Detailed Business Requirements Upper Respiratory Infection and Urinary Tract Infection Episodes

a1.2 c08 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	08/31/2015	■ Initial design based on Clinical Advisory Group recommendations
a1.0 c02 d01	11/20/2015	■ Configuration: Removed the comorbidity exclusion 'Mycoses' ■ DBR and configuration: Updated configuration file and DBR with risk adjustment factors, code lists, and coefficients, as well as high cost outlier and multi-comorbidity thresholds

		■ DBR and configuration: Based on the risk-adjustment process, added the exclusion for paralysis to UTI in addition to URI **Clarifications:** ■ Configuration: Removed '- formatted' from the name of the 'URI Code Sheet' tab ■ Configuration: Updated the code list name for the UTI ICU comorbidity to 'Comorbidities ICU – Revenue Codes' from 'Clinical Exclusions – Intensive Care' ■ DBR: Added Pleurisy, pneumothorax, and lung collapse to the list of URI exclusions in section 2.3.6 – this exclusion and accompanying codes were previously only contained in the configuration file ■ DBR: Added bolding in section 2.3.6 to emphasize that some age exclusions are set in years and others are set in months
a1.1 c03 d01	04/27/2016	■ DBR: Revised sections 2.3.3 and 4.2 to reflect that professional, outpatient, and pharmacy claims are not assigned to hospitalizations ■ DBR: Updated definition of transfer hospitalizations in the glossary to specify that transfers are separate hospitalizations ■ DBR: Changed prefix of exclusions from 'Excl' to 'EE', exclusion name 'LongHosp' changed to 'LongAdmission', spend columns 'Custom' to 'Performance' and 'ClaimCount' to 'ClaimsIncluded' in section 3.2 ■ DBR: Clarified header diagnosis code positions in section 4.7 ■ DBR: Clarified the definition of ED, observation, and urgent care center triggered episodes for URI quality metric 04 in section 4.7 ■ DBR: Updated URI quality metrics 07 and 08 in section 4.7 to reflect age filters ■ DBR: Updated section 4.9 to clarify conditions that must be met for gain sharing and risk sharing payments ■ Configuration: Removed one diagnosis code from HIV exclusion list

a1.1 c04 d01	06/13/2016	■ Configuration: Updated code sheet to include ICD-10 diagnosis and procedure codes in all appropriate sub-dimensions ■ Configuration: Added one ICD-9 diagnosis code to 'Relevant Diagnoses' list (UTI only) ■ Configuration: Added eight ICD-9 diagnosis codes to 'Included Complication Diagnoses' list (UTI only) ■ Configuration: Removed five ICD-9 diagnosis codes from 'Trigger Diagnosis Codes – Contingent' list (UTI only) ■ Configuration: Changed code type from CCS category to CCSsinglediagnosis to accommodate ICD-10 codes
a1.1 c05 d01	08/01/2016	■ Configuration: Removed four ICD-9 and sixteen ICD-10 diagnosis codes from 'Trigger Diagnosis Codes – Contingent' list (URI only) ■ Configuration: Added ten ICD-9 and forty ICD-10 diagnosis codes to 'Comorbidities Otitis Media – Diagnoses' list (URI only)
a1.1 c06 d01	12/20/2016	■ Configuration and DBR: Added an exclusion for episodes where the PAP is a federally qualified health center or rural health clinic. The changes in algorithm logic are reflected in sections 2.3.6, 3.4.1, and 4.6. The codes used to identify FQHC/RHCs are listed in the configuration file under 'Business Exclusions – FQHC and RHC' ■ Configuration and DBR: Renamed the list 'Business Exclusions – TPL FQHC And RHC' to 'Business Exclusions – TPL Exempt Places of Service' ■ DBR: Updated definition of the Multiple payers exclusion to only exclude episodes where a patient changes enrollment between MCPs, not between FFS and a MCP. The changes in algorithm logic are reflected in sections 2.3.6 and 4.6.
a1.1 c07 d01	12/1/2017	■ Configuration: Renamed the list 'Clinical Exclusions - Select URI – Diagnoses' to 'Comorbidities Select URI – Diagnoses'. (applies to URI only) ■ Configuration: Updated the names of risk factor lists to be consistent with naming convention in DBR. ■ Configuration: Added the lists 'Risk Factor 059 Acute and chronic tonsillitis in patients under 7 - CCS', 'Risk Factor 060 Acute and chronic tonsillitis in patients over 12 - CCS', 'Risk Factor 063 History of pleurisy; pneumothorax; pulmonary collapse in patients over 17 - CCS', 'Risk Factor 064 Other

		lower respiratory disease in patients over 17 - CCS', 'Risk Factor 069 Fever of unknown origin in patients over 12 - CCS', 'Risk Factor 070 Diabetes mellitus with complications in patients under 13 - CCS', 'Risk Factor 071 Diabetes mellitus with complications in patients over 12 and under 18 - CCS', 'Risk Factor 073 Fluid and electrolyte disorders in patients over 17 and under 50 - CCS', 'Risk Factor 075 Diseases of white blood cells in patients over 17 and under 50 - CCS', 'Risk Factor 077 Perinatal conditions in patients under 27 - CCS', 'Risk Factor 077 Perinatal conditions in patients under 27 - CCS', 'Risk Factor 077 Perinatal conditions in patients under 27 - CCS', and 'Risk Factor 077 Perinatal conditions in patients under 27 - CCS'. (applies to URI only) ■ Configuration: Added the lists 'Risk Factor 054 Acute and unspecified renal failure for patients under 27 - CCS', 'Risk Factor 055 Ovarian cyst for patients under 13 - CCS', 'Risk Factor 056 Spondylosis; intervertebral disc disorders; other back problems for patients under 13 - CCS', and 'Risk Factor 057 Fever of unknown origin for patients over 6 - CCS'. (applies to UTI only) ■ Configuration and DBR: Updated all ICD-9 code references to also specify ICD-10. Renamed references to 'ICD-9 Px' in list names with 'Surgical Procedures'. Added an entry for 'ICD-10' in the Glossary. ■ 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'. ■ DBR: Added the field 'Billing Provider Specialty' to the input data in section 3.1. ■ DBR: Updated section 4.1 to specify that potential triggers cannot be built off professional claims that overlap with another hospitalization. ■ DBR: Updated section 4.2 to indicate that, among two or more potential triggers with the same start date, the potential trigger based on an episode-specific diagnosis is given priority. ■ DBR: Updated Quality Metric 1 in section 4.7 to indicate that the definition of strep tests should be expanded to both professional and outpatient claims (applies to URI only) ■ 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. **Clarifications:** ■ Configuration and DBR: Clarified that the age ranges for risk factors are inclusive of the minimum and maximum values. ■ 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 improve consistency of language across episodes. ■ DBR: Updated section 4.2 to clarify that overlap between episode windows is not allowed. ■ 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: Updated Quality Metrics 7 and 8 in section 4.7 to clarify that the patient age condition should be applied to both the numerator and denominator definitions. (applies to URI only)
a1.2 c08 d01	12/30/2019	■ Configuration: Updated the following code lists: 'Comorbidities Cancer - Diagnoses'; 'Comorbidities Cancer Active - Diagnoses'; 'Comorbidities Cancer Active - Procedures'; 'Comorbidities Coma And Brain Damage - Diagnoses'; 'Comorbidities Multiple Sclerosis - Diagnosis' ■ Configuration and DBR: Added 'Exempt PAP - Billing Provider Types' as design dimension subcategory to exclude provider type from episode ■ DBR: Updated language in sections 4.9 to reflect the pooled methodology effective for the 2019 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 episodes described in this document pertain to patients who develop an Upper Respiratory Infection (URI) or Urinary Tract Infection (UTI) for which they are treated in an outpatient or office setting. The two episodes share a similar patient journey, logic, and structure, so are covered together in this document. Functionally, they should be considered separately and treated as if they each had individual documentation. A separate configuration file is provided for URI and for UTI and providers receive separate reports for URI and UTI.

As depicted in Exhibit 1, a URI or UTI episode typically starts with an office or emergency department visit during which the symptoms of the UTI, such as dysuria, urinary frequency, or URI, such as throat pain, and fever, are treated. As depicted in Exhibit 1 and 2, a URI or UTI episode may require examination, testing, and imaging in order to diagnose the condition. During the visit, the patient may be prescribed medication and other treatments. The patient may also undergo follow-up care if symptoms persist. Some patients may develop complications requiring further treatment in an inpatient or outpatient facility.

EXHIBIT 1 – PATIENT JOURNEY FOR THE URI EPISODE

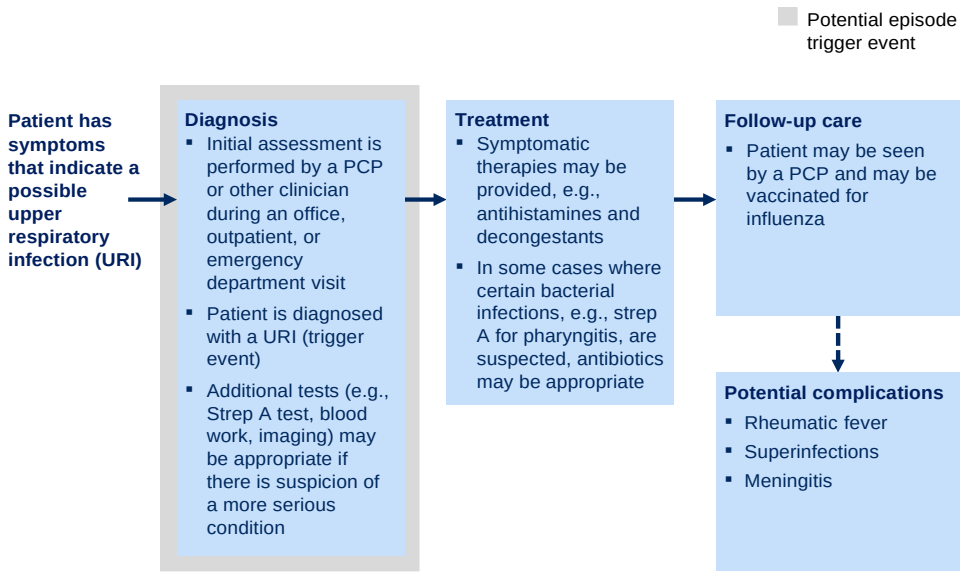
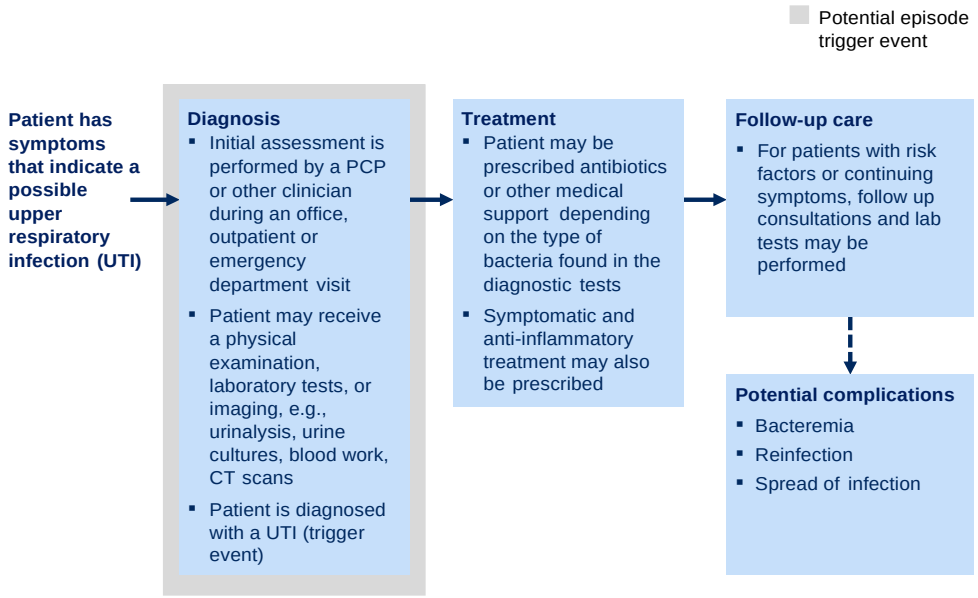


EXHIBIT 2 – PATIENT JOURNEY FOR THE UTI EPISODE



2.2 Sources of value

In treating patients with a URI or UTI, providers have several opportunities to improve the quality and cost of care (see Exhibits 3 and 4) and reduce clinical variation. For example, providers may be able to reduce the rate of complications and inappropriate use of antibiotics, leverage physician support staff, administer only appropriate imaging and testing, and ensure patients receive necessary follow-up care in the most efficient setting. In general, these practices could reduce the likelihood of avoidable follow-up visits and admissions, and reduce the overall cost of care for a URI or UTI.

EXHIBIT 3 – SOURCES OF VALUE FOR THE URI EPISODE

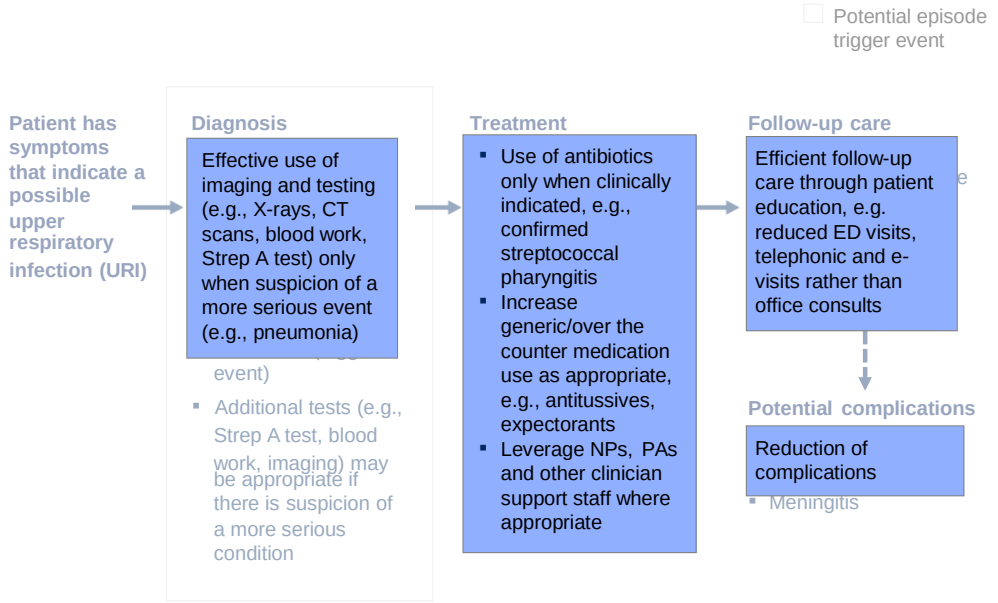
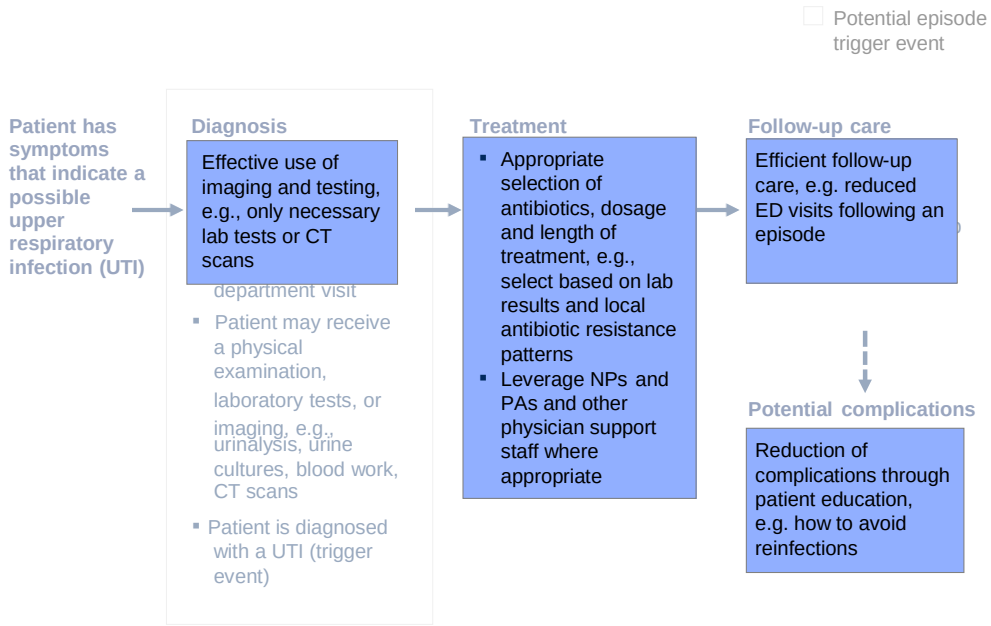


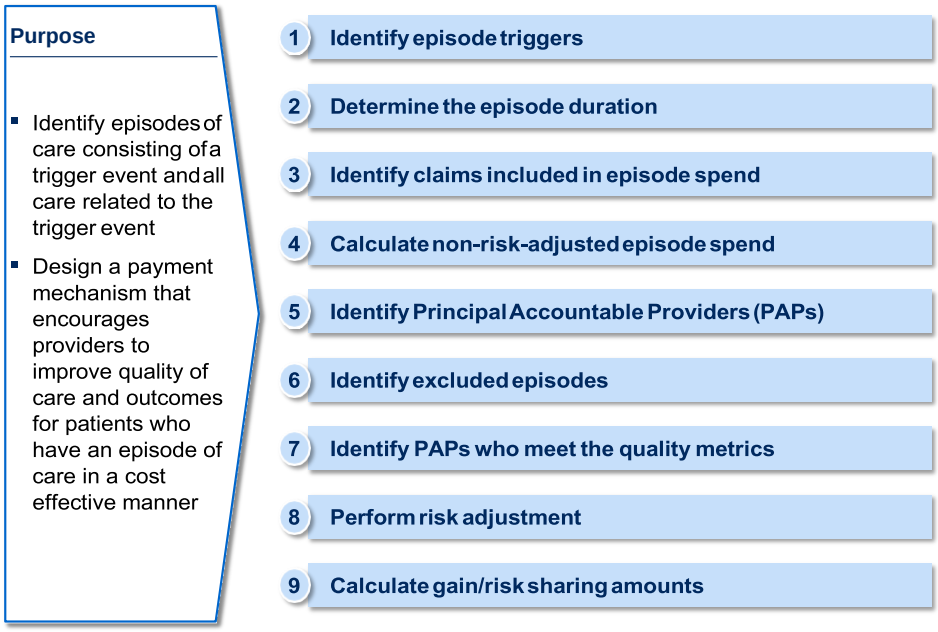
EXHIBIT 4 – SOURCES OF VALUE FOR THE UTI EPISODE



2.3 Design dimensions

Designing and building a URI or UTI episode comprises nine dimensions, as depicted in Exhibit 5. 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 5 – EPISODE DESIGN DIMENSIONS



2.3.1 Episode trigger

A potential trigger for a URI or UTI episode is a professional claim with an emergency department, observation room, urgent care center, or office visit for a URI or UTI. Potential triggers are identified in two ways:

- **URI or UTI-specific trigger diagnosis codes:** An emergency department, observation room, urgent care center, or office visit is a potential trigger if it contains a URI or UTI-specific trigger diagnosis code in the primary diagnosis field on a professional claim.
- **URI or UTI-contingent trigger diagnosis codes:** An emergency department, observation room, urgent care center, or office visit is a potential trigger if both of the following conditions are met on a professional claim:
  - First, the claim contains a contingent trigger diagnosis in the primary diagnosis field
  - Second, at least one of the URI or UTI-specific trigger diagnosis codes is present in any non-primary diagnosis field on the same claim.

The URI and UTI-specific trigger diagnosis codes, contingent trigger diagnosis codes, and procedure codes for the trigger locations emergency department, observation room, and office visit are listed in the configuration file under "Trigger Diagnosis Codes – Specific", "Trigger Diagnosis Codes – Contingent", "Trigger Location – ED", "Trigger Location – Observation Room", "Trigger Location – Urgent Care Center", and "Trigger Location – Office". Claim types referenced throughout the DBR are defined in the glossary.

A potential trigger extends for the entire duration of the professional claim that triggered the episode.

2.3.2 Episode duration

The duration of the URI or UTI episodes comprises the trigger window and the post-trigger window. Overall, the duration of the episode is referred to as the episode window.

- **Pre-trigger window**: The URI and UTI episodes do 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**: The post-trigger window begins the day after the trigger window ends and extends for 14 days for URI episodes, and 30 days for UTI episodes. If a hospitalization begins on or before the 14th day (for URI episodes) or the 30th day (for UTI episodes) of the post-trigger window and extends beyond the 14^{h} day (i.e., is ongoing on the 14th day of the post-trigger window) for URI episodes or the 30th day for UTI episodes, then the post-trigger window is extended until discharge from the hospitalization. Extending the episode in this way may only occur once per episode and does not lead to further extensions.

Based on the definitions of the trigger and post-trigger window, potential triggers are divided into trigger URI or UTI and repeat URI or UTI:

- **Trigger URI or UTI**: Potential triggers that do not occur during another episode constitute the trigger window of a new episode.
- **Repeat URI or UTI**: Potential triggers that occur during the post-trigger window 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 patient's URI or UTI. 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 URI and UTI episodes do not have a pre-trigger window.
- **Trigger window**: Outpatient, professional, and pharmacy claims during the trigger window that are related to the URI or UTI are included claims. Included claims during the trigger window fall into the following groups:
  - Included evaluation and management (E&M) care: Outpatient and professional claim detail lines with included evaluation and management procedure codes and an included diagnosis code in the primary or secondary diagnosis field are included detail lines.
  - Included medical procedures: Outpatient and professional claim detail lines with included imaging, testing, and other relevant procedures are included detail lines.
  - Included medications: Pharmacy claims with an included medication code are included claims.
  - Excluded emergency department facility spend: The facility component of emergency department E&M care is not included in episode spend during the trigger window, regardless of other inclusion logic. Outpatient claim detail lines with emergency department, observation room, and urgent care center evaluation and management codes are not included.
- **Post-trigger window**: Outpatient, professional, and pharmacy claims during the post-trigger window that are related to URI or UTI, or indicate potential complications are included claims. In addition, for UTI episodes only, inpatient claims during the post-trigger window that are related to UTI or indicate potential complications are included claims. Included claims during the post-trigger window fall into the following groups:

- Included hospitalizations (UTI only): Hospitalizations are included in the calculation of episode spend unless the reason for the hospitalization was unrelated to the episode. Hospitalizations that are unrelated to the episode are identified using excluded APR-DRG (for header-paid inpatient claims), or the absence of an included diagnosis code in the primary diagnosis field (for detail-paid inpatient claims). The excluded APR-DRGs were derived from the readmission exclusion MS-DRGs used by the Centers for Medicare and Medicaid Services for the Bundled Payments for Care Improvement (BPCI) Initiative. All inpatient claims that are part of an included hospitalization are included claims.
- Included complication diagnoses: Outpatient and professional claims with an included complication diagnosis code are included claims.
- Included E&M care: Outpatient and professional claim detail lines with included evaluation and management procedure codes, an included diagnosis code in the primary or secondary diagnosis field are included detail lines.
- Included medical procedures: Outpatient and professional claim detail lines with included imaging, testing, and other relevant procedures are included detail lines.
- Included medications: Pharmacy claims with an included medication code are included claims.

The one exception to the above logic are claims related to transportation, which are always excluded claims no matter when they occur.

The codes used to identify excluded APR-DRG as well as included complication diagnoses, included procedures, included E&M procedures, relevant diagnoses, included medications, excluded ED facility care, and excluded transportation are listed in the configuration file under “Excluded APR-DRG”, “Included Complication Diagnoses”, “Included Procedures”, “Included Evaluation and Management”, “Relevant Diagnoses”, “Included Medications”, “Excluded ED Observation Room And Urgent Care Center Facility Procedures”, 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 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 patient with a URI or UTI. The PAP is the physician entity diagnosing the URI or UTI. The PAP is identified using the billing provider ID on the professional 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:**
  - 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.
  - 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). The rules to attribute an episode to a payer are described in the glossary under "Payer attribution".
  - 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.
  - Duals: An episode is excluded if a patient has dual coverage by Medicaid and Medicare at any time during the episode window.
  - PAP out of state: An episode is excluded if the PAP's practice address is outside Ohio.
  - No PAP: An episode is excluded if the billing provider number is not available.

- Long hospitalization: An episode is excluded if a hospitalization longer than (>) 30 days occurs during the episode window.
- Long-term care: An episode is excluded if long-term care occurs during the episode window.
- 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.
- 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".
- Inpatient admission: For URI episodes, an episode is excluded if an inpatient admission occurs during the episode window. For UTI episodes, an episode is excluded if inpatient admission occurs during the trigger window.
- 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."

- **Clinical exclusions:**
  - Age: A URI episode is excluded if the patient is younger than six (<6) **months** or older than sixty four (>64) **years** of age. A UTI episode is excluded if the patient is younger than two (<2) **years** or older than sixty four (>64) **years** of age.
  - 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.
  - 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.

- 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 for **both URI and UTI episode**s are:

  - Cancer under active management during the episode window or during the 90 days before the episode window
  - Coma or brain damage during the episode window or during the 365 days before the episode window
  - Cystic fibrosis during the episode window or during the 365 days before the episode window
  - End stage renal disease (ESRD) during the episode window or during the 365 days before the episode window
  - Human immunodeficiency virus (HIV) during the episode window or during the 365 days before the episode window
  - Immunity disorders during the episode window or during the 365 days before the episode window
  - Multiple Sclerosis during the episode window or during the 365 days before the episode window
  - Organ transplant during the episode window or during the 365 days before the episode window
  - Paralysis during the episode window or during the 365 days before the episode window
  - Stroke during the episode window or during the 365 days before the episode window

  The comorbidity exclusions for **URI episodes only** are:

  - Acute asthma during the episode window
  - Acute COPD and bronchiectasis during the episode window
  - Acute respiratory failure/insufficiency/arrest during the trigger window
  - Aspiration pneumonitis during the trigger window

- Cardiac arrest and ventricular fibrillation during trigger window
- Chronic asthma with emergency department, observation room, or urgent care center presentation during the episode window
- Chronic COPD with emergency department, observation room, or urgent care center presentation during the episode window
- Chronic respiratory failure/insufficiency/arrest during the episode window or during the 365 days before the episode window
- Otitis media during the trigger window
- Pleurisy; pneumothorax, and lung collapse
- Pneumonia (except that caused by tuberculosis or STI) during the trigger window
- Regional enteritis and ulcerative colitis during the episode window or during the 365 days before the episode window
- Select severe URI during the episode window
- Shock during the trigger window
- Tracheotomy during the episode window or during the 365 days before the episode window

The comorbidity exclusions for **UTI episodes only** are:

- Acute cerebrovascular diseases during the trigger window
- Deliveries during the episode window
- Diseases of white blood cells during the episode window or during the 365 days before the episode window
- ICU care 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 April 2013 and March

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 URI episodes**:
  - Quality metric 1: Percent of episodes with antibiotics filled where episodes do not have a strep test performed during the episode window. The codes used to identify antibiotics and strep tests are listed in the configuration file under "Quality Metric 01 & 06 & 07 & 08 Antibiotics", "Quality Metric 01 & 03 & 06 Strep Test", respectively.
- **Quality metrics not tied to gain sharing (i.e., included for information only) for URI episodes:**
  - Quality metric 2: Percent of episodes with flu vaccination administered during the episode window or during the 365 days before the episode window. The codes used to identify appropriate flu vaccines and administration are listed in the configuration file under "Quality Metric 02 Flu Vaccination".
  - Quality metric 3: Percent of episodes with a strep test performed and strep diagnosis present in the primary or secondary diagnosis field of an outpatient or professional claim during the episode window. The strep diagnosis codes and codes used to identify strep tests are listed in the configuration file under "Quality Metric 01 & 03 & 06 Strep Test"." and "Quality Metric 03 Strep Diagnosis".
  - Quality metric 4: Percent of episodes with emergency department, observation room, and urgent care center visits during post-trigger window. The codes used to identify the visits are listed in the

configuration file under “Quality Metric 04 & 05 ED Observation Room and Urgent Care Center Visit”.

- Quality metric 5: Percent of episodes triggered by an emergency department, observation room, or urgent care center visit during the trigger window where an office visit occurs during the post-trigger window. The codes used to identify office visits are listed in the configuration file under “Quality Metric 05 Office Visit”. The codes used to identify episodes triggered by an emergency department, observation room, and urgent care center visit are listed in the configuration file under “Quality Metric 04 & 05 ED Observation Room And Urgent Care Center Visit”.
- Quality metric 6: Percent of episodes with strep test performed where the episodes have antibiotics filled and a pharyngitis diagnosis present in the primary or secondary diagnosis field of an outpatient or professional claim during the episode window. The codes used to identify a diagnosis of pharyngitis are listed in the configuration file under “Quality Metric 06 Pharyngitis Diagnoses”. The codes used to identify antibiotics and strep tests are listed in the configuration file under “Quality Metric 01 & 06 & 07 & 08 Antibiotics”, “Quality Metric 01 & 03 & 06 Strep Test”.
- Quality metric 7: Percent of episodes with antibiotics filled where the episodes have a bronchitis diagnosis present in the primary or secondary diagnosis field of an outpatient or professional claim during the episode window and the member is 18 years of age or older. The codes used to identify bronchitis diagnoses are listed in the configuration file under “Quality Metric 07 Bronchitis Diagnoses”. The codes used to identify antibiotics are listed in the configuration file under “Quality Metric 01 & 06 & 07 & 08 Antibiotics”.
- Quality metric 8: Percent of episodes with antibiotics filled where the episodes have a sinusitis diagnosis present in the primary or secondary diagnosis field of an outpatient or professional claim during the episode window and the member is 18 years of age or older. The codes used to identify sinusitis diagnoses are listed in the configuration file under “Quality Metric 08 Sinusitis Diagnoses”. The codes used to identify antibiotics are listed in the configuration file under “Quality Metric 01 & 06 & 07 & 08 Antibiotics”.

- **Quality metric tied to gain sharing for UTI episodes**:
  - Quality metric 1: Percent of episodes with advanced imaging performed during the episode window. The codes used to identify advanced imaging are listed in the configuration file under "Quality Metric 01 Advanced Imaging".
- **Quality metrics not tied to gain sharing (i.e., included for information only) for UTI episodes:**
  - Quality metric 2: Percent of episodes with a repeat UTI. Repeat UTI are defined in section 2.3.2.
  - Quality metric 3: Percent of episodes with antibiotics filled during the episode window. The codes used to identify antibiotics are listed in the configuration file under "Quality Metric 03 Antibiotics".
  - Quality metric 4: Percent of episodes with an emergency department, observation room, or urgent care center care visit during the trigger window where an inpatient admission occurs during post-trigger window. Inpatient admission are defined by inpatient claims. The codes used to identify emergency department, observation room, and urgent care center visits are listed in the configuration file under "Quality Metric 04 & 05 & 08 ED Observation Room And Urgent Care Center Visit".
  - Quality metric 5: Percent of episodes with an emergency department, observation room, or urgent care center care visit during the trigger window where an office visit occurs during post-trigger window. The codes used to identify office visits are listed in the configuration file under "Quality Metric 05 - Office Visit". The codes used to identify episodes triggered by an emergency department, observation room, and urgent care center visit are listed in the configuration file under "Quality Metric 04 & 05 & 08 ED Observation Room And Urgent Care Center Visit".
  - Quality metric 6: Percent of episodes with urine culture performed during the episode window where the member is 18 years of age or older. The codes used to identify urine culture are listed in the configuration file under "Quality Metric 06 & 09 Urine Culture".
  - Quality metric 7: Percent of episodes with urinalysis performed during the episode window where the member is 18 years of age or older. The codes used to identify urinalysis are listed in the configuration file under "Quality Metric 07 & 09 Urinalysis".

- Quality metric 8: Percent of episodes with an emergency department, observation room, and urgent care center visit during the post-trigger window. The codes used to identify the visits are listed in the configuration file under "Quality Metric 04 & 05 & 08 ED Observation Room And Urgent Care Center Visit".
- Quality metric 9: Percent of episodes with urine culture and urinalysis performed during the episode window where the member is 17 years of age or younger. The codes used to identify urine culture and urinalysis are listed in the configuration file under "Quality Metric 06 & 09 Urine Culture", "Quality Metric 07 & 09 Urinalysis".

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.

Different risk factors apply for the URI and UTI episodes.

- Risk factors for URI:
  - Acute and chronic tonsillitis
  - Acute and chronic tonsillitis in patients 13 and older
  - Acute and chronic tonsillitis in patients 6 and younger
  - Acute bronchitis
  - Allergic reactions
  - Artery disease
  - Asthma
  - Bacterial infections
  - Calculus of urinary tract in patients 49 and younger
  - Cerebrovascular disease
  - Chronic kidney disease
  - Conditions associated with dizziness or vertigo
  - Conditions of the veins and lymphatics
  - Congenital anomalies
  - Congestive heart failure; non-hypertensive
  - COPD and bronchiectasis in patients 18 and older
  - Diabetes
  - Diabetes mellitus with complications

- Diabetes mellitus with complications in patients 12 and younger
- Diabetes mellitus with complications in patients 13 to 17
- Diseases of mouth; excluding dental
- Diseases of white blood cells in patients 17 and younger
- Diseases of white blood cells in patients18 to 49
- Disorders of the teeth, jaw, and mouth
- Epilepsy; convulsions
- Esophageal disorders in patients 49 and younger
- Fever of unknown origin
- Fever of unknown origin in patients 13 and older
- Fluid and electrolyte disorders in patients 17 and younger
- Fluid and electrolyte disorders in patients 18 to 49
- Gastritis and duodenitis
- Heart disease
- Heart valve disorders
- Hemorrhage during pregnancy; abruptio placenta; placenta previa
- Hemorrhoids
- Hepatitis
- Hereditary and degenerative nervous system conditions
- History of pleurisy; pneumothorax; pulmonary collapse in patients 12 and younger
- History of pleurisy; pneumothorax; pulmonary collapse in patients 18 and older
- Hypertension
- Inflammation; infection of eye (except that caused by tuberculosis or sexually transmitted disease)
- Inflammatory diseases of female pelvic organs in patients 7 to 26
- Influenza
- Injuries (other than fractures)

- Lower GI conditions
- Lymphadenitis
- Malignant neoplasms
- Menstrual disorders in patients 34 and younger
- Nervous system conditions
- Non-anemic blood conditions
- Non-diabetic metabolic disorders
- Nutritional and metabolic disorders in patients 26 and younger
- Nutritional deficiencies
- Obesity in patients 26 and younger
- Occlusion or stenosis of precerebral arteries
- Other connective tissue disease
- Other infections in patients 13 and older
- Other lower respiratory disease
- Other lower respiratory disease in patients 18 and older
- Other upper respiratory disease
- Otitis media and related conditions
- Ovarian cyst
- Pancreatic, liver, and biliary disorders in patients 7 and older
- Perinatal conditions
- Perinatal conditions in patients 26 and younger
- Pneumonia (except that caused by tuberculosis or sexually transmitted disease)
- Respiratory distress syndrome
- Severe behavioral disorders
- Sickle cell anemia
- Skin conditions
- Skull and face fractures

- Specific GI and abdominal conditions
- Spondylosis; intervertebral disc disorders; other back problems
- Sprains and strains
- Substance abuse
- Syncope
- Systemic lupus erythematosus and connective tissue disorders
- Urinary conditions
- Varicose veins of lower extremity
- Viral infections in patients 13 and older

- Risk factors for UTI:
  - Abdominal hernia
  - Acute and unspecified renal failure
  - Allergic reactions
  - Anemia
  - Artery disease
  - Bacterial infections
  - Biliary tract disease
  - Calculus of urinary tract
  - Cerebrovascular disease
  - Chronic kidney disease
  - Conditions associated with dizziness or vertigo
  - Congestive heart failure; non-hypertensive
  - Crushing injury or internal injury
  - Diabetes
  - Diabetes mellitus with complications
  - Diverticulosis and diverticulitis
  - Early or threatened labor
  - Endometriosis

- Female genital conditions
- Fever of unknown origin
- Fluid and electrolyte disorders
- Gastritis and duodenitis
- Genitourinary congenital anomalies
- Heart disease
- Hemorrhage during pregnancy; abruptio placenta; placenta previa
- Hepatitis
- Hypertension complicating pregnancy; childbirth and the puerperium
- Inflammatory diseases of female pelvic organs
- Intestinal infection
- Intestinal obstruction without hernia
- Intracranial injury
- Lower GI conditions
- Lymphadenitis
- Male genital conditions
- Malignant neoplasms
- Meningitis (except that caused by TB or STD)
- Nervous system conditions
- Nervous system congenital anomalies
- Non-anemia blood conditions
- Nonmalignant breast conditions
- Nutritional and metabolic disorders
- Obesity
- Ovarian cyst
- Pancreatic disorders (not diabetes)
- Pancreatic, liver, and biliary disorders
- Peritonitis and intestinal abscess

- Pleurisy; pneumothorax; pulmonary collapse
- Pneumonia (except that caused by TB or STD)
- Pregnancy complications
- Prolapse of female genital organs
- Severe kidney conditions
- Sexually transmitted infections (not HIV or hepatitis)
- Specific GI and abdominal conditions
- Spinal cord injury
- Spondylosis; intervertebral disc disorders; other back problems
- Substance abuse
- Syncope
- Upper GI conditions

Except for the age ranges, risk factors have to be present during the episode window or during the 365 days before the episode window. Member age is defined in the glossary. 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):

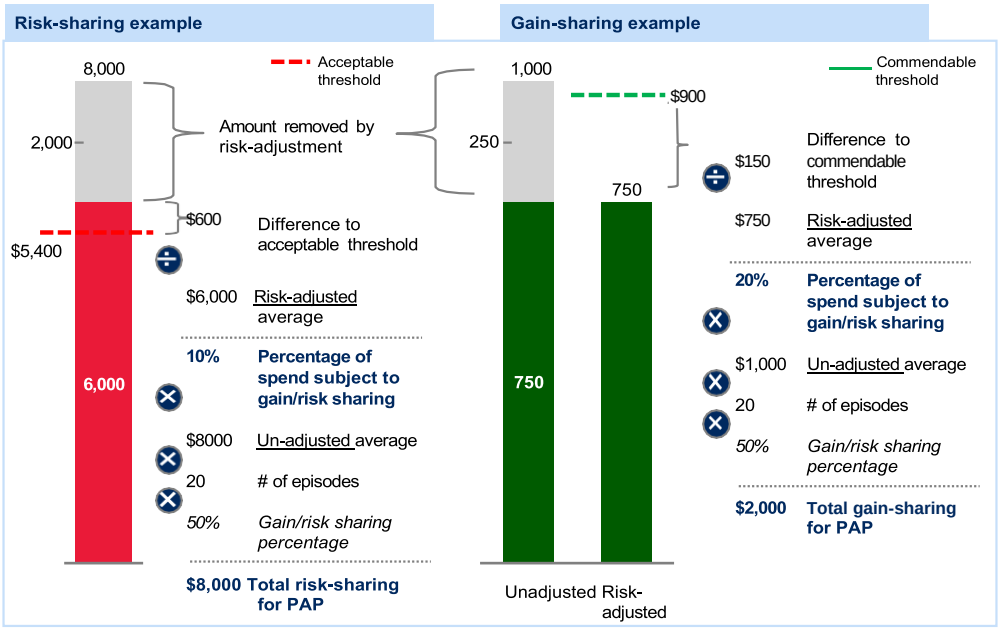
- **Risk sharing:** The calculation of the risk-sharing amount involves multiplying the percentage of spend subject to risk-sharing by the total non risk-adjusted episode spend for all valid episodes of the PAP and the risk-sharing proportion (e.g., 50%). The percentage of spend subject to risk-sharing 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 6 – CALCULATION OF RISK- AND GAIN-SHARING PAYMENTS

ILLUSTRATIVE EXAMPLE



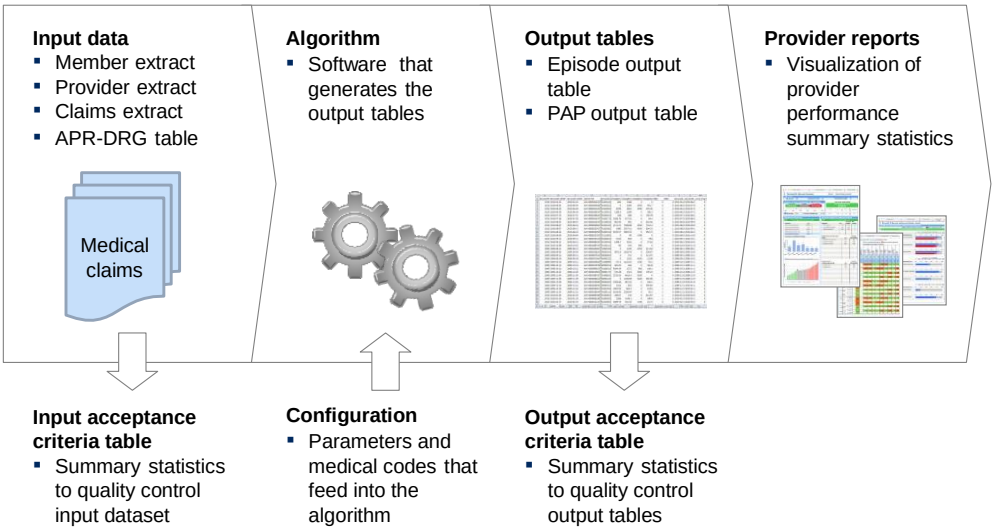
3. EPISODE DATA FLOW

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 7). 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 6 – 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
Billing Provider Specialty	CDE_PROV_SPEC_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

Source field name in DBR	Source field abbreviation OH Medicaid	Source table names OH Medicaid
Surgical Procedure Code 2-24	CDE_PROC_ICD9 and NUM_SEQ = 02-24	DSS.T_CA_ICD9_PROC
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 the 15 months preceding the reporting period. The 15 months preceding the reporting period are needed to allow for identification of risk factors and comorbidities as well as to provide sufficient input data to identify the episode start date for the first episodes that end during the reporting period.

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 UTI episode and a second configuration file for the URI 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
Pre-trigger Window Start Date	PreTriggerWindowStartDate
Pre-trigger Window End Date	PreTriggerWindowEndDate
Trigger Window Start Date	TriggerWindowStartDate
Trigger Window End Date	TriggerWindowEndDate
Post-trigger Window Start Date	PostTriggerWindowStartDate
Post-trigger Window End Date	PostTriggerWindowEndDate
PAP ID	PAPID

Output field name	Output field abbreviation
PAP Name	PAPName
Rendering Provider ID	RenderingID
Rendering Provider Name	RenderingName
Excluded episodes	
Any Exclusion	EEAny
Exclusion Inconsistent Enrollment	EEEnrollment
Exclusion Multiple Payers	EEMultiPayer
Exclusion Third-party Liability	EETPL
Exclusion Dual Eligibility	EEDual
Exclusion PAP Out Of State	EEOutOfState
Exclusion No PAP	EENoPAP
Exclusion Long Hospitalization	EELongHosp
Exclusion Long-term Care	EELTC
Exclusion Missing DRG	EENoDRG
Exclusion Incomplete Episode	EEIncomplete
Exclusion FQHC RHC	EEFQHCRHC
Exclusion Inpatient Admissions	EEIP
Exclusion ICU Care (UTI episodes only)	EEICU
Exclusion Age	EEAge
Exclusion Left Against Medical Advice	EEAMA
Exclusion Death	EEDeath
Exclusion <Comorbidity Name>	EE<ComorbidityName>
Number of comorbidities depends on episode	
Exclusion Multiple Other Comorbidities	EEMultiComorbid
Exclusion High Outlier	EEHighOutlier
Count Of Included Claims	
Count Of Included Claims	EpiClaimsIncluded
By Pre-trigger Window	EpiClaimsIncludedPreTrig
By Trigger Window	EpiClaimsIncludedTrig
By Post-trigger Window	EpiClaimsIncludedPostTrig
By Inpatient	EpiClaimsIncludedIP
By Outpatient	EpiClaimsIncludedOP
By Long-term Care	EpiClaimsIncludedLTC
By Professional	EpiClaimsIncludedProf
By Pharmacy	EpiClaimsIncludedPharma
By Pre-trigger Window And Inpatient	EpiClaimsIncludedPreTrigIP
By Pre-trigger Window And Outpatient	EpiClaimsIncludedPreTrigOP
By Pre-trigger Window And Long-term Care	EpiClaimsIncludedPreTrigLTC
By Pre-trigger Window And Professional	EpiClaimsIncludedPreTrigProf

Output field name	Output field abbreviation
By Pre-trigger Window And Pharmacy	EpiClaimsIncludedPreTrigPharma
By Trigger Window And Inpatient	EpiClaimsIncludedTrigIP
By Trigger Window And Outpatient	EpiClaimsIncludedTrigOP
By Trigger Window And Long-term Care	EpiClaimsIncludedTrigLTC
By Trigger Window And Professional	EpiClaimsIncludedTrigProf
By Trigger Window And Pharmacy	EpiClaimsIncludedTrigPharma
By Post-trigger Window And Inpatient	EpiClaimsIncludedPostTrigIP
By Post-trigger Window And Outpatient	EpiClaimsIncludedPostTrigOP
By Post-trigger Window And Long-term Care	EpiClaimsIncludedPostTrigLTC
By Post-trigger Window And Professional	EpiClaimsIncludedPostTrigProf
By Post-trigger Window And Pharmacy	EpiClaimsIncludedPostTrigPharma
Episode spend	
Non-risk-adjusted Episode Spend	EpiSpendNonadjPerformance
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 RF depends on episode	
Quality metrics	
Quality Metric 01 Indicator	EpiQM01
Quality Metric 02 Indicator	EpiQM02
Quality Metric 03 Indicator	EpiQM03
Number of QM 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

Output field name	Output field abbreviation
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 Long-term Care	PAPEpiWithLTC
With Professional	PAPEpiWithProf
With Pharmacy	PAPEpiWithPharma
PAP performance	
Gain Sharing Quality Metric Pass	PAPQMPassOverall
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
Long-term Care A/B	PAPSpendNonadjPerformanceAvgLTC 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 QM 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 URI or UTI 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 URI and UTI episodes, a potential trigger is defined as a professional claim with a diagnosis indicating a URI or UTI. Claim types (inpatient, outpatient, long-term care, professional, and pharmacy) are identified based on the input field *Claim Type*. For the definition of each claim type see the glossary.

The professional claim must meet the following condition:

- The input field *Billing Provider Type* does not contain a billing id listed under the "Exempt PAP-billing provider type"

Two approaches are used to identify URI or UTI potential triggers:

- **URI-specific or UTI-specific trigger diagnosis codes:** A professional claim that originates from one of the trigger locations emergency department, observation room, urgent care center, or office is a potential trigger if it contains a URI- (for URI episodes) or UTI- (for UTI episodes) specific trigger diagnosis code in the input field *Header Diagnosis Code Primary*.

- **URI-specific or UTI-contingent trigger diagnosis codes:** A professional claim that originates from one of the trigger locations emergency department, observation room, urgent care center, or office is a potential trigger if both of the following conditions are met:
  - First, the claim contains a diagnosis code from the URI- (for URI episodes) or UTI- (for UTI episodes) contingent trigger diagnosis code lists in the input field *Header Diagnosis Code Primary*.
  - Second, the patient has a confirmatory diagnosis on the same claim. A confirmatory diagnosis is defined as the presence of a URI- (for URI episodes) or UTI- (for UTI episodes) specific diagnosis code in input fields *Header Diagnosis Code 2-28.*

The URI- and UTI-specific diagnosis codes are listed in the configuration file under "Trigger Diagnosis Codes – Specific". The URI- and UTI-contingent diagnosis codes are listed in the configuration file under "Trigger Diagnosis Codes – Contingent". The trigger locations emergency department, observation room, urgent care, and office are defined using the input field *Detail Procedure Code*. If the *Detail Procedure Code* on one or more claim detail lines with a *Claim Type* of professional matches a procedure code listed under "Trigger Location – ED", "Trigger Location – Observation Room", "Trigger Location – Urgent Care Center", and "Trigger Location – Office" in the configuration file, then the claim is considered to be an emergency department, observation room, urgent care center, or office claim, respectively.

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

Potential triggers start on the minimum *Detail From Date Of Service* and end on the maximum *Detail To Date Of Service* of the triggering professional claim detail line(s) containing any of the procedure codes for relevant trigger locations.

Potential triggers cannot be built from a professional claim that overlaps with a hospitalization. A hospitalization is considered to be overlapping if one of the following conditions is met:

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

For the definition of hospitalizations see the glossary.

4.2 Determine the episode duration

The second design dimension of building a URI or UTI 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 Start Date*, *Post-trigger Window End Date*, *Episode Start Date*, *Episode End Date*

Two time windows are of relevance in determining the episode duration (see Exhibit 8 & 9).

EXHIBIT 8 – URI EPISODE DURATION

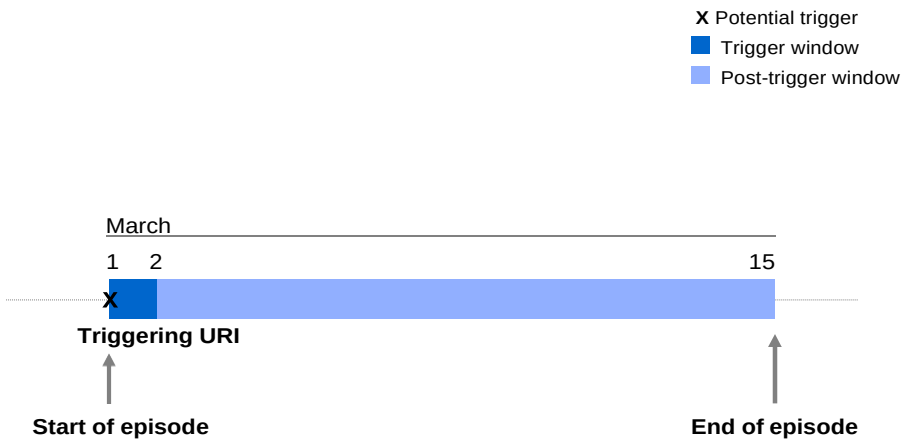
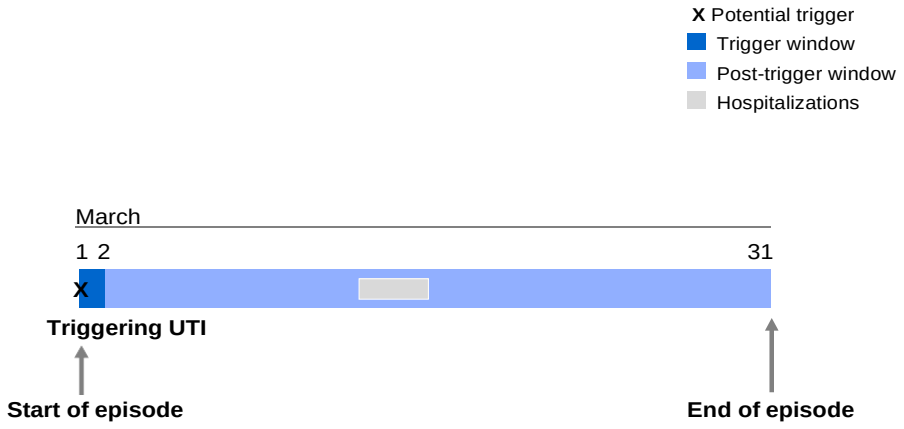


EXHIBIT 9 – UTI EPISODE DURATION

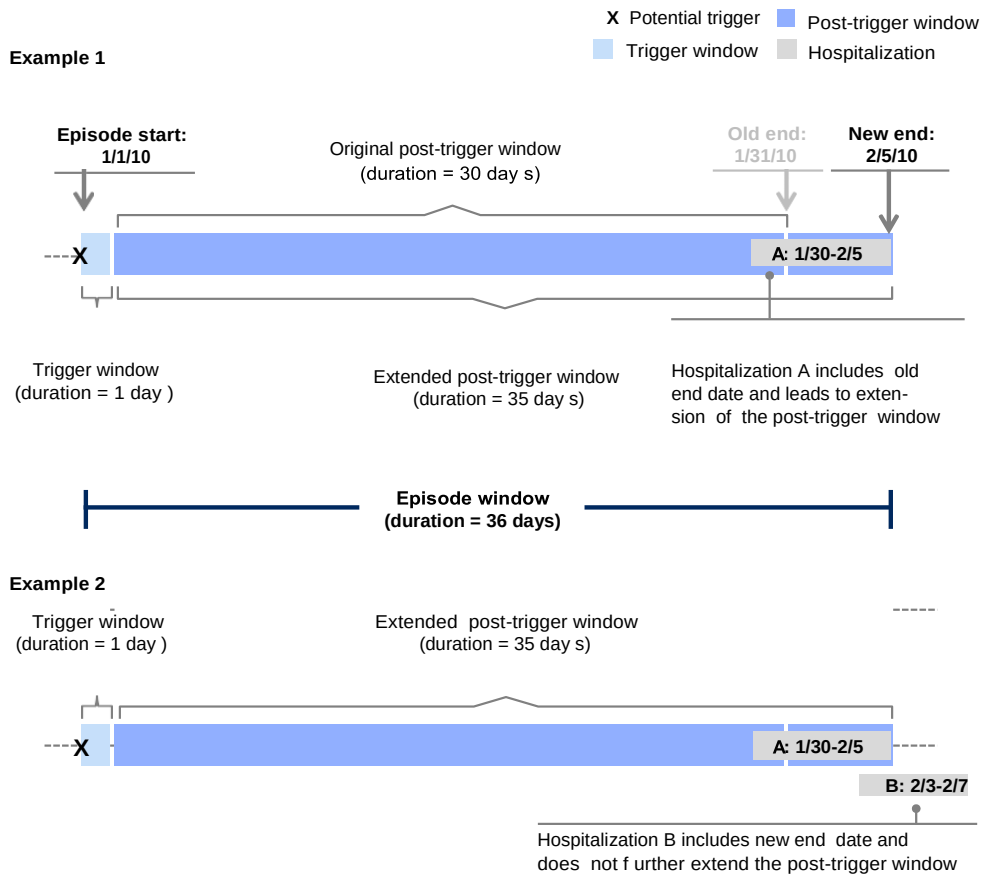


- **Pre-trigger window**: The URI and UTI episodes do not have a pre-trigger window.
- **Trigger window**: The output fields *Trigger Window Start Date* and *Trigger Window End Date* are set using the potential trigger start and end dates which are defined in section 4.1. The output field *Trigger Window Start Date* is also the output field *Episode Start Date*. Only potential triggers that constitute a trigger URI or UTI can set the duration of a trigger window. The approach to determine whether a potential trigger is a trigger URI or UTI is described below.
- **Post-trigger window**: The output field *Post-trigger Window Start Date*, is set to the day after the output field *Trigger Window End Date*. The output field *Post-trigger Window End Date* is set to the 13th day (for URI episodes) or the 29th day (for UTI episodes) after the output field *Post-trigger Window Start Date* (for a post-trigger window of 14 days duration for URI episodes or 30 days duration for UTI episodes). If a hospitalization is ongoing on what would be the final day of the post-trigger window, the output field *Post-Trigger Window 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 if the hospitalization has an input field *Header From Date Of Service* during the trigger window or during the first 14 days (for URI episodes) or 30 days (for UTI episodes) of the post-trigger window and a *Discharge Date* beyond the first 14 days (URI episodes) or 30 days (UTI episodes) of the post-trigger window. If more than one hospitalization is ongoing on the 14th day (for URI episodes) or the 30th day (for UTI episodes) of the post-trigger window, 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 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 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 10).

EXHIBIT 10 – EPISODE EXTENSIONS



The combined duration of the trigger window and post-trigger window 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 URI or UTI**: Potential triggers that do not occur during another episode constitute the trigger window of a new episode.
- **Repeat URI or UTI**: Potential triggers that occur during the post-trigger window 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 URI or UTI 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 URI or UTI for a patient has been identified, the trigger window and the post-trigger window are set. Any potential triggers that fall into the post-trigger window are classified as repeat URI or UTI. The next potential trigger that starts outside of the post-trigger window constitutes the second trigger URI or UTI 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. There should be no overlap between the episode windows of any of the resulting episodes. Note that the input data begins 15 months prior to the reporting window, so potential triggers may be repeat URI or UTI, and thus not trigger a URI or UTI episode, due to a URI or UTI that occurred prior to the reporting period.

Note that URI and UTI are separate episodes that share similar logic and structure. As such, episodes windows are defined separately for URI and UTI. A URI potential trigger will never become a repeat URI because it occurs during the post trigger window of a UTI episode, neither will a UTI potential trigger ever become a repeat UTI because it occurs in the post trigger window of a URI. The two episodes do not impact each other.

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 URI or UTI or repeat URI or UTI. The other overlapping potential triggers do not

count as trigger URI or UTI or repeat URI or UTI, 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 URI or UTI or repeat URI or UTI:

  - The potential trigger with the earliest start date has highest priority.
  - If there is a tie, the potential trigger with an URI- or UTI-specific trigger diagnosis is selected.
  - 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 output field *Trigger Claim ID* is selected.

- If the start date of a potential trigger occurs during the post-trigger window of an episode but its end date is outside of the post-trigger window of the episode, the potential trigger is neither a repeat URI or UTI nor a trigger URI or UTI, and the claims detail lines 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, 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.
  - 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.
  - Outpatient, long-term care, 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, long-term care, 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.
- **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 field *Header From Date Of Service* of the hospitalization 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*.
- Outpatient, long-term care, 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, long-term care, 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*.

■ **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.
- 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.
- Outpatient, long-term care, and professional claims are assigned to the trigger window if all their claim detail lines are assigned to the trigger window. Outpatient, long-term care, 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.

■ **Assignment to the post-trigger window**:

- Hospitalizations, all inpatient claims within them, and all claim detail lines of the inpatient claims are assigned to the post-trigger window if the hospitalization is assigned to the episode window and also has an input field *Discharge Date* during the post-trigger window.

- Pharmacy claims and all their claim detail lines are assigned to the post-trigger window if they are assigned to the episode window and also have an input field *Header To Date Of Service* during the post-trigger window.
- Outpatient, long-term care, and professional claims are assigned to the post-trigger window if at least one of their claim detail lines is assigned to the post-trigger window. Outpatient, long-term care, and professional claim detail lines are assigned to the post-trigger window if they are assigned to the episode window and also have an input field *Detail To Date Of Service* during the post-trigger window.

4.3 Identify claims included in episode spend

The third design dimension of building a URI or UTI 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 and the post-trigger window. The assignment of claims and claim detail lines to windows during the episode is detailed in section 4.2.

- **Pre-trigger window**: The URI and UTI episodes do not have a pre-trigger window.
- **Trigger window**: Outpatient, professional, and pharmacy claims during the trigger window that are related to the URI or UTI are included claims. Included claims during the trigger window fall into the following groups:
  - Included evaluation and management (E&M) care: If an outpatient or professional claim detail line that is assigned to the trigger window contains a procedure code for an evaluation and management (E&M) visit in the input field *Detail Procedure Code* and an episode-specific relevant diagnosis code in any of the input fields *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28*, then the detail claim line is an included detail claim line. The configuration file lists included E&M codes and

relevant diagnosis codes under "Included Evaluation And Management" and "Relevant Diagnoses", respectively. For outpatient claims, all other claim detail lines on the same claim with the same input fields *Detail From Date Of Service* and *Detail To Date Of Service* as the included claim detail line are also included claim detail lines.

- Included medical procedures: If an outpatient or professional claim detail line assigned to the trigger window contains a procedure code for a specific imaging, testing, pathology and procedure in the input field *Detail Procedure Code*, then the detail claim line is an included detail. The configuration file lists included medical procedure codes under "Included Procedures". For outpatient claims, all other claim detail lines on the same claim with the same input fields *Detail From Date Of Service* and *Detail To Date Of Service* as the included claim detail line are also included claim detail lines.
- Included medications: If a pharmacy claim assigned to the trigger window contains an included medication code in the input field *HIC3 Code*, then the claim is an included claim. The configuration file lists included medications under "Included Medications" using Hierarchical Ingredient Code Level 3 (HIC3) identifiers provided by First Databank.
- Excluded emergency department facility spend: If an outpatient claim detail line contains a procedure code for emergency department, observation room and urgent care center in the input field *Detail Procedure Code*, the claim detail line is an **excluded** claim detail line. The configuration file lists the emergency department, observation room and urgent care center under "Excluded ED Observation Room And Urgent Care Center Visits". This exclusion of claim detail lines takes precedence over any other inclusion logic.

- **Post-trigger window**: For claims and claim detail lines assigned to the post-trigger window, a hierarchy is applied to identify included claims and included claim detail lines for URI or UTI episodes:

  UTI episodes only

  - First, included hospitalizations are identified. Two approaches are used: one for hospitalizations that contain one or more header-paid (i.e., DRG-paid) inpatient claims, the other for hospitalizations that contain only detail-paid (i.e., DRG-exempt) inpatient claims. The input field *Header*

Or Detail Indicator is used to determine if an inpatient claim is header-paid ('H') or detail-paid ('D').

- Header-paid hospitalizations: If a hospitalization assigned to the post-trigger window contains one or more header-paid inpatient claims then all the header-paid inpatient claims are searched for excluded APR-DRG in the input field *APR-DRG*. If any of the header-paid inpatient claims that are part of the hospitalization contain an excluded APR-DRG then the hospitalization is an excluded hospitalization and all inpatient claims in the hospitalization are excluded inpatient claims. If none of the header-paid inpatient claims that are part of the hospitalization contain an excluded APR-DRG then the hospitalization is an included hospitalization and all inpatient claims in the hospitalization are included inpatient claims. The configuration file lists excluded APR-DRG codes under "Excluded APR-DRG".
- Detail-paid hospitalizations: If a hospitalization contains only detail-paid inpatient claims then all the inpatient claims are searched for included complication diagnoses in the input field *Header Diagnosis Code Primary*. If all the inpatient claims that are part of the hospitalization contain an included complication diagnosis code then the hospitalization is an included hospitalization (except for long-term care claims) and all inpatient claims in the hospitalization are included inpatient claims. If any of the inpatient claims that are part of the hospitalization do not contain an included complication diagnosis code in the input field *Header Diagnosis Code Primary* then the hospitalization is an excluded hospitalization and all inpatient claims in the hospitalization are excluded inpatient claims. The configuration file lists included complication diagnoses codes under "Included Complication Diagnoses".

Both URI and UTI episodes

- Pharmacy claims as well as outpatient, and professional claim detail lines that are assigned to the post-trigger window are checked for included evaluation and management visits, included complication diagnoses, included imaging and testing, included pathology, included medical procedures, included complications, or included medications.
  - Included E&M care: If an outpatient or professional claim detail line assigned to the post-trigger window contains a procedure code for an

E&M visit in the input field *Detail Procedure Code* and a relevant diagnosis code in any of the input fields *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28*, then the claim detail line is an included claim detail line. The configuration file lists included E&M codes and relevant diagnosis codes under "Included Evaluation And Management" and "Relevant Diagnoses", respectively. For outpatient claims, all other claim detail lines on the same claim with the same input fields *Detail From Date Of Service* and *Detail To Date Of Service* as the included claim detail line are also included claim detail lines.

- Included complications: If an outpatient or professional claim are assigned to the post-trigger window contains an included complication diagnosis code in the input field *Header Diagnosis Code Primary*, then all claim detail lines of the claim are included claim detail lines. The configuration file lists included complication diagnosis codes under "Included Complication Diagnoses".
- Included medical procedures: If an outpatient or professional claim detail line assigned to the post-trigger window contains a procedure codes for a specific imaging, testing, or pathology procedure in the input field *Detail Procedure Code*, then the claim detail line is an included detail line. The configuration file lists included procedure codes under "Included Procedures". For outpatient claims, all other claim detail lines on the same claim with the same *Detail From Date Of Service* and *Detail To Date Of Service* as the included claim detail line are also included claim detail lines.
- Included medications: If a pharmacy claim assigned to the post-trigger window contains an included medication code in the input field *HIC3 Code*, then the claim is an included claim. The configuration file lists included medications under "Included Medications" using Hierarchical Ingredient Code Level 3 (HIC3) identifiers provided by First Databank.

- **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. The configuration file lists the codes under "Excluded Transportation Procedures".
  - 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.

- 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 URI or UTI 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 URI or UTI 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 professional 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 URI or UTI episode is to identify episodes that are excluded from the episode-based payment model.

Episode output fields created: *Any Exclusion, Exclusion Inconsistent Enrollment, Exclusion Multiple Payers, Exclusion Third-party Liability, Exclusion Dual Eligibility, Exclusion PAP Out Of State, Exclusion No PAP, Exclusion Long Hospitalization* (UTI episodes only), *Exclusion Long-term Care, Exclusion Missing DRG, Exclusion Incomplete Episode, Exclusion FQHC RHC, Exclusion Inpatient Admissions, Exclusion ICU Care* (UTI episodes only), *Exclusion Age, Exclusion Left Against Medical Advice, Exclusion Death,*

Exclusion <Comorbidity Name>, Exclusion Multiple Other Comorbidities, Exclusion High Outlier

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

- **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.

- **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 the following conditions:
  - The claim is assigned to the trigger window or the post-trigger window 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, 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".

- **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.

- **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 input fields *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.

- **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".
- **No PAP**: An episode is excluded if the PAP cannot be identified. A PAP cannot be identified if the input field *Billing Provider ID* is not available.
- **Long hospitalization (UTI only):** For UTI episodes, an episode is excluded if a hospitalization that is assigned to the episode window has a duration greater than (>) 30 days. The hospitalization may or may not be included in the episode spend.
- **Long-term care**: An episode is excluded if the patient has one or more long-term care claim detail lines which overlap the episode window. A long-term care claim detail line which overlaps the episode window is defined as one with both a *Detail From Date Of Service* on or prior to (≤) the *Episode End Date* and a *Detail To Date Of Service* on or after (≥) the *Episode Start Date*. The long-term care claim may or may not be included in the episode spend.
- **Missing 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 an output field *Header Or Detail Indicator* of 'H'.
- **Incomplete episodes**: An episode is excluded if the output field *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".
- **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."
- **Inpatient admission:** URI and UTI episodes have different logic for the inpatient claim exclusion:
  - For URI episodes, an episode is excluded if the patient has one or more inpatient claims which overlap the episode window. An inpatient claim which overlaps the episode window is defined as one with both an input field *Header From Date Of Service* on or prior to (≤) the output field

Episode End Date and an input field *Discharge Date* on or after (≥) the output field *Episode Start Date*.

- For UTI episodes, an episode is excluded if the patient has one or more inpatient claims which overlap the trigger window. An inpatient claim which overlaps the trigger window is defined as one with both an input field *Header From Date Of Service* on or prior to (≤) the output field T*rigger Window End Date* and an input field *Discharge Date* on or after (≥) the output field *Trigger Window Start Date*.

  The inpatient claim may or may not be included in the episode spend.

Clinical exclusions

- **Age**: An episode is excluded if the output field *Member Age* does not fall into the valid age range or if it is invalid. See the glossary for the definition of *Member Age*. The valid age ranges for URI and UTI episodes are listed as parameters in the configuration file under "Excluded Episodes".
- **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".
- **ICU care (UTI only):** An episode is excluded if the patient has an inpatient or claim assigned to the episode window that contains a revenue code indicating treatment in the Intensive Care Unit in the input field *Revenue Code*. The revenue codes used to identify treatment in the ICU are listed in the configuration file used under "Clinical Exclusions – Intensive Care".
- **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.

- **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 CCS codes are first converted into ICD-9 and ICD-10 diagnosis codes using the definition of the multi-level CCS categories for ICD-9 and ICD-10 diagnosis codes available from AHRQ (ICD-9 at https://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp, ICD-10 at https://www.hcup-us.ahrq.gov/toolssoftware/ccs10/ccs10.jsp). As with comorbidity diagnosis codes, the diagnosis codes associated with the Comorbidity CCS 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 used under "Comorbidities <name of comorbidity> – CCS".
  - 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".
- Comorbidity contingent codes for asthma or COPD **(URI only)** require both the presence of a chronic asthma or COPD diagnosis code and also an indicator of outpatient emergency department, observation room, or urgent care center visit on the same claim during the episode window.
  - Chronic asthma or COPD diagnosis codes are searched for in the input fields *Header Diagnosis Code Primary* of outpatient claims with an

indication of an emergency department, observation room, or urgent care center visit assigned to the specified time window. The configuration file lists the codes and time windows used under "Comorbidities Chronic Asthma – Diagnoses" and "Comorbidities Chronic COPD - Diagnoses".

- An indicator of an emergency department, observation room, or urgent care center visit is a procedure code for emergency department, observation room and urgent care centers in the input field *Detail Procedure Code* of one of the claim's detail lines. The configuration file lists the codes and time windows used under "Quality Metric 04 & 05 & 08 ED Observation Room And Urgent Care Center Visit".

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.

- **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 thresholds for the URI and UTI episodes are listed as parameters in the configuration file under "Excluded Episodes". 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 URI and UTI episode is the calculation of the quality metrics and the identification of PAPs who meet the quality metrics performance requirement.

URI episode output fields created: *Quality Metric 01a Indicator, Quality Metric 01b Indicator, Quality Metric 02 Indicator, Quality Metric 03a Indicator, Quality Metric 03b Indicator, Quality Metric 04 Indicator, Quality Metric 05a Indicator, Quality Metric 05b Indicator, Quality Metric 06a Indicator, Quality Metric 06b Indicator, Quality Metric 07a Indicator, Quality Metric 07b Indicator, Quality Metric 08a Indicator, Quality Metric 08b Indicator*

URI 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, PAP Quality Metric 06 Performance, PAP Quality Metric 07 Performance, PAP Quality Metric 08 Performance*

UTI episode output fields created: *Quality Metric 01 Indicator, Quality Metric 02 Indicator, Quality Metric 03 Indicator, Quality Metric 04a Indicator, Quality Metric 04b Indicator, Quality Metric 05a Indicator, Quality Metric 05b Indicator, Quality Metric 06a Indicator, Quality Metric 06b Indicator, Quality Metric 07a Indicator, Quality Metric 07b Indicator, Quality Metric 08 Indicator, Quality Metric 09a Indicator, Quality Metric 09b Indicator*

UTI 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, PAP Quality Metric 06 Performance, PAP Quality Metric 07 Performance, PAP Quality Metric 08 Performance, PAP Quality Metric 09 Performance*

URI episodes have one quality metric that is tied to gain sharing and eight informational quality metrics. UTI episodes has one quality metric that is tied to gain sharing and eight informational quality metrics. Informational quality metrics are not tied to gain sharing.

Quality metric tied to gain-sharing for URI episodes:

- **Quality metric 1: Antibiotics fill rate in the absence of a strep test**
  - The output field *Quality Metric 01a Indicator* marks episodes where the patient receives antibiotics and no strep test during the episode window.
  - The output field *Quality Metric 01b Indicator* marks episodes where the patient does not receive strep test during the episode window.

- Antibiotics are identified based on pharmacy claims that are assigned to the episode window and have a code indicating an antibiotic prescription in the input field *HIC3 Code*. Codes indicating an antibiotic prescription are identified based the Hierarchical Ingredient Code Level 3 (HIC3) identifiers provided by First Databank listed in the configuration file under "Quality Metric 01 & 06 & 07 & 08 Antibiotics". A strep test is identified based on a professional or outpatient claim detail line that is assigned to the episode window that has a strep test procedure in the input field *Detail Procedure Code*. Strep test procedures are listed in the configuration file under "Quality Metric 01 & 03 & 06 Strep Test".
- 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 antibiotics filled and no strep test performed, as indicated by the *Quality Metric 01a Indicator*
  - Denominator: Number of valid episodes of the PAP with no strep test performed, as indicated by the *Quality Metric 01b Indicator*

Quality metrics not tied to gain sharing for URI episodes (i.e., included for information only):

- **Quality metric 2: Influenza vaccination rate**
  - The output field *Quality Metric 02 Indicator* marks episodes with influenza vaccine administered either during the episode window or during the 365 days before the episode window. Influenza vaccination is identified based on an outpatient or professional claim detail line that is assigned to the episode window or during the 365 days before the episode window that also contains one of the procedure codes listed in the configuration file under "Quality Metric 02 Flu Vaccination" in the input field *Detail Procedure Code*.
  - The output field *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 at least one influenza vaccination performed either during the episode window or during the 365 days before the episode window, as indicated by the *Quality Metric 02 Indicator*
    - Denominator: Number of valid episodes of the PAP

- **Quality metric 3: Strep test rate for episodes with strep diagnosis**
  - The output field *Quality Metric 03a Indicator* marks episodes with a strep test where the patient is diagnosed with strep during the episode window.
  - The output field *Quality Metric 03b Indicator* marks episodes with a strep diagnosis during the episode window.
  - The logic for identifying strep tests is explained in URI quality metric 1. The strep diagnosis is identified based on an outpatient or professional claim that is assigned to the episode window and also contains one of the diagnosis codes listed in the configuration file under "Quality Metric 03 Strep Diagnoses" in the input field *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28*.
  - 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 with one or more strep tests performed and a strep diagnosis during the episode window, as indicated by the *Quality Metric 03a Indicator*
    - Denominator: Number of valid episodes of the PAP with a strep diagnosis during the episode window, as indicated by the *Quality Metric 03b Indicator*
- **Quality metric 4 : Emergency department, observation room or urgent care center visit rate**
  - The output field *Quality Metric 04 Indicator* marks episodes with an emergency department, observation room, or urgent care center visit during the post-trigger window. The emergency room, observation room, or urgent care center visits are identified based on an outpatient or professional claim detail line that is assigned to the post-trigger window and also contains one of the CPT codes listed in the configuration file under "Quality Metric 04 & 05 ED Observation Room And Urgent Care Center Visit" in the input field *Detail Procedure Code*.
  - 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 with one or more emergency department, observation room, or urgent care center visits during the post-trigger window, as indicated by the *Quality Metric 04 Indicator*

    - Denominator: Number of valid episodes of the PAP

- **URI quality metric 5: Office follow-up rate after initial ED visit**
  - The output field *Quality Metric 05a Indicator* marks episodes with one or more office visits during the post-trigger window and where the episodes were triggered by an emergency department, observation room, or urgent care center visit.
  - The output field *Quality Metric 05b Indicator* marks episodes triggered by an emergency department, observation room, or urgent care center visit.
  - Office visits are identified based on an outpatient or professional claim detail line that is assigned to the post-trigger window that also contains one of the procedure codes listed in the configuration file under "Quality Metric 05 Office Visit" in the input field *Detail Procedure Code*. Emergency department, observation room, or urgent care center visits are identified based on an outpatient or professional claim detail line that is assigned to the trigger window and also contains one of the CPT codes listed in the configuration file under "Quality Metric 04 & 05 ED Observation Room And Urgent Care Center Visit" in the input field *Detail Procedure Code*..
  - The output field *PAP Quality Metric 05 Performance* is expressed as a percentage for each PAP based on the following ratio:
    - Numerator: Number of valid episodes of the PAP with one or more office visits during the post-trigger window and where the episode was triggered by an emergency department, observation room, or urgent care center visit, as indicated by the *Quality Metric 05a Indicator*
    - Denominator: Number of valid episodes of the PAP where the episode was triggered by an emergency department, observation room, or urgent care center visit, as indicated by the *Quality Metric 05b Indicator*

- **Quality metric 6: Strep test rate in episodes with antibiotics filled and pharyngitis diagnosis**
  - The output field *Quality Metric 06a Indicator* marks episodes with a strep test where the episodes have antibiotics filled and a pharyngitis diagnosis during the episode window.

- The output field *Quality Metric 06b Indicator* marks episodes that have antibiotics filled and a pharyngitis diagnosis during the episode window.
- The logic for identifying strep tests and filled antibiotics is explained in URI quality metric 1. A pharyngitis diagnosis is identified based on professional claims that are assigned to the episode window and also contain any of the diagnosis codes listed in the configuration file under "Quality Metric 06 Pharyngitis Diagnoses" in the input field *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28*.
- The output field *PAP Quality Metric 06 Performance* is expressed as a percentage for each PAP based on the following ratio:
  - Numerator: Number of valid episodes of the PAP with a pharyngitis diagnosis and strep test during the episode window and where the episode has antibiotics filled, as indicated by the *Quality Metric 06a Indicator*
  - Denominator: Number of valid episodes of the PAP where the episode has antibiotics filled and a pharyngitis diagnosis, as indicated by the *Quality Metric 06b Indicator*

- **Quality metric 7: Antibiotics fill rate in bronchitis episodes**
  - The output field *Quality Metric 07a Indicator* marks episodes with antibiotics filled and where the episode has a bronchitis diagnosis during the episode window and the member is 18 years of age or older.
  - The output field *Quality Metric 07b Indicator* marks episodes with a bronchitis diagnosis during the episode window where the member is 18 years or age or older.
  - The logic for identifying filled antibiotics is explained in URI quality metric 1. A bronchitis diagnosis is identified based on an outpatient or professional claim that is assigned to the episode window and also contains one of the diagnosis codes listed in the configuration file under "Quality Metric 07 Bronchitis Diagnoses" in the input field *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28* and where the output field *Member Age* is greater than or equal to (>=) 18 years.
  - The output field *PAP Quality Metric 07 Performance* is expressed as a percentage for each PAP based on the following ratio:
    - Numerator: Number of valid episodes of the PAP with antibiotics filled and a bronchitis diagnosis during the episode window and where the

patient is 18 years of age or older, as indicated by the *Quality Metric 07a Indicator*

    - Denominator: Number of valid episodes of the PAP with bronchitis diagnosis during the episode window and where the output field *Member Age* is greater than or equal to (>=) 18 years., as indicated by the *Quality Metric 07b Indicator*

- **Quality metric 8: Antibiotics fill rate in sinusitis episodes**
  - The output field *Quality Metric 08a Indicator* marks episodes with antibiotics filled and where the episode has a sinusitis diagnosis during the episode window and the member is 18 years or age or older.
  - The output field *Quality Metric 08b Indicator* marks episodes with a sinusitis diagnosis during the episode window where the member is 18 years or age or older.
  - The logic for identifying filled antibiotics is explained in URI quality metric 1. A sinusitis diagnosis is identified based on an outpatient or professional claim that is assigned to the episode window and also contains one of the diagnosis codes listed in the configuration file under "Quality Metric 08 Sinusitis Diagnoses" in the input field *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28* and where the patient is 18 years of age or older.
  - The output field *PAP Quality Metric 08 Performance* is expressed as a percentage for each PAP based on the following ratio:
    - Numerator: Number of valid episodes of the PAP with antibiotics filled and a sinusitis diagnosis during the episode window and where the output field *Member Age* is greater than or equal to (>=) 18 years., as indicated by the *Quality Metric 08a Indicator*
    - Denominator: Number of valid episodes of the PAP with a sinusitis diagnosis during the episode window and where the output field *Member Age* is greater than or equal to (>=) 18 years, as indicated by the *Quality Metric 08b Indicator*

Quality metric tied to gain-sharing for UTI episodes:

- **Quality metric 1: Advanced imaging rate**
  - The output field *Quality Metric 01 Indicator* marks episodes with advanced imaging during the episode window. Advanced imaging is

identified based on an outpatient or professional claim detail line assigned to the episode window and containing one of the procedure codes listed in the configuration file under "Quality metric 01 Advanced Imaging" in the input field *Detail Procedure Code*.

- 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 advanced imaging performed, as indicated by the *Quality Metric 01 Indicator*
  - Denominator: Number of valid episodes of the PAP

Quality metrics not tied to gain sharing for UTI episodes (i.e., included for information only):

- **Quality metric 2: Repeat UTI rate**
  - The output field *Quality Metric 02 Indicator* marks episodes with a repeat UTI that is included in the calculation of episode spend. A repeat UTI is defined in section 4.2. Claims included in the calculation of episode spend are defined in section 4.3.
  - The output field *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 repeat UTI included in the calculation of episode spend, as indicated by the *Quality Metric 02 Indicator*
    - Denominator: Number of valid episodes of the PAP
- **Quality metric 3: Antibiotics fill rate**
  - The output field *Quality Metric 03 Indicator* marks episodes with antibiotics filled during the episode window. The logic for identifying filled antibiotics is explained in URI quality metric 1. 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 with antibiotics filled during the episode window, as indicated by the *Quality Metric 03 Indicator*
    - Denominator: Number of valid episodes of the PAP
- **Quality metric 4: Admission rate**

- The output field *Quality Metric 04a Indicator* marks episodes with an inpatient admission during the post-trigger window and where the episodes were triggered by an emergency department, observation room, or urgent care center visit.
- The output field *Quality Metric 04b Indicator* marks episodes where the episode was triggered by an emergency department, observation room, or urgent care center visit.
- Inpatient claims are identified using the input field *Claim Type*. The emergency room, observation room, or urgent care center visits are identified based on an outpatient or professional claim detail line assigned to the to the post-trigger window and that contains one of the CPT codes listed in the configuration file under "Quality Metric 04 & 05 & 08 ED Observation Room And Urgent Care Center" in the input field *Detail Procedure Code*.
- 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 with an inpatient admission during the post-trigger window and where episodes were triggered by an emergency department, observation room, or urgent care center visit, as indicated by the *Quality Metric 04a Indicator*
  - Denominator: Number of valid episodes of the PAP where the episode was triggered by an emergency department, observation room, or urgent care center visit, as indicated by the *Quality Metric 04b Indicator*

- **Quality metric 5: Office follow-up rate after initial ED visit**
  - The output field *Quality Metric 05a Indicator* marks episodes with one or more office visits during the post-trigger window and where the episodes were triggered by an emergency department, observation room, or urgent care center visit.
  - The output field *Quality Metric 05b* Indicator marks episodes triggered by an emergency department, observation room, or urgent care center visit.
  - The office visits are identified based on an outpatient or professional claim detail line that is assigned to the post-trigger window and that also contains one of the procedure codes listed in the configuration file under

"Quality Metric 05 Office Visit" in the input field *Detail Procedure Code*. The logic for identifying episodes triggered by an emergency department, observation room, or urgent care center visit is explained in UTI quality metric 4.

- The output field *PAP Quality Metric 05 Performance* is expressed as a percentage for each PAP based on the following ratio:
  - Numerator: Number of valid episodes of the PAP with one or more office visits during the post-trigger window and where the episode was triggered by an emergency department, observation room, or urgent care center visit, as indicated by the *Quality Metric 05a Indicator*
  - Denominator: Number of valid episodes of the PAP where the episode was triggered by an emergency department, observation room, or urgent care center visit, as indicated by the *Quality Metric 05b Indicator*

- **Quality metric 6: Urine culture rate**
  - The output field *Quality Metric 06a Indicator* marks episodes with urine culture performed during the episode window and where the patient is 18 years of age or older.
  - The output field *Quality Metric 06b Indicator* marks episodes where the patient is 18 years of age or older.
  - Urine culture is identified based on an outpatient or professional claim detail line that is assigned to the episode window and that also contains one of the procedure codes listed in the configuration file under "Quality Metric 06 & 09 Urine Culture" in the input field *Detail Procedure Code*.
  - The output field *PAP Quality Metric 06 Performance* is expressed as a percentage for each PAP based on the following ratio:
    - Numerator: Number of valid episodes of the PAP with urine culture performed during the episode window and where the patient is 18 years of age or older, as indicated by the *Quality Metric 06a Indicator*
    - Denominator: Number of valid episodes of the PAP where the patient is 18 years of age or older, as indicated by the *Quality Metric 06b Indicator*

- **Quality metric 7: Urinalysis rate**

- The output field *Quality Metric 07a Indicator* marks episodes with urinalysis performed during the episode window and where the patient is 18 years of age or older.
- The output field *Quality Metric 07b Indicator* marks episodes where the patient is 18 years of age or older.
- Urinalysis is identified based on an outpatient or professional claim detail line that is assigned to the episode window and also contains one of the procedure codes listed in the configuration file under "Quality Metric 07 & 09 Urinalysis" in the input field *Detail Procedure Code*.
- The output field *PAP Quality Metric 07 Performance* is expressed as a percentage for each PAP based on the following ratio:
  - Numerator: Number of valid episodes of the PAP with urinalysis performed during the episode window and where the patient is 18 years of age or older, as indicated by the *Quality Metric 07a Indicator*
  - Denominator: Number of valid episodes of the PAP where the patient is 18 years of age or older, as indicated by the *Quality Metric 07b Indicator*

- **Quality metric 8 : Emergency department, observation room or urgent care center visit rate**
  - The output field *Quality Metric 08 Indicator* marks episodes with one or more emergency department, observation room, or urgent care center visits during the post-trigger window. The logic for identifying episodes triggered by an emergency department, observation room, or urgent care center visit is explained in the UTI quality metric 4. The output field *PAP Quality Metric 08 Performance* is expressed as a percentage for each PAP based on the following ratio:
    - Numerator: Number of valid episodes of the PAP with one or more emergency department, observation room, or urgent care center visit during the post-trigger window, as indicated by the *Quality Metric 08 Indicator*
    - Denominator: Number of valid episodes of the PAP

- **Quality metric 9: Urine culture and urinalysis rate**

- The output field *Quality Metric 09a Indicator* marks episodes with both a urine culture and a urinalysis performed during the episode window and where the patient is 17 years of age or younger.
- The output field *Quality Metric 09b Indicator* marks episodes where the patient is 17 years of age or younger.
- The logic for identifying a urine culture is explained in the UTI quality metric 6. The logic for identifying a urinalysis is explained in the UTI quality metric 7.
- The output field *PAP Quality Metric 09 Performance* is expressed as a percentage for each PAP based on the following ratio:
  - Numerator: Number of valid episodes of the PAP with both a urine culture and a urinalysis performed during the episode window and where the patient is 17 years of age or younger, as indicated by the *Quality Metric 09a Indicator*
  - Denominator: Number of valid episodes of the PAP where the patient is 17 years of age or younger, as indicated by the *Quality Metric 09b Indicator*

4.8 Perform risk adjustment

The eighth design dimension of building a URI or UTI 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 types of risk factors apply:

- Age-based risk factors: The output fields *Risk Factor <risk factor number>* for age-based risk factors indicate whether the *Member Age* of the patient falls into the age range specified for the risk factor. The relevant age ranges are listed as parameters in the configuration file under "Risk Adjustment" and are inclusive of the minimum (>=) and maximum (<=) values. For the definition of *Member Age* see the glossary.
- 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".
- CCS category-based risk factors: The output fields *Risk Factor <risk factor number>* for CCS category-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 associated with the CCS code(s) in any of the input fields *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28*. CCS codes are converted into ICD-9 and ICD-10 diagnosis codes using the definition of the single/multi-level CCS categories (as indicated in the configuration file) for ICD-9 and ICD-10 diagnosis codes available from AHRQ (ICD-9 at https://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp, ICD-10 at https://www.hcup-us.ahrq.gov/toolssoftware/ccs10/ccs10.jsp). The configuration file lists the codes and time windows used under "Risk Factors <risk factor number and name> – CCS".
- CCS category, Diagnosis, and age-based risk factors: The output fields *Risk Factor <risk factor number>* for CCS category, diagnosis, and age-based risk factors indicate whether both of the following are true:
  - The Member Age of the patient falls into the age range specified for the risk factor. The relevant age ranges are listed as parameters in the configuration file under "Risk Adjustment" and are inclusive of the minimum (>=) and maximum (<=) values. For the definition of Member Age see the glossary.
  - There is evidence for the risk factor diagnosis in the specified time window, as identified by either:

- An inpatient, outpatient, or professional claim that is assigned to the specified time window and contains a risk factor diagnosis code associated with the CCS code(s) in any of the input fields *Header Diagnosis Code Primary* or *Header Diagnosis Code 2-28*. CCS codes are converted into ICD-9 and ICD-10 diagnosis codes using the definition of the multi-level CCS categories for ICD-9 and ICD-10 diagnosis codes as described above. The configuration file lists the codes and time windows used under "Risk Factors <risk factor number and name> – CCS".
- 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 perinatal 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 URI or UTI 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:

$$[Gain/Risk\ Sharing\ Amount] =$$

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

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:

$$[Gain/Risk\ Sharing\ Amount] =$$

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

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 in the URI and UTI episodes 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.
- **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 inpatient facility. A hospitalization may include more than one inpatient claim because the inpatient facility may file interim inpatient claims. 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
  - 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, or missing occurs, or

until the inpatient claim that follows does not satisfy the required conditions.

Transfer: An inpatient claim with a Patient Status Indicator indicating a transfer (see the configuration file under "Hospitalization – Transfer" for the codes used) is not linked with the second inpatient claim. The second inpatient claim yields a separate hospitalization with a Header From Date Of Service on the same day as or the day after the Discharge Date of the first inpatient claim.

- **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 URI or UTI 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:** See section 4.2
- **Pre-trigger window**: See section 4.2
- **Total episodes:** All episodes, valid plus invalid.
- **Trigger window:** See section 4.2
- **URI:** Upper respiratory infection
- **UTI:** Urinary tract infection
- **Valid episodes:** See section 4.6