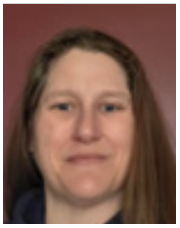
REGULATORY COMMITTEE INSIGHT

Back to basics: Understanding the ins and outs of the APR-DRG system



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The All-Patient Refined Diagnosis-Related Groups (APR-DRG) system, developed by 3M (now Solventum), is an inpatient classification methodology that groups hospital stays based on clinical similarities, resource use, severity of illness (SOI), and risk of mortality (ROM). It refines earlier DRG systems to better capture patient complexity across all populations, including pediatrics, obstetrics, and non-Medicare cases.

APR-DRG is widely used for inpatient acute care reimbursement, risk adjustment, quality benchmarking, and analytics, especially where MS-DRG falls short (e.g., pediatrics, neonates). Key adopters include:

- Medicaid programs: In many states, Medicaid is the primary user of APR-DRG for inpatient hospital payment across service lines like general acute care, maternity/neonatal, pediatric, medical/surgical, psychiatric, and rehabilitation.
  - Examples: New York, California (Medi-Cal), Texas, Florida, Illinois, Maryland, Pennsylvania, South Carolina, Massachusetts, Michigan, Montana, Rhode Island (operational or planned in others, such as Colorado and Illinois).
- Commercial payers: Some insurers (e.g., certain Blue Cross Blue Shield plans, Aetna, UnitedHealthcare variants) use APR-DRG for contracting, benchmarking, value-based payments, or risk stratification in high-acuity service lines like pediatrics or complex adult care.
- Other: Children's hospitals, academic centers, Veterans Health Administration (analytics), and some managed care for broader populations.

APR-DRG is less commonly seen in Medicare (which uses MS-DRG), but the APR-DRG system does support quality metrics such as readmission rate, complication rate, and risk-adjusted mortality rate. These rates are all reported as observed/expected ratios. Accurate reporting of the patient's SOI/ROM will provide an appropriate expected denominator for these patient populations.

APR-DRG assigns patients to one of 332 base DRGs (plus error groups) based on principal diagnosis, procedures (ICD-10-CM/PCS codes), age, sex, and discharge status. Each base DRG is subdivided into four SOI levels and four ROM levels, yielding up to 1,330 groups. The process uses proprietary Solventum logic:

- Base DRG determination via principal reason for admission.
- SOI/ROM adjustment based on secondary diagnoses, their interactions, age, sex, and non-OR procedures
  - SOI: The extent of physiological decompensation or organ system loss of function (predicts resource use).
  - ROM: The likelihood of dying (predicts in-hospital mortality.
  - SOI and ROM are independent subclasses (each individually ranked as 1 = minor/low, 2 = moderate, 3 = major, or 4 = extreme). A patient can have high SOI but low ROM (e.g., acute cholecystitis carries a high SOI due to inflammation, but a low ROM as it is rarely fatal alone).
- Clinical models per base DRG account for disease-specific severity.
- Rerouting logic may reassign cases for accuracy (e.g., broad principal diagnoses.

This creates a more granular system than MS-DRG's three levels of severity (non-CC, with CC, with MCC), emphasizing physiological decompensation and interactions.

SOI and ROM can both rise if a patient is older, is undergoing procedures, or has more secondary diagnoses or greater disease severity/interactions. Key strategies (via accurate coding and documentation) include:

- Capture of multiple secondary conditions in multiple organ systems (especially those body systems that differ from the principal diagnosis) can increase SOI.
- More precise coding elevates impact. Compare uncomplicated diabetes (SOI 1) to diabetic ketoacidosis (SOI 3), or ventricular fibrillation (ROM 4) to premature beats (ROM 1).
- Documenting how comorbidities interact with or exacerbate the principal diagnosis can increase SOI and ROM (e.g., pneumonia + acute respiratory failure/CHF/malnutrition/acidosis increases SOI/ROM to 4). Capture all relevant secondary conditions and their manifestations.

Improved documentation and querying often shifts subclasses higher, increasing relative weights.

Reimbursement uses base APR-DRG + SOI (primarily, ROM for outcomes). Payers assign relative weights to combinations for payment (higher SOI = higher payment). APR-DRG is used for prospective payment (e.g., Medicaid), outlier adjustments, and risk-adjusted reporting (e.g., mortality, complications, readmissions, length of stay, costs). Hospitals use APR-DRG to predict or verify payments and benchmark performance.

APR-DRG better captures complexity than MS-DRG, often leading to higher reimbursement for severe cases but requiring precise coding. Thorough documentation of all comorbidities, specificity, and links (e.g., acute respiratory failure with pneumonia) can elevate SOI/ROM, thereby increasing relative weight or payment. CDI efforts target this for revenue integrity.

Not every case optimized in MS-DRG is optimized in APR-DRG. As previously stated, MS-DRG uses CC/MCC and has three levels of severity; APR-DRG uses granular subclasses with interactions and has four levels of severity. An optimized MS-DRG (with MCC) may group lower in APR-DRG if comorbidities lack severity or interaction (e.g., mild secondary conditions). Conversely, APR-DRG often recognizes more complexity in pediatrics or comorbid cases.

Examples:

- Trach (tracheostomy): Often indicates long-term ventilation or complexity. In APR-DRG, it can drive higher SOI/ROM via interactions (e.g., chronic respiratory failure), unlike MS-DRG's procedure-based grouping (e.g., MS-DRG 003/004 for ECMO/trach >96 hours). A trach patient's case may be optimized under MS-DRG but not under APR-DRG without extreme comorbidities.
- Ventilator: Prolonged ventilation elevates SOI in APR-DRG (via procedures + interactions). A vent-dependent patient with multiple organ issues may reach extreme SOI/ROM in APR-DRG, while MS-DRG will cap at the MCC level, leading to differential reimbursement.

Overall, APR-DRG promotes fairer payment for complex care but demands robust clinical documentation to maximize appropriate reimbursement and accurate reporting

Background

Solventum. (2025, October). Solventum™ All Patient Refined Diagnosis-Related Groups (APR DRG) Methodology Overview [version references, e.g., v43.0]. https://www.solventum.com/en-us/home/health-information-technology/solutions/apr-drg/#faqs

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