Evolution of DRGs

Save to myBoK

This practice brief has been updated. See the latest version here. This version is made available for historical purposes only.

In the early 1970s Yale University developed diagnosis related groups (DRGs) to describe all types of patient care in an acute care hospital. The Yale system encompassed the Medicare population as well as newborn, pediatric, and general adult populations.

Over time DRG technology has evolved to include changes in healthcare delivery and advances in medicine. It also serves hospital needs for data management, reimbursement and comparability, benchmarking, and other types of research. This article provides an overview of the DRG system and its evolution from a grouping system for reimbursement to a tool for severity and risk measurement.

The DRG System

The DRG method assigns a numeric value to an acute care inpatient hospital episode of care, which serves as a relative weighting factor intended to represent the resource intensity of hospital care of the clinical group that is classified to that specific DRG. As a reimbursement system the DRG assignment determines the payment level the hospital will receive.

Four guidelines were established as guiding principles for the DRG system's formation:

- The patient characteristics used in the DRG definition should be limited to information routinely collected on the hospital billing form.
- There should be a manageable number of DRGs that encompass all patients seen on an inpatient basis.
- Each DRG should contain patients with a similar pattern of resource intensity.
- Each DRG should contain patients who are similar from a clinical perspective (i.e., each class should be clinically coherent).[1]

Grouping patients in this manner allows hospitals to evaluate and manage costs by DRG or groups of DRGs. Hospitals can also benchmark by groups for quality and resource measurement. The DRG system allows only one DRG assignment per patient stay, so payment includes all services that occur between hospital admission and discharge.

DRGs are hierarchical. Major diagnostic categories (MDCs) represent the body systems. Originally there were 23 MDCs; now there are 25. The next level in the hierarchy divides each MDC into surgical and medical sections. The third level then assigns surgical patients into a DRG based on the procedure performed and medical patients into a DRG based on the principal diagnosis for which the patient was admitted.

The following elements comprise the components of each DRG version:

- Title
- Geometric mean length of stay
- Arithmetic mean length of stay
- Relative weight
- ICD-9-CM code ranges that drive the DRG assignment

The code range may consist of the principal diagnosis, operating room procedures, or a diagnosis-procedure combination.[2]

Computer programs called groupers or pricers assign hospital cases into DRGs. There are a series of steps in calculating the total DRG payment. Fiscal intermediaries use grouper (pricer) software to calculate the DRG assignment. Although hospitals

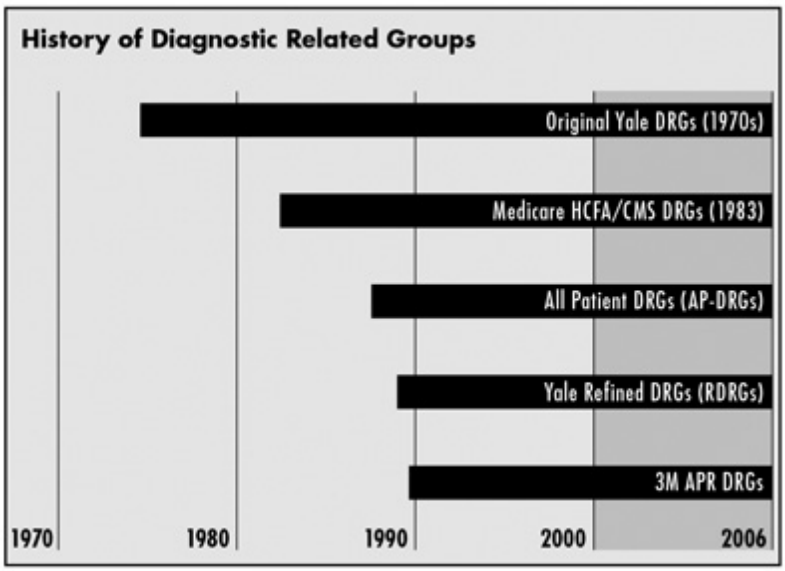
assign DRGs to cases for internal use, the DRG used for payment is calculated as part of the claims processing provided by the fiscal intermediary.[3]

The Evolution of DRGs

The Health Care Financing Administration (HCFA, now the Centers for Medicare and Medicaid Services) implemented DRGs in 1983 for the Inpatient Prospective Payment System (IPPS). 3M developed an all patient DRG (AP-DRG) system in 1987 as the basis for New York's hospital reimbursement program for non-Medicare discharges. The system is still widely used in a number of state Medicaid agencies as well as by payers.

A project at Yale in 1989 resulted in the development of the refined DRG (RDRG) system, which looks at severity of illness in the Medicare population. Severity DRGs (SDRGs) came about in 1993 after HCFA re-evaluated the use of complications and comorbidities within the Medicare DRGs. HCFA published this system in 1994; however, there was never an implementation date requirement, so the severity DRGs have not been updated.

3M developed all patient refined DRGs (APR DRGs) in 1990 to address both severity of illness and risk of mortality over all patient populations. In July 2005 the state of Maryland implemented new payment regulations required by its Health Service Cost Review Commission, which uses the APR DRG method for rate setting.[4]



Know Your DRGs

A variety of DRG systems have been developed in the past 25 years. These include:

- Medicare DRGs
- Refined DRGs (RDRGs)
- All patient DRGs (AP-DRGs)
- Severity DRGs (SDRGs)
- All patient refined DRGs (APR DRGs)
- International-refined DRGs (IR-DRGs)

These DRGs have evolved to meet specific data management and payment needs.

The Need for a Measurement System

Medicare DRGs focus on resource intensity only. The US healthcare industry needed a tool that would look beyond these factors and allow agencies such as state data commissions to evaluate differences in hospital mortality rates. This tool would support quality of care projects and facilitate the implementation and use of critical pathways. The need led to the development of new method and refinement to evaluate acute care in hospitals and consider the factors that affect the cost of delivering inpatient health services.
Case mix complexity refers to an interrelated but distinct set of patient attributes that includes:

- Severity of illness
- Risk of mortality
- Prognosis
- Treatment difficulty
- Need for intervention
- Resource intensity

The APR DRG system is comprised of a clinical model and four severity of illness and risk of mortality subclasses for each base APR DRG. These subclasses are broken down into four levels (1–4): minor, moderate, major, and extreme. Version 20 of

the APR DRG includes 316 base disease categories.[5] APR DRGs are used by hospitals for internal quality improvement and by many states for public reporting.[6]

Severity of illness describes the extent of the physiologic decompensation or organ system loss of function. The risk of mortality indicates the patient's likelihood of dying. The systems are differentiated by trajectory of development, clinical logic, severity classification structure, and level of complexity.

On April 25, 2006, a proposed rule for reconfiguration of the Centers for Medicare and Medicaid Services (CMS) payment system for inpatient care was published in the *Federal Register*.[7] The proposal for FY 2007 keeps the basic DRG method the same; changes relative weights to reflect costs rather than charges; changes outlier threshold; and considers ways of recognizing severity of illness. In 2008 CMS would implement consolidated severity-adjusted DRGs, which are based on a consolidation of 3M's APR DRGs.[8] In cases where Medicare patient volume was low and average charges were comparable, some APR DRG severity levels were consolidated into one DRG to better reflect the Medicare population. During the comment period for the proposed rule, CMS is looking for feedback on the consolidation of APR DRGs or a similar method to reflect severity of illness.

There are other severity adjusted systems. The all-payer severity-adjusted (APS) DRG system, developed by HSS, is built on the previous refined DRG systems.[9] The APS DRG version 20 has 375 base disease categories called consolidated DRGs (CDRGs). The APS DRG group number is represented by the CDRG category (XXX) plus the one-digit severity class (Y). The APS DRG system measures resource intensity in terms of lengthy stay or high charges or cost.

Notes

1. Casto, A., and Elizabeth Layman. *Principles of Healthcare Reimbursement,* Chicago, IL: AHIMA, 2006, p. 91.
2. Ibid, p. 93.
3. Data files and additional information about CMS DRGs are available at www.cms.hhs.gov/AcuteInpatientPPS. Data files are available for download with CMS DRG details at www.cms.hhs.gov/AcuteInpatientPPS/FFD/list.asp.
4. Health Services Cost Review Commission. "The Transition to APR-DRGs and Related Methodological Changes." June 1, 2005. Available online at www.hscrc.state.md.us/current_policy_papers/documents/fsr_apr_drg_transition.doc.
5. 3M Health Information Systems. "3M APR DRG Classification System." Available online at www.3m.com/us/healthcare/his/products/coding/refined_drg.jhtml.
6. Ibid.
7. "Medicare Program: Proposed Changes to the Hospital Inpatient Prospective Payment Systems and Fiscal Year 2007 Rates." *Federal Register* 71, no. 79 (2006): 23995–24472. Available at www.access.gpo.gov/su_docs/fedreg/a060425c.html.
8. CMS used research version 23.0 of APR DRGs. This version is not commercially available. APR DRG version 24.0 will be released in October 2006. It will be identical to version 23.0 with the new version 24.0 ICD-9-CM codes incorporated.
9. HSS. "Provider Profiling/Specialty Care Management/Data Analysis Solutions." Available online at www.hssweb.com/Solutions/Payer/Provider_Profiling_Specialty_Care_Mgmt.aspx #DRGs.

Prepared by

Anne Boucher, MBA
Sue Bowman, RHIA, CCS
Caroline Piselli, MBA, RN, CHE
Rita Scichilone, MHSA, RHIA, CCS, CCS-P, CHC

Article citation:
Boucher, Anne; Bowman, Sue E; Piselli, Caroline; Scichilone, Rita A. "Evolution of DRGs." *Journal of AHIMA* 77, no.7 (July/August 2006): 68A-C.