

Selection of a DRG Grouper for a Medicaid Population

Introduction

The goal of diagnosis related groupers is to define patients into categories based on similar clinical conditions and on similar levels of hospital resources required for treatment. These categories are identified using Diagnosis Related Group (DRG) codes each of which is assigned a relative weight appropriate for the relative amount of hospital resources used to treat the patient. For example, if a DRG grouper assigns “patient A” to DRG 123 with relative weight 0.5, and assigns “patient B” to DRG 321 with relative weight 1.0, this indicates the average amount of hospital resources required to treat “patient A” is a half the amount of resources required to treat “patient B”. These relative weights associated with DRGs are used in the calculation of reimbursement with the intent of paying more when the patient’s care required more resources and less when the patient’s care required fewer resources. Thus, from the point of view of hospital reimbursement, the best DRG grouper for a particular healthcare payer is the one that most accurately predicts the relative hospital resource usage for the full range of services reimbursed by the payer.

Given the importance of generating fair payment for services provided, the primary objective of a DRG grouper is to categorize hospital stays in a way that most accurately predicts relative hospital resource usage for the care provided to each patient. In addition, there are other benefits of DRG grouping such as contributing to measurement of hospital quality and categorizing the types of care reimbursed by the payer. Also, as with any tool, DRG groupers need to be evaluated in terms of long term viability and reliability. With all these thoughts in mind, the criteria recommended for evaluation of different DRG groupers are:

1. Accuracy categorizing relative cost of care for the full range of services reimbursed by the Medicaid agency, with particular concentration on the services for which Medicaid is a major player in the market
2. Long term viability in an ever-evolving healthcare industry
3. Ability to contribute to measurement of hospital quality
4. Familiarity and experience being used in the industry

The Options

There are six DRG grouping algorithms currently available in the United States as shown in Table 1.

| Algorithm | Developer | All-Patient Weights | Planned ICD-10 Compliance | Marketed for Medicaid | Medicaid Payer Use | Other Payer Use | Used to Measure Quality |
|--------------|--------------|---------------------|---------------------------|-----------------------|--------------------|-----------------|-------------------------|
| CMS-DRGs | 3M for CMS | No | No | No | Yes | Yes | No |
| MS-DRGs | 3M for CMS | No | Yes | No | Yes | Yes | Yes |
| AP-DRGs | 3M | Yes | No | Yes | Yes | No | No |
| APR-DRGs | 3M / NACHRI | Yes | Yes | Yes | Yes | Yes | Yes |
| APS-DRGs | OptumInsight | Yes | Yes | Yes | No | No | No |
| Tricare DRGs | 3M | No | Yes | No | Yes | Yes | No |

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 compliant version. 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. Based on our discussions with representatives from 3M, there has been relatively little investment focused on the Tricare DRG tool to bring it current with the standards established for more current models, particularly with respect to classifying neonatal and pediatric cases. The DRGs for those types of cases have been the same for many years and have not been (nor are they expected to be) updated with new research. For these reasons, the CMS-DRG, AP-DRG and Tricare DRG algorithms can be considered unacceptable options, leaving only three potential options for the Arizona Health Care Cost Containment System, MS-DRGs, APR-DRGs, and APS-DRGs. These are compared in greater detail in Table 2.

| Description | MS-DRGs V.28 (CMS - Maintained by 3M) | APR-DRGs V.28 (3M and NACHRI) | APS-DRGs V.28 (OptumInsight – formerly Ingenix) |
|---------------------|--|--|--|
| Intended Population | Medicare (age 65+ or under age 65 with disability) | All patient (based on the Nationwide Inpatient Sample) | All patient (based on the Nationwide Inpatient Sample) |

Table 2
Detailed Comparison of Select DRG Algorithms

| Description | MS-DRGs V.28 (CMS - Maintained by 3M) | APR-DRGs V.28 (3M and NACHRI) | APS-DRGs V.28 (OptumInsight – formerly Ingenix) |
|---|--|---|---|
| Overall approach and treatment of complications and comorbidities (CCs) | Intended for use in Medicare Population. Includes 335 base DRGs, initially separated by severity into “no CC”, “with CC” or “with major CC”. Low volume DRGs were then combined. | Structure unrelated to Medicare. Includes 314 base DRGs, each with four severity levels. There is no CC or major CC list; instead, severity depends on the number and interaction of CCs. | Structure based on MS-DRGs but adapted to be suitable for an all-patient population. Includes 407 base DRGs, each with three severity levels. Same CC and major CC list as MS-DRGs. |
| Number of DRGs | 746 | 1,258 | 1,223 |
| Newborn DRGs | 7 DRGs, no use of birth weight | 28 base DRGs, each with four levels of severity (total 112) | 9 base DRGs, each with three levels of severity, based in part on birth weight (total 27) |
| Psychiatric DRGs | 9 DRGs; most stays group to “psychoses” | 24 DRGs, each with four levels of severity (total 96) | 10 base DRGs, each with three levels of severity (total 30) |
| Payment Use by Medicaid | MI, NH, NM, OK, OR, SD, WI | <i>Operational:</i> MA, MD, MT, NY, PA, RI, SC <i>Announced:</i> CA, CO, IL, MS, ND, TX | None |
| Payment use by other payers | Commercial plan use | BCBSMA, BCBSTN | Commercial plan use |
| Other users | Medicare, hospitals | Hospitals, AHRQ, MedPAC, JCAHO, various state “report cards” | Hospitals, AHRQ, various state “report cards” |
| Uses in measuring hospital quality | Used as a risk adjustor in measuring readmissions. Used to reduce payment for hospital-acquired conditions. | Used as risk adjustor in measuring mortality, readmissions, complications | Used as risk adjustor in measuring mortality and readmissions and to reduce payment for hospital-acquired conditions |

Source: Quinn, K., Courts, C. Sound Practices in Medicaid Payment for Hospital Care; Center for Healthcare Strategies, November 2010. Updated by Navigant with additional and more current information.

Accuracy Categorizing Relative Cost with a Medicaid Population

Both the APR- and APS-DRG algorithms are designed for a full beneficiary population. The APR-DRG algorithm even includes significant granularities 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. Presumably both APR-DRGs and APS-DRGs are reasonably accurate for predicting relative hospital cost given characteristics of the patient. However, more confidence exists in the accuracy of the APR-DRG scheme simply because it is used by many more payers than APS-DRGs.

MS-DRGs, in contrast, 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. It was in 2004 when the Center for Medicare and Medicaid Services (CMS) made a policy shift to no longer support the needs of all payers.

“As previously stated, we do not have the data or the expertise to develop more extensive newborn and pediatric DRGs. Our mission in maintaining the Medicare DRGs is to serve the Medicare population.”¹

Then in 2007 when Medicare adopted its new Medical Severity DRG algorithm (MS-DRGs), CMS made several statements underscoring the fact that MS-DRGs were developed only for the Medicare population. For example,

“The MS-DRGs were specifically designed for purposes of Medicare hospital inpatient services payment. As we stated above, we generally use MEDPAR data to evaluate possible DRG classification changes and recalibrate the DRG weights. The MEDPAR data only represent hospital inpatient utilization by Medicare beneficiaries. We do not have comprehensive data from non-Medicare payers to use for this purpose. The Medicare program only provides health insurance benefits for people over the age of 65 or who are disabled or suffering from end-stage renal disease. Therefore, newborns, maternity, and pediatric patients are not well represented in the MEDPAR data that we used in the design of the MS-DRGs. We simply do not have enough data to establish stable and reliable DRGs and relative weights to address the needs of non-Medicare payers for pediatric, newborn, and maternity patients. For this reason, we encourage those who want to use MS-DRGs for patient populations other than Medicare make the relevant refinements to our system so it better serves the needs of those patients.”²

¹ CMS, “Medicare Program; Changes to the Hospital Inpatient Prospective Payment Systems and Fiscal Year 2005 Rates; Final Rule,” *Federal Register* 69:154 (Aug. 11, 2004), p. 48,939.

² CMS, “Medicare Program; Changes to the Hospital Inpatient Prospective Payment Systems and Fiscal Year 2008 Rates; Final Rule,” *Federal Register* 72:162 (Aug. 22, 2007), p. 47,158.

The number of newborn DRGs provides a useful contrast between the MS-DRG algorithm and an all-patient algorithm such as APR-DRGs. MS-DRGs provide seven (7) DRG codes for the care of newborns while APR-DRGs provide 112 DRG codes (28 base DRGs, each with four (4) levels of severity). In addition, MS-DRGs do not take birth weight into consideration when assigning a DRG despite the fact that birth weight has been widely accepted as a significant indicator of the viability and overall health of newborns.

When comparing APR-DRGs and APS-DRGs, APRs also stand out as having more granularity for specific services commonly paid for by a Medicaid program. For example,

- » For newborns, there are 112 APR-DRG codes for newborns (28 base DRGs, each with 4 levels of severity), and 27 APS-DRG codes (9 base DRGs each with 3 levels of severity)
- » For psychiatric care, there are 96 APR-DRGs (24 base DRGs each with 4 levels of severity), and 30 APS-DRG codes (10 base DRGs each with 3 levels of severity)

Long Term Viability

As mentioned previously, CMS-DRGs and AP-DRGs have already been discontinued and are not expected to be offered in an ICD-10 compliant version. APR-DRGs and MS-DRGs are heavily used, and widely accepted, so their viability is strong. Both are planned to be released with ICD-10 compliant versions and are expected to be updated as necessary to follow future changes in healthcare payment strategies in the United States for years to come. OptumInsight has confirmed they too plan to have an ICD-10 compliant version of APS-DRGs and plan to maintain the product for the foreseeable future. All of that is presumably true, but confidence in the long term viability of the APS-DRG product is a little lower simply because it appears to hold a much smaller share of the market – in fact there is no state Medicaid agency using APS-DRGs to pay for fee-for-service claims.

Applicability to Quality Measures

Incorporating hospital quality measures into payment systems has become increasingly common and sophisticated over the past decade. States face increasing pressure to demonstrate that Medicaid payments support quality care – as evidenced by section 2702 of the Patient and Protection and Affordable Care Act prohibiting federal Medicaid payments for services treating healthcare-acquired conditions (effective July 1, 2012).

To fairly measure hospital quality, the quality measure should be risk adjusted (also referred to as casemix adjusted). For example, performing direct comparisons of mortality rates or complication rates between a cancer institute and a small rural hospital would be unfair unless they are casemix adjusted. In a situation where a cancer institute has a complication rate of 7

percent, and a small rural hospital has a complication rate of 5 percent, at face value, the complication rate of the cancer institute appears higher. However, when taking into consideration patient acuity between the two facilities, the complication rate at the cancer institute might prove to be lower than the rate at the rural hospital. APR-DRGs are very commonly used for the purpose of casemix adjustment.

APR-DRGs are also used as a basis for two quality measurement tools becoming increasingly popular with Medicaid programs for measurement of hospital quality using medical claims data. Those tools are:

- » **3M™ Potentially Preventable Complications (PPC) Grouping Software** – identifies complications that may have been avoided. This software first identifies conditions not present on admission and then determines whether those conditions were potentially preventable given the patient’s reason for admission, procedures, and underlying medical conditions. It also flags Hospital Acquired Conditions monitored by CMS.
- » **3M™ Potentially Preventable Readmission (PPR) Grouping Software** – identifies readmissions clinically related to previous admissions which were potentially preventable.

Both of the above software applications have already been used by various payers – including Medicaid agencies – for reporting purposes, payment purposes, or both. The Maryland All Payer system, for example, uses PPCs to adjust inpatient hospital rates. In the first year of use, the system experienced a 12 percent reduction in PPCs (\$62.5 million in averted costs to state and providers) and an 8 percent reduction the following year (\$43 million in additional averted costs).³ Texas Medicaid reduced inpatient Medicaid spending by \$18 million using PPRs and PPCs and reduced premiums to managed care organizations (MCOs) by up to 5 percent by reducing a variety of preventable events.⁴

Because the 3M PPC and PPR quality measurements are built “using the language of APR-DRGs,” implementing APR-DRGs for payment can facilitate a move to PPC and PPR quality measures.

Prevalence in the Industry

MS-DRGs are the DRG algorithm implemented for Medicare. In addition, a few state Medicaid agencies have chosen MS-DRGs. APR-DRGs are also used by several public and commercial payers. Figure 1 shows how states currently pay for inpatient care, including seven state

³ 3M Health Information Systems for the Navigant Healthcare Payer Strategy Group. *3M Payment and Performance Measurement Systems*. January 31, 2012.

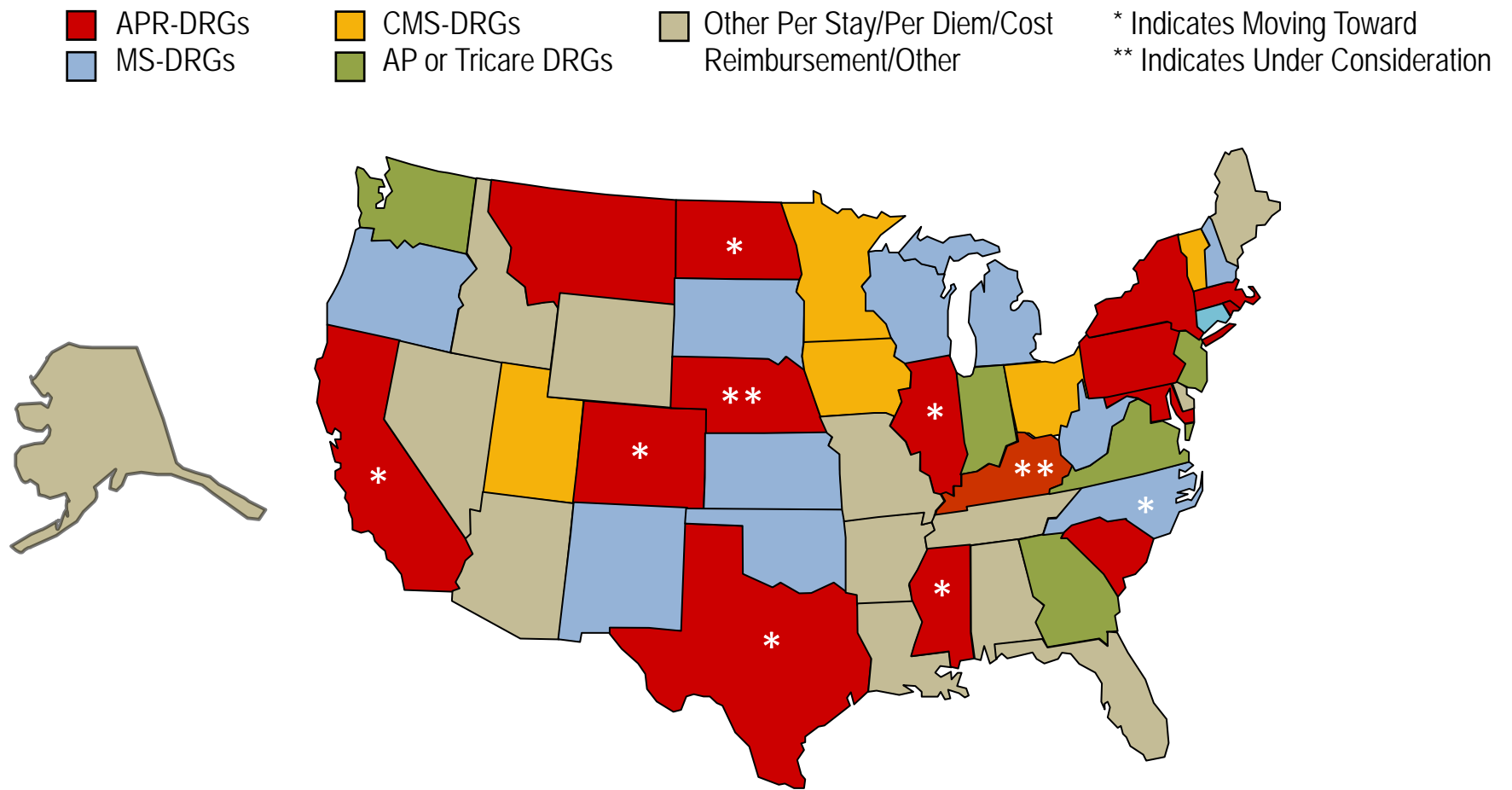
⁴ 3M Health Information Systems for the Navigant Healthcare Payer Strategy Group. *3M Payment and Performance Measurement Systems*. January 31, 2012.

agencies already using APR-DRGs (Massachusetts, Maryland, Montana, New York, Pennsylvania, Rhode Island, South Carolina) and six having announced plans to implement APR-DRGs in the near future (California, Colorado, Illinois, Mississippi, North Dakota, and Texas). APR-DRGs have also been used to adjust for casemix differences in performance measures in Florida, Hawaii, Maryland, Massachusetts, New York, Texas and Utah.⁵ Blue Cross Blue Shield of Massachusetts and Blue Cross Blue Shield of Tennessee have also implemented APR-DRGs.

APS-DRGs are not currently used by any state Medicaid agency for the purpose of determining reimbursement of inpatient acute care claims.

⁵ Prepared by ACS for the California Department of Health Care Services. *Medi-Cal DRG Project Draft Policy Design Document*. January 10, 2012. Page 24.

Figure 1: How states pay for inpatient acute care.



Conclusion

For a Medicaid population there is one DRG grouper that clearly stands out as the best option for use in paying inpatient claims – APR-DRGs. Of the two other primary options, MS-DRGs are not well suited for a Medicaid population (at CMS’s own admission) and APS-DRGs have gained little traction in the market – in fact are not used by any state Medicaid agency to pay fee-for-service claims. APR-DRGs, in contrast, have sufficient granularity to categorize hospital stays and associated cost of care for the full range of beneficiaries served by Medicaid agencies. APR-DRGs are even particularly detailed for certain services in which Medicaid is a major payer, specifically newborns, pediatrics, and mental health/substance abuse. APR-DRGs are currently used by several state Medicaid agencies for claims payment and are planned for implementation in a handful of additional states. With its strong market share, APR-DRGs are expected to be updated for future changes impacting the U.S. medical insurance industry, including the planned migration to ICD-10. And finally, APR-DRGs are heavily used for risk adjustment and for hospital quality measures becoming more prevalent as a way to incent quality care.