

Insights to Coding and Data Quality

Current DRG grouping algorithms

by Nancy J. Cervi, RHIT

Diagnosis Related Group (DRG) prospective payment systems or PPS were introduced on a national level in 1983 by the federal government for payment of acute short-term inpatient hospital services under the Medicare Part A program. While DRG systems have evolved over the years since then, they are still used for prospective payment of inpatient hospital services for the Medicare program, and have been adopted in various forms by most state Medicaid programs and many commercial insurers as well.

DRG payment methods involve classifying inpatient stays and then determining a payment based on a combination of key data elements, demographics and the hospitals geographic location where the services were performed. The diagnostic grouping of the hospital stay is based on the diagnoses describing the patient's condition or ICD-9-CM codes, the surgical procedures performed (if any) or ICD-9-CM codes, patient age, and discharge status. The classifications are labeled using groupings referred to as DRG code and the number of codes varies depending on the selected patient classification model taking into consideration the key elements. Each DRG code is assigned a relative weight that is intended to indicate the average relative amount of hospital resources required to treat patients within that DRG category. These weights are relative to the overall average amount of hospital resources needed to treat a patient within a specific grouping when looking across the full range of patients treated within an acute care inpatient setting.

In a DRG pricing method, the majority of hospital stays are priced using a very simple formula. The formula is: [DRG Base Payment] = [Hospital base rate] * [DRG relative weight] * [Policy adjustor(s)].

There are six DRG grouping algorithms currently available in the United States.

Comparison of DRG Algorithms	Algorithm	Developer	All Patient Weights	Planned ICD-10 Compliance	Marketed for Medicaid	Medicaid Payer Use	Other Payer Use
Centers for Medicare Services	CMS-DRGs	3M for CMS	No	No	No	Yes	Yes
Medicare Severity	MS-DRGs	3M for CMS	No	Yes	No	Yes	Yes
All Patient	AP-DRGs	3M	Yes	No	Yes	Yes	No
All Patient Refined	APR-DRGs	3M/NACHRI*	Yes	Yes	Yes	Yes	Yes
All Patient Severity Adjusted	APS-DRGs	OptumInsight	Yes	Yes	Yes	No	No
Department of Defense	Tricare DRGs	3M	No	Yes	No	Yes	Yes

* National Association of Children's Hospitals and Related Institutions (NACHRI)

Two of these algorithms, CMS-DRGs and AP-DRGs, are being phased out. Neither is actively being updated which means neither will be released with an ICD-10 (International Classification of Diseases, 10th Revision) compliant version.

MS-DRGs are developed specifically for the Medicare population. The DRGs are designed for beneficiaries over the age of 65 or who are disabled or suffering from end stage renal disease. Before the introduction of October 1, 2007 version 25, many CMS DRG classifications were “paired” to reflect the presence of complications or complications and comorbidities (CCs). A significant refinement of version 25 was to replace this pairing, in many instances, with a tri-level design that created a tiered system of the absence of CCs, the presence of CCs, and a higher level of presence of Major CCs. As a result of this change, the historical list of diagnoses that qualified for membership on the CC list was substantially redefined and replaced with a new standard CC list and a new Major CC list. Another planning refinement was not to number the DRGs in strict numerical sequence as compared with the prior versions. In the past, newly created DRG classifications would be added to the end of the list. In version 25, there are gaps within the numbering system that will allow modifications over time, and also allow for new MS-DRGs in the same body system to be located more closely together in the numerical sequence. MS-DRG Grouper version 26 took effect as of October 1, 2008, with one main change: Implementation of Hospital Acquired Conditions (HAC). Certain conditions are no longer considered complications if they were not present on admission (POA), which will cause reduced reimbursement from Medicare for conditions apparently caused by the hospital.

Both the APR- and APS-DRG algorithms are designed for a full beneficiary population. The APR-DRG algorithm includes significant details for sick newborns and pediatrics that are developed and maintained by the National Association of Children’s Hospitals and Related Institutions (NACHRI) for 3M™ Health Information Systems. Both APR-DRGs and APS-DRGs are considered reasonably accurate for predicting relative hospital cost given characteristics of the patient.

The 3M™ All Patient Refined DRG (APR DRG) Classification System is widely-used throughout the United States for adjusting data for Severity of Illness (SOI)-extent of physiologic decompensation or organ system loss of function or Risk of Mortality (ROM)- likelihood of dying. Public and commercial organizations in more than thirty states use the 3M APR DRG methodology for payment or public quality reporting. The four “severity of illness” subclasses and the four “risk of mortality” subclasses are numbered sequentially from one to four indicating respectively, minor, moderate, major, or extreme severity of illness or risk of mortality.

The Tricare DRG algorithm, which was developed and is currently maintained by 3M, uses generally the same DRG grouping logic as MS-DRGs, but has been enhanced to reflect the grouping logic of the obsolete AP-DRG model for pediatric and neonatal services.

Beginning **October 1, 2014**, the ICD-10 version of MS-DRGs will be available. From a recent study conducted by 3M comparing the ICD-9-CM grouper to the ICD-10 grouper based on recoding patient records, they estimated that slightly more than 99% of the cases showed no change in MS-DRG when coded in ICD-10. Prepare for more updates as the other planned ICD-10 compliant groupers (listed in the table above) are announced.

For a more in-depth study of DRGs, visit the American Health Information Management Association's Practice Brief on The Evolution of DRGs located in the Health Information Management (HIM) Body of Knowledge <http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_047260.hcsp?dDocName=bok1_047260>.

References

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