

AHRQ Quality Indicators

Understanding the 3M™ All Patient Refined DRGs (APR DRGs)

I. The AHRQ Quality Indicators and the APR-DRGs

The APR DRGs are used by the Agency for Healthcare Research and Quality (AHRQ) for risk adjustment to the Inpatient Quality Indicators (IQI). The IQI are indicators of inpatient mortality for selected procedures and conditions. In order to apply the APR-DRGs, users of the AHRQ Quality Indicators (AHRQ QI) may provide the required data elements in the input data file or, alternatively, use a 3M Limited License Grouper software module that is included at no charge with the AHRQ QI software (SAS and Windows). The limited license grouper assigns only those APR DRG values that are used in the risk-adjustment of the AHRQ QI (that is, those discharges in the denominator of one of the indicators). In most datasets, that means about 30% of discharges are assigned an APR-DRG value.

For more information about the AHRQ QI software and technical documents, see the AHRQ QI web site at <http://qualityindicators.ahrq.gov>.

II. Understanding the APR-DRGs

The All Patient Refined Diagnosis Related Groups (APR DRGs) expand the basic DRG structure by adding two sets of subclasses to each base APR DRG. Each subclass set consists of four subclasses and addresses patient differences relating to severity of illness and risk of mortality.

Severity of illness is defined as the extent of physiologic decompensation or organ system loss of function. Risk of mortality is defined as the likelihood of dying. Since severity of illness and risk of mortality are distinct patient attributes, separate subclasses are assigned to a patient for severity of illness and risk of mortality. Thus, in the APR DRG system a patient is assigned three distinct descriptors:

- The base APR DRG (e.g., APR DRG 194 Heart Failure or APR DRG 440 Kidney Transplant)
- The severity of illness subclass
- The risk of mortality subclass

The four severity of illness subclasses and the four risk of mortality subclasses are numbered sequentially from 1 to 4 indicating respectively, minor, moderate, major, and extreme severity of illness or risk of mortality. For applications such as evaluating resource use or establishing patient care guidelines, the APR DRG in conjunction with severity of illness subclass is used. For evaluating patient mortality the APR DRG in conjunction with the risk of mortality subclass is used.

The underlying clinical principles of APR DRGs are that the severity of illness and risk of mortality of a patient are highly dependent on the patient's underlying clinical problems, and that patients with high severity of illness or risk of mortality are usually characterized by multiple serious diseases or illnesses. In the APR DRGs, the assessment of the severity of illness or risk of mortality of a patient is specific to the base APR DRG to which a patient is assigned. In other words, the determination of the severity of illness and risk of mortality is disease-specific. Thus, the significance attributed to complicating or comorbid conditions is dependent on the underlying problem. For example, certain types of infections are considered a more significant problem in a patient who is immunosuppressed than in a patient with a fractured arm. In APR DRGs, high severity of illness or risk of mortality are primarily determined by the interaction of multiple diseases. Patients with multiple comorbid conditions involving multiple organ systems represent difficult-to-treat patients who tend to have poor outcomes.

III. Development of the APR-DRGs

APR DRGs are a joint development of 3M Health Information Systems (3M HIS) and the National Association of Children's Hospitals and Related Institutions (NACHRI). Thus, the APR DRGs provide a comprehensive and clinically specific classification of both Medicare and non-Medicare patients. The data elements used to determine patient risk factors used by the APR DRGs are limited to standard UB-04 data elements.

The process used in the development of the APR DRGs involved an iterative process of formulating clinical hypotheses and then testing the hypotheses with historical data. Separate clinical models are developed for each of 314 reasons for admission (base APR DRGs), in which the risk factors that impact the severity of illness and risk of mortality are identified. Thus, the APR DRGs are a *clinical model* that has been extensively reviewed with historical data.

VI. Learn more about the APR-DRGs

The AHRQ QI software and documentation provides information about the flagging of numerator, denominator, inclusion and exclusion criteria for each of the indicators. In addition, the software and documentation provides information on the calculation of the risk-adjusted rates, including the coefficients that apply to each APR-DRG value.

An explanation of how those APR-DRG values are assigned to individual discharges and more detailed explanation of the APR DRG methodology is available at <http://www.aprdrassign.com>. This site offers access to the APR DRG definitions manual as well as an online DRG calculator. This tool provides both the DRG, SOI and ROM assignment as well as an explanation of the results.

Access to the site is available via the URL listed above with the following case-sensitive login:

User Name: AHRQUser
Password: aprdr101

V. Technical Assistance with the AHRQ QI

For additional technical assistance with the AHRQ Quality Indicators, please email support@qualityindicators.ahrq.gov.