birth asphyxia during the episode window or in the 90 days prior to the episode window*
9. *Paralysis or multiple sclerosis during the episode window or in the 90 days prior to the episode window*
10. *Parkinson's disease during the episode window or in the 90 days prior to the episode window*
11. *Prolapse of female genital organs during the episode window or in the 90 days prior to the episode window*
12. *Solid organ transplants (excluding corneal) during the episode window or in the 90 days prior to the episode window*
13. *Multiple other comorbidities: An episode is excluded if it is affected by too many risk factors to reliably risk adjust the episode spend.*[xxiii]

- **Retrospective or prospective:** This is a FFS payment model with retrospective reconciliation.[xix] [xxiv]

Implemented Programs with Outcomes and Data

There are some programs in the US that have been rolled out and do have some limited outcomes and/or data:

General Electric Co:

GE worked with hospitals to implement shifts in maternity payment models to a bundled model as a method of improving quality and driving down costs. The improvements they saw were primary in the case of C-sections for their patients.

- **Timeline of care**: beginning of pregnancy until 90 days after the baby is born
- **Results:** *New deliveries under GE's program began in 2016, when only 78 pregnant women enrolled. In 2017, 136 women enrolled. C-section rates for first-time, low-risk deliveries, which represent a small group within the program, dropped to about 6 percent in 2017 from 24 percent in 2016. The program so far has saved the company nearly $2 million because of lower negotiated fees for maternity care.*[xxv]

Two Texas Physician Groups:

Both the University of Texas Medical Branch and University of Texas Health physician groups implemented bundled payment models as a part of a pilot conducted by the Health Care Incentives Improvement Institute to determine the efficacy of alternative payment models and specifically the impact on physician behavior. However, the pilot also sheds light as to the cost savings possible from these models.

- **Timeline of care:** prenatal care, delivery, postnatal care and care for the newborn (there are not specifics included in the study as to days)
- **Results:** *In year 1, one physician group achieved savings of $240K and received a check for 50% of that amount from CHC. The savings were primarily derived from a drop in C-Section rates from 36% to 33% and lower neonatal costs due to the subjective nature of nursey level placement. The other physician group incurred a loss primarily due to a few high cost babies with congenital birth defects that were admitted to level 3 nurseries. With the inclusion of level 4 nurseries into the program and instituting the stop loss provision in year 2 a fairer review of outcomes would be possible.*[xxvi]
- **Key lessons learned at the end of year 2 are as follows***: a) physicians found real benefit in data sharing from health plans, b) they believe that hospitals should participate in risk sharing arrangements since their costs are substantially more than physician costs, c) physicians are competitive, therefore the Hawthorne effect often drives better outcomes and more judicious use of resources, d) physicians want more money allocated to prenatal care, education, nutrition, smoking cessation, lactation, high risk care to*

prevent need for C-Sections, and to decrease preterm births and utilization of high cost stays in a neonatal ICU, e) the quality measures are too much of an effort to collect and did not reflect true quality of care. The few improvements that were recognized during the pilot were better documentation, improvement in preterm birth scores and better postpartum care with improved depression screening rates and closer follow-up leading to lower complications and better outcomes for mothers[xxvi]

Arkansas Health Care Payment Improvement Initiative (APII):

This is a state-wide program with mandatory provider participation that was implemented in 2013; built on a partnership between Medicaid and Arkansas Blue Cross Blue Shield which is 80% of the state's large group market.

- **Timeline of care:** Prenatal care 40 weeks prior to the birth and postpartum care in the 60 days after
- **Services included:** All prenatal care, care related to labor and delivery, and postpartum maternal care, including labs, imaging, specialist consultations, and inpatient care
- **Population:** Mother only; low-risk pregnancies only
- **Exclusions:** Various comorbidities and high-risk pregnancies; such as type 1 diabetes, severe pre-eclampsia and other publicly known comorbidities
- **Accountable entity:** Physician or nurse midwife (provider or provider group) who delivers the baby and performs the majority of prenatal care (identified by claims with the appropriate global OB bundle procedure, prenatal care bundle procedure, or office visit procedure)
- **Quality metrics:**
    1. Quality metrics linked to gainsharing: HIV screenings ≥ 80%, group B streptococcus (GBS) screenings ≥ 80% and chlamydia screenings ≥ 80%
    2. Quality metrics tracked for informational purposes only: ultrasound screenings, gestational diabetes screenings, asymptomatic bacteriuria screenings, hepatitis B specific antigen screenings and Cesarean section (C-section) rate.
- **Retrospective or Prospective:** FFS w/ retrospective reconciliation; risk adjusted based on patient's various comorbidities[xix]
- **Results:**
    1. Screening rates generally remained at prior year levels or continued to improve for AR BCBS and Medicaid. The Chlamydia screening rate showed the most improvement for AR BCBS, while Medicaid showed the most improvement in asymptomatic bacteriuria screening

2. Medicaid's C-section rate has steadily improved each year since the episode was launched, from 38.5 percent in 2012 to 31.8 percent in 2015. The average length of stay for C-sections remained at 2.6 days for 2014 and 2015
3. C-Section rate for AR BCBS improved from 38.7 percent in 2014 to 35.9 percent in 2015.
4. AR BCBS average perinatal episode cost increased by 1.3 percent from 2014 to 2015 after falling 1.6 percent from 2013 to 2014.
5. AR BCBS paid approximately $462,000 in gainsharing payments to 92 PAPs and collected $10,000 in risk-sharing payments from 9 PAPs[xxvii] [xxviii]

Tennessee Medicaid (TennCare): The Health Care Innovation Initiative (THCII)

In 2013 TennCare received a State Innovation Model Initiative grant from CMS to incentivize providers to promote high quality care and long-term maintenance of patient's health. One facet of this implementation was the perinatal Episodes of Care. This program is focused on improving birth outcomes, reducing infant mortality and improve costs.

- **Timeline of care:** 40 weeks prior to delivery and 60 days after the delivery admission
- **Population:** Mother only, low to medium risk
- **Exclusions:** High risk pregnancies
- **Accountable entity:** Physician or midwife who delivers baby
- **Quality metrics**:
  1. Quality metrics linked to gainsharing: screening HIV $\geq 85\%$, screening for streptococcus $\geq 85\%$, and Cesarean section rate $\leq 41\%$
  2. Quality metrics tracked for informational purposes only: screening for gestational diabetes, screening for asymptomatic bacteriuria, and Tdap vaccination rate
- **Exclusions:** Various comorbidities, maternal death, any indication of leaving AMA, triggering events occurring at FQHC/RHC, and use of TPL
- **Retrospective or Prospective:** FFS w/ retrospective reconciliation; costs are totaled and adjusted using a risk weight based on the women's age, health conditions and complications during pregnancy [xxix]
- **Results:** 3.4% decrease in cost (while maintaining quality) between 2014-2015 for a total savings of $4.7 million. Streptococcus screenings increased from 88.2% in 2014 to 92.1% in 2015. HIV screening rate increased from 90.1% in 2014 to 91.7% in 2015. C-section rates fell from 31.4% in 2014 to 29.2% in 2015[xxx]

New Jersey (Horizon Blue cross blue shield)

The program launched in 2013, includes more than 300 practice sites across the state and has the following components. Each obstetrics practice gets a per-patient budget based on two years of that practice's historical data. That target budget is the same, regardless of whether delivery is vaginal or C-section, and includes the doctor's professional fees, the hospital fee, surgical fees, anesthesia, radiology, and all other costs.[xxxi]

- **Timing of care:** Prenatal (pregnancy) to 30 days after delivery
- **Population:** Started with low-risk but grew to include all pregnancies
- **Exclusions:** N/A
- **Accountable entity:** N/A
- **Retrospective or Prospective:** Retrospective, upside-risk only payment
- **Services:** Includes a Maternity Health Coach who is available to answer general questions about pregnancy such as exercise, nutrition, breastfeeding, traveling, and any physical and emotional changes that expectant and new moms might be experiencing. Members can contact a coach, weekdays from 8 a.m. to 8 p.m. There is also access to a 24/7 Nurse line: for general health questions. Additionally, there is case management: for members with high-risk pregnancy they can receive support from specialized RNs.
- **Results:** C-sections: dropped from 32.9% in 2009 to 28.1% in 2014[xxxii] [xxxiii]

Geisinger Health System Perinatal ProvenCare Initiative

This program was launched across 22 clinical sites and 4 hospitals associated with Geisinger Health System. The goal was to demonstrate that large integrated health care delivery system could alter a complex clinical process to deliver evidence-based care and reduce variation. Since 2011, Geisinger has not performed an early induction or elective C-section before 41 weeks unless otherwise medically indicated.[xxxiv]

- **Timeline of care**: Identification of pregnancy in first of second trimester to postpartum visit 21-56 days post delivery
- **Services Included**: All prenatal, labor and delivery, and postpartum care; at least 12 continuous weeks of prenatal care and delivery must be performed by a GHS provider
- **Population:** Mother only, low risk
- **Exclusions**: Neonatal care, late referrals, high-risk patients, members without continuous enrollment during the entire episode

- **Accountable entity:** GHS provider
- **Retrospective or Prospective:** Prospective with a fixed rate per episode
- **Quality metrics:** 103 evidence-based elements are tracked and measured for compliance
- **Results:** Reduced NICU admission by 25%, 26% reduction in C-section rates, 68% reduction in birth trauma; no cost savings made publicly available[xix]

American Association of Birth Centers (AABC):

Since 1983, the goal of the freestanding birth center (FSBC) to promote high quality care, high patient satisfaction, better outcomes, and cost savings for women with low risk pregnancies through evidence-based care. FSBCs have demonstrated their ability to prevent medically unnecessary interventions for low risk pregnancies, even for women with low socioeconomic risk status.[xix]

- **Timeline of Care:** Enrollment in a freestanding birth center through and including 6-week postpartum care visit.
- **Services Included:** Prenatal care, nutrition, patient navigation, care coordination, discussion of options for birth, breastfeeding and childbirth preparation instruction, health education and support to avoid preventable complications, labor and birth in the birth center, newborn care and home visits; Large birth center includes lab services, ultrasound, obstetrician, and perinatal visits Includes facility fee and professional fee at time of birth in the birth center.
- **Population:** Mother and baby through first 28 days of life; low-risk pregnancy only
- **Exclusions:** High risk pregnancy
- **Accountable entity:** Freestanding birth center
- **Retrospective or Prospective:** FFS with retrospective reconciliation; small birth centers would receive incentive payments for each participant provided with enhanced services. Large birth centers would receive a bundled rate for professional and facility services with shared savings for overall cost savings.
- **Quality Metrics:** Number of prenatal visits, cesarean birth rate, elective delivery before 39 weeks, preterm birth and low birth weight rates, breastfeeding initiation and continuation, NICU admissions, perineal integrity, and completion of the 6-week postpartum visit
- **Results:** Average C-section rate of 6%, 1.59% episiotomy rate, and 0.11% elective delivery rate before 39 weeks.[xix]

Pacific Business Group on Health (PBGH):

The pilot program, Transform Maternity Care, was launched in 2012 through a partnership with Catalyst for Payment reform in an effort to decrease medically unnecessary c-sections, expand use of nurse-midwives, spread value-based payment and engage patients through maternity focused engagement tools.[xxxv]

- **Timeline of Care:** Hospital labor and delivery only
- **Services Included:** Blended case rate for all facility and professional fees rendered during delivery for vaginal and C-section births
- **Population:** Mother only
- **Exclusions:** N/A
- **Accountable entity:** Hospital accountable for the facility blended rate; physician group accountable for the professional blended rate
- **Retrospective or Prospective:** Prospective; episode price is negotiated between the payer and hospital/physician group respectively; rate for C-sections and vaginal birth is the same
- **Quality Metrics:** Rate of C-sections performed among primary, low-risk births
- **Results:** Three hospitals in pilot demonstrated a 20% reduction in C-section rates and no changes in incidence of unexpected newborn complications[xix]

Identified Gaps in Bundles:

Generally, the recommendations coming from experts (HCPLAN) state that the bundle should only include births that are considered low-risk. But in an effort to include a wider range of births and increase quality and safety across the spectrum of maternity care, there are exceptions where a specific bundle could be created to include higher-risk pregnancies. In an ideal world, there would be layers of specific maternity bundles that could be initiated at the time of pregnancy or birth that would encompass more services than the general maternity care. These specific types of bundles could include mental health services for mother, treatment and care options for mothers with opioid use disorder, high blood pressure or gestational diabetes. The information that is available to the general public does not indicate how these specific bundles would be structured. Additionally, there are some gaps in care within the bundles currently. Namely, most of the bundles do not include mental health services for the mother. According to the MGH Center for Women's Mental Health, approximately 20% of women suffer from mood or anxiety disorders during pregnancy. Furthermore, one study found that 70% of women with a bipolar diagnosis prior to pregnancy experienced at least one mood episode during pregnancy.[xxxvi] Including mental health services into the care continuum of the maternity bundle could improve outcomes for mothers who suffer from a range of mental health issues.

Conclusion:

A review of current programs and Episodes of Care plans throughout the United States leads to the conclusion that bundled prenatal care results in an overall decrease in cesarean section rates as well as improvements in incidence rates of newborn complications. Additionally, these programs' quality metrics have led to an improvement in various screening rate reporting, such as HIV, streptococcus and chlamydia. The outcomes in terms of overall cost savings were mixed, likely due to the various methods of payment (retrospective or prospective) and episode price. In most of those programs, the accountable entity is the primary provider that delivers the baby. The programs' population was most typically low-risk patients and care was featured around the mother for 40 weeks prior to delivery and 60 days after discharge. The increase in prenatal bundled payments should be monitored on average by measuring the state's overall cesarean section rates as well as maternal morality within those regions.

Limitations:

Value based care is something that many health organizations are working towards, but it is still difficult to understand exactly what it will look like in the future. Many results are too early to report and are focused on pilot programs with results that are inconclusive in terms of cost.

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