Detailed Business Requirements Moderate-Risk Neonatal Episode

a1.0 c04 d01

State of Ohio

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1. INTRODUCTION

1.1 Versions and revisions

Episode design is an iterative process that typically involves multiple stakeholders. Once the design is finalized and the episode implemented, experience with the new payment model may generate new insights. The insights can in turn be leveraged to modify and improve the initial episode design. To keep track of the version of an episode used at any given time, a versioning system consisting of three numbers is employed:

- The algorithm version reflects the version of the software code used to produce the outputs for a particular episode. It is indicated by a major and minor version number, e.g., a1.1. The major algorithm version does not reset. The minor algorithm version resets when the major algorithm version is incremented.
- The configuration version reflects the version of the parameter settings and medical codes used to produce the outputs for a particular episode. The configuration includes for example the dollar amounts for the gain/risk sharing thresholds and the trigger diagnosis codes. The configuration version is indicated by a two digit number, e.g., c01. It is specific to the design decisions made by the organization that is implementing an episode and it does not reset.
- The documentation version reflects the version of the Detailed Business Requirements describing a particular episode. It is indicated by a two digit number, e.g., d01, and increments when a revision is made to the documentation without making a change to the algorithm or the configuration. It resets every time the algorithm or the configuration version changes.

Version	Date	Changes
a1.0 c01 d01	1/9/2017	■ Initial design
a1.0 c02 d01	3/14/2018	■ DBR: Added the field 'HIC3 Code' to the input data in section 3.1 and revised section 4 accordingly to indicate that HIC3 codes should be pulled directly from claims rather than being cross-walked from the input field 'National Drug Code'.

Version	Date	Changes
		■ DBR: Updated the Source Table Name of the input field 'MCP ID' to specify that the T_CA_ICN.MCO_PROV_KEY should also be used. ■ DBR: Updated section 4.1 to specify that preliminary potential trigger start and end dates can be extended if they overlap with another hospitalization. ■ DBR: Updated section 4.1 to specify that potential triggers cannot be built off of professional claims that overlap with another hospitalization. ■ DBR: Updated section 4.4 to clarify that a separate methodology is applied to estimate the spend for inpatient, header-paid encounters. ■ DBR: Updated section 4.6 to clarify that the Multiple payers exclusion is looking for switches at the payer name-level, not the MCP ID-level. This is required because a payer may be associated with multiple MCP IDs. ■ DBR: Removed legacy Multiple payer exclusion language from section 4.6 ■ DBR: Updated Glossary to indicate that hospitalization should not be extended to include transfers. ■ DBR: Updated the definition of 'Hospitalization' in the Glossary to indicate that the Header To Date of Service field of the first inpatient claim should be used when its Discharge Date of the claim is not populated. ■ DBR: Updated the Glossary to expand the definition the Pharmacy claims to include both claim types P and Q. ■ DBR: Removed Long-Term Care exclusion ■ Configuration and DBR: Updated all ICD-9 code references to also specify ICD-10.
a1.0 c03 d01	6/5/2018	■ Configuration: Updated the following code lists:'Comorbidities Coma And Brain Damage - Diagnoses';
a1.0 c04 d01	12/30/2019	■ DBR: Updated sections 4.9 to reflect the new pooled methodology effective for the 2020 program year.

1.2 Scope of this document

The Detailed Business Requirements (DBR) document serves as a guide to understand the definition of an episode. The DBR addresses three audiences:

- The episode owner who is accountable overall for the episode design and implementation
- The analytics team tasked with pressure testing the design of an episode and quality controlling the outputs from the episode algorithm
- The IT team tasked with implementing the algorithm to produce outputs for an episode

Section 2 of the DBR contains a description of the episode and is aimed at the episode owner and the analytics team. It addresses the following questions:

- **Patient journey**: Which patient cases are addressed by the episode?
- **Sources of value**: At which points in the patient journey do providers have most potential to improve quality of care and outcomes?
- **Design dimensions**: What decisions underlie the design of the episode?
  - Trigger: What events trigger an episode?
  - Episode duration: What is the duration of the episode?
  - Claims included and excluded: Which claims are included in or excluded from the episode spend?
  - Episode spend: How is the spend for an episode calculated?
  - Principal Accountable Provider (PAP): Which provider is primarily held accountable for the outcomes of an episode?
  - Excluded episodes: Which episodes are excluded from a PAP's average episode spend for the purposes of calculating any gain/risk sharing?
  - Quality metrics: Which quality metrics are employed to inform PAPs about their quality of care?
  - Risk adjustment: What approach is taken to adjust episodes for risk factors that cannot be directly influenced by the PAP?
  - Gain and risk sharing: How are the gain and risk sharing amounts for PAPs determined?

Section 3 of the DBR explains the data flow of an episode. It is aimed at the analytics team and the IT team and addresses the following questions:

- **Input data**: What inputs does the episode algorithm require to build the episode?

- **Episode algorithm**: What is the intent of the episode design that needs to be reflected in the software code to produce the episode outputs?
- **Episode configuration**: What parameters (e.g., dollar amounts) and medical codes (e.g., diagnosis codes) need to be specified to define the episode?
- **Outputs**: What are the outputs of an episode algorithm?
- **Provider reports**: What information is included in the provider reports?

The algorithm logic in section 4 of the DBR is aimed at the IT team. It may also be helpful to the analytics team in their communication with the IT team over the course of quality controlling an episode. The algorithm logic addresses the following questions:

- What are the logical steps the episode algorithm needs to complete in order to produce the required outputs?
- Which cases does the algorithm need to address?
- Are there exceptions to the overall logic and, if so, how are they handled?

The DBR document does not cover the following topics:

- Background on how episodes compare to the current payment system
- Clinical rationale for inclusions and exclusions
- Intermediate analyses used during design of the episode
- Meeting materials used during design of the episode
- Guidance on data collection/transformation/storage
- Guidance on the episode algorithm coding approach

2. DESCRIPTION OF THE EPISODE

2.1 Patient journey

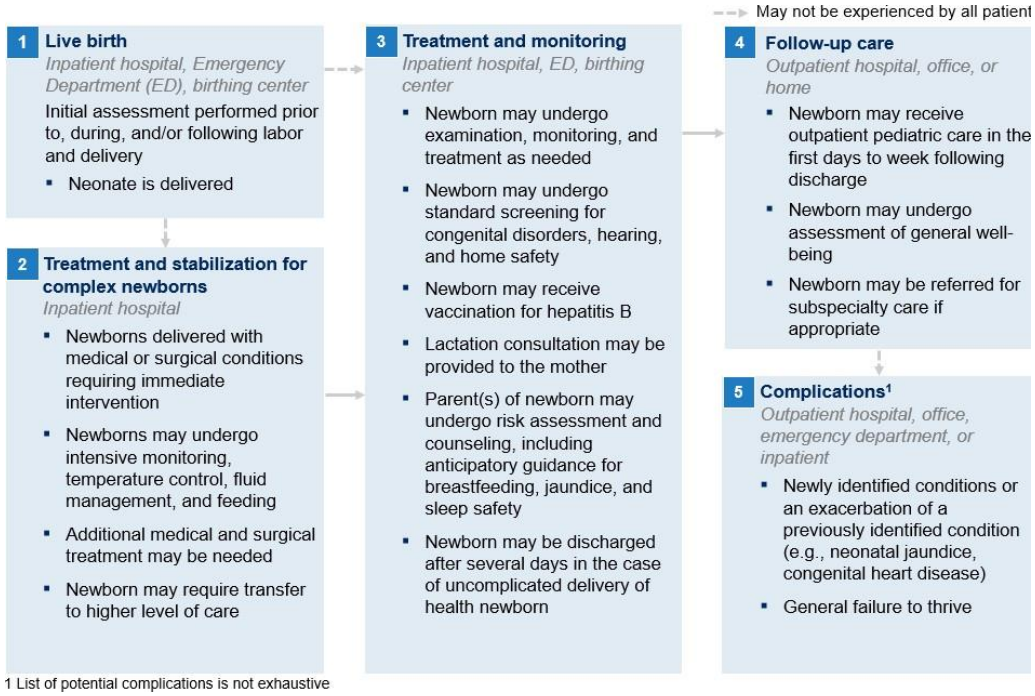
The episode described in this document pertains to newborns born at a gestational age of 32 to 36 weeks in an inpatient facility. A configuration file is provided for the moderate-risk neonatal episode and providers will receive reports for this episode.

As depicted in Exhibit 1, a moderate-risk neonatal episode begins at the time of birth at an inpatient facility. If the newborn is healthy, he or she is assessed and provided initial care in the hospital's labor and delivery unit. He or she will typically be moved to a newborn nursery for examination, vaccination, and standard screenings for metabolic, genetic, and congenital disorders. The newborn is typically discharged within two days after a vaginal delivery or three to five days after a Cesarean section.

Newborns who have a comorbidity requiring intervention, such as sepsis or neonatal abstinence syndrome, may be stabilized in labor and delivery. Then, the newborn is typically triaged to a level II or higher neonatal intensive care unit (NICU), where intensive monitoring, respiratory support, temperature control, and medical interventions are performed, as required. After the newborn reaches physiologic maturity and is able to breathe and feed without assistance, he or she may be transferred to a less intensive level of care. For newborns who require complex care, inpatient stays may range from days to months.

Regardless of whether the newborn was healthy or not, he or she will have a first pediatric visit soon after discharge—typically within 48-72 hours—with additional appointments and referrals to subspecialists as needed. Some newborns may require emergency department (ED) visits and inpatient stays if they develop new conditions, have an exacerbation of a previously identified condition (e.g., neonatal jaundice), or for general failure to thrive.

EXHIBIT 1 – PATIENT JOURNEY FOR THE MODERATE-RISK NEONATAL EPISODE



2.2 Sources of value

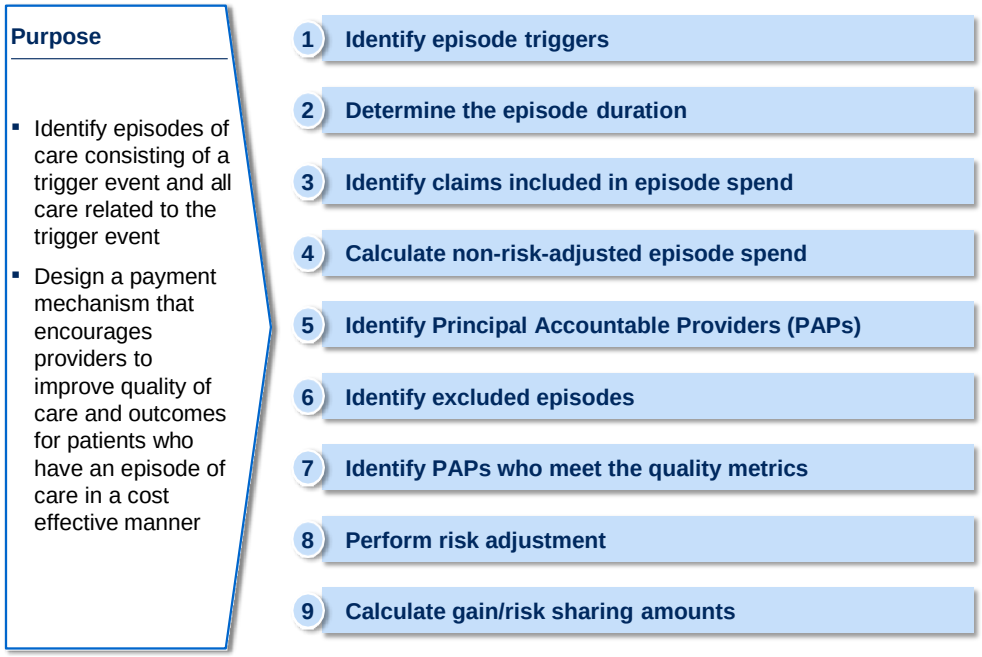
Within the moderate-risk neonatal episode, providers have several opportunities to improve the quality and cost of care, as depicted in Exhibit 2. Important sources of value include ensuring that the newborn is delivered at and triaged to the appropriate care setting according to anticipated or demonstrated intensity of needs; ensuring appropriate screening and testing, risk assessment, and counseling are performed; maintaining appropriate length of stay; and coordinating efficient outpatient follow-up care in order to limit preventable ED visits and readmissions.

EXHIBIT 2 – SOURCES OF VALUE FOR THE MODERATE-RISK NEONATAL EPISODE

2.3 Design dimensions

Designing and building a moderate-risk neonatal episode comprises nine dimensions, as depicted in Exhibit 3. Each dimension is associated with a set of data manipulations that convert the data inputs to the desired data outputs. Section 3 provides additional details on the episode data flow.

EXHIBIT 3 – EPISODE DESIGN DIMENSIONS



2.3.1 Episode trigger

A potential trigger for a moderate-risk neonatal episode is an inpatient admission for live birth for neonates with a gestational age of 32 to 36 weeks. Potential triggers are identified if an inpatient claim has a live birth diagnosis code in the primary or secondary diagnosis field as well as a diagnosis code for a gestational age of 32 to 36 weeks in the primary or secondary diagnosis field.

The live birth and gestational age 32 to 36 weeks diagnosis codes are listed in the configuration file under "Trigger Diagnosis Codes" and "Confirming Trigger Diagnosis Codes", respectively. Claim types referenced throughout the DBR are defined in the glossary.

2.3.2 Episode duration

The duration of the moderate-risk neonatal episode comprises the trigger window, the post-trigger window 1, and the post-trigger window 2. Overall, the duration of the episode is referred to as the episode window.

- **Pre-trigger window**: The moderate-risk neonatal episode does not have a pre-trigger window.
- **Trigger window**: The trigger window begins on the first day of a potential trigger that constitutes an episode and ends on the last day of a potential trigger that constitutes an episode.
- **Post-trigger window 1**: The post-trigger window 1 begins the day after the trigger window ends and extends for 7 days. If a hospitalization begins on or before the 7th day of the post-trigger window 1 and extends beyond the 7th day (i.e., is ongoing on the 7th day of the post-trigger window 1), then the post-trigger window 1 is extended until discharge from the hospitalization. Extending the episode in this way may only occur once during post-trigger window 1 and a subsequent hospitalization does not lead to further extensions.
- **Post-trigger window 2**: The post-trigger window 2 begins the day after the post-trigger window 1 ends and ends 30 days after the end date of the trigger window. If a hospitalization extends the post-trigger window 1, then the post-trigger window 2 begins the day after the extended end date of the post-trigger window 1. Regardless of the duration of the post-trigger window 1, the post-trigger window 2 always ends 30 days after the end date of the trigger window. If a hospitalization extends the post-trigger window 1 beyond 30 days after the end date of the trigger window, the post-trigger window 2 will have a duration of 0 days. If a hospitalization begins on or before the 30th day of the post-trigger window 2 and extends beyond the 30th day (i.e., is ongoing on the 30th day of the post-trigger windows), then the post-trigger window 2 is extended until discharge from the hospitalization. Extending the episode in this way may only occur once during post-trigger window 2 and a subsequent hospitalization does not lead to further extensions.

Based on the definitions of the trigger window, post-trigger window 1, and post-trigger window 2, potential triggers are divided into trigger neonatal and repeat neonatal:

- **Trigger neonatal**: Potential triggers that do not occur during another episode constitute the trigger window of a new episode.
- **Repeat neonatal**: Potential triggers that occur during the post-trigger window 1 or post-trigger window 2 of an episode do not constitute the trigger window for a new episode.

2.3.3 Claims included in episode spend

Episode spend is calculated on the basis of claims directly related to or stemming from the live birth. Claims that are included in the calculation of episode spend are referred to as included claims. Claims that are not included in the calculation of episode spend are referred to as excluded claims. The criteria to identify included claims depend on the time window during which a claim occurs.

- **Pre-trigger window**: The moderate-risk neonatal episode does not have a pre-trigger window.
- **Trigger window and post-trigger window 1**: All inpatient, outpatient, professional, and pharmacy claims during the trigger window are included claims unless otherwise specified. Excluded claims during the trigger window and post-trigger window 1 fall into the following groups:
  - Excluded hospitalizations: Hospitalizations that are excluded from the episode are identified using a specific excluded care diagnosis code in the primary or secondary diagnosis fields of an inpatient claim. All inpatient claims that are part of an excluded hospitalization are excluded claims.
  - Excluded diagnosis-based outpatient and professional claims: Outpatient and professional claims with a specific excluded care diagnosis code in the primary or secondary diagnosis fields are excluded claims. All detail lines in the excluded outpatient or professional claim are excluded detail lines.
- **Post-trigger window 2**: The post-trigger window 2 period is used for quality metric purposes only. Therefore, all inpatient, outpatient, professional, and pharmacy claims during the post-trigger window 2 are not included claims.

Throughout the episode window, claims related to transportation and vaccines are always excluded claims when the procedures occur on outpatient and professional claims.

The codes used to identify specific excluded care diagnosis, excluded transportation, and excluded vaccinations are listed in the configuration file under “Excluded Care”, “Excluded Vaccines Administered”, and “Excluded Transportation Procedures”, respectively.

2.3.4 Episode spend

The episode spend is the amount that reflects the totality of spend for included claims. Since the totality of spend for included claims is not risk-adjusted, it is referred to as non-risk-adjusted episode spend. Based on the available data, Ohio Medicaid calculates the non-risk-adjusted episode spend as the sum of the allowed amount for included claims from Medicaid Fee For Service (FFS) and the sum of the paid amount for included claims from Medicaid Managed Care Plans (MCPs). Given variation in data and payment practices, payers should use their judgment in determining which fields to utilize so as to best reflect the entire spend of an episode.

To remove variation in inpatient spend that is intentionally not addressed by the episode-based payment model, spend for included, DRG-paid inpatient claims is calculated by summing the APR-DRG base payment and the APR-DRG outlier payment for each included, DRG-paid inpatient claim. Medical education and capital expenditure payments are not included in non-risk-adjusted episode spend.

The non-risk-adjusted episode spend is calculated overall and by claim type, by window during the episode, and by claim type and window during the episode.

For the purpose of risk-adjustment only, a separate measure of episode spend, referred to as normalized-non-risk-adjusted episode spend, is used. Normalized-non-risk-adjusted episode spend is calculated using normalized APR-DRG base rates for DRG-paid inpatient claims to remove variation in unit prices before performing risk adjustment. DRG-exempt inpatient, outpatient, professional, and pharmacy spend is calculated the same way for normalized-non-risk-adjusted episode spend as for non-risk-adjusted episode spend.

To calculate the DRG-paid inpatient spend component of normalized-non-risk-adjusted episode spend the APR-DRG base payment for each included DRG-paid inpatient claim is normalized using the following method: The normalized base rate is calculated as the average hospital base rate across all DRG-paid inpatient claims weighted by the volume of DRG-paid inpatient claims. The DRG base payment on each DRG-paid inpatient claim is then multiplied by the ratio of the normalized base rate to the actual base rate of each hospital. Outlier payments, if present, are added unchanged. The medical education payment and the capital expenditure payment are not included in normalized-non-risk-adjusted episode spend.

2.3.5 Principal Accountable Provider

The Principal Accountable Provider (PAP) is the provider deemed to be in the best position to influence the quality and cost of care for a neonate with gestational age 32 to 36 weeks. The PAP is the facility delivering the neonate. The PAP is identified using the billing provider ID on the facility claim which triggered the episode.

2.3.6 Excluded episodes

Episode exclusions ensure that the remaining episodes are comparable to each other and allow fair comparisons between patient panels. After all exclusions that identify invalid episodes have been applied, a set of valid episodes remains. The valid episodes form the basis to assess the performance of PAPs.

- **Business exclusions:**
  - Duals: An episode is excluded if a patient has dual coverage by Medicaid and Medicare at any time during the episode window. The configuration file lists the codes used to identify dual eligible beneficiaries under "Business Exclusions - Duals."
  - FQHC/RHC: An episode is excluded if the PAP is classified as a federally qualified health center or rural health clinic. The configuration file lists the codes used to identify FQHCs and RHCs under "Business Exclusions – FQHC And RHC."
  - Incomplete episodes: An episode is excluded if the non-risk-adjusted episode spend (not the risk-adjusted episode spend) is less than the incomplete episode threshold. Spend less than the incomplete episode threshold may be an indication that claims are miscoded or incomplete. The incomplete episode threshold was set at the cost of the minimum services required to treat an episode. The incomplete episode threshold is listed as a parameter in the configuration file under "Excluded Episodes."
  - Inconsistent enrollment: An episode is excluded if there are gaps in full Medicaid coverage (FFS or with an MCP) of the patient during the episode window. The configuration file lists the codes used to identify beneficiaries with inconsistent enrollment under "Business Exclusions – Inconsistent Enrollment."

- Missing APR-DRG: An episode is excluded if a DRG-paid inpatient claim during the episode window is missing the APR-DRG and severity of illness.
- Multiple payers: An episode is excluded if a patient changes enrollment between MCPs during the trigger window or the post-trigger window(s) (if applicable). The rules to attribute an episode to a payer are described in the glossary under "Payer Attribution."
- No PAP: An episode is excluded if the billing provider number is not available.
- PAP out of state: An episode is excluded if the PAP's practice address is outside Ohio.
- Third-party liability: An episode is excluded if third-party liability charges are present on any claim or claim detail line during the episode window or if the patient has relevant third-party coverage at any time during the episode window.

- **Clinical exclusions:**
  - Comorbidity: An episode is excluded if the patient has one or more of the following comorbidities during a specified time window. The configuration file lists the comorbidity codes and time windows under "Comorbidities <Comorbidity Name> - <Procedures or Diagnoses>." Comorbidity codes are searched for on inpatient, outpatient, and professional claims.

    The comorbidity exclusions are:

    - Bilious emesis
    - Birth weight less than 1,000 grams
    - Cardiac arrest
    - Chromosomal anomalies and genetic disorders
    - Coagulation factor deficiencies
    - Coma or brain damage
    - Congenital cardiovascular anomalies
    - Congenital face and neck anomalies
    - Congenital gastrointestinal anomalies

- Congenital genitourinary anomalies
- Congenital immunodeficiency
- Congenital musculoskeletal anomalies
- Congenital nervous system anomalies
- Congenital respiratory anomalies
- Conjoined twins
- Gestational age less than 32 weeks
- Hepatitis
- Hydrops fetalis
- Inborn errors of metabolism
- Intrauterine hypoxia and birth asphyxia
- Intraventricular hemorrhage (grades III-IV)
- Major cardiovascular disorders
- Maternal death
- Meningitis and encephalitis
- Other hemorrhage (not including gastrointestinal bleed)
- Other major congenital anomalies
- Renal failure
- Retinoblastoma
- Stroke
- Triplets or greater
- Tuberculosis

– 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 before the end of the episode window.

– 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.

- Multiple other comorbidities: An episode is excluded if it is affected by too many risk factors to reliably risk adjust the episode spend. The configuration file lists the number of risk factors beyond which an episode is excluded as a parameter under "Excluded Episodes."

- **Outliers:**
  - High outlier: An episode is excluded if the risk-adjusted episode spend (not the non-risk-adjusted episode spend) is greater than the high outlier threshold. The high outlier threshold was set based on analyses of episode spend distributions for episodes that ended between October 2014 and September 2015, inclusive. It was set at three standard deviations above the average risk-adjusted episode spend for otherwise valid episodes. The high outlier threshold is listed as a parameter in the configuration file under "High Outlier."

2.3.7 Quality metrics

A PAP must pass all quality metrics tied to gain sharing to be eligible for gain sharing. PAPs also receive information on additional quality metrics that allow them to assess their performance, but do not affect their eligibility to participate in gain sharing. Quality metrics are calculated for each individual PAP across valid episodes attributed to the PAP. The quality metrics are based on information contained in the claims filed for each patient. Additional information on how the quality metrics could be tied to gain sharing is provided in section 2.3.9 ("Gain and risk sharing").

- **Quality metric tied to gain sharing for the moderate-risk neonatal episode:**
  - Quality metric 1: Percent of valid episodes with a pediatric visit within five days of discharge. The procedure codes used to identify pediatric visits are listed in the configuration file under "Quality Metric 01 Pediatric Visit".

- **Quality metrics not tied to gain sharing for the moderate-risk neonatal episode:**
  - Quality metric 2: Percent of valid episodes with a C-section delivery. The diagnosis codes used to identify C-section deliveries are listed in the configuration file under "Quality Metric 02 C-Section".
  - Quality metric 3: Percent of valid episodes where there is one or more hospitalizations after the initial hospitalization for any type of care except

specific excluded care. Hospitalizations are defined in the glossary. The specific excluded diagnosis codes are listed in the configuration file under "Excluded Care".

- Quality metric 4: Percent of valid episodes with one or more ED visits or observation care after the initial hospitalization for any type of care except specific excluded care. The revenue and procedure codes used to identify ED visits or observation care and specific excluded diagnosis codes are listed in the configuration file under "Quality Metric 04 ED Visit Or Observation Care – Revenue Codes", "Quality Metric 04 ED Visit Or Observation Care – Procedure Codes", and "Excluded Care", respectively.
- Quality metric 5: Percent of all episodes where the neonate had a patient discharge status of "expired". The codes used to identify mortality are listed in the configuration file under "Quality Metric 05 Mortality".

2.3.8 Risk adjustment

Principal Accountable Providers (PAPs) participating in episode-based payment models are compared based on their performance on quality metrics and based on the average spend for episodes treated by each PAP. The credibility and effectiveness of an episode-based payment model therefore rests on the comparability and fairness of the episode spend measure used in the comparisons. Risk adjustment is one of several mechanisms that episode-based payment models may use to achieve comparability in episode spend across PAPs.

Risk adjustment specifically captures the impact on episode spend of documented clinical risk factors that typically require additional care during an episode and are outside the control of the PAP. The goal of risk adjustment is to account for different levels of medical risk across patient panels and, by doing so, reduce incentives for tactical selection of patients (i.e., avoiding riskier and more costly patients) when payments are tied to episode spend performance.

Risk factors and risk coefficients are identified in an iterative process informed by medical best practice, expert opinion, and statistical testing. The risk coefficients are used to calculate a risk score for each episode given the risk factors that are present for the episode. The risk score represents the ratio of the expected episode spend when no risk factors are present to the expected episode spend given the set of risk factors present for the episode. Multiplying the

observed episode spend by the risk score results in the risk-adjusted episode spend. Risk-adjusted episode spend represents how much spend would have been incurred during the episode had there been no risk factors present, all other things being equal. By minimizing the effect of clinically documented medical risk that is outside the control of the PAP on episode spend, risk-adjustment contributes to the fairness of the episode spend comparisons that underlie episode-based payment models.

For additional details on the risk adjustment process, please refer to the document "Supporting documentation on episode risk adjustment."

This process was conducted as part of episode design by the Ohio Department of Medicaid. Risk factors and coefficients derived from this process are included in the accompanying configuration file. At this time it is not expected that individual payers run their own risk adjustment process for the Ohio Medicaid population.

- Risk factors for moderate-risk neonates:
  - Anemia
  - Apnea
  - Birth weight 1,000-1,499 grams
  - Birth weight 1,500-1,999 grams
  - Birth weight 2,000-2,499 grams
  - Cesarean delivery
  - Gastrointestinal bleeding
  - Gestational age 33-34 weeks
  - Inguinal Hernia
  - Intraventricular hemorrhage grade I-II
  - Jaundice
  - Neonatal abstinence syndrome
  - Patent ductus arteriosus
  - Pleural effusion
  - Pneumonia
  - Respiratory distress syndrome

- Sepsis or rule out sepsis
- Small for gestational age
- Thrombocytopenia

The risk coefficients associated with each risk factor are listed as parameters in the configuration file under "Risk Adjustment."

2.3.9 Gain and risk sharing

The State of Ohio and the MCPs will send provider reports to PAPs to inform them about their performance in the episode-based payment model. A detailed description of the provider reports is beyond the scope of the Detailed Business Requirements. Please refer to the "Episode of Care Payment Report Sample" provided separately as a general guide for the layout and metrics of the provider reports.

At some point after thresholds are set, provider reports will include gain/risk sharing information. Gain/risk sharing is determined based on the comparison of the average risk-adjusted episode spend for valid episodes of each PAP to three pre-determined thresholds. The thresholds and relevant calculations are detailed below. Note that, throughout this section, the average risk-adjusted episode spend for valid episodes will be referred to as the 'average risk-adjusted spend':

- **Acceptable threshold**: PAPs with an average risk-adjusted spend above the acceptable threshold and that also have a minimum of five valid episodes during the performance period owe a risk-sharing payment.
- **Commendable threshold**: PAPs with an average risk-adjusted spend between the commendable threshold and above the gain sharing limit threshold that also have a minimum of five valid episodes and pass the quality metrics tied to gain sharing during the performance period receive a gain sharing payment.
- **Gain sharing limit threshold**: PAPs with average risk-adjusted spend below the gain sharing limit threshold that also have a minimum of five valid episodes and pass the quality measures tied to gain sharing receive a gain sharing payment that is proportional to the difference between the commendable threshold and the gain sharing limit as a percentage of average risk-adjusted episode spend.

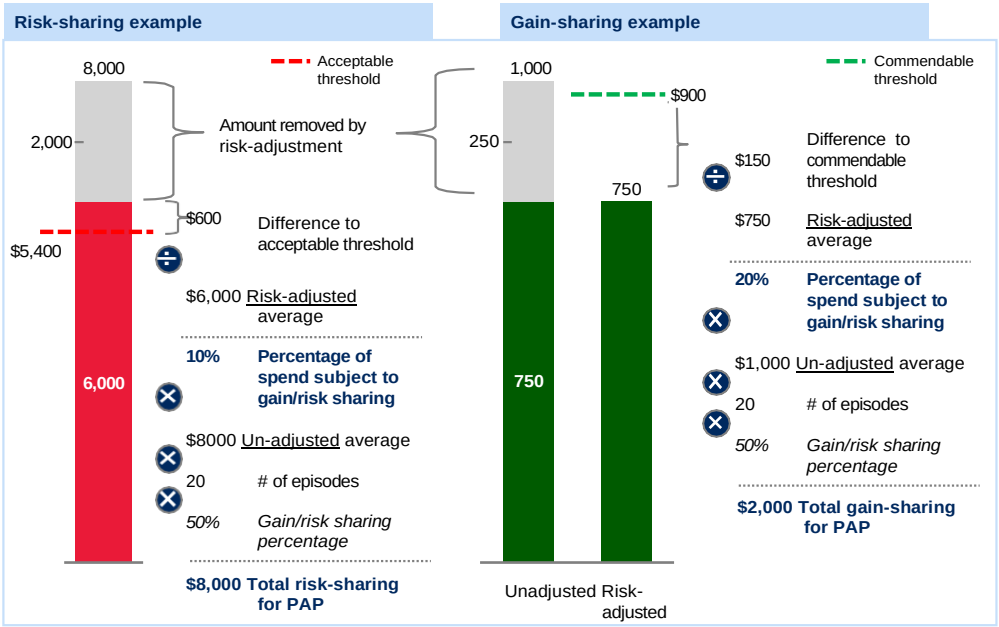
PAPs with average risk-adjusted episode spend between the acceptable and commendable thresholds may neither owe a risk sharing payment nor receive a gain sharing payment.

The gain or risk sharing payment of each PAP is calculated based on episodes that ended during a performance period of a certain length (e.g., 12 months). The calculation of the gain or risk sharing payment is as follows (Exhibit 4):

- **Risk sharing:** The calculation of the risk-sharing amount involves multiplying the percentage of spend subject to risk-sharing by the total non-risk-adjusted episode spend for all valid episodes of the PAP and the risk-sharing proportion (e.g., 50%). The percentage of spend subject to risk-sharing is the difference between the PAP's risk-adjusted spend and the acceptable threshold as a percentage of the PAP's risk-adjusted spend.
- **Gain sharing:** The calculation of the gain-sharing amount involves multiplying the percentage of spend subject to gain sharing by both a PAP's total non-risk-adjusted episode spend for valid episodes and the gain-sharing proportion (e.g., 50%). The calculation of the percentage of spend subject to gain sharing depends on whether the PAP’s average risk-adjusted spend is above or below the gain-sharing limit:
  - If a PAP’s average risk-adjusted spend is above the gain sharing limit, the percentage of spend subject to gain-sharing is the difference between the PAP's average risk-adjusted spend and the commendable threshold as a percentage of the PAP's average risk-adjusted spend.

If the PAP’s average risk-adjusted spend is below the gain sharing limit, the percentage of spend subject to gain sharing is the difference between the gain sharing limit and the commendable threshold as a percentage of the PAP’s average risk-adjusted spend.

EXHIBIT 4 – CALCULATION OF RISK- AND GAIN-SHARING PAYMENTS


Risk-sharing example
8,000
Acceptable threshold
2,000
Amount removed by risk-adjustment
$600
Difference to acceptable threshold
$5,400
$6,000 Risk-adjusted average
10%
Percentage of spend subject to gain/risk sharing
6,000
$8000 Un-adjusted average
20
# of episodes
50%
Gain/risk sharing percentage
$8,000 Total risk-sharing for PAP
Gain-sharing example
1,000
$900
Commendable threshold
250
750
$150
Difference to commendable threshold
$750
Risk-adjusted average
20%
Percentage of spend subject to gain/risk sharing
750
$1,000 Un-adjusted average
20
# of episodes
50%
Gain/risk sharing percentage
$2,000 Total gain-sharing for PAP
Unadjusted
Risk-adjusted

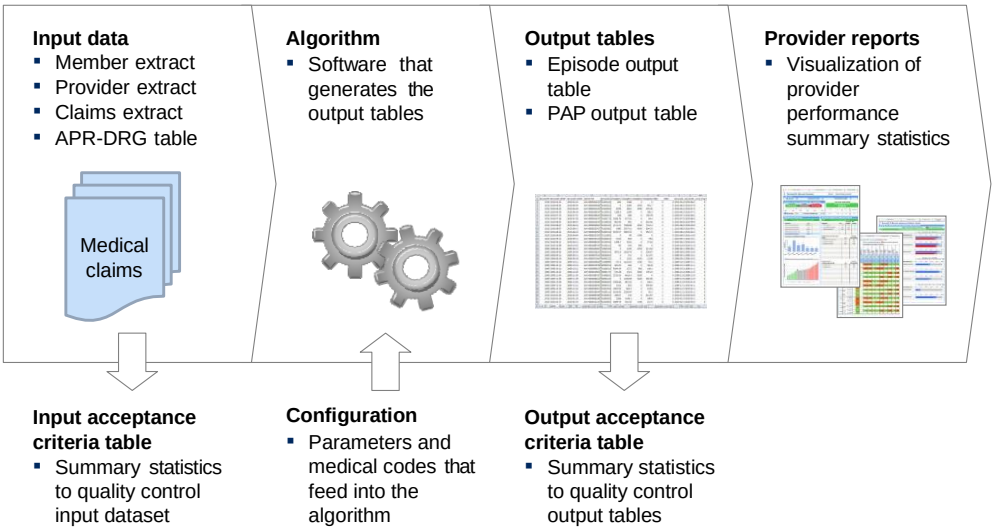
3. EPISODE DATA FLOW

The analytics underlying an episode-based payment model are performed by an episode algorithm. The algorithm takes an input dataset, transforms the data in accordance with the intent of the episode design, and produces a set of output tables (Exhibit 5). The output tables are used to create provider reports.

Several of the episode design dimensions require input parameters such as age ranges and medical codes such as diagnosis, procedure, and medication codes to specify the intent of the episode. The parameters and medical codes are provided in the episode configuration.

It is recommended that the episode data flow include two elements for quality assurance: (1) An input acceptance criteria table to assess the content and quality of the input dataset. (2) An output acceptance criteria table to assess the content and quality of the output tables. It is the responsibility of each payer to determine the details of appropriate quality assurance measures.

EXHIBIT 5 – EPISODE DATA FLOW



3.1 Input data

To build an episode, the following input data are needed:

- **Member Extract**: List of patients and their health insurance enrollment information.
- **Provider Extract**: List of participating providers and their addresses.
- **Claims Extract**: Institutional claims (UB-04 claim form), professional claims (CMS1500 claim form), and pharmacy claims (NCPDP claim form) at the patient level.
- **APR-DRG Base Rate Table**: Table containing the APR-DRG base rate for each DRG-paid provider.

The table below lists the required input fields using the source field abbreviations and source table names provided in the Ohio Vendor Extracts Companion Guides. The algorithm logic (section 4) describes the use of each input field. In the algorithm logic, input fields are referred to by the "Source field name in DBR" and written in italics.

Table – Input fields

Source field name in DBR	Source field abbreviation OH Medicaid	Source table names OH Medicaid
Member Extract		
Member ID	ID_MEDICAID	DSS.T_RE_BASE_DN
Eligibility Start Date	DTE_EFFECTIVE	DSS.T_RE_AID_ELIG_DN
Eligibility End Date	DTE_END	DSS.T_RE_AID_ELIG_DN
Aid Category	CDE_AID_CATEGORY	DSS.T_RE_AID_ELIG_DN
MCP Start Date	DTE_EFFECTIVE	DSS.T_RE_PMP_ASSIGN
MCP End Date	DTE_END	DSS.T_RE_PMP_ASSIGN
Date Of Birth	DTE_BIRTH	DSS.T_RE_BASE_DN
Date Of Death	DTE_DEATH	DSS.T_RE_BASE_DN
TPL Effective Date	DTE_TPL_EFFECTIVE	DSS.T_COVERAGE_XREF
TPL End Date	DTE_TPL_END	DSS.T_COVERAGE_XREF
Coverage Type	CDE_COVERAGE	DSS.T_COVERAGE_XREF
Provider Extract		
Provider ID	ID_PROVIDER_MCAID	DSS.T_PR_SVC_LOC_DN
Provider Name	NAME	DSS.T_PR_APPLN
Practice Address Line 1	ADR_MAIL_STRT1	DSS.T_PR_ADR_DN
Practice Address Line 2	ADR_MAIL_STRT2	DSS.T_PR_ADR_DN
Practice City	ADR_MAIL_CITY	DSS.T_PR_ADR_DN

Source field name in DBR	Source field abbreviation OH Medicaid	Source table names OH Medicaid
Practice State	ADR_MAIL_STATE	DSS.T_PR_ADR_DN
Practice Zip Code	ADR_MAIL_ZIP	DSS.T_PR_ADR_DN
Claims Extract		
Internal Control Number	NUM_ICN	DSS.T_CA_ICN
FFS Or MCP Indicator	IND_CLAIM	DSS.T_CA_ICN
MCP ID	ID_PROVIDER_MCAID	T_CA_PROV_KEY T_CA_ICN.MCO_PROV_KEY
Header Or Detail Indicator	IND_HDR_DTL	DSS.T_CA_IND_KEY
Claim Type	CDE_CLM_TYPE	DSS.T_CA_CLAIM_KEY
Header Paid Status	CDE_HDR_STATUS	DSS.T_CA_CLAIM_KEY
Detail Paid Status	CDE_DTL_STATUS	DSS.T_CA_CLAIM_KEY
Member ID	ID_MEDICAID	DSS.T_CA_ICN
Billing Provider ID	ID_PROVIDER_MCAID	T_CA_PROV_KEY T_CA_ICN.BILL_PROV_KEY
Billing Provider Type	CDE_PROV_TYPE_PRIM	DSS.T_CA_PROV_KEY T_CA_ICN.BILL_PROV_KEY
Attending Provider ID	ID_PROVIDER_MCAID	T_CA_PROV_KEY T_CA_ICN.REFER_PROV_KEY
Rendering Provider ID	ID_PROVIDER_MCAID	T_CA_PROV_KEY T_CA_ICN.PERF_PROV_KEY
Header From Date Of Service	DTE_FIRST_SVC_H	DSS.T_CA_ICN
Header To Date Of Service	DTE_LAST_SVC_H	DSS.T_CA_ICN
Detail From Date Of Service	DTE_FIRST_SVC_D	DSS.T_CA_ICN
Detail To Date Of Service	DTE_LAST_SVC_D	DSS.T_CA_ICN
Admission Date	DTE_ADMISSION	DSS.T_CA_ICN
Discharge Date	DTE_DISCHARGE	DSS.T_CA_ICN
Patient Status Indicator	CDE_PATIENT_STATUS	DSS.T_CA_UB92
Header Diagnosis Code Primary	CDE_DIAG and CDE_DIAG_SEQ = 01	DSS.T_CA_DIAG
Header Diagnosis Code 2-28	CDE_DIAG and CDE_DIAG_SEQ = 02-28	DSS.T_CA_DIAG
Surgical Procedure Code Primary	CDE_PROC_ICD9 and NUM_SEQ = 01	DSS.T_CA_ICD9_PROC
Surgical Procedure Code 2-24	CDE_PROC_ICD9 and NUM_SEQ = 02-24	DSS.T_CA_ICD9_PROC

Source field name in DBR	Source field abbreviation OH Medicaid	Source table names OH Medicaid
Detail Procedure Code	CDE_PROC_PRIM	DSS.T_CA_ICN DSS.T_CA_HDR_DTL
Modifier 1-4	CDE_MODIFIER_X	DSS.T_CA_ICN DSS.T_CA_HDR_DTL
Place Of Service	CDE_POS	DSS.T_CA_CLAIM_KEY
Revenue Code	CDE_REVENUE	DSS.T_CA_ICN DSS.T_CA_HDR_DTL
National Drug Code	CDE_NDC	DSS.T_CA_DRUG
HIC3 Code	CDE_THERA_CLS_SPEC	DSS.T_CA_DRUG
Header FFS Allowed Amount	AMT_ALWD_H	DSS.T_CA_ICN
Detail FFS Allowed Amount	AMT_ALWD_D	DSS.T_CA_ICN
Header MCP Paid Amount	AMT_PAID_MCO_H	DSS.T_CA_ICN
Detail MCP Paid Amount	AMT_PAID_MCO_D	DSS.T_CA_ICN
Header TPL Amount	AMT_TPL_APPLD_H	DSS.T_CA_ICN
Detail TPL Amount	AMT_TPL_APPLD_D	DSS.T_CA_ICN
APR-DRG	CDE_DRG	DSS.T_CA_ICN
Severity of Illness	CDE_SOI	DSS.T_CA_DRG
DRG Base Payment	AMT_BASE_DRG	DSS.T_CA_UB92
DRG Outlier Payment A	AMT_DAY_OUTLIER	DSS.T_CA_UB92
DRG Outlier Payment B	AMT_COST_OUTLIER	DSS.T_CA_UB92
APR-DRG Base Rate Table		
Provider ID	Medicaid Provider ID	APR DRG Base Rates to Plans.xlsx
Base Rate	Base Rate	APR DRG Base Rates to Plans.xlsx

The date range for the input data has to include the 12 months duration reporting period as well as one month following the reporting period. The one month following the reporting period is needed to allow for identification of quality metrics.

The input data includes claims from the payer responsible for the episode as well as historical claims from other Medicaid payers prior to the episode trigger. Payers are provided with this claims data upon member enrollment. The inclusion of this data is particularly important in generating appropriate risk factors and exclusions.

Historical data should be treated exactly the same as claims that were submitted directly to the payer with one exception: Payers should only report on episodes for which they paid the triggering claim in order to avoid double-counting of episodes across plans.

The input data has to contain only unique and paid claims. It is the responsibility of each payer to apply appropriate methods to ensure that all claims in the input data are valid, de-duplicated, and paid. For Ohio Medicaid, the methods provided by the State are used to remove duplicate and void claims. The input fields *Header Paid Status* and *Detail Paid Status* are used to determine whether a claim or claim detail line was paid.

If the value of an input field from the Claims Extract that is required to build an episode is missing or invalid, then the corresponding claim is ignored when building the episode. For example, a claim that would be a potential trigger, but is missing the *Header From Date Of Service*, cannot be a potential trigger.

3.2 Episode algorithm

The intent of the episode algorithm is detailed in the algorithm logic (section 4) of the DBR.

3.3 Episode configuration

The parameters and medical codes needed to define an episode are listed in the configuration file which is provided as an attachment to the DBR. There is one configuration file for the moderate-risk neonatal episode. The files include:

- **Parameters sheet:** Values for parameters used in the episode, for example the outlier thresholds and risk coefficients.
- **Code sheet:** Medical codes used in the episode, for example trigger diagnosis or procedure codes and codes to identify included claims. Diagnosis and procedure codes may be provided as complete or incomplete codes. If an incomplete code is provided, the incomplete code itself as well as all complete codes that stem from it need to be taken into account when using the code.

The algorithm logic (section 4) explains the intended use of the parameters and medical codes by the episode algorithm. References to medical codes in the

configuration file are made using the name for the relevant design dimension subcategory in the code sheet of the configuration file. References to parameters in the configuration file are made using the name for the relevant design dimension in the parameters sheet of the configuration file.

3.4 Output tables

Using the input data tables and the configuration file, an episode algorithm creates two output tables: the episode output table and the PAP output table. The algorithm logic (section 4) describes the definition of each output field. In the algorithm logic, output fields are referred to by the output field names provided in the tables below and are written in italics.

3.4.1 Episode output table

The episode output table contains the set of episodes identified by the algorithm and the characteristics of each episode. The table below lists the required output fields.

Table – Episode Output Table

Output field name	Output field abbreviation
Episode identification	
Trigger Claim ID	TriggerClaimID
Member ID	MemberID
Member Age	MemberAge
Episode Start Date	EpisodeStartDate
Episode End Date	EpisodeEndDate
Trigger Window Start Date	TriggerWindowStartDate
Trigger Window End Date	TriggerWindowEndDate
Post-trigger Window 1 Start Date	PostTriggerWindow1StartDate
Post-trigger Window 1 End Date	PostTriggerWindow1EndDate
Post-trigger Window 2 Start Date	PostTriggerWindow2StartDate
Post-trigger Window 2 End Date	PostTriggerWindow2EndDate
PAP ID	PAPID
PAP Name	PAPName
Rendering Provider ID	RenderingID
Rendering Provider Name	RenderingName
Excluded episodes	
Any Exclusion	EEAny

Output field name	Output field abbreviation
Exclusion Death	EEDeath
Exclusion Dual Eligibility	EEDual
Exclusion FQHC RHC	EEFQHCRHC
Exclusion High Outlier	EEHighOutlier
Exclusion Incomplete Episode	EEIncomplete
Exclusion Inconsistent Enrollment	EEEnrollment
Exclusions Left Against Medical Advice	EEAMA
Exclusion Long-term Care	EELTC
Exclusion Missing DRG	EENoDRG
Exclusion Multiple Other Comorbidities	EEMultiCF
Exclusion Multiple Payers	EEMultiPayer
Exclusion No PAP	EENoPAP
Exclusion PAP Out Of State	EEOutOfState
Exclusion Third-party Liability	EETPL
Exclusion <Comorbidity Name>	EE<ComorbidityName>
Number of comorbidities depends on episode	
Count Of Included Claims	
Count Of Included Claims	EpiClaimsIncluded
By Trigger Window	EpiClaimsIncludedTrig
By Post-trigger Window 1	EpiClaimsIncludedPostTrig1
By Post-trigger Window 2	EpiClaimsIncludedPostTrig2
By Inpatient	EpiClaimsIncludedIP
By Outpatient	EpiClaimsIncludedOP
By Professional	EpiClaimsIncludedProf
By Pharmacy	EpiClaimsIncludedPharma
By Trigger Window And Inpatient	EpiClaimsIncludedTrigIP
By Trigger Window And Outpatient	EpiClaimsIncludedTrigOP
By Trigger Window And Professional	EpiClaimsIncludedTrigProf
By Trigger Window And Pharmacy	EpiClaimsIncludedTrigPharma
By Post-trigger Window 1 And Inpatient	EpiClaimsIncludedPostTrig1IP
By Post-trigger Window 1 And Outpatient	EpiClaimsIncludedPostTrig1OP
By Post-trigger Window 1 And Professional	EpiClaimsIncludedPostTrig1Prof
By Post-trigger Window 1 And Pharmacy	EpiClaimsIncludedPostTrig1Pharma
By Post-trigger Window 2 And Inpatient	EpiClaimsIncludedPostTrig2IP
By Post-trigger Window 2 And Outpatient	EpiClaimsIncludedPostTrig2OP
By Post-trigger Window 2 And Professional	EpiClaimsIncludedPostTrig2Prof
By Post-trigger Window 2 And Pharmacy	EpiClaimsIncludedPostTrig2Pharma
Episode spend	
Non-risk-adjusted Episode Spend	EpiSpendNonadjPerformance

Output field name	Output field abbreviation
Same breakouts as for claim counts	
Normalized-non-risk-adjusted Episode Spend	EpiSpendNonAdjNorm
Risk-adjusted Episode Spend	EpiSpendAdjPerformance
Risk adjustment	
Episode Risk Score	EpiRiskScore
Risk Factor 001	RF001
Risk Factor 002	RF002
Risk Factor 003	RF003
Number of RFs depends on episode	
Quality metrics	
Quality Metric 01 Indicator	EpiQM01
Quality Metric 02 Indicator	EpiQM02
Quality Metric 03 Indicator	EpiQM03
Number of QMs depends on episode	

3.4.2 PAP output table

The PAP output table contains information about each PAP and their episodes. The table below lists the required output fields.

Table – PAP Output Table

Output field name	Output field abbreviation
PAP identification	
PAP ID	PAPID
PAP Name	PAPName
PAP Address Line 1	PAPAddress1
PAP Address Line 2	PAPAddress2
PAP City	PAPCity
PAP State	PAPState
PAP Zip Code	PAPZip
Episode counts	
Count Of Total Episodes Per PAP	PAPEpisodesTotal
Count Of Valid Episodes Per PAP	PAPEpisodesValid
With Inpatient	PAPEpiWithIP
With Outpatient	PAPEpiWithOP
With Professional	PAPEpiWithProf
With Pharmacy	PAPEpiWithPharma
PAP performance	
Gain Sharing Quality Metric Pass	PAPQMPassOverall

Output field name	Output field abbreviation
Gain/Risk Sharing Amount	PAPGainRiskShare
PAP Sharing Level	PAPSharingLevel
Minimum Episode Volume Pass	MinEpiPass
PAP spend	
Average Non-risk-adjusted PAP Spend	PAPSpendNonadjPerformanceAvg
Inpatient A/B	PAPSpendNonadjPerformanceAvgIP A/B
Outpatient A/B	PAPSpendNonadjPerformanceAvgOP A/B
Professional A/B	PAPSpendNonadjPerformanceAvgProf A/B
Pharmacy A/B	PAPSpendNonadjPerformanceAvgPharma A/B
Total Non-risk-adjusted PAP Spend	PAPSpendNonadjPerformanceTotal
PAP Risk Adjustment Ratio	PAPRiskAdjRatioPerformance
Average Risk-adjusted PAP Spend	PAPSpendAdjPerformanceAvg
Total Risk-adjusted PAP Spend	PAPSpendAdjPerformanceTotal
Quality metrics performance	
PAP Quality Metric 01 Performance	PAPQM01
PAP Quality Metric 02 Performance	PAPQM02
PAP Quality Metric 03 Performance	PAPQM03
Number of QMs depends on episode	

3.5 Provider reports

During the initial implementation phase, each PAP receives a report to inform them about their performance in the episode-based payment model. The information shown in the provider report is based on the episode and PAP output tables. The reports show episodes with an episode end date during the reporting period. A detailed description of the provider report is beyond the scope of the Detailed Business Requirements. Please refer to the "Episode of Care Payment Report Sample" provided separately as a general guide for the layout and metrics of the provider report.

4. ALGORITHM LOGIC

The algorithm logic forms the basis to code an episode algorithm. It explains the intent of the episode design at a level of granularity that will allow

an IT implementation team to create an algorithm that matches the episode design.

4.1 Identify episode triggers

The first design dimension of building a moderate-risk neonatal episode is to identify potential triggers.

Episode output fields created: *Trigger Claim ID, Member ID*

Potential triggers are identified over the entire date range of the input data. For the moderate-risk neonatal episode, a potential trigger is defined as an inpatient claim with a diagnosis of live birth as well as a confirming diagnosis of gestational age 32 to 36 weeks. Claim types (inpatient, outpatient, professional, and pharmacy) are identified based on the input field *Claim Type*. For the definition of each claim type see the glossary.

Live birth trigger diagnosis codes are used to identify a trigger for the moderate-risk neonatal episode. A claim that originates from the trigger location of inpatient is a potential trigger if both of the following conditions are met:

- First, the claim contains a live birth trigger diagnosis code in the input field *Header Diagnosis Code Primary* or in the input field *Header Diagnosis Code 2-28*.
- Second, the claim contains a confirming diagnosis code for a gestational age of 32 to 36 weeks in the input field *Header Diagnosis Code Primary* or in the input field *Header Diagnosis Code 2-28*.

The live birth diagnosis codes and gestational age 32 to 36 weeks diagnosis codes are listed in the configuration file under “Trigger Diagnosis Codes” and “Confirming Trigger Diagnosis Codes”, respectively. The trigger location inpatient is based on the input field *Claim Type*.

The output field *Trigger Claim ID* is set to the input field *Internal Control Number* of the inpatient claim that identifies a potential trigger. The output field *Member ID* is set to the input field *Member ID* of the inpatient claim that identifies a potential trigger.

A specific rule applies for potential triggers that are identified based on inpatient claims that are a part of a hospitalization consisting of two or more inpatient claims. For the definition of hospitalizations see the glossary. If an inpatient

claim that identifies a potential trigger is part of a hospitalization consisting of two or more inpatient claims, the potential trigger starts on the *Header From Date Of Service* of the hospitalization of which the triggering inpatient claim is a part. The potential trigger ends on the *Header To Date Of Service* of the hospitalization of which the inpatient trigger is a part. The output fields *Trigger Claim ID* and *Member ID* are set using the *Internal Control Number* and *Member ID* of the earliest inpatient claim with a trigger diagnosis code during the hospitalization.

Once all potential triggers have been identified, the preliminary start and end dates for each potential trigger can be extended if they overlap with another hospitalization. In order for an extension to occur, the hospitalization must meet one of the following conditions:

- The preliminary potential trigger start and end dates both occur between the hospitalization start and end dates
- The preliminary potential trigger start date occurs between the hospitalization start date and 1 day before the hospitalization end date
- The hospitalization start date occurs between the preliminary potential trigger start date and 1 day before the preliminary potential trigger end date, and the hospitalization end date occurs after the preliminary potential trigger end date

This extension is possible even if the trigger claim (and associated facility claim, if applicable to the episode) does not have a *Claim Type* of inpatient, as long as the trigger logic does not explicitly prohibit episodes to trigger during an inpatient stay. An overlapping hospitalization cannot result in the shortening of the preliminary potential trigger duration.

For the definition of hospitalizations see the glossary. The extension logic only applies to the first overlapping hospitalization. Additional extension is not allowed if the extended potential trigger window overlaps with another hospitalization.

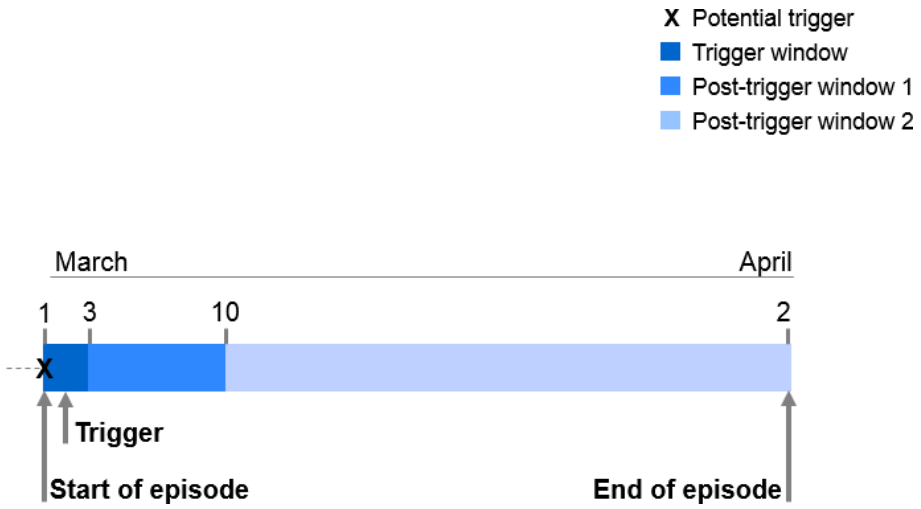
4.2 Determine the episode duration

The second design dimension of building a moderate-risk neonatal episode is to define the duration of the episode and to assign claims and claim detail lines to each episode.

Episode output fields created: *Trigger Window Start Date, Trigger Window End Date, Post-trigger Window 1 Start Date, Post-trigger Window 1 End Date, Post-trigger Window 2 Start Date, Post-trigger Window 2 End Date, Episode Start Date, Episode End Date*

Two time windows are of relevance in determining the episode duration (see Exhibit 6).

EXHIBIT 6 – MODERATE-RISK NEONATAL EPISODE DURATION



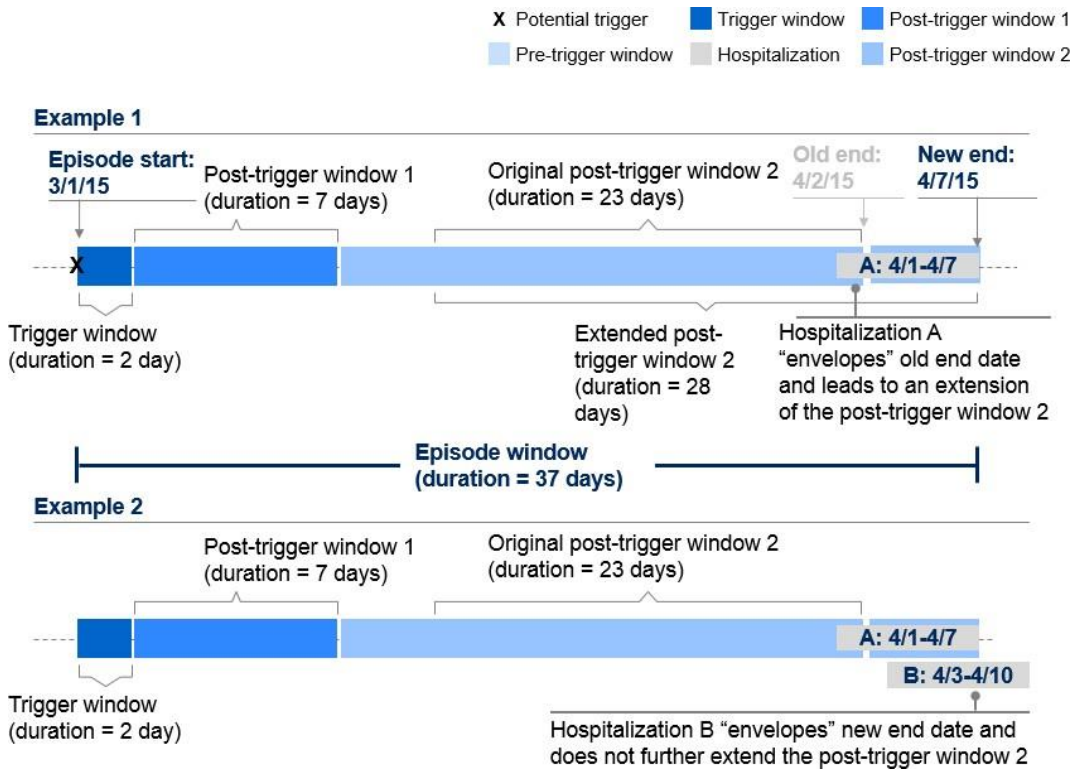
- **Pre-trigger window**: The moderate-risk neonatal episode does not have a pre-trigger window.
- **Trigger window**: The output fields *Trigger Window Start Date* and *Trigger Window End Date* are set using the potential trigger start and end dates which are defined in section 4.1. The output field *Trigger Window Start Date* is also the output field *Episode Start Date*. Only potential triggers that constitute a trigger live birth can set the duration of a trigger window. The approach to determine whether a potential trigger is a trigger live birth is described below.
- **Post-trigger window 1**: The output field *Post-trigger Window 1 Start Date* is set to the day after the output field *Trigger Window End Date*. The output

field *Post-trigger Window 1* is set to the 7th day after the output field *Trigger Window End Date* (for a post-trigger window 1 of 7 days duration). If a hospitalization is ongoing on what would be the final day of the post-trigger window 1, the output field *Post-Trigger Window 1 End Date* is instead set to the input field *Discharge Date* of the hospitalization. A hospitalization is ongoing on the final day of the post-trigger window 1 if the hospitalization has an input field *Header From Date Of Service* during the trigger window or during the first 7 days of the post-trigger window 1 and a *Discharge Date* beyond the first 7 days of the post-trigger window 1. If more than one hospitalization is ongoing on the 7th day of the post-trigger window 1, the latest *Discharge Date* present on a hospitalization sets the end date of the post-trigger window 1. Hospitalizations are defined in the glossary.

- **Post-trigger window 2**: The output field *Post-trigger Window 2 Start Date*, is set to the day after the output field *Post-trigger Window 1 End Date*. Regardless of the duration of the post-trigger window 1, the output field *Post-trigger Window 2 End Date* is set to the 30th day after the output field *Trigger Window End Date* (for post-trigger windows of 30 days duration). If a hospitalization extends the post-trigger window 1 beyond 30 days after the output field *Trigger Window End Date*, the post-trigger window 2 will have a duration of 0 days. If a hospitalization is ongoing on what would be the final day of the post-trigger window 2, the output field *Post-Trigger Window 2 End Date* is instead set to the input field *Discharge Date* of the hospitalization. A hospitalization is ongoing on the final day of the post-trigger window 2 if the hospitalization has an input field *Header From Date Of Service* during the trigger window, post-trigger window 1, or during the first 30 days of the post-trigger windows and a *Discharge Date* beyond the first 30 days of the post-trigger windows. If more than one hospitalization is ongoing on the 30th day of the post-trigger windows, the latest *Discharge Date* present on a hospitalization sets the end date of the post-trigger window. Hospitalizations are defined in the glossary. The output field *Post-trigger Window 2 End Date* is also the *Episode End Date*.

The extension of an episode due to a hospitalization may not lead to further extensions of the episode, i.e., if the post-trigger window 1 or post-trigger window 2 is set based on the input field *Discharge Date* of a hospitalization and a different hospitalization starts during the extension of the post-trigger window and ends beyond it the episode is not extended a second time (Exhibit 7).

EXHIBIT 7 – EPISODE EXTENSIONS



The combined duration of the trigger window, post-trigger window 1, and post-trigger window 2 is the episode window. All time windows are inclusive of their first and last date. For the definition of how the duration of time windows is calculated see the glossary.

The logic that determines the duration of the episode window assigns potential triggers to one of two groups:

- **Trigger neonatal**: Potential triggers that do not occur during another episode constitute the trigger window of a new episode.
- **Repeat neonatal**: Potential triggers that occur during the post-trigger window 1 or post-trigger window 2 of an episode do not constitute the trigger window for a new episode.

To define episode windows for each patient a chronological approach is taken. The first trigger neonatal of a given patient is identified as the earliest (i.e., furthest in the past) potential trigger in the input data. Once the first trigger

neonatal for a patient has been identified, the trigger window, the post-trigger window 1, and the post-trigger window 2 are set. Any potential triggers that fall into the post-trigger window 1 or post-trigger window 2 are classified as repeat neonatal. The next potential trigger that starts outside of the post-trigger window 1 or post-trigger window 2 constitutes the second trigger neonatal for a given patient. The process of setting episode windows continues for each patient until the last episode window that ends during the input data date range is defined.

The following special cases may occur when determining the episode duration:

- If two or more potential triggers of the same patient overlap, i.e., the start date of one potential trigger falls between the start date and the end date (inclusive) of one or more other potential triggers of the same patient, then only one of the overlapping potential triggers is chosen as a trigger neonatal or repeat neonatal. The other overlapping potential triggers do not count as trigger neonatal or repeat neonatal, but are treated like any other claims. The following hierarchy is applied to identify the one potential trigger out of two or more overlapping potential triggers that is assigned as a trigger neonatal or repeat neonatal:
  - The potential trigger with the earliest start date has highest priority.
  - If there is a tie, the potential trigger with the latest end date is selected.
  - If there is still a tie, the potential trigger with the lowest *Trigger Claim ID* is selected.
- If the start date of a potential trigger occurs during the post-trigger window 1 or post-trigger window 2 of an episode but its end date is outside of the post-trigger window of the episode, the potential trigger is neither a repeat neonatal nor a trigger neonatal, and the claims in the potential trigger are treated like any other claims.

To determine which claims and claim detail lines occur during an episode and before an episode the following assignment rules are used. In addition, specific rules apply to assign claims and claim detail lines to windows during the episode (the trigger window, the post-trigger window 1, the post-trigger window 2, and hospitalizations).

- **Assignment to the episode window**:
  - Hospitalizations, all inpatient claims within them, and all claim detail lines of the inpatient claims are assigned to the episode window if both

the input field *Header From Date Of Service* and the input field *Discharge Date* of the hospitalization occur during the episode window.

  - Outpatient, and professional claims are assigned to the episode window if at least one of their claim detail lines is assigned to the episode window. Outpatient and professional claim detail lines are assigned to the episode window if both input field *Detail From Date Of Service* and the *Detail To Date Of Service* occur during the episode window.
  - Pharmacy claims and all their claim detail lines are assigned to the episode window if both input fields *Header From Date Of Service* and *Header To Date Of Service* occur during the episode window.

- **Assignment to a window before the episode**:
  - Hospitalizations, all inpatient claims within them, and all claim detail lines of the inpatient claims are assigned to a window before the episode (e.g., 365 days to 1 day before the output field *Episode Start Date*, 90 days to 1 day before the *Episode Start Date*) if the input fields *Header From Date Of Service* and *Header To Date Of Service* the hospitalization occurs during the specified time window before the output field *Episode Start Date*.
  - Outpatient and professional claims are assigned to a window before the episode if all their claim detail lines are assigned to the window before the episode. Outpatient and professional claim detail lines are assigned to a window before the episode if the input field *Detail From Date Of Service* occurs during the specified time window before the output field *Episode Start Date*.
  - Pharmacy claims and all their claim detail lines are assigned to a window before the episode if the input field *Header From Date Of Service* occurs during the specified time window before the *Episode Start Date*.

- **Assignment to the trigger window**:
  - Hospitalizations, all inpatient claims within them, and all claim detail lines of the inpatient claims are assigned to the trigger window if both the input field *Header From Date Of Service* and the input field *Discharge Date* of the hospitalization occur during the trigger window.
  - Outpatient and professional claims are assigned to the trigger window if all their claim detail lines are assigned to the trigger window. Outpatient and professional claim detail lines are assigned to the trigger window if

both the input fields *Detail From Date Of Service* and the *Detail To Date Of Service* occur during the trigger window.

  - Pharmacy claims and all their claim detail lines are assigned to the trigger window if both the input fields *Header From Date Of Service* and the *Header To Date Of Service* occur during the trigger window.

- **Assignment to the post-trigger window 1**:
  - Hospitalizations, all inpatient claims within them, and all claim detail lines of the inpatient claims are assigned to the post-trigger window 1 if the hospitalization is assigned to the episode window and also has input fields *Header From Date Of Service* and *Discharge Date* during the post-trigger window 1.
  - Outpatient, and professional claims are assigned to the post-trigger window 1 if at least one of their claim detail lines is assigned to the post-trigger window 1. Outpatient and professional claim detail lines are assigned to the post-trigger window 1 if they are assigned to the episode window and also have an input field *Detail To Date Of Service* during the post-trigger window 1.
  - Pharmacy claims and all their claim detail lines are assigned to the post-trigger window 1 if they are assigned to the episode window and also have an input field *Header To Date Of Service* during the post-trigger window 1.

- **Assignment to the post-trigger window 2**:
  - Hospitalizations, all inpatient claims within them, and all claim detail lines of the inpatient claims are assigned to the post-trigger window 2 if the hospitalization is assigned to the episode window and also has input fields *Header From Date Of Service* and *Discharge Date* during the post-trigger window 2.
  - Outpatient, and professional claims are assigned to the post-trigger window 2 if at least one of their claim detail lines is assigned to the post-trigger window 2. Outpatient and professional claim detail lines are assigned to the post-trigger window 2 if they are assigned to the episode window and also have an input field *Detail To Date Of Service* during the post-trigger window 2.
  - Pharmacy claims and all their claim detail lines are assigned to the post-trigger window 2 if they are assigned to the episode window and also have

an input field *Header To Date Of Service* during the post-trigger window 2.

4.3 Identify claims included in episode spend

The third design dimension of building a moderate-risk neonatal episode is to identify which claims and claim detail lines are included in the calculation of episode spend. For short, such claims or claim detail lines are referred to as included claims or included claim detail lines. Claims or claim detail lines that are excluded from the calculation of episode spend are referred to as excluded claims or excluded claim detail lines.

Episode output fields created: *Count Of Included Claims*

Different rules for the inclusion of claims and claim detail lines apply to claims and claim detail lines assigned to the trigger window, the post-trigger window 1, and the post-trigger window 2. The assignment of claims and claim detail lines to windows during the episode is detailed in section 4.2.

- **Pre-trigger window**: The moderate-risk neonatal episode does not have a pre-trigger window.
- **Trigger window**: All inpatient, outpatient, professional, and pharmacy claims during the trigger window are included claims unless otherwise specified.
- **Post-trigger window 1**: All inpatient, outpatient, professional, and pharmacy claims during the post-trigger window 1 are included claims unless otherwise specified. Specific claims and claim detail lines during the post-trigger window 1 are excluded following a hierarchy:
  - First, excluded hospitalizations are identified. If an inpatient claim assigned to the post-trigger window 1 includes a specific excluded care diagnosis code in the input fields *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28*, then all claim detail lines of the claim are excluded claim detail lines. The configuration file lists specific excluded care diagnosis codes under “Excluded Care”.
  - Second, if an outpatient or professional claim are assigned to the post-trigger window 1 contains a specific excluded care diagnosis code in the input fields *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28*, then all claim detail lines of the claim are excluded claim detail

lines. The configuration file lists specific excluded care diagnosis codes under "Excluded Care".

- **Post-trigger window 2**: The post-trigger window 2 period is used for quality metric purposes only. Therefore, all inpatient, outpatient, professional, and pharmacy claims during the post-trigger window 2 are not included claims.
- **Episode window**: Outpatient and professional claim detail lines that are assigned to the episode window are checked for excluded procedures. These exclusions supersede any other reason a claim detail line might be included.
  - Excluded transportation: If an outpatient or professional claim detail line that is assigned to the episode window contains an excluded transportation procedure code in the input field *Detail Procedure Code*, then the claim detail line is an excluded claim detail line. The configuration file lists excluded transportation procedure codes under "Excluded Transportation Procedures." This exclusion of claim detail lines takes precedence over any other inclusion logic.
  - Excluded vaccinations: If an outpatient or professional claim detail line that is assigned to the episode window contains an excluded vaccination procedure code in the input field *Detail Procedure Code*, then the claim detail line is an excluded claim detail line. The configuration file lists excluded transportation procedure codes under "Excluded Vaccines Administered". This exclusion of claim detail lines takes precedence over any other inclusion logic.
  - Not included claims: Any claim or claim detail line not explicitly included during the episode window is an excluded claim or excluded claim detail line.

The output field *Count Of Included Claims* is defined as the number of unique claims that contribute to episode spend. For the purpose of calculating counts of claims, a claim is counted as contributing to episode spend if it is an included claim or if one or more of its claim detail lines are included claim detail lines. The output field *Count Of Included Claims* is calculated overall as well as broken out by claim type, by window during the episode, and by claim type and window during the episode. Breakouts by window are calculated based on the window to which each claim is assigned.

4.4 Calculate non-risk adjusted episode spend

The fourth design dimension of building a moderate-risk neonatal episode is to calculate the non-risk-adjusted spend for each episode.

Episode output fields created: *Non-risk-adjusted Episode Spend, Normalized-non-risk-adjusted Episode Spend*

PAP output fields created: *Average Non-risk-adjusted PAP Spend, Total Non-risk-adjusted PAP Spend*

The *Non-risk-adjusted Episode Spend* is defined as the sum of:

- The spend for included, header-paid inpatient claims. The spend for each included, header-paid inpatient claim is calculated as the value in the input field *DRG Base Payment* plus the values in the input fields *DRG Outlier Payment A* and *DRG Outlier Payment B*. Header-paid inpatient claims are identified based on an input field *Header Or Detail Indicator* of 'H'. Other components of the DRG payment are not taken into account. Ohio Medicaid has a methodology to derive this clinical component of care for relevant encounters using the relative weights for each DRG-SOI combination and hospital rates as posted on the Ohio Medicaid website (http://medicaid.ohio.gov/PROVIDERS/FeeScheduleandRates/SchedulesandRates.aspx#1682575-inpatient-hospital-services).
- The spend for included, detail-paid inpatient claims. The spend for each included, detail-paid inpatient claim is calculated as the sum of the input fields *Detail Paid Amount* for claims from MCPs and the sum of the inputs fields *Detail Allowed Amount* for claims from FFS.
- The *Header Paid Amount* of included pharmacy claims from MCPs.
- The *Header Allowed Amount* of included pharmacy claims from FFS.
- The *Detail Paid Amount* for included outpatient and professional claim detail lines from MCPs.
- The *Detail Allowed Amount* for included outpatient and professional claim detail lines from FFS.

Claims from MCPs and FFS are distinguished based on the input field *FFS Or MCP Indicator*. A value of 'E' in the input field *FFS Or MCP Indicator* indicates an MCP claim; a value of 'F' indicates a FFS claim. The output field *Non-risk-adjusted Episode Spend* is calculated overall and broken out by claim

type, by window during the episode, and by claim type and window during the episode.

The *Normalized-non-risk-adjusted Episode Spend* is defined as the sum of:

- The normalized spend for included, header-paid inpatient claims. The normalized spend for each included, header-paid inpatient claim is calculated as the value in the input field *DRG Base Payment* multiplied by the ratio of the *Normalized Base Rate* to the *Base Rate* plus the values in the input fields *DRG Outlier Payment A* and *DRG Outlier Payment B*. The configuration file lists the *Normalized Base Rate* as a parameter under "Episode Spend." The *Base Rate* is determined by looking up the appropriate value in the input field *Base Rate* from the APR-DRG Base Rate Table using the input field *Provider ID* to link to the *Billing Provider ID* of each included, header-paid inpatient claim. Header-paid inpatient claims are identified based on a *Header Or Detail Indicator* of 'H'. Other components of the DRG payment are not taken into account.
- The spend for included, detail-paid inpatient claims. The spend for each included, detail-paid inpatient claim is calculated as the sum of the input fields *Detail Paid Amount* for claims from MCPs and the sum of the inputs fields *Detail Allowed Amount* for claims from FFS.
- The *Header Paid Amount* of included pharmacy claims from MCPs.
- The *Header Allowed Amount* of included pharmacy claims from FFS.
- The *Detail Paid Amount* for included outpatient and professional claim detail lines from MCPs.
- The *Detail Allowed Amount* for included outpatient and professional claim detail lines from FFS.

If a claim detail line is included for two or more reasons (e.g., due to an included diagnosis and an included procedure), its *Detail Allowed Amount* or *Detail Paid Amount* counts only once towards the *Non-risk-adjusted Episode Spend* or the *Normalized-non-risk-adjusted Episode Spend*.

For the provider reports, the fields *Average Non-risk-adjusted PAP Spend* and *Total Non-risk-adjusted PAP Spend* are added to the PAP output table. *Average Non-risk-adjusted PAP Spend* is calculated as the average of the *Non-risk-adjusted Episode Spend* across valid episodes for a given PAP. *Total Non-risk-adjusted PAP Spend* is calculated as the sum of the *Non-risk-adjusted Episode*

Spend across valid episodes for a given PAP. See section 4.5 for the identification of PAPs and section 4.6 for the definition of valid episodes.

The *Average Non-risk-adjusted PAP Spend* is shown overall as well as broken out by claim type, by window during the episode, and by claim type and window during the episode. The breakouts of *Average Non-risk-adjusted PAP Spend* are calculated in two ways:

- Breakout A: The averages are calculated across all valid episodes of a PAP.
- Breakout B: The averages are calculated across valid episodes of a PAP that have spend greater zero dollars (>$0) in the category that is broken out.

For example, a PAP has 100 valid episodes and 80 of the episodes have any inpatient spend, the remaining 20 do not have any inpatient spend. To calculate breakout A for *Average Non-risk-adjusted PAP Spend Inpatient*, the denominator is 100 valid episodes. To calculate breakout B for *Average Non-risk-adjusted PAP Spend Inpatient* the denominator is 80 valid episodes with any inpatient spend.

4.5 Identify Principal Accountable Providers

The fifth design dimension of building a moderate-risk neonatal episode is to assign each episode to a Principal Accountable Provider (PAP).

Episode output fields created: *PAP ID, PAP Name, Rendering Provider ID, Rendering Provider Name*

PAP output fields created: *PAP ID, PAP Name, PAP Address Line 1, PAP Address Line 2, PAP City, PAP State, PAP Zip Code*

The output field *PAP ID* is set using the input field *Billing Provider ID* on the facility claim that is used to set the output field *Trigger Claim ID*.

The output field *Rendering Provider ID* is set using the input field *Rendering Provider ID* of the claim that is used to set the output field *Trigger Claim ID*.

The output fields *PAP Name, PAP Address Line 1, PAP Address Line 2, PAP City, PAP State,* and *PAP Zip Code* are set based on the Provider Extract input fields *Provider Name, Practice Address Line 1, Practice Address Line 2, Practice City, Practice State,* and *Practice Zip Code*, respectively. The output fields are linked to the Provider Extract by matching the output field *PAP ID* to the input field *Provider ID* of the Provider Extract.

The output field *Rendering Provider Name* is set based on the Provider Extract input field *Provider Name*. The output field is linked to the Provider Extract by matching the output field *Rendering Provider ID* to the input field *Provider ID* of the Provider Extract.

4.6 Identify excluded episodes

The sixth design dimension of building a moderate-risk neonatal episode is to identify episodes that are excluded from the episode-based payment model.

Episode output fields created: *Any Exclusion, Exclusion Death, Exclusion Dual Eligibility, Exclusion FQHC RHC, Exclusion High Outlier, Exclusion Incomplete Episode, Exclusion Inconsistent Enrollment, Exclusion Left Against Medical Advice, Exclusion Long-term Care, Exclusion Missing DRG, Exclusion Multiple Other Comorbidities, Exclusion Multiple Payers, Exclusion No PAP, Exclusion PAP Out Of State, Exclusion Third-party Liability, Exclusion <Comorbidity Name>*

Each *Exclusion <name of exclusion>* output field indicates whether an episode is excluded for a given reason and therefore invalid for the purpose of the episode based payment model. If an episode is excluded for more than one reason each exclusion is indicated. The output field *Any Exclusion* indicates whether an episode contains any exclusion. Episodes may be excluded for business reasons, for clinical reasons, or because they are outliers. After all exclusions have been applied, a set of valid episodes remains.

Business exclusions

- **Dual eligibility**: An episode is excluded if the patient had dual coverage by Medicare and Medicaid during the episode window. Dual coverage is determined using the *Eligibility Start Date* and *Eligibility End Date* from the Member Extract where the *Aid Category* indicates dual coverage. *Aid Category* codes that indicate dual coverage are listed in the configuration file under "Business Exclusions – Duals." Note that only the first digit of the *Aid Category* code is used for this purpose.

  A patient is considered to have dual coverage during the episode window if the patient's *Eligibility Start Date* for dual coverage falls before or on (≤) the *Episode End Date* and the *Eligibility End Date* for dual coverage falls on or after (≥) the *Episode Start Date*. The input field *Member ID* is linked

to the output field *Member ID* from the Member Extract to identify the enrollment information for each patient.

If a patient has an *Eligibility Start Date* without a corresponding *Eligibility End Date* for dual coverage, the dual coverage is considered to be ongoing through the last date of the input data.

If a patient had dual coverage before or after the episode window, but not during the episode window, the episode is not excluded.

- **FQHC/RHC:** An episode is excluded if the PAP is classified as a federally qualified health center or rural health clinic. A PAP is determined to be a FQHC or RHC if the input field Billing Provider Type of the PAP is listed in the configuration file under "Business Exclusions – FQHC And RHC."
- **Incomplete episodes**: An episode is excluded if the *Non-risk-adjusted Episode Spend* (not the *Risk-adjusted Episode Spend*) is less than (<) the incomplete episode threshold. The incomplete episode threshold is listed as a parameter in the configuration file under "Excluded Episodes."
- **Inconsistent enrollment**: An episode is excluded if the patient was not continuously enrolled in Ohio Medicaid during the episode window. Enrollment is verified using the input fields *Eligibility Start Date* and *Eligibility End Date* from the Member Extract where the input field *Aid Category* indicates full Medicaid enrollment. *Aid Category* codes that indicate full Medicaid enrollment are listed in the configuration file under "Business Exclusions – Inconsistent Enrollment." Note that only the first digit of the *Aid Category* code is used for this purpose.

  A patient is considered continuously enrolled if the patient's *Eligibility Start Date* for full Medicaid falls before or on (≤) the *Episode Start Date* and the *Eligibility End Date* for full Medicaid falls on or after (≥) the *Episode End Date*. The output field *Member ID* is linked to the input field *Member ID* from the Member Extract to identify the enrollment information for each patient.

  A patient may have multiple entries for *Eligibility Start Date* and *Eligibility End Date* for full Medicaid and some of the dates may be overlapping. In such cases, continuous, non-overlapping records of a patient's enrollment are created before confirming whether the patient was continuously enrolled during an episode. If a patient has an *Eligibility Start Date* without a corresponding *Eligibility End Date* for full Medicaid, enrollment is considered to be ongoing through the last date of the input data.

If a patient was not continuously enrolled in Ohio Medicaid before or after the episode window, but was continuously enrolled during the episode window, the episode is not excluded.

- **Missing APR-DRG:** An episode is excluded if a header-paid inpatient claim assigned to the episode window has an invalid or missing value in the input fields *APR-DRG* or *Severity Of Illness*. Header-paid inpatient claims are identified based on a *Header Or Detail Indicator* of 'H'.
- **Multiple payers:** An episode is excluded if a patient changes enrollment between MCPs during the trigger window or during the post-trigger window(s) (if applicable). Episodes are identified as having multiple payers if there is an inpatient, outpatient, professional, or pharmacy claim that meets all of the following conditions:
  - The claim is assigned to the trigger window or the post-trigger window(s) of the episode (if applicable)
  - The input field FFS Or MCP Indicator of the claim is not "FFS"
  - The input field *MCP ID* on the claim is not null and does not belong to the same payer that the episode is attributed to. Since a payer may be associated with multiple MCP IDs, the input field *MCP ID* must be cross-walked to a payer name. An updated crosswalk including current and historical MCP IDs must be used for each reporting period

  If a patient changes enrollment between MCPs during the pre-trigger window (if any) or before the episode window, it is the responsibility of the payer to whom the episode is attributed to utilize the claims history of the patient with the prior payer to build the episode. Attribution of an episode to a payer is defined in the glossary under "Payer Attribution."
- **No PAP**: An episode is excluded if the PAP cannot be identified. A PAP cannot be identified if the *Billing Provider ID* is not available.
- **PAP out of state**: An episode is excluded if the PAP has a practice address outside of Ohio. The state of the practice address is determined using the output field *PAP State*. The code used to identify the state of Ohio is listed in the configuration file under "Business Exclusions – PAP Out Of State."
- **Third-party liability**: An episode is excluded if either:
  - An inpatient, outpatient, or professional claim that is assigned to the episode window is associated with a third-party liability amount. A claim is considered to be associated with a third-party liability amount if

either the input field *Header TPL Amount* or any of the input fields *Detail TPL Amount* have a value greater than (>) zero. The claim with a positive TPL amount may or may not be included in the calculation of episode spend.

As an exception, a third party liability amount in the input field *Header TPL Amount* or the input field *Detail TPL Amount* of a professional FFS claim from an FQHC or RHC does not lead to exclusion of the episode if the episode is attributed to an MCP. Professional claims from FQHC or RHC are identified based on one or more detail lines that are assigned to the episode window and also have a *Place Of Service* of FQHC or RHC. The relevant values for *Place Of Service* are listed in the configuration file under "Business Exclusions – TPL Exempt Places Of Service". Claims from FFS are identified based on the input field *FFS Or MCP Indicator* having a value of 'F'. Attribution of an episode to a payer is defined in the glossary under "Payer attribution."

– A patient was enrolled with a relevant source of third party liability during the episode window. Enrollment is verified using the *TPL Effective Date* and *TPL End Date* from the Member Extract where the *Coverage Type* indicates relevant TPL coverage. *Coverage Type* codes that indicate relevant TPL are listed in the configuration file under "Business Exclusions – TPL Relevant Coverage."

  A patient is considered enrolled with a relevant source of TPL if the patient's *TPL Effective Date* falls before or on (≤) the *Episode End Date* and the *TPL End Date* falls on or after (≥) the *Episode Start Date*. The output field *Member ID* is linked to the input field *Member ID* from the Member Extract to identify the enrollment information for each patient.

  If a patient has a *TPL Effective Date* without a corresponding *TPL End Date* the enrollment with a relevant source of TPL is considered to be ongoing through the last date of the input data.

  If a patient was enrolled with a relevant TPL source before or after the episode window, but was not enrolled during the episode window, the episode is not excluded.

Clinical exclusions

- **Comorbidity**: An episode is excluded if the patient has a comorbidity code during a specified time window. Each comorbidity exclusion listed in the configuration file sets a separate output field named *Exclusion <Name Of*

Comorbidity>. For example, the HIV comorbidity exclusion sets the output field *Exclusion HIV* for all those episodes with evidence of HIV during the specified time period. The following approaches are used to identify comorbidities:

- Comorbidity diagnosis codes are searched for in the input fields *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28* of inpatient, outpatient, and professional claims that are assigned to the specified time windows. The configuration file lists the codes and time windows under "Comorbidities <name of comorbidity> – Diagnoses."
- Comorbidity CPT and HCPCS procedure codes are searched for in the input field *Detail Procedure Code* of outpatient and professional claim detail lines that are assigned to the specified time windows. The configuration file lists the codes and time windows used under "Comorbidities <name of comorbidity> – Procedures."
- Comorbidity ICD-9 and ICD-10 procedure codes are searched for in the input fields *Surgical Procedure Code Primary* and *Surgical Procedure Code 2-24* of inpatient claims that are assigned to the specified time windows. The configuration file lists the codes and time windows used under "Comorbidities <name of comorbidity> – Procedures."
- Comorbidity contingent cancer codes require both the presence of a cancer diagnosis code and also an indicator of active cancer treatment during the specified time window:
  - Cancer diagnosis codes are searched for in the input fields *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28* of inpatient, outpatient, and professional claims assigned to the specified time window. The configuration file lists the codes and time windows used under "Comorbidities Cancer – Diagnoses."
  - An indicator of active cancer treatment is the presence of either a diagnosis or procedure code for active cancer treatment during the specified time window. The indicator may occur on the same claim as a cancer diagnosis code or on a different claim. The following approaches are taken to identify active cancer treatment:
    - Diagnosis codes for active cancer treatment are searched for in the input fields *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28* of inpatient, outpatient, and professional claims that are assigned to the specified time window. The configuration file lists

the codes and time windows used under "Comorbidities Cancer Active – Diagnoses."

- CPT and HCPCS codes for active cancer treatment are searched for in the input field *Detail Procedure Code* of outpatient and professional claim detail lines that are assigned to the specified time window. The configuration file lists the codes and time windows used under "Comorbidities Cancer Active – Procedures."
- ICD-9 and ICD-10 procedure codes for active cancer treatment are searched for in the input fields *Surgical Procedure Code Primary* and *Surgical Procedure Code 2-24* of inpatient claims that are assigned to the specified time window. The configuration file lists the codes and time windows used under "Comorbidities Cancer Active – Procedures."

The claims and claim detail lines that are searched for comorbidities do not have to be included claims or included claim detail lines. If a patient lacked continuous eligibility during the year before the episode or during the episode window, comorbidities are checked in the data available.

- **Death**: An episode is excluded if either:
  - The patient has an input field *Patient Status Indicator* of "Expired" on any inpatient or outpatient claim assigned to the episode window. The claim may be an included claim or not. The values of the *Patient Status Indicator* used to identify whether the patient expired are listed in the configuration file under "Clinical Exclusions – Death."
  - The input field *Date Of Death* in the Member Extract contains a date before or equal to the output field *Episode End Date*. The output field *Member ID* is linked to the input field *Member ID* from the Member Extract to identify the *Date Of Death* for each patient.
- **Left against medical advice**: An episode is excluded if the patient has an input field *Patient Status Indicator* of "Left Against Medical Advice or Discontinued Care" on any inpatient or outpatient claim assigned to the episode window. The claim may be an included claim or not. The value of the *Patient Status Indicator* used to identify whether the patient left against medical advice is listed in the configuration file under "Clinical Exclusions – Left Against Medical Advice."

- **Multiple other comorbidities**: An episode is excluded if it is affected by too many risk factors to reliably risk adjust the episode spend. The output fields *Risk Factor <risk factor number>* as defined in section 4.8 are used to identify how many risk factors affect an episode. Each output field *Risk Factor <risk factor number>* indicates whether an episode is affected by one risk factor. If an episode is affected by more (>) risk factors than the value listed as a parameter in the configuration file under "Excluded Episodes," the episode is excluded.

Outliers

- **High outlier**: An episode is excluded if the output field *Risk-adjusted Episode Spend* (not the *Non-risk-adjusted Episode Spend*) is above (>) the high outlier threshold. The high outlier threshold was set based on analyses of episode spend distributions for episodes that ended between the beginning of October 2014 and the end of September 2015 inclusive. It was set at three standard deviations above the average risk-adjusted episode spend for otherwise valid episodes. The high outlier threshold is listed as a parameter in the configuration file under "High Outlier." See section 4.8 for the definition of *Risk-adjusted Episode Spend*.

4.7 Identify Principal Accountable Providers who pass the quality metrics

The seventh design dimension of building a moderate-risk neonatal episode is the calculation of the quality metrics and the identification of PAPs who meet the quality metrics performance requirement.

Episode output fields created: *Quality Metric 01 Indicator, Quality Metric 02 Indicator, Quality Metric 03 Indicator, Quality Metric 04 Indicator, Quality Metric 05 Indicator*

PAP output fields created: *PAP Quality Metric 01 Performance, PAP Quality Metric 02 Performance, PAP Quality Metric 03 Performance, PAP Quality Metric 04 Performance, PAP Quality Metric 05 Performance*

Moderate-risk neonatal episodes have two quality metric that are tied to gain sharing and four informational quality metrics. Informational quality metrics are not tied to gain sharing.

Quality metric tied to gain-sharing for the moderate-risk neonatal episode:

- **Quality metric 1: Pediatric visit within five days of discharge**
  - The output field *Quality Metric 01 Indicator* marks valid episodes that have a pediatric visit in the five days after the initial discharge. Pediatric visits are identified based on a professional claim with a follow-up care procedure code in the input field *Detail Procedure Code*. The professional claim must have a *Detail From Date Of Service* that is on the same day as or within five (≤5) days of the output field *Post-trigger Window 1 Start Date*. The configuration file lists the follow-up care codes under "Quality Metric 01 Pediatric Visit".
  - The output field *PAP Quality Metric 01 Performance* is expressed as a percentage for each PAP based on the following ratio:
    - Numerator: Number of valid episodes of the PAP with at least one pediatric visit in the five days after the discharge, as indicated by the *Quality Metric 01 Indicator*
    - Denominator: Number of valid episodes of the PAP

Quality metrics not tied to gain sharing for the moderate-risk neonatal episode (i.e., included for information only):

- **Quality metric 2: C-section delivery**
  - The *Quality Metric 02 Indicator* marks episodes with a C-section delivery. C-section deliveries are identified based on the presence of a live birth diagnosis code indicating C-section delivery on the trigger claim. The trigger claim is identified by identifying the claim where the output field *Trigger Claim ID* equals the input field *Internal Control Number*. The C-section delivery diagnosis code can be in the input fields *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28*. The configuration file lists the C-section delivery diagnosis codes under "Quality Metric 02 C-Section".
  - The *PAP Quality Metric 02 Performance* is expressed as a percentage for each PAP based on the following ratio:
    - Numerator: Number of valid episodes of the PAP with a C-section delivery, as indicated by the *Quality Metric 02 Indicator*
    - Denominator: Number of valid episodes of the PAP
- **Quality metric 3: Readmission**

- The output field *Quality Metric 03 Indicator* marks valid episodes that have at least one hospitalization during the post-trigger window 1 or post-trigger window 2 for all types of care except specific excluded care. Hospitalizations are defined in the glossary. Hospitalization for excluded care are identified by an inpatient claim with a specific excluded care diagnosis code in the input fields *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28*. The configuration file lists specific excluded care diagnosis codes under "Excluded Care".
- The output field *PAP Quality Metric 03 Performance* is expressed as a percentage for each PAP based on the following ratio:
  - Numerator: Number of valid episodes of the PAP where an episode has at least one hospitalization included in episode spend, as indicated by the *Quality Metric 03 Indicator*
  - Denominator: Number of valid episodes of the PAP

- **Quality metric 4: ED visits**
  - The output field *Quality Metric 04 Indicator* marks valid episodes that have at least one ED visit or observation care during the post-trigger window 1 or post-trigger window 2 for all types of care except specific excluded care. ED visits are identified based on an outpatient claim detail line with an ED or observation care revenue code in the input field *Revenue Code* or an ED or observation care procedure code in the input field *Detail Procedure Code*. ED visits for excluded care are identified by an outpatient claim with a specific excluded care diagnosis code in the input fields *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28*. The configuration file lists the ED and observation care revenue and procedure codes and specific excluded care diagnosis codes under "Quality Metric 04 ED Visit Or Observation Care – Revenue Codes", "Quality Metric 04 ED Visit Or Observation Care – Procedure Codes", and "Excluded Care", respectively.
  - The output field *PAP Quality Metric 04 Performance* is expressed as a percentage for each PAP based on the following ratio:
    - Numerator: Number of valid episodes of the PAP where an episode has at least one ED visit or observation care included in episode spend, as indicated by the *Quality Metric 04 Indicator*
    - Denominator: Number of valid episodes of the PAP

- **Quality metric 5: Mortality**
  - The *Quality Metric 05 Indicator* marks episodes where the neonate had a patient discharge status of "expired" during the episode window. Patient discharge status of "expired" is identified based on an inpatient claim with the status of "expired" in the input field *Patient Status Indicator*. The configuration file lists the "expired" status under "Quality Metric 06 Mortality".
  - The *PAP Quality Metric 05 Performance* is expressed as a percentage for each PAP based on the following ratio:
    - Numerator: Number of total (valid and invalid) episodes of the PAP where the neonate had a patient discharge status of "expired", as indicated by the *Quality Metric 05 Indicator*
    - Denominator: Number of total (valid and invalid) episodes of the PAP

4.8 Perform risk adjustment

The eighth design dimension of building a moderate-risk neonatal episode is to risk adjust the non-risk-adjusted episode spend for risk factors that may contribute to higher episode spend given the characteristics of a patient.

Episode output fields created: *Risk Factor <risk factor number>, Episode Risk Score, Risk-adjusted Episode Spend*

PAP output fields created: *Average Risk-adjusted PAP Spend, Total Risk-adjusted PAP Spend*

Risk adjustment first requires identification of the risk factors that affect each episode. Then the *Non-risk-adjusted Episode Spend* is multiplied by the risk score that applies to the episode given its risk factors. The derivation of the risk factors and their coefficients is not part of the algorithm to produce an episode and is therefore not described in the DBR.

Flag episodes that are affected by risk factors: The following type of risk factors apply:

- Diagnosis-based risk factors: The output fields *Risk Factor <risk factor number>* for diagnosis-based risk factors indicate whether an inpatient, outpatient, or professional claim that is assigned to the specified time window contains a risk factor diagnosis code in any of the input fields

Header Diagnosis Code Primary or *Header Diagnosis Code 2-28*. The risk factor diagnosis codes and the time windows are listed in the configuration file under "Risk Factors <risk factor number and name> - Diagnoses".

- The output fields *Risk Factor <risk factor number>* for diagnosis-based risk factors indicate whether the following is true:
  - An inpatient, outpatient, or professional claim that is assigned to the specified time window and contains a risk factor diagnosis code in any of the input fields *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28*. The risk factor diagnosis codes and the time windows are listed in the configuration file under "Risk Factors <risk factor number and name> - Diagnoses".

The claims that are searched for risk factors do not have to be included claims. If a patient was not continuously enrolled during the year before the episode window or during the episode window, risk factors are searched for in the claims available.

Calculate the episode risk score: Each risk factor is associated with a risk coefficient, the values for which are listed as parameters in the configuration file under "Risk Adjustment." The sum of all the risk coefficients for factors present in a given episode plus the *Average Risk Neutral Episode Spend* is the predicted spend of the episode. The configuration file lists the *Average Risk Neutral Episode Spend* as a parameter under "Risk Adjustment." For the episode, the *Episode Risk Score* for an episode is the ratio of the *Average Risk Neutral Episode Spend* to the predicted spend of the episode. For example, if an episode is affected by two risk factors, *Risk Factor 001* and *Risk Factor 002*, the *Episode Risk Score* is:

$$Episode\ Risk\ Score\ = \frac{Average\ Risk\ Neutral\ Episode\ Spend}{Average\ Risk\ Neutral\ Episode\ Spend + Risk\ Coefficient\ 001 + Risk\ Coefficient\ 002}$$

If an episode is not affected by any risk factors, the *Episode Risk Score* is equal to one (1).

Calculate risk-adjusted episode spend: To calculate the episode output field *Risk-adjusted Episode Spend*, the *Non-risk-adjusted Episode Spend* is multiplied by the *Episode Risk Score*.

Risk-adjusted Episode Spend =

*Non-risk-adjusted Episode Spend * Episode Risk Score*

The PAP output field *Average Risk-adjusted PAP Spend* is calculated as the average of the *Risk-adjusted Episode Spend* across valid episodes of each PAP. The *Total Risk-adjusted PAP Spend* is calculated as the sum of the *Risk-adjusted Episode Spend* across valid episodes of each PAP.

4.9 Calculate gain/risk sharing amounts

The ninth and final design dimension of building aa moderate-risk neonatal episode is to calculate the gain or risk sharing amount for each PAP. The description below outlines one possible approach of linking PAP performance to payments. The State of Ohio may choose to provide further guidance at a future point in time when gain/risk sharing payments will be implemented.

PAP output fields created: *Count Of Total Episodes Per PAP, Count Of Valid Episodes Per PAP, Minimum Episode Volume Pass, Gain Sharing Quality Metric Pass, Gain/Risk Sharing Amount, PAP Sharing Level*

Gain and risk sharing amounts are calculated based on the episodes of each PAP that end during the reporting period. The State's proposed approach to calculating the gain or risk sharing amount paid to/by each PAP uses the following pieces of information:

- Number of episodes of each PAP: The output field *Count Of Total Episodes Per PAP* is defined as the number of total episodes each PAP treats during the reporting period. The output field *Count Of Valid Episodes Per PAP* is defined as the number of valid episodes each PAP treats during the reporting period. Episodes are counted separately by each payer. For the provider reports the field *Count Of Valid Episodes Per PAP* is also shown broken out by the number of valid episodes with spend of each claim type (*Count Of Valid Episodes Per PAP With Inpatient/With Outpatient/With Professional/With Pharmacy*). To calculate the breakouts, the number of valid episodes of each PAP are counted that have greater than zero dollars (>$0) in *Non-risk-adjusted Episode Spend* for a given claim type.
- Minimum episode requirement: Only PAPs who pass the minimum episode requirement of five or more (≥5) valid episodes receive a provider report and

are eligible for gain and risk sharing. The output field *Minimum Episode Volume Pass* is set to indicate whether a PAP has five or more valid episodes during the reporting period. Whether a PAP passes the minimum episode requirement is determined independently by each payer based on the episodes a PAP has for patients enrolled with the payer. The assignment of episodes to a payer is detailed in the glossary under payer attribution.

- Performance of each PAP on quality metrics tied to gain sharing: Only PAPs who pass the quality metrics tied to gain sharing are eligible for gain sharing. The thresholds to pass the quality metrics are set in accordance with the definition of each quality metric and are provided as input parameters for the episode algorithm. The output field *Gain Sharing Quality Metric Pass* indicates whether a PAP passes all quality metrics tied to gain sharing.
- *Commendable Threshold*, *Acceptable Threshold*, and *Gain Sharing Limit Threshold*: The thresholds are set based on the historical performance of PAPs with five or more episodes. The values for the thresholds are provided as input parameters for the episode algorithm.
- *Gain Share Proportion* and *Risk Share Proportion*: The split of the gains and losses in the episode-based payment model between payer and provider is at the discretion of each payer. The proportions are provided as input parameters for the episode algorithm.

Gain sharing payment: To receive a gain sharing payment, a PAP must meet all of the following three criteria:

- Pass the quality metrics thresholds tied to gain sharing
- Pass the minimum episode requirement,
- Have an *Average Risk-adjusted PAP Spend* below (<) the *Commendable Threshold* and have an *Average Risk-adjusted PAP Spend above or equal to* (>=) the *Gain sharing limit*.

Is the three conditions are met, the *Gain/Risk Sharing Amount* is set based on the following formula:

[*Gain/Risk Sharing Amount*] =

$$[Total\ Non\text{-}risk\ adjusted\ PAP\ Spend] \times [Gain\ Share\ Proportion] \times \left(\frac{[Commendable\ Threshold] - [Average\ Risk\text{-}adjusted\ PAP\ Spend]}{[Average\ Risk\text{-}adjusted\ PAP\ Spend]}\right)$$

Risk sharing payment: To owe a risk-sharing payment, a PAP must meet both of the following criteria:

- Pass the minimum episode requirement
- Have an *Average Risk-adjusted PAP Spend* above or equal to (>=) the *Acceptable Threshold*.

The risk-sharing payment applies irrespective of the performance of the PAP on the quality metrics. If the above two conditions are met, the *Gain/Risk Sharing Amount* is set based on the following formula:

[*Gain/Risk Sharing Amount*] =

$$[Total\ Non\ isk\ adjusted\ PAP\ Spend] \times [Risk\ Share\ Proportion] \times \left(\frac{[Acceptable\ Threshold] - [Average\ Risk\text{-}adjusted\ PAP\ Spend]}{[Average\ Risk\ adjusted\ PAP\ Spend]}\right)$$

If neither the conditions for a gain sharing payment nor a risk sharing payment are met, the output field *Gain/Risk Sharing Amount* is set to zero dollars ('$0').

To summarize the performance of each PAP in the episode-based payment model the output field *PAP Sharing Level* is set to

- "1" if *Average Risk-adjusted PAP Spend* < *Gain Sharing Limit Threshold*
- "2" if *Average Risk-adjusted PAP Spend* < *Commendable Threshold* and also >= *Gain Sharing Limit Threshold*
- "3" if *Average Risk-adjusted PAP Spend* <= *Acceptable Threshold* and also >= *Commendable Threshold*
- "4" if *Average Risk-adjusted PAP Spend* > *Acceptable Threshold*

Beginning in the 2019 program year: The risk and gain share amount assessed at the all payer level for a PAP, will be split among the payers using a methodology based on volume and risk. Each payer is attributed a portion of the risk or gain share based on the ratio of their risk adjusted valid episodes to total risk adjusted episodes. Where risk adjusted episodes are the number of episodes attributed to the payer for a PAP divided by the payer risk adjusted ratio for that PAP.

*** End of algorithm ***

5. GLOSSARY

- **Claim types:** The claim types used are based on the input field *Claim Type*. The required claim types are:
  - Inpatient (I)
  - Outpatient (O)
  - Long-term care (L)
  - Pharmacy (P and Q)
  - Professional (M)

    Note that the State of Ohio Department of Medicaid defines long-term care claims based on the input field *Type of Bill* values beginning with 21, 22, 23, 28, 65, and 66.
- **Clean period:** See section 2.3.1
- **CPT:** Current Procedural Terminology
- **DBR:** Detailed Business Requirements
- **Duration of time windows:** The duration of a time window (e.g., the episode window, the trigger window), the duration of a claim or claim detail line, and the length of stay for inpatient stays is calculated as the last date minus the first date plus one (1). For example:
  - A trigger window with a *Trigger Window Start Date* of January 1, 2014 and a *Trigger Window End Date* of January 1, 2014 has a duration of one (1) day.
  - A trigger window with a *Trigger Window Start Date* of January 1, 2014 and a *Trigger Window End Date* of January 3, 2014 has a duration of three (3) days.
  - A claim with a *Header From Date Of Service* of January 1, 2014 and a *Header To Date of Service* of January 2, 2014 has a duration of two (2) days.
- **ED:** Emergency Department
- **E&M:** Evaluation and Management
- **Episode window:** See section 4.2
- **FFS:** Fee For Service

- **HCPCS:** Healthcare Common Procedure Coding System
- **HIC3:** Hierarchical Ingredient Code at the third level based on the classification system by First Databank
- **Hospitalization:** A hospitalization is defined as all the inpatient claims a patient incurs while being continuously hospitalized in one or more inpatient facilities. A hospitalization may include more than one inpatient claim because the inpatient facility may file interim inpatient claims and/or because the patient may be transferred between two or more inpatient facilities. A hospitalization consisting of just one inpatient claim starts on the *Header From Date Of Service* and ends on the *Discharge Date* of the inpatient claim. A hospitalization where two or more inpatient claims are linked together starts on the *Header From Date Of Service* of the first inpatient claim and ends on the *Discharge Date* of the last inpatient claim in the hospitalization. Within the DBR, the start of a hospitalization is referred to as the *Header From Date Of Service* for that hospitalization and the end of the hospitalization is referred to as the *Discharge Date* of that hospitalization.

  Inpatient claims are linked together into one hospitalization consisting of two or more inpatient claims if any of the following conditions apply:

  - Interim billing or reserved/missing discharge status: An inpatient claim with a *Patient Status Indicator* that indicates interim billing (see the configuration file under "Hospitalization – Interim Billing" for the codes used), that is reserved (see the configuration file under "Hospitalization – Reserved" for the codes used), or that is missing, is linked with a second inpatient claim into one hospitalization if either of the following conditions apply:
    - There is a second inpatient claim with a *Header From Date Of Service* on the same day as or the day after the *Discharge Date* of the first inpatient claim
    - There is a second inpatient claim with an *Admission Date* on the same day as the *Admit Date* of the first inpatient claim and also a *Header From Date Of Service* on the same day as or within thirty (≤ 30) days after the *Discharge Date* of the first inpatient claim. If the *Discharge Date* of the first inpatient claim is not populated, then use the *Header To Date of Service* of the first inpatient claim.
  - Transfer: An inpatient claim with a *Patient Status Indicator* indicating a transfer (see the configuration file under "Hospitalization – Transfer" for

the codes used) is linked with the second inpatient claim into one hospitalization if there is a second inpatient claim with a *Header From Date Of Service* on the same day as or the day after the *Discharge Date* of the first inpatient claim

If the second inpatient claim (and potentially third, fourth, etc.) also has a *Patient Status Indicator* indicating interim billing, reserved, or missing the hospitalization is extended further until an inpatient claim with a discharge status other than interim billing, reserved, missing, or transfer occurs, or until the inpatient claim that follows does not satisfy the required conditions.

- **ICD-9:** International Classification of Diseases, Ninth Revision
- **ICD-10**: International Classification of Diseases, Tenth Revision
- **ICN:** Internal Control Number
- **Invalid episodes:** See section 4.6
- **Length of stay:** See glossary entry Duration of time windows.
- **MCP:** Managed Care Plan
- **Member Age:** The output field *Member Age* reflects the patient's age in years at the episode trigger. *Member Age* is calculated as the difference in years between the start of the claim that is used to set the *Trigger Claim ID* and the date of birth of the patient. The start of the claim is determined using the input field *Header From Date Of Service* for inpatient claims and the earliest *Detail From Date Of Service* across all claim detail lines for outpatient and professional claims. The date of birth of the patient is identified by linking the *Member ID* of the patient in the episode output table to the *Member ID* of the patient in the Member Extract and looking up the date in the input field *Date of Birth*. *Member Age* is always rounded down to the full year. For example, if a patient is 20 years and 11-months old at the start of the episode, the *Member Age* is set to 20 years. If the *Date of Birth* is missing, greater than (>) 100 years, or less than (<) 0 years, then the output field *Member Age* is treated as invalid.
- **NDC:** National Drug Code
- **PAP:** Principal Accountable Provider
- **Patient:** An individual with a moderate-risk neonatal episode
- **Payer attribution:** Patients may be enrolled with Ohio Medicaid Fee For Service or with a Managed Care Plan. An episode is assigned to the payer

that paid for the claim that is used to set the *Trigger Claim ID*. The payer that paid for a claim is identified using the input data field *MCP ID*.

- **Post-trigger window 1:** See section 4.2
- **Post-trigger window 2:** See section 4.2
- **Pre-trigger window**: See section 4.2
- **Total episodes:** All episodes, valid plus invalid.
- **Trigger window:** See section 4.2
- **Valid episodes:** See section 4.6