

A summary of the methodologies built into our core solution to produce the value-added analytic results from the integration of medical claims, prescription drug claims and eligibility/enrollment information described below.

Our methods leverage standard claims attributes, associated industry standard code sets, and related mappings. The following types of attributes are used to support the methodology enrichments and described:

- Industry-standard procedure codes (CPT-4, HCPCS, Revenue Code) mapped to internally defined **Service Types**
- Place of Service mapped to CMS standard **Place of Service**
- Industry-standard CPT and HCPCS **Procedure Modifiers**
- National Drug Codes (**NDC**) mapped to Service Type = Drug (Pharmacy)

These standard industry code sets, and related mappings are the foundation for the analytic enrichments described next. Our coding experts update the underlying mappings on a regular basis—no less than annually—for diagnostic, procedural and place of service industry standard code sets. The NDC reference information is updated monthly.

Service Level

- **Detail Category:** The Optum data warehouse service classification methodology organizes key pieces of information to classify services: Service Type, Place of Service, and specific codes and modifiers where appropriate for assignment and an associated service count.
 - The methodology assigns each detail service record into mutually exclusive categories to support reporting and analysis of service utilization across common groupings of services, such as inpatient, outpatient, emergency department/room, urgent care, telemedicine, lab services and radiology/imaging. When the service category is assigned, the service dates from the service records are used to determine the service count for a service at the individual level.
 - The result is a consistent identification of inpatient stays, outpatient surgeries, office visits, emergency room visits, urgent care visits, telemedicine visits/services, lab services, and radiology/imaging services.

Note: The methodology was recently updated to identify telemedicine visits driven by the COVID-19 pandemic.

- **Major Diagnosis Category (MDC):** An MDC is assigned to each service record based on the first-listed diagnosis code, supporting the evaluation and reporting of summarized diagnostic information across multiple data types within the integrated benefits data. MDC provides the ability to evaluate utilization at a body system level of condition summarization.
- **Specialty Drug Indicator:** The prescription drug and medical claims information is enriched with a proprietary methodology to identify specialty and non-specialty drugs to support impact of specialty drug utilization in total cost of care. Benefit utilization can be analyzed using this attribute in analysis and reporting. Prescription drug experience focused summary reports can be filtered using this claim-based attribute based on report design. Specialty drug identification on medical claims experience is available in ad hoc reporting.
- **NDC Drug Classifications:** An extension of the prescription drug information for the NDC supplied by the PBM according to First Databank (FDB) sourced information provides

descriptive and analytic information about the prescribed drug. Reporting attributes that are provided through this method include dosage form, drug class, drug strength, generic indicator and drug therapeutic classes to provide drug categorizations.

Diagnostic & Clinical

- **Admissions and Diagnosis Related Groups (DRGs):** Admissions representing the complete cost of care (facility and physician) are associated with a patient's uninterrupted stay in an inpatient setting from admission to discharge. A DRG is assigned to each admission to identify meaningful groups, with similar resource consumption patterns.
- **Symmetry Episode Treatment Groups (ETGs):** ETG is a condition classification and episode of care methodology for identifying diseases, illnesses and injuries present within the population on individuals for a given time period based on the diagnostic and service information from medical and prescription drug claims.
- **Symmetry Episode Risk Groups (ERGs):** ERG is an episode-based health risk methodology for assigning prospective and retrospective relative risk scores to each individual according to the conditions represented in their medical claims.
- **Symmetry Evidence-Based Medicine Connect (EBM Connect):** EBM Connect is an evidence-based measurement methodology to identify gaps in care through adherence rates at the individual level. The guidelines include more than 600 clinical rules published by NCQA, NQF, medical societies, professional organizations and other research organizations. The rules are organized into more than 130 conditions/cases segmented by rule classifications including national standards, disease management, medication adherence, patient safety and care patterns.

Individual Level

In addition to service and clinically based enrichments, the Optum solution includes member-level attributes providing valuable information to assist in understanding the dynamics of a population as it relates to coverage and benefit use. The following attributes are available for filtering and assigned to each individual:

- **Catastrophic Case:** This member-level indicator is assigned to individuals who exceeds a threshold of accumulated costs from claims of \$50,000 or \$100,000 for the current time period. Users can define the assignment to be based on medical services only or medical and prescription drug services. This identification at the member level supports consistent analysis of what have been traditionally referred to as high cost claimants.
- **Catastrophic Case History (status):** This attribute identifies whether there were prior indications that a member could become high cost in the reporting period. Possible attribute values include High Cost in Prior Period, Elevated Risk in the Prior Period or No Previous Indicators
- **Catastrophic Migration:** This attribute describes the individual's catastrophic status in the prior and current periods. Possible designations are catastrophic in the current and prior periods, catastrophic in prior and non-catastrophic in current, non-catastrophic in prior and catastrophic in current, or non-catastrophic in the current and prior periods.
- **Continuous Enrollment:** This indicator relative to enrollment is assigned to each individual enrolled in medical, drug and dental types of coverage for a specified time period. The population can be segmented using this indicator attribute for analysis and reporting. In

addition to identifying continuous enrolled, other attribute values identify new enrollment, gap in enrollment, enrollment ended and enrollment unknown.

- **Payment Bands:** Each individual is assigned to the payment bands determined by the summarized paid amounts in the current time period. The non-pharmacy payment bands can be configured to be based on medical claims only or the combination of medical and prescription drug claims. Three bands are available:
 - Payment Band (wide bands)
 - Payment Band detail (narrower bands)
 - Pharmacy payment band (prescription drug claims only)
- **Risk Groups:** Each individual is assigned to a Risk Group of High, Moderate, Low or No Risk (score) based on their retrospective risk score for the reporting period. The risk groupings are based on the ERG percentiles. High represents the top 10 percent. Moderate represents the 50th to 90th percentile. Low represents the 1 to 49th percentiles. No Risk represents individuals with no retrospective risk score.

Additional methodologies for other health-related data, such as lab (biometric) results, health surveys and workers' compensation are included in our core solution when the associated type of data is also integration into the underlying data warehouse. We use the following types of attributes to support the enrichments described below.

- Logical Observation Identifiers Names and Codes (**LOINC**) is the universal standard for identifying medical laboratory observations.
- Health survey **CDC recommendations** for rule criteria and severity assignments are associated with self-reported information.
- **NCCI Nature of Injury** classifications are standardized groupings that include amputation, concussion, fracture, laceration, infection, sprain, strain, occupational disease, multiple injuries, and more relative to workers' compensation claims.
- **NCCI Body Part** classifications work in conjunction with **Nature of Injury** to define a diagnosis-like classification for workers' compensation data. These standardized groupings include head, ears, eyes, neck, arm, wrist and hand with digit-level detail, shoulders, back, internal organs, hip, leg, knee, ankle, foot, toes and more

Lab Results

The Optum solution includes additional analytic results to support holistic analysis across seemingly unrelated information. There are multiple data enrichments that apply to lab results data:

- **Lab result category:** Categorization of the result into a classification of High, Normal, Low, Positive or Negative depending on the lab test described
- **Lab test related MDC:** Assignment of an MDC to the lab result record based on the derived diagnosis category
- **Lab test diagnostic category:** AHRQ disease classification of the derived diagnosis code for grouping of lab tests by typical lab tests, For examples, anemia, cancers, blood disorders, infections, metabolic disorders and so forth

Health Survey

Health Survey Risk Factors: This proprietary methodology associates health survey questions into a specific standard grouping of questions that have a common focus area for the purpose of assessing risk factors based on the survey response and CDC recommendations.

- **Risk Factor Severity Level:** A level of severity based on the risk factors is associated with an individual survey respondent. The severity level values include Not at Risk, Moderate, High and Not Applicable.
- **Risk Factor Confidence Level:** Based on responses to specific health survey questions, this value represents the confidence of a survey respondent to make a behavior change that addresses identified health risk(s). Values include Not at All Confident, Not Very Confident, Somewhat Confident, Confident, Very Confident and Not Applicable.
- **Risk Factor Motivation Level:** Based on responses to specific health survey questions, this value represents the motivation of a survey respondent to make a behavior change that addresses identified health risk(s). Values for motivation levels include Not at All Motivated, Not Very Motivated, Somewhat Motivated, Motivated, Very Motivated and Not Applicable.
- **Risk Factor Readiness Level:** Based on responses to specific health survey questions, this value represents the readiness of a survey respondent to make a behavior change that addresses identified health risk(s). Values for readiness levels include Pre-contemplation, Contemplation, Preparation, Action, Maintenance and Not Applicable.

Workers' Compensation

- **Workers' Compensation Diagnosis Mapping:** Some workers' compensation vendors do not capture primary ICD diagnosis code within their case tracking systems. Optum maintains a proprietary mapping of the combination of NCCI Nature of Injury and NCCI Body Part information to codes to an ICD diagnosis codes. This allows for standard diagnostic reporting across all types of coverage—group health medical, prescription drug, non-occupational disability and workers' compensation.