The Evolution of DRGs

This year (2013) marks the 30th anniversary of the introduction of the concept of diagnosis-related groups (DRGs) into the national healthcare financial lexicon. First popularized by Yale University colleagues R. B. Fetter, MD, and J.D. Thompson, MD, DRGs are an application of industrial management theory in healthcare. The DRG framework enabled hospitals to monitor the utilization of resources and quality of service by relating patients’ demographics and diagnoses to the costs involved in their care.

Although DRGs were not initially designed as a reimbursement management system, the idea of using them to guide reimbursement quickly gained traction after the state of New Jersey implemented a DRG-based hospital reimbursement system. Prior to this, hospital reimbursement operated on a cost-based system in which hospitals retrospectively billed for the actual costs of an episode of care. The use of DRGs enabled a prospective model in which hospitals received a set amount based on the patient’s diagnosis.

Based on the success in New Jersey, Congress incorporated a DRG-based system for Medicare (CMS-DRG) when it created the Inpatient Prospective Payment System in 1983. When it was implemented on a national level, the CMS-DRG system represented a “revolutionary shift in the balance of political and economic power” between the payers (mostly the government) and the providers (hospitals and physicians).

The core of the DRG system is the healthcare “product” supplied by a hospital—care of a patient. The initial architects of the DRG system established 23 major diagnostic categories (MDCs) as the first level of categorizing these products. The MDCs were then subdivided into DRGs based on factors such as surgical status, organ system, age, symptoms, co-morbidities, and discharge status.

Once the DRGs had been defined, every single diagnosis code from the International Classification of Diseases, Ninth Edition, Clinical Modification (ICD-9-CM) system was categorized. To make the system manageable and statistically meaningful, the number of DRGs was intentionally limited to just under 500 codes—a significant reduction in overall code-numbers from the voluminous ICD-9 list. Each DRG was specifically designed to reflect the “resource intensity,” or the amount and extent of resource utilization required to provide the care represented by the products within the group.

Widening applications

The initial DRG system focused primarily on the Medicare population, and thus had limited applicability to non-Medicare patients such as infants and children, trauma victims, or people with HIV. Prompted by a 1987 New York state law that instituted a prospective payment system for the non-Medicare population, 3M Health Information Systems revised the original DRG system into an All-Patient DRG (AP-DRG) system. Later revisions included Yale’s Refined DRG System and the International-Refined DRG System.

In 2003, the All-Patient Refined DRG (APR-DRG) system was introduced, shifting the system’s focus from facility characteristics to patient characteristics and including adjustments for severity of the condition and comorbidities. Factors included in calculating the APR-DRGs include severity of illness, risk of mortality, prognosis, treatment difficulty, need for intervention, and resource intensity.

The APR-DRG system is now commonly used by many private payers and some state Medicaid programs. The Centers for Medicare & Medicaid Services (CMS), however, uses the Medicare Severity-DRG (MS-DRG), the Medicare-focused cousin of the APR-DRG system. Implemented in full on Oct. 1, 2008, the MS-DRG system is updated annually.

Both the MS-DRG and APR-DRG represent modifications of previous systems, with use of more complicated logic in calculating the groups and a shifting focus toward including the severity of the disease as part of the algorithm.

The MS-DRG system

The MS-DRG system is now the most commonly used DRG system, because it governs the ever-growing ranks of Medicare patients. The three levels of severity included in the MS-DRG system include the following:

- major complication/comorbidity (MCC)
- complication/comorbidity (CC)
- noncomplication/comorbidity (Non-CC)

These levels are calculated based on clinical factors—principally the patient’s secondary diagnosis codes (such as pneumonia or sepsis) in addition to the primary diagnosis (hip fracture). Earlier iterations of DRG systems focused more on the institutional side, with the computational logic guided more by resources used rather than the diseases and patients treated.

The MS-DRG system also represents a significant expansion in the number of DRGs—from just under 500 to 746. The codes actually go from 500 to 746. The codes are updated annually.