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# **Purchasing Hospital Inpatient Care in Rhode Island: Options for Improvement**

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**A Discussion Paper Prepared for the Rhode Island  
Department of Human Services**

**December 15, 2006**





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December 15, 2006

Mr. John Young  
Associate Director  
Department of Human Services  
600 New London Avenue  
Cranston, RI 02920

Re: *Purchasing Hospital Inpatient Care in Rhode Island: Options for Improvement*

Dear John,

I am pleased to submit this discussion paper on possible improvements to the payment method for inpatient hospital services. The paper was written by Kevin Quinn, our Director of Payment Method Development, with assistance from John Andrews, Jacob Farkus, Yleana Sanchez and myself. We appreciate the help we received from current and former Department staff, including Jim FitzGerald and Ralph Racca. The analysis and recommendations are those of ACS, and do not necessarily reflect Department policy.

Anyone with any questions should feel free to contact Kevin (406-457-9550, [kevin.quinn@acs-inc.com](mailto:kevin.quinn@acs-inc.com)) or me (401-462-6357, [rjacobse@dhs.ri.us](mailto:rjacobse@dhs.ri.us)).

Sincerely,

Rick Jacobsen  
Account Manager

cc: Kevin Quinn



# 1 Summary

We recommend that the Rhode Island Medicaid program adopt a new method of purchasing inpatient hospital care. This method would apply to the approximately \$125 million that Medicaid pays per year for inpatient care for 65,000 fee-for-service beneficiaries and to the \$15 million that it pays for neonatal intensive care provided to RItE Care managed care beneficiaries.

The Department's current method dates from 1971. Each year Medicaid and the hospital industry negotiate an overall percentage increase in hospital costs for serving Medicaid beneficiaries. (The percentage is 5.59% for 2007.) In principle, the "Maxicap" is a starting place for hospital-specific budget agreements, but in practice each hospital tends to receive the Maxicap increase. Since hospitals are paid per claim, and claims do not have cost information, actual payments are made at a percentage of charges. A settlement process then reconciles charge-based payments with the negotiated budgets. Adjustments are made only if Medicaid volumes or the percentage of charges differ from expectations.

Our recommendation is that Medicaid move to payment per stay, adjusted for casemix so that hospitals are paid more for sicker patients. The same set of payment rates would be used for all hospitals, with no year-end settlement process. This approach was introduced nationwide by Medicare in 1983 and has been widely adopted by Medicaid plans, BlueCross BlueShield plans, commercial plans, and other payers.

Casemix adjustment would be done using Diagnosis Related Groups (DRGs), which are computerized algorithms that group stays of similar costs and patient characteristics. Because DRGs make clinical sense, they are widely used by hospitals themselves. Various DRG algorithms are available. We evaluated CMS-DRGs (used by 24 states), All Patient DRGs (used by 5 states) and All Patient Refined DRGs (in use by one state, being implemented by two others, and proposed for use by Medicare). APR-DRGs were found to be the most suitable for Rhode Island. Unlike CMS-DRGs, APR-DRGs are designed to apply to the full patient population. APR-DRGs also measure casemix more accurately when an inpatient has multiple illnesses. Using standard statistical tests, we found that APR-DRGs were the most accurate variant for the Medicaid population in Rhode Island and for important subgroups such as neonatal intensive care patients and adults with mental illness.

***A new method of purchasing inpatient hospital care would increase fairness, provide greater purchasing clarity, enable greater Medicaid control over spending, and eliminate the current negotiation and settlement process.***

The chief advantages would be to pay hospitals more fairly (similar pay for similar stays), to give Medicaid much greater clarity into what it is purchasing, to give Medicaid greater control over spending, and to eliminate the need for annual negotiations and the settlement process. Benefits for hospitals would include increased fairness and elimination of the several-year lag between providing care and receiving final payment. Whether to use a new payment method is logically separate from the level of funding; whether total payments are \$130 million, \$140 million or \$150 million, the payment method determines how they are allocated for each stay in each hospital.

A new payment method would require a change in Rhode Island statute, approval by the federal government, an enhancement to the claims processing system, and an analytical study to specify DRG-related payment policies and estimate impacts. Based on our experience in other states, we recommend that this work be done in close consultation with the hospital industry, the claims processing contractor, and any other interested parties. Once a decision is made to go forward, we would recommend minimums of six months for the detailed design phase and nine months for systems implementation.

## 2 Value Purchasing and Hospital Payment

### 2.1 Why Consider a New Payment Method?

Purchasing hospital care is among the single most important expenditures made by the Medicaid program, and indeed by the Rhode Island government overall. It is important in financial terms—roughly \$140 million a year within the scope of this discussion paper. The expenditure is also, literally, of vital importance to 10,000 Rhode Islanders a year. These patients are critically ill newborns or disabled adults who can't possibly afford the care themselves and almost certainly couldn't find employer-based insurance. And the expenditure is important for the state's hospitals, providing about 7% of their revenue overall and higher proportions for services such as neonatal intensive care and mental health.

Payment methods are probably the single largest influence that a Medicaid program has on how health care is delivered and on the cost of that care. Though labyrinthine in their details, they are really all about incentives—what hospital behavior is rewarded financially and what behavior is penalized. For example, when hospitals are paid per day they are rewarded when they increase length of stay and penalized when they reduce it. When they are paid per stay, the incentives are just the opposite. When payment rates for mental health care are high, a hospital is more likely to have a psychiatric unit than when rates are low. Though many hospital decisions are driven by duty to the community and other non-monetary reasons, financial incentives matter a great deal, especially as hospitals adjust to them over time.

In Rhode Island, Medicaid's method of purchasing hospital inpatient care has been essentially unchanged since 1971, making the state almost unique among its peers. Over the last 35 years, the market for hospital services has changed enormously. Among the key changes has been an evolution in payer philosophy, from *reimbursement* of costs, to *payment* of claims, to *purchasing* of services. To be sure, the distinction is partly semantic. But many payers now ask questions they never asked 35 years ago. "What, exactly, are we purchasing?" is one such question. "Are we receiving value for our money?" is another. For example, Rhode Island Medicaid regularly pays some hospitals twice as much as it pays other hospitals for the same type of care, raising questions about value for money. Nationwide, Medicaid has surpassed K-12 education to become the single largest state expenditure, drawing increased attention to the program.<sup>1</sup> Mindful of Medicaid's role in their state's health care system, many legislators want to spend scarce Medicaid dollars where they will make the most difference. The nascent "pay-for-quality" movement nationwide also has created real excitement that changes in payment methods may translate directly into better care at the bedside.

***Public payers nationwide now are much more proactive in pursuing value for their purchasing dollars than they were 35 years ago, when Rhode Island's current payment method was implemented.***

To explore these possibilities, the Department of Human Services asked ACS Government Healthcare Solutions to prepare this discussion paper.<sup>2</sup> Nationwide, Medicaid hospital payment methods appear to be at a turning point similar to what was last seen in the mid-1980s, making this topic timely indeed. This paper is intended for legislators, Department officials, beneficiary advocates, hospital executives and others interested in the future of hospital payment policy. **All findings and recommendations are the responsibility of ACS. No endorsement or approval by the Department should be inferred.**

In the remainder of Section 2, we summarize past and future developments in hospital inpatient payment methods. In Section 3, we describe the current method as well as possible alternatives. In Section 4, we evaluate the alternatives using eight criteria such as access, efficiency, and fairness. Section 5 describes recommended next steps.



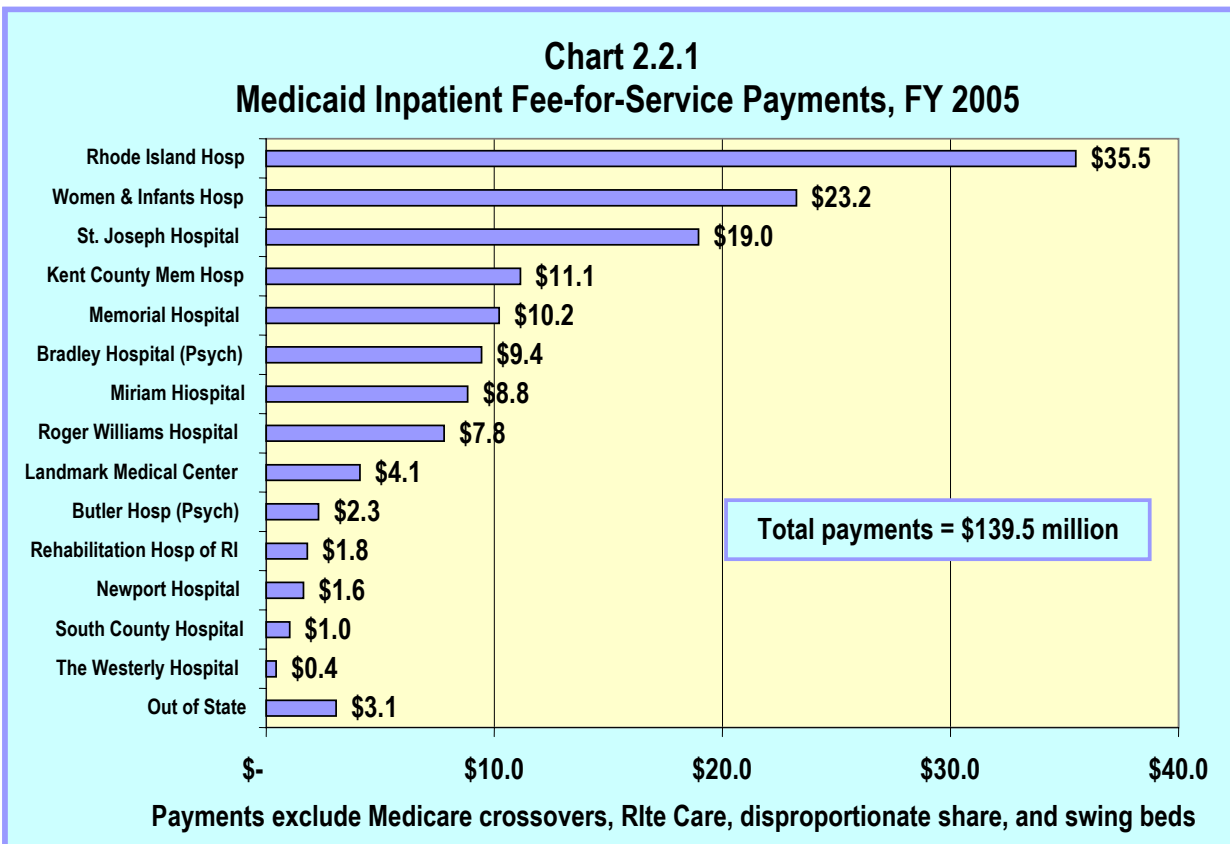
## 2.2 Fee-for-Service Inpatient Hospital Payments

This analysis focuses on the approximately \$140 million that the Department spends each year on fee-for-service hospital inpatient care.<sup>3</sup> This amount (and this analysis) excludes payments made by the RItE Care managed care plans, disproportionate-share hospital (DSH) payments, swing bed payments, and payments on Medicare crossover claims.<sup>4</sup> Chart 2.2.1 shows the distribution of payments by hospital. These payments represent 9% of the Medicaid budget and about 7% of total revenue received by Rhode Island hospitals.<sup>5</sup> When payments for outpatient care, RItE care payments and DSH payments are also taken into account, Medicaid represents about 19% of hospital revenue in Rhode Island.

*The inpatient payment method determines how approximately \$140 million will be spent, mostly for the care of adults with disabilities and infants who need neonatal intensive care.*

About one-third of the state’s Medicaid population is enrolled in fee-for-service Medicaid. These 64,000 people tend to have significant physical and/or mental disabilities and are therefore heavier users of care than RItE Care enrollees, who are typically children and their family members who do not have disabilities. In addition, fee-for-service Medicaid pays for the care received by RItE Care enrollees who need neonatal intensive care. Lastly, fee-for-service Medicaid pays for obstetrical care for some women before they enroll in a RItE Care plan. On balance, fee-for-service Medicaid pays for the hospitalizations of about 10,000 Rhode Islanders a year.

For this discussion paper, we analyzed 10,274 Medicaid inpatient stays from FY 2005.<sup>6</sup> (Some people had more than one stay during the year.) Table 2.2.1 provides data on payments by Medicaid Care Category, a categorization algorithm we developed that is intended to mirror both Medicaid policy areas and internal hospital organization. Category assignments are made based on age, principal diagnosis and





length of stay (where a normal newborn has a stay under five days). Medicaid Care Category cannot be used for payment but is a useful way to understand where Medicaid funds are spent. A notable finding in the table, for example, is that average length of stay at 9.3 days is much longer than in many Medicaid programs. The reason is that Medicaid programs nationwide pay for large numbers of normal newborns and obstetric stays that are typically two or three days long, but in Rhode Island these short stays are covered by the RIte Care plans.

## 2.3 History of Hospital Payment Methods

Fee-for-service inpatient hospital care remains the single largest Medicaid spending category nationwide, despite the growth of managed care, outpatient surgery, and Medicaid long-term care. Nationwide, Medicaid fee-for-service payments exceeded \$46 billion in 2003, representing 5% to 15% of hospital industry revenue and a larger percentage of hospital days.<sup>7</sup>

When Congress enacted Medicare and Medicaid in 1965, the prevailing attitude was to reimburse providers without asking too many questions. The very first section of Title XVIII of the Social Security Act prohibited the federal government from exercising “any supervision or control over the practice of medicine or the manner in which medical services are provided.” Physicians and other individual practitioners were reimbursed based on their charges; hospitals and other institutional providers were reimbursed based on their costs. This method encouraged increased cost and penalized hospitals that improved efficiency, prompting Rhode Island to become one of the first states to try a different approach. The 1971 law, still in force today, created a negotiation process in which Medicaid and other payers agreed in advance on a level of cost for the hospital industry overall (the Maxicap) and for each individual hospital. This approach broke ground in its day and almost certainly allowed cost-based payment to remain viable in Rhode Island long after most other states had to abandon it.

In an effort to provide relief to states, in 1981 Congress passed the famous Boren Amendment, which said that Medicaid payments only had to cover the cost of care of “efficiently and economically operated facilities.”<sup>8</sup> The meaning of those words led to much litigation, and the Boren Amendment was repealed in 1997. Now, federal law states simply that Medicaid payments to hospitals, as with Medicaid payments to all providers, must be consistent with efficiency, economy, quality of care and access to services that is comparable to that of the general population. States must explain how they develop payment methods and rates for inpatient care, but in general they have wide latitude to determine payment methods.<sup>9</sup>

	Stays	Days	Charges	Payments	Pay to Charge	Averages per Stay		
						Days	Charges	Payment
1--Newborns	962	10,182	\$ 39,110,992	\$ 19,607,851	50%	10.6	\$ 40,656	\$ 23,372
1a--Normal newborn	430	996	\$ 2,460,689	\$ 1,108,519	45%	2.3	\$ 5,723	\$ 3,296
1b--Sick newborn	532	9,186	\$ 36,650,303	\$ 18,499,332	50%	17.3	\$ 68,892	\$ 39,598
2--Other infant	72	526	\$ 1,948,507	\$ 932,746	48%	7.3	\$ 27,063	\$ 13,634
3--Pediatric mental health	488	15,133	\$ 15,443,334	\$ 12,090,163	78%	31.0	\$ 31,646	\$ 21,899
4--Obstetrics	447	1,363	\$ 4,380,721	\$ 2,676,995	61%	3.0	\$ 9,800	\$ 5,494
5--Other pediatric	477	3,261	\$ 14,354,108	\$ 6,505,907	45%	6.8	\$ 30,092	\$ 12,171
6--Adult mental health	1,853	18,741	\$ 34,599,114	\$ 21,292,404	62%	10.1	\$ 18,672	\$ 9,132
7--Adult respiratory	948	6,596	\$ 20,053,570	\$ 11,074,591	55%	7.0	\$ 21,154	\$ 10,306
8--Adult cardiovascular	1,278	7,427	\$ 31,061,303	\$ 15,688,763	51%	5.8	\$ 24,305	\$ 10,568
9--Misc. adult	3,749	32,769	\$ 93,456,225	\$ 49,626,067	53%	8.7	\$ 24,928	\$ 11,691
<b>Total</b>	<b>10,274</b>	<b>95,998</b>	<b>\$ 254,407,875</b>	<b>\$ 139,495,488</b>	<b>55%</b>	<b>9.3</b>	<b>\$ 24,762</b>	<b>\$ 12,307</b>



More significant than the Boren Amendment, however, was Medicare’s 1983 implementation of payment by Diagnosis Related Group (DRG). It was a watershed event in which the unit of payment was defined as the hospital stay, with a casemix adjustor put in place so that stays expected to be more expensive (e.g., pneumonia with congestive heart failure) had payment rates higher than stays expected to be less expensive (e.g., pneumonia alone). The same set of rates was used for all hospitals. Hospitals had unambiguous incentives to manage not only the cost of services but also the length of stay and the number of services per day.

DRG-based payment is one of the most thoroughly studied innovations in health care ever. An overview of the evidence—the overview itself cost over \$7 million—found that the change in incentives led to shorter lengths of stay, increased hospital efficiency, quicker growth of outpatient surgery, increased use of post-acute settings, and slower growth in Medicare payments. The worst fears about patients being discharged “sicker and quicker” did not materialize, nor was there an inappropriate increase in admissions.<sup>10</sup>

***Over the past 25 years, Medicare and most Medicaid programs have implemented payment by Diagnosis Related Group, which balance incentives for efficiency and access.***

DRGs have been widely adopted by Medicaid programs, BlueCross BlueShield plans, other payers, and even other countries.<sup>11</sup> The success of DRGs led Congress throughout the 1980s and 1990s to enact several laws to bring casemix-adjusted prospective payment to other provider types.<sup>12</sup> Even when DRGs are not used for payment, they are commonly used by hospitals and others to analyze hospital operations.

There are various DRGs groupers, and the choice of variant makes a big difference. The most well-known and widely used is CMS-DRGs (Chart 2.3.1). Although the grouper algorithm covers all conditions, the emphasis is very much on the Medicare population. This is a potentially fatal problem for Medicaid programs, where neonatal, pediatric, obstetric, and mental health conditions (among others) are more important than in the Medicare population. In the past, Medicare worked to accommodate the use of its DRGs by other payers. In 2004, however, the Centers for Medicare and Medicaid Services (CMS) made several specific statements that DRGs are intended for Medicare use only. For example:

“We advise those non-Medicare systems that need a more up-to-date system to choose from other systems that are currently in use in this country or to develop their own modifications... Our mission in maintaining the Medicare DRGs is to serve the Medicare population.”<sup>13</sup>

The State of New York had anticipated some of these issues in the 1980s and commissioned development of All Patient DRGs. The developers of AP-DRGs used a population-wide database and placed particular attention on the appropriate grouping of neonatal, HIV, multiple trauma, and other conditions that had been

Chart 2.3.1 How States Pay for Inpatient Hospital Care	
<p style="text-align: center;"><b>Per Stay—Medicare DRGs</b> CA, CO, IA, IL, KS, KY, MI, MN, MT, NC, ND, NE, NH, NJ, NM, OH, OR, PA*, SC, SD, TX, UT, WI, WV * Moving to APR-DRGs</p>	<p style="text-align: center;"><b>Per Diem</b> AK, AZ, FL, HI, LA, MO, MS*, OK, TN, VT** * Moving to APR-DRGs. ** Moving to DRGs.</p>
<p style="text-align: center;"><b>Per Stay—AP or CHAMPUS DRGs</b> DC, GA, IN, NY, VA, WA</p>	<p style="text-align: center;"><b>Cost Reimbursement</b> AL, AR, CT, ID, ME, RI</p>
<p style="text-align: center;"><b>Per Stay—Other</b> DE, MA, NV, WY</p>	<p style="text-align: center;"><b>Regulated Charges with APR-DRGs</b> MD</p>
Sources: 3M Health Information Systems, ACS Government Healthcare Solutions	



under-analyzed in the development of CMS-DRGs. Six states now use AP-DRGs or CHAMPUS DRGs, which are similar. In 1991, a refinement of AP-DRGs was introduced. All Patient Refined DRGs (APR-DRGs), like AP-DRGs, cover the full spectrum of inpatient medical conditions but do more than either CMS-DRGs or AP-DRGs to reflect the impact that complications and comorbidities can have on the cost of inpatient care. Another grouper, All Patient Severity DRGs (APS-DRGs), was also developed to improve the accuracy of taking comorbidities into account.

Precisely because of the concern that the Medicare grouper does not take sufficient account of complications and comorbidities, earlier this year CMS announced its intention to move to a grouper based on APR-DRGs, which would mark the most significant change in the Medicare prospective payment method since 1983. CMS refers to its proposed new grouper as CS-DRGs, or consolidated severity DRGs. The difference from APR-DRGs is simply that Medicare took the 1,258 APR-DRGs and collapsed them to 861 CS-DRGs by combining many of the APR-DRGs for neonatal, pregnancy and other conditions that are less common in the Medicare population. At the same time, CMS also proposed a second, unrelated major change to its DRG methodology involving the calculation of relative weights. Many of the comments received by CMS in response to the proposed rule urged the agency to move less quickly on both changes. In the final rule for FFY 2007, CMS reiterated its intention to make its grouping algorithm more accurate but agreed to delay implementation to FFY 2008 and to evaluate other possibilities in addition to CS-DRGs.<sup>14</sup> One of these may be APS-DRGs.<sup>15</sup> In Section 3, we evaluate the DRG variants for their suitability to Rhode Island Medicaid.

## 2.4 Future Directions in Hospital Payment Methods

The most significant development of the past 25 years has been the move by Medicare and many other payers to define the product of a hospital as a casemix-adjusted inpatient stay and to make payment depend on that product. Medicare's current interest in moving to a new grouper reflects its desire to define that product more accurately. In retrospect, Medicare's proposed timeline was so aggressive that it's not surprising that providers expressed hesitation. Yet it is also almost certain that Medicare will continue to push to implement a new grouper in October 2007.

In the next 25 years, it is possible that "paying for performance" (P4P) may be as important as "paying for casemix" has been in the past 25 years.<sup>16</sup> The P4P movement has many obstacles to overcome, not the least of which is measuring quality and performance in ways that are defensible and fair. At this point, there is much discussion, a few experiments, and not many programs where differences in quality make a significant difference in payment. But the stage is being set. Consider, for example:

***It is possible that "paying for quality" may become as important in the next 25 years as "paying for casemix" has been in the past 25 years.***

- In the Medicare program, 99% of hospitals now submit data on a "starter set" (Medicare's term) of 10 quality measures. For FFY 2007 the list has been expanded to 21 measures. Results for every Rhode Island hospital are available at [www.hospitalcompare.hhs.gov](http://www.hospitalcompare.hhs.gov).
- The Agency for Healthcare Research and Quality and the National Quality Forum have developed measures of hospital quality that go beyond the Medicare focus on pneumonia, heart attack and congestive heart failure. The NQF, for example, has endorsed 65 measures, including measures for neonatal care and other topics of specific interest to Medicaid.



- This year Pennsylvania Medicaid started rewarding hospitals based on low readmission rates for asthma, timely antibiotics for pneumonia, the use of a single patient record, and other criteria.
- With the implementation next year of the UB-04 claim form, hospitals must report whether each secondary diagnosis was present on admission. Decreasing payments to hospitals that have high rates of potentially preventable complications is an obvious next step that is being actively researched.<sup>17</sup>

At this time we are not suggesting that the Department consider pay-for-quality incentives. In our view, making fundamental changes in the basic payment method is a greater priority. For example, some pay-for-quality incentives require casemix adjustment as a prerequisite. A move to payment by DRG would position the Department to influence the quality of care received by fee-for-service beneficiaries, much as the Department has done for RIte Care beneficiaries.

A final topic about the future of inpatient payment methods concerns the nationwide switch from the ICD-9-CM diagnosis and procedure coding systems to the ICD-10 system.<sup>18</sup> The timing remains very much up in the air. Implementation likely will occur two years and three months after publication of a proposed rule in the *Federal Register*. The earliest timing likely is 2009 and quite possibly later. Implementation of ICD-10 will be a major change for every payer and provider in the U.S.—more major than Y2K or HIPAA. The magnitude of the change, in fact, explains the federal government’s hesitancy in mandating the change.

A reasonable person might ask whether the Department should delay consideration of DRG-based payment until the ICD-10 rule is published. Our recommendation would be to move forward. One reason is that ICD-10 has been “around the corner” for several years now. As well, within the hospital payment method, the change from cost reimbursement to DRG payment would be a bigger policy and systems effort than the move from ICD-9-CM DRGs to ICD-10 DRGs. The third reason is that regardless of whether a DRG-based payment method is in place, the change from ICD-9-CM to ICD-10 will require major effort from Department staff and the claims processing contractor. All Medicaid policies and edits on coverage, prior authorization and payment that rely on ICD-9-CM diagnosis or procedure codes will have to be rewritten. To introduce DRG-based payment at the same time would be too much. If the Department postpones a decision on a new payment method, it could end up continuing its current method for five to ten years.

## 3 Payment Method Options

### 3.1 Overview of Alternatives

In Section 3.2, we describe the current payment method, while in Section 3.3 we analyze the leading alternatives, namely CMS-DRGs, AP-DRGs and APR-DRGs. Other possible options exist, but we have chosen not to develop these alternatives for the following reasons.

- **Modified cost reimbursement.** As will be discussed more fully in Section 4, we do not see improvements to the current method that would overcome the fundamental drawbacks of cost reimbursement.
- **Per diem.** There are two major problems with payment per diem. First, the hospital has no incentive to be economical in minimizing length of stay (quite the contrary). Second, there is no well-established method of measuring casemix to make payment higher for sicker patients than for less sick patients. If a flat per diem rate is paid, even if it varies by hospital, then hospitals are penalized when they treat patients who are sicker than average, which jeopardizes access to care.
- **CHAMPUS DRGs.** This method is used in the military health services system and by Georgia Medicaid. Our reason for moving past it is simply that there are several DRG variants that are clearly more appropriate for consideration—more widely used, more specific to the Medicaid population and/or more regularly maintained.
- **Development of a new method.** Payment methods can be exceedingly expensive to develop, especially for services such as hospital inpatient care that span a wide range of clinical conditions. Therefore the most cost-effective approach is to take a payment method on which someone else has spent millions of dollars and adapt it to the needs of Medicaid. States that do use unique methods often have them for historical reasons. Maryland, for example, uses APR-DRGs to measure casemix within a system where payment by all payers (including Medicare) is based on casemix-adjusted hospital charges as regulated by a state commission.
- **Consolidated Severity DRGs.** As described in Section 2.2, CS-DRGs are a simplification of APR-DRGs with some groups consolidated. Since the simplification involved reducing the number of groups for neonatal care, obstetrics and mental health (among other categories), we know that CS-DRGs would be less suitable for a Medicaid population than APR-DRGs. They therefore do not need to be considered separately.
- **All Patient Severity DRGs.** APS-DRGs were developed by HSS, which is now a unit of Ingenix Inc. They are not currently used by any payer to calculate payment, although the Medicare program is now considering APS-DRGs along with about a half-dozen other options.

***Of the possible options, we recommend that the Department compare its current payment method with CMS-DRGs, AP-DRGs and APR-DRGs.***

## 3.2 Current Payment Method

The current method was specified in statute in 1971 and has been essentially unchanged since then. For both inpatient and outpatient services, it is based largely on hospital-specific costs. What makes this method different from other cost-based methods is that allowable costs are negotiated in advance, both industry-wide (the Maxicap) and for each hospital.

Originally the method was used to calculate payment by Medicaid, BlueCross BlueShield of Rhode Island and, for three years in the 1970s, Medicare. It now applies to Medicaid alone, although BCBSRI participates in the Maxicap negotiations because the Maxicap is a reference point for its own negotiations.

The key provisions of the current method are as follows.<sup>19</sup>

- **Negotiated Maxicap.** Each summer the Department and the industry negotiate an overall level of increase in hospital industry costs for the rate year that starts October 1. For RY 2007, the Maxicap is 5.59%, comprising an inflation component of 5.47% and a non-inflation component of 0.12% for changes in volume, new programs and a reserve. Typical points of negotiation include the costs of hiring nurses, employee benefits, and malpractice liability insurance. Negotiations are financial in nature; there is minimal discussion of casemix, access to care, or quality of care. Though mediation and arbitration services are available, they have not been needed in the past decade. Some hospitals are represented by the Hospital Association of Rhode Island while others represent themselves.
- **Hospital-specific cost caps.** After the Maxicap is set, each hospital submits its board-approved budget for the current year and the coming year to the Department. The budgets include revenue, expenses and operating statistics such as projected volume of Medicaid days. In the past, the negotiation started from the hospital's previous budget and the Maxicap for the coming year. If one hospital was allowed a cost increase above the Maxicap, another had to have an increase below the Maxicap. The discussion tended to be detailed, involving questions such as the budget impact of moving from staff nurses to contracted nurses. In recent years, there has been less hospital-specific negotiation. Absent unusual circumstances, the Maxicap increase has simply been applied to each hospital's previous budget.
- **Payment of claims.** Hospitals are paid when they submit claims for services provided to specific beneficiaries. Claims do not show hospital costs but they do show hospital charges. Therefore an estimate is made of each hospital's ratio of costs to charges (RCC). The hospital is then paid its charge for each claim times the RCC. For example, if a claim showed hospital charges of \$20,000 and the hospital had an RCC of 50%, the payment would be \$10,000. Currently the RCCs for the state's 14 hospitals range from 31% to 99%.
- **Year-end settlement process.** This settlement occurs over a period of two to three years after the hospital submits its annual cost report. Payments are adjusted if the volume of Medicaid days differs from projections by more than 3% up or down. Payments are also adjusted if the actual ratio of cost to charges differs from the RCC that had been used to pay claims. Importantly, payments are not otherwise adjusted. If the negotiated cost increase is \$4 million and the actual increase is \$5 million, the hospital must absorb the difference. If the actual increase is \$3 million, it keeps the difference.

***Under the current payment method, Medicaid and the hospitals negotiate an overall cap on hospital cost each year.***



- **NICU days.** The only exception to the basic method concerns payment for services in the neonatal intensive care unit at Women and Infants’ Hospital (\$17.6 million in FY 2006). Payment is made per diem using a rate agreed upon some years ago. Under established practice (not statute), the rate is increased each year by the inflation component of the Maxicap.
- **Out-of-state hospitals.** Out-of-state hospitals receive 61% of charges for transplant cases and 50% of charges for other inpatient cases. There is no settlement process. With the nationwide decline in RCCs, paying 61% and 50% of charges is certainly not too low. For example, Medicare data show statewide inpatient RCCs of 51% in Massachusetts and 46% in Connecticut.<sup>20</sup>
- **Prior authorization.** Although not directly related to payment policy, the Department’s prior authorization policy is an important component of hospital policy. All stays and all days must be authorized by Department in advance (with allowance made for emergency cases.) This provision offers protection against paying for care that is not medically necessary.

### 3.3 Payment by DRG

#### 3.3.1 How DRG Payment Works

Payment by Diagnosis Related Group is simple in concept. A computer algorithm assigns each inpatient stay to a single DRG based on clinical information such as diagnoses, procedures, and patient age. Each DRG has a “relative weight” assigned to it that reflects the expected costs of that DRG *relative* to the average cost of all hospital inpatient stays. For example, a DRG for treatment of pneumonia might have one relative weight while a DRG for treatment of pneumonia with congestive heart failure might have a higher weight. To calculate payment, each relative weight is multiplied by the overall DRG base price. Table 3.3.1.1 shows an example.

***Each stay is assigned to a DRG that reflects the clinical complexity of the patient. Payment equals a relative weight for that DRG times a single base price that applies to all DRGs.***

DRG-based payment methods are designed to strike the elusive balance between efficiency and access. Because payment is based on expected cost and not actual cost, hospitals have strong financial incentives to minimize cost. And because payment is adjusted for casemix, with higher payment for cases that are expected to be more costly, hospitals still have incentives to provide access for sicker patients. DRG base payments typically vary widely, from around \$500 for a normal newborn to \$50,000 or more for a transplant.

In addition to the calculation of the DRG Base Payment, DRG-based methods typically include various special features, such as adjustments for transfer cases and payment of supplemental amounts for extraordinarily expensive “outlier” cases. These features are relatively minor considerations that could be decided after the state decided to move to DRG-based payment.

Table 3.3.1.1 Example of DRG Payment				
DRG	Description	Relative Weight	DRG Base Price	DRG Base Payment
DRG 1	Pneumonia	0.80	\$3,500	\$2,800
DRG 2	Pneumonia and heart failure	1.20	\$3,500	\$4,200
<i>Note: Example is made up.</i>				

The more fundamental question is which of several DRG variants would be most appropriate for Rhode Island. A workable casemix method meets all four of the following criteria:

- **Be based on readily available data not overly susceptible to gaming.** DRG algorithms therefore rely on standard hospital claim form data. Hospitals nationwide understand the legal and ethical importance of accurate diagnosis and procedure coding, which DRG payers (Medicare, Medicaid, BCBS, etc.) verify through audits and studies.
- **Be clinically meaningful.** Physicians and clinical department managers make the day-to-day decisions in hospitals about how resources are deployed. Casemix adjusters are most successful when they can be explained to clinicians in terms that make sense to them.
- **Be similar in terms of resource use.** Groups should contain cases that are similar not only clinically but also in terms of the hospital resources they typically require. Hospital resources can be measured in different ways, such as accounting costs, billed charges, and length of stay.
- **Have a manageable number of groups.** From experience with casemix adjusters across the health care system, it seems that a workable number of casemix groups varies from the dozens (e.g., Resource Utilization Groups for nursing facility care) to 1,000 to 1,500 at the upper end. Fewer groups can't reflect the complexity of patient conditions while more groups are difficult to work with.

### 3.3.2 DRG Variants

For this discussion paper, we evaluated three variants now in use by other Medicaid programs: CMS-DRGs, AP-DRGs and APR-DRGs. (ACS has no financial interest in which grouper the State selects.) Table 3.3.2.1 lists the key features of the variants. Our comments are as follows:

- **Prevalence (payment).** CMS-DRGs are the most widely used variant, used by Medicare to calculate over \$100 billion a year in payments and by 24 Medicaid plans. AP-DRGs are used by five states. APR-DRGs are used by Maryland, being implemented by Mississippi and Pennsylvania, and proposed for use by Medicare.<sup>21</sup>
- **Prevalence (analysis).** CMS-DRGs are in very wide use, though APR-DRGs tend to be the choice of sophisticated hospital data analysts such as the Medicare Payment Advisory Commission (MedPAC), the Agency for Healthcare Research and Quality (AHRQ), and the various hospital "report cards" such as *U.S. News and World Report* and [www.healthgrades.com](http://www.healthgrades.com). APR-DRGs have also been purchased by 1,600 hospitals for analytical purposes.
- **Suitability for neonatal care.** From a Medicaid perspective, a major flaw of CMS-DRGs is casemix measurement for newborns. There are only seven newborn DRGs, and birthweight does not affect DRG assignment despite its well-recognized impact on health status. The result is that CMS-DRGs systematically overpay for healthy newborns and underpay for sick newborns.<sup>22</sup> States that use CMS-DRGs therefore sometimes do carveouts. For example, Montana Medicaid pays NICUs based on cost while using CMS-DRGs for other types of care. AP-DRGs and APR-DRGs were developed in part to remedy this deficiency. The APR-DRG system, for example, includes 112 neonatal DRGs, with birthweight an important factor in DRG assignment.



Table 3.3.2.1 Features of DRG Variants			
	CMS-DRGs	AP-DRGs	APR-DRGs
<b>Version used for evaluation</b>	22	21	20
<b>Developer</b>	3M HIS for Medicare	3M HIS for New York State	3M HIS and NACHRI
<b>Target population</b>	Medicare (aged or disabled)	All patients	All patients
<b>Significant dates</b>	1983 Medicare implementation for payment	1988 New York State implementation for payment	1991 introduced; 2005 Maryland implementation for payment
<b>Number of DRGs</b>	518	669	314 base; 1,258 total
<b>Complications and comorbidities (CC)</b>	Some DRGs have base DRG + DRG with CC	Some DRGs have base DRG + DRG with CC + DRG with major CC	Every DRG has four levels of severity
<b>Newborn DRGs</b>	-- 6 DRGs -- birthweight not used to assign DRG	-- 34 DRGs -- birthweight used in assigning DRG	-- 112 DRGs (= 28 base x 4 levels) -- birthweight used in assigning DRG
<b>Mental Health and Substance Abuse DRGs</b>	-- 15 DRGs -- Less specific (e.g., neurosis, psychosis)	-- 18 DRGs -- Less specific (e.g., neurosis, psychosis)	-- 72 DRGs (= 18 base x 4 levels) -- More specific (e.g., schizophrenia, bipolar)
<b>Mortality</b>	Death used to assign DRG => unsuitable for risk-adjusting mortality data	Death used to assign DRG => unsuitable for risk-adjusting mortality data	Death not used to assign DRG => used to risk-adjust mortality data
<b>Major Users (Payment)</b>	Medicare, 24 states	DC, IN, NY, VA, WA	MD 7/1/05; MS 1/1/07; PA 7/1/07; proposed for Medicare
<b>Major Users (Analysis)</b>	Private-sector publishers and consultants to hospitals	Minimal	AHRQ; MedPAC, JCAHO; state and private-sector hospital "report cards"
<b>Major Strengths for Use by Medicaid</b>	-- Hospitals already familiar with it -- Used for payment by 24 states	-- Good fit to Medicaid data -- Used for payment by five states	-- Best fit to Medicaid data -- Increasingly credible
<b>Major Concerns for Use by Medicaid</b>	-- Medicare statements undermine use by Medicaid programs -- Worst fit to Medicaid data	-- Not as good a fit to Medicaid data as APR-DRGs -- Not as clean a method as APR-DRGs of adjusting for severity	-- Hospitals not as familiar with it as with CMS-DRGs -- Special features may be needed for MH



- Suitability for mental health.** Mental health has been a challenge for DRG developers for 25 years.<sup>23</sup> A main reason is that differences in hospital resource use tend to be driven by factors such as aggressive behaviors and cognitive impairments that are not readily identified in claims data.<sup>24</sup> In the Medicare algorithm, there are 15 mental health DRGs but about 80% of Medicare cases end up in a single group (DRG 430, psychoses).<sup>25</sup> The AP-DRG algorithm is similar. The APR-DRG algorithm, on the other hand, assigns cases more specifically to 18 base DRGs, each with four levels of severity. Nevertheless, states sometimes choose to make special provision for mental health (including substance abuse treatment). In Mississippi, for example, the state will make “day outlier” payments only for mental health stays.<sup>26</sup>
- Complications and comorbidities.** A visitor to any hospital may see some pneumonia patients sitting up in bed doing crossword puzzles while others depend on a ventilator for oxygen while three or four medications drip into their veins. Complications and comorbidities have important, predictable impacts on the cost of care. How DRG variants handle CCs is one of the most important points distinguishing them. CMS-DRGs have traditionally taken a straightforward approach that uses a standard CC list for all DRGs.<sup>27</sup> If a CC is present, then a higher DRG “with CC” is assigned. But once a case moves into a “with CC” group, it doesn’t matter if there is one CC or several. As Table 4.1.2 shows, patients with quite different levels of sickness can end up in the same CMS-DRG while being grouped to distinct APR-DRGs. (The table shows four different patients, each in the hospital with diverticulitis and each undergoing surgery for resection of the colon.) For FFY 2007, Medicare has made some changes to the grouping algorithm, including splitting DRG 148 into two new groups.

Table 3.3.2.2					
Complications and Comorbidities under DRGs					
<i>A hospital has four patients, each with diverticulitis (infection of a pouch-like part of the colon) and each undergoing colon surgery. The four patients differ in the other illnesses that they have at the same time as the diverticulitis.</i>					
	Patient 1	Patient 2	Patient 3	Patient 4	Description
Primary procedure	45.71	45.71	45.71	45.71	Multiple resection of colon
Primary diagnosis	562.11	562.11	562.11	562.11	Diverticulitis
Secondary Dx 1	569.41	569.41	569.41	569.41	Anal ulcer
Secondary Dx 2	---	560.9	560.9	560.9	Intestinal obstruction
Secondary Dx 3	---	---	422.99	422.99	Acute myocarditis
Secondary Dx 4	---	---	426.0	426.0	A-V block, complete
Secondary Dx 5	---	---	---	584.9	Acute renal failure
<i>Each stay is grouped to a DRG. Patient 1 has a single, minor secondary diagnosis. The case is assigned to CMS-DRG 149, AP-DRG 149 and APR-DRG 221-1. Patient 2 has significant comorbidity, which results in a “higher” DRG under all three groupers. Patient 3 has additional complications, resulting in higher assignments under AP-DRGs and APR-DRGs. The Medicare grouper, however, reflects a maximum of one comorbidity per patient, so the DRG assignment is the same as for Patient 2. Patient 4 is gravely ill, resulting in an increase in the APR-DRG but no change in the CMS-DRG or the AP-DRG.</i>					
	Patient 1	Patient 2	Patient 3	Patient 4	
CMS-DRG	149	148	148	148	
AP-DRG	149	148	585	585	
APR-DRG	221-1	221-2	221-3	221-4	



Nevertheless, the CC adjustment mechanism in CMS-DRGs remains relatively crude, which is why Medicare wants to move to a new grouper entirely.

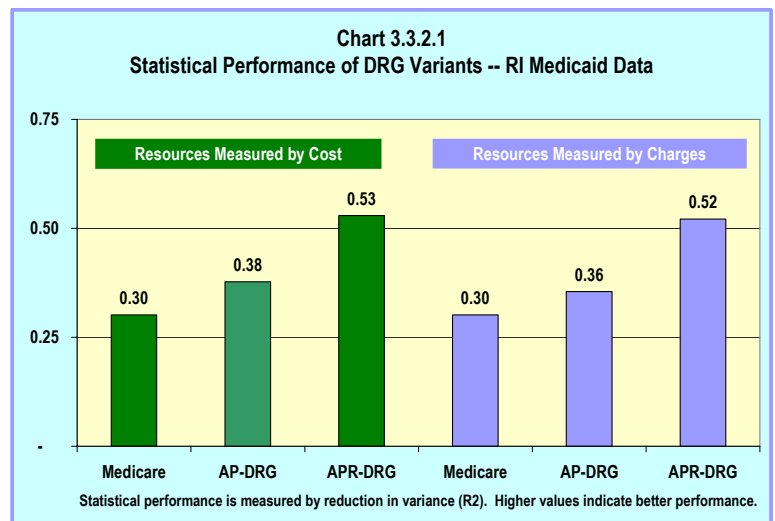
- Proprietary nature.** CMS-DRGs are in the public domain, while AP-DRGs and APR-DRGs are proprietary. 3M Health Information Systems owns AP-DRGs and APR-DRGs but has a policy of making its groupers available to states at discounted prices. Though hospitals do not need grouping software to submit claims and get paid, in practice many hospitals choose to buy the software from the vendors.

***APR-DRGs would be most appropriate for Rhode Island Medicaid, based on their clinical structure, relevance to the Medicaid population, adjustments for comorbidities, and statistical performance.***

As noted above, a well-performing DRG variant results in groups that are similar both clinically and in terms of resource use. To achieve clinical similarity, many DRGs are assigned depending on principal diagnosis. Much of the art and science of developing a DRG algorithm involves judgments about which procedures, complications and comorbidities are significant enough to justify a new group. For example, chest pain without a diagnosis of heart attack may be one DRG, heart attack another DRG, and heart attack with cardiac catheterization a third DRG. Of the three DRG variants, APR-DRGs have the most sophisticated clinical grouping, as evidenced by three thick binders of documentation. (None of the three groupers is a “black box.” In each case, the grouping algorithm is well documented.) APR-DRGs also make, in our view, the most clinical sense. There are 314 base DRGs, which can be thought of as the reason for admission. Each base DRG has one of four levels of severity (mild, moderate, severe and extreme), with the result that there are 1,256 DRGs for payment purposes. (There are two error DRGs.)

To measure similarity in terms of resource use, the standard practice is to perform specific statistical tests.<sup>28</sup> The goal is to minimize the variation in resource use within each group. For example, suppose that a grouper put all newborns into a single group. Such a group, including both normal newborns with two-day stays and sick babies who spend their first three months in a NICU, would have high variance. If newborn stays were then divided into “normal” and “sick” groups, we would see less variation within each group and therefore less variation overall. In statistical terms, the most commonly used test is the reduction in variance or  $R^2$ . It compares the variance of hospital resource use before and after application of the grouper. If the grouper explains nothing, the  $R^2$  equals zero. If the grouper eliminates all variance in a dataset (for example by assigning each stay to its own group) then the  $R^2$  equals 1.00. Given the complexity of health care, an  $R^2$  approaching 1.00 is never seen. But, in general, the higher the  $R^2$  value, the more confidence we have that the casemix grouper does a good job of grouping similar cases.

The next question is how to measure hospital resource use. The typical measures are cost, charges and length of stay. Cost is the preferred measure, though we also looked at charges as a check on our methodology. Although hospital charges in general are well above hospital costs, what matters in our evaluation is not the absolute levels but rather the relative numbers. For example, if charges for one stay are \$100,000 and charges for a second stay are \$25,000, we infer





that the first stay required four times as many resources as the second stay.

Chart 3.3.2.1 compares  $R^2$  values for the Rhode Island Medicaid data, using both costs and charges as measures of relative resource use.<sup>29</sup> Either way, AP-DRGs perform better than CMS-DRGs and APR-DRGs perform better than AP-DRGs. Indeed, APR-DRGs perform very well indeed. In the casemix adjustment business, an  $R^2$  exceeding 0.50 is very good. Our rule of thumb is that anything around 0.40 is good (e.g., the  $R^2$  for CMS-DRGs on the Medicare population is about 0.40)<sup>30</sup> while anything less than 0.10 is very poor.<sup>31</sup> These results are very similar to our findings for the Mississippi Medicaid program<sup>32</sup> and to what John Muldoon found when he analyzed a database of 4.2 million stays nationwide.<sup>33</sup>

It is not sufficient, however, for a casemix adjustor to perform well in the aggregate. It must also work well for categories of stay that are particularly important to Medicaid, either in terms of volume or in terms of Medicaid’s role as a purchaser. In Table 3.3.2.3, we report the findings from calculating  $R^2$  values on the care categories we created independently of casemix grouping. As would be hoped for, APR-DRGs did a far better job in the newborn category than the CMS-DRGs. Again, this is what we found in Mississippi and what Muldoon found in his large dataset. Of the nine Medicaid care categories, APR-DRGs showed the best performance in eight. The only exception was “other infant,” which accounts for only 1% of fee-for-service stays. As well, all three variants were disappointing in grouping pediatric mental health stays, although APR-DRGs did better than the others. On the other hand, the relatively good performance of APR-DRGs for the adult mental health care category is notable. An  $R^2$  above 20% for mental health is quite respectable. Although DRG-based methods can be used successfully to pay for mental health care, it would be prudent to focus analytical effort on these cases and perhaps consider payment features specifically designed to protect access for mental health care. In Mississippi, for example, the state will make “day outlier” payments only for mental health stays.

Our conclusion from the evaluation of the three variants is that APR-DRGs would be the most valid casemix adjustor for use in paying Medicaid claims in Rhode Island. Certainly CMS-DRGs and AP-DRGs have their strengths, but APR-DRGs have the most logical structure (base DRG plus level of severity), the best handling of complications and comorbidities, the most appropriate structure for neonatal care, and the best statistical performance across the board.

Table 3.3.2.4 shows the top 10 Rhode Island APR-DRGs, in terms of both total stays and total payments. Note the significant prevalence of the mental health DRGs.

	Stays	Resources Measured by Relative Cost				Resources Measured by Relative Charges			
		CMS Cost	AP Cost	APR Cost	Best	CMS Chg	AP Chg	APR Chg	
1-Newborns	962	0.38	0.54	0.74	APR	0.38	0.54	0.74	APR
2-Other Infant	72	0.96	0.89	0.60	CMS	0.94	0.89	0.64	CMS
3-Pediatric MH	488	0.03	0.03	0.12	APR	0.03	0.03	0.14	APR
4-Obstetrics	447	0.12	0.18	0.43	APR	0.09	0.13	0.45	APR
5-Other Pediatric	477	0.53	0.54	0.72	APR	0.52	0.51	0.74	APR
6-Adult Mental Health	1,853	0.17	0.14	0.26	APR	0.18	0.15	0.27	APR
7-Adult Respiratory	948	0.31	0.32	0.48	APR	0.29	0.28	0.44	APR
8-Adult Cardiovascular	1,278	0.24	0.25	0.37	APR	0.26	0.25	0.39	APR
9-Misc. Adult	3,749	0.31	0.31	0.50	APR	0.31	0.31	0.50	APR
<b>Overall</b>	<b>10,274</b>	<b>0.30</b>	<b>0.38</b>	<b>0.53</b>	<b>APR</b>	<b>0.30</b>	<b>0.36</b>	<b>0.52</b>	<b>APR</b>

Note: Four stays that grouped to error DRGs were omitted from the evaluation.  
 $R^2$  is the percentage of variation in the data that is explained (reduced) by application of the DRG grouper.



Table 3.3.2.4 Top APR-DRGs in FY 2005									
APR-DRG	Description	Stays	Days	Charges	Payment	Average per Stay			
						ALOS	Charges	Payment	
<b>Top 10 by Claim Count</b>									
640-1	NEO BWT >2499G NORMAL NB	333	1,154	\$ 1,181,253	\$ 710,743	3.5	\$ 3,547	\$ 2,134	
751-2	MAJOR DEPRESSIVE DISORDER	317	3,383	\$ 5,402,333	\$ 3,277,446	10.7	\$ 17,042	\$ 10,339	
753-2	BIPOLAR DISORDERS	252	4,445	\$ 6,632,690	\$ 4,742,133	17.6	\$ 26,320	\$ 18,818	
753-1	BIPOLAR DISORDERS	187	2,211	\$ 2,818,351	\$ 1,908,238	11.8	\$ 15,071	\$ 10,204	
139-2	OTHER PNEUMONIA	186	819	\$ 1,823,020	\$ 1,001,322	4.4	\$ 9,801	\$ 5,383	
750-2	SCHIZOPHRENIA	168	3,311	\$ 6,022,475	\$ 3,966,918	19.7	\$ 35,848	\$ 23,613	
750-1	SCHIZOPHRENIA	167	2,725	\$ 4,678,053	\$ 2,912,591	16.3	\$ 28,012	\$ 17,441	
140-2	CHRONIC OBSTRUCTIVE PULM DIS	151	684	\$ 1,551,764	\$ 950,502	4.5	\$ 10,277	\$ 6,295	
751-1	MAJOR DEPRESSIVE DISORDER	142	1,259	\$ 2,270,946	\$ 1,383,174	8.9	\$ 15,993	\$ 9,741	
194-2	HEART FAILURE	127	561	\$ 1,369,782	\$ 764,105	4.4	\$ 10,786	\$ 6,017	
<b>Top 10</b>		<b>2,030</b>	<b>20,552</b>	<b>\$ 33,750,667</b>	<b>\$ 21,617,173</b>	<b>10.1</b>	<b>\$ 16,626</b>	<b>\$ 10,649</b>	
<b>Other DRGs</b>		<b>8,244</b>	<b>75,446</b>	<b>\$ 220,657,208</b>	<b>\$ 117,878,315</b>	<b>9.2</b>	<b>\$ 26,766</b>	<b>\$ 14,299</b>	
<b>All DRGs</b>		<b>10,274</b>	<b>95,998</b>	<b>\$ 254,407,875</b>	<b>\$ 139,495,488</b>	<b>9.3</b>	<b>\$ 24,762</b>	<b>\$ 13,578</b>	
<b>Top 10 by Payments in FY 2005</b>									
753-2	BIPOLAR DISORDERS	252	4,445	\$ 6,632,690	\$ 4,742,133	17.6	\$ 26,320	\$ 18,818	
750-2	SCHIZOPHRENIA	168	3,311	\$ 6,022,475	\$ 3,966,918	19.7	\$ 35,848	\$ 23,613	
751-2	MAJOR DEPRESSIVE DISORDER	317	3,383	\$ 5,402,333	\$ 3,277,446	10.7	\$ 17,042	\$ 10,339	
750-1	SCHIZOPHRENIA	167	2,725	\$ 4,678,053	\$ 2,912,591	16.3	\$ 28,012	\$ 17,441	
753-1	BIPOLAR DISORDERS	187	2,211	\$ 2,818,351	\$ 1,908,238	11.8	\$ 15,071	\$ 10,204	
130-4	RESPIRATORY DIAG W/DMV > 96 HR	24	618	\$ 2,471,753	\$ 1,638,336	25.8	\$ 102,990	\$ 68,264	
591-4	NEO BWT 500-749G WO/MAJ	6	534	\$ 3,215,130	\$ 1,483,766	89.0	\$ 535,855	\$ 247,294	
751-1	MAJOR DEPRESSIVE DISORDER	142	1,259	\$ 2,270,946	\$ 1,383,174	8.9	\$ 15,993	\$ 9,741	
860-3	REHABILITATION	50	1,001	\$ 1,964,556	\$ 1,354,557	20.0	\$ 39,291	\$ 27,091	
757-2	ORGANIC MENTAL HEALTH DIS	37	1,279	\$ 2,077,643	\$ 1,312,746	34.6	\$ 56,153	\$ 35,480	
<b>Top 10</b>		<b>1,350</b>	<b>20,766</b>	<b>\$ 37,553,930</b>	<b>\$ 23,979,906</b>	<b>15.4</b>	<b>\$ 27,818</b>	<b>\$ 17,763</b>	
<b>Other DRGs</b>		<b>8,924</b>	<b>75,232</b>	<b>\$ 216,853,945</b>	<b>\$ 115,515,582</b>	<b>8.4</b>	<b>\$ 24,300</b>	<b>\$ 12,944</b>	
<b>All DRGs</b>		<b>10,274</b>	<b>95,998</b>	<b>\$ 254,407,875</b>	<b>\$ 139,495,488</b>	<b>9.3</b>	<b>\$ 24,762</b>	<b>\$ 13,578</b>	

"Payment" refers to payment under the current payment method. This report does not include a simulation of payment under DRGs.



## 4 Evaluating the Options

### 4.1 A “Report Card” Approach

Choosing a payment method is a complex decision involving tradeoffs among competing criteria. Table 4.1.1 lists eight criteria as well as our suggested “grades” for each option. These grades are not definitive, and reasonable people will disagree on the importance of each criterion and/or the grade shown. That’s fine—in fact, the purpose of the report card is to create a framework for such a discussion. Our experience has been that proposing criteria and “grades” is a useful starting point on a complex question.

We consider three alternatives. Continuation of the current payment method is the baseline option. For DRG variants, we have listed CMS-DRGs and APR-DRGs. CMS-DRGs are shown because they are so widely used and so widely understood. We have not listed AP-DRGs, since APR-DRGs essentially have all the advantages of AP-DRGs plus others as well. Other possibilities, such as per diem payment, are not shown as options for the reasons listed in Section 3.1.

Note that the choice of a payment method is logically separate from the overall payment level. Regardless of whether total payments are \$130 million, \$140 million or \$150 million, the choice of payment method determines how the total “pie” is divided among hospitals for specific services. That said, different payment methods do have different effects on a Medicaid program’s ability to control its own spending, as discussed in Section 4.5.

### 4.2 Access

In practice, access and efficiency tend to be the most important criteria. Given the incredible range of what goes on in a hospital—charges for a single stay in our dataset ranged as high as \$1.3 million—it is essential that hospitals expect payment to be calibrated to the resources expended. This need not be true

Criterion	Description	Payment Method Option		
		Current	CMS-DRGs	APR-DRGs
Access	Calibrate payment to expected resource use	B	C	A
Efficiency	Reward lower cost for same level of care	B	B	B
Purchasing clarity	Enable understanding of services purchased	F	C	A
Control	Medicaid control over payments overall and for specific policy priorities	D	B	A
Fairness	Similar payment for similar care	D	B	A
Admin ease	For Medicaid and the hospitals	C	C	C
Simplicity	Minimize additional complexity	C	B	C
Quality	Facilitate specific improvement of quality	F	C	B



in each and every case, but on average hospitals should be confident that more expensive cases will result in higher payment.

The current payment method draws a B. Its incentives are mixed. In one sense, taking a sicker patient results in higher payment because payment is made at a percentage of charges and charges are higher for sicker patients. However, once the hospital agrees to a fixed level of cost for treating Medicaid patients for the coming year, it has an incentive to minimize that cost. One way to do that is to avoid patients whose costs per day would be significantly higher than average. Another way is to minimize the number of Medicaid days (though payment is reduced if Medicaid days dip below 97% of negotiated volume).

CMS-DRGs draw a C. Although payment by DRG results in higher payment for sicker patients, the poor fit of the Medicare system to the very important neonate population would jeopardize access for the sickest babies. A second problem with CMS-DRGs is that the relatively unsophisticated treatment of complications and comorbidities underpays hospitals for the sickest patients.<sup>34</sup> APR-DRGs, by contrast, receive an A, because the grouping algorithm is well-suited to neonate cases and works better than CMS-DRGs in reflecting complications and comorbidities. We should note that the availability of outlier payments under both Medicare and APR-DRG payment methods also encourages access by creating supplemental payments for extraordinarily expensive cases.

***APR-DRGs receive the highest “grades” on the criteria for access, purchasing clarity, control over spending, fairness, and enabling payment for quality. CMS-DRGs receive the highest grade for simplicity. The three alternatives receive the same grades for efficiency and administrative ease.***

### 4.3 Efficiency

This concept is easily expressed: if the hospital reduces cost for a given level of care, is the hospital rewarded or penalized? A pure cost reimbursement method, such as Rhode Island had before 1971, obviously penalizes efficiency. In principle, the current method has mixed incentives. Once the cost budget has been agreed to, hospitals that keep costs under that level are rewarded with savings that flow straight to the bottom line. In the past, when cost budgets were more likely to be hospital-specific, the incentive was mixed because savings in Year 1 might result in a lower cost budget in Year 2. Now that all cost budgets tend to rise by the Maxicap, the incentive to minimize cost is stronger. The current payment method receives a B.

CMS-DRGs and APR-DRGs also receive a B. For almost all stays, DRG payment is fixed and therefore hospitals have an unambiguous incentive to be efficient. This has been amply demonstrated by numerous studies. The availability of outlier payments for extraordinarily expensive cases, however, does penalize hospitals that keep costs under the threshold that defines a case as outlier.

### 4.4 Purchasing Clarity

Prudent purchasers know what they’re buying—what the average cost is of different types of cases, how hospitals compare in charges, cost and length of stay, what the most common stays are. As well, in working to improve the health of Medicaid beneficiaries it’s important to easily know how many hospitalizations occur for trauma, asthma, diabetes, pneumonia, etc.

A central problem with the current payment method is that it provides no clarity about purchasing. Basic information, such as Table 3.3.2.4 or in recent analyses by the Department of Health<sup>35</sup>, is in fact quite difficult to obtain. One reason is that the Department accepts interim claims and claims with late charges,



which means that a claim often does not represent a stay, which is the appropriate clinical and financial unit of analysis. (We combined claims into stays for this analysis.) As well, the easiest way to analyze stays currently is by principal diagnosis or procedure. That is useful as far as it goes, but they are crude measures of clinical casemix and resource use.

Under DRGs, every stay is assigned to a group that contains stays with similar clinical and financial characteristics. The DRG is routinely used to analyze hospital operations all across the country. For purchasing clarity, we give CMS-DRGs a C and APR-DRGs an A, with the difference reflecting the greater insights available from APR-DRGs for a Medicaid population (e.g., neonatal care and mental health).

## 4.5 Control over Spending

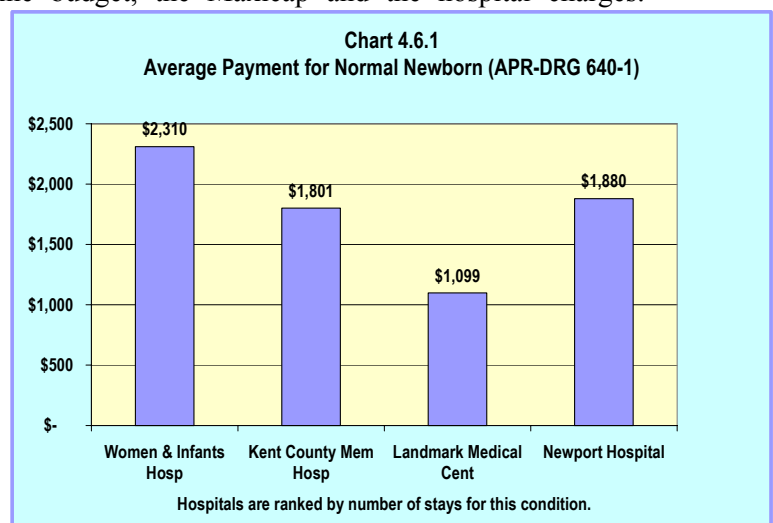
Any organization needs to have control over its own spending. The current payment method receives a D. It gives the Department a certain amount of control over spending in the coming year, though that control is constrained by the necessity of reaching agreement with the hospitals. There is also a timing issue: the year-end settlement process results in payments to hospitals and recoupments from hospitals that relate to care provided two to three years earlier. The current payment method also has no mechanism that the Department can use to target funds at specific areas where there may be access problems.

Under DRG payment, by contrast, payment for each stay is calculated as the DRG relative weight times the DRG base price. That payment (made shortly after discharge) is final. The payer can adjust specific relative weights to pay more for, e.g., mental health DRGs or obstetrics. The payer also can adjust the DRG base price to set the overall payment level. For these reasons, CMS-DRGs receive a B and APR-DRGs an A. The difference is that APR-DRGs allow more precise control over payments because APR-DRGs more precisely measure Medicaid casemix.

## 4.6 Fairness

Fairness is simply defined as paying similarly for similar care. The current method receives a D, since payment to each hospital depends on its baseline budget, the Maxicap and the hospital charges. Moreover, now that every hospital typically receives the Maxicap increase, the method perpetuates any inequities among hospitals that have arisen over the past 35 years.

Charts 4.6.1 to 4.6.3 show how payments vary at least two-fold to the hospitals that most commonly treat three frequent conditions in our database. We used APR-DRGs to define the conditions, but these same discrepancies are typically seen in cost-based payment methods no matter how the comparison is made. For fairness, CMS-DRGs receive a B and APR-DRGs an A. Again, the difference is that APR-DRGs are a more finely calibrated measure of what amounts to “similar care.”





## 4.7 Administrative Ease

All three options receive a C. Unfortunately, nothing in hospital payment is really simple, unless a payer wants to pay a straight percentage of hospital charges. Under the current method, the chief burdens are the annual negotiation process and the year-end settlement process. Settlement can take several years, bedeviling efforts by both the Department and the hospitals to forecast payments. Settlement also depends critically on audits by Medicare contractors. Currently only about 15% of cost reports nationwide are audited.<sup>36</sup> Now that very little Medicare payment (inpatient or outpatient) depends on cost reports, audits may become less of a priority for Medicare. A significant vulnerability exists for Rhode Island and other states that continue to rely on these reports.

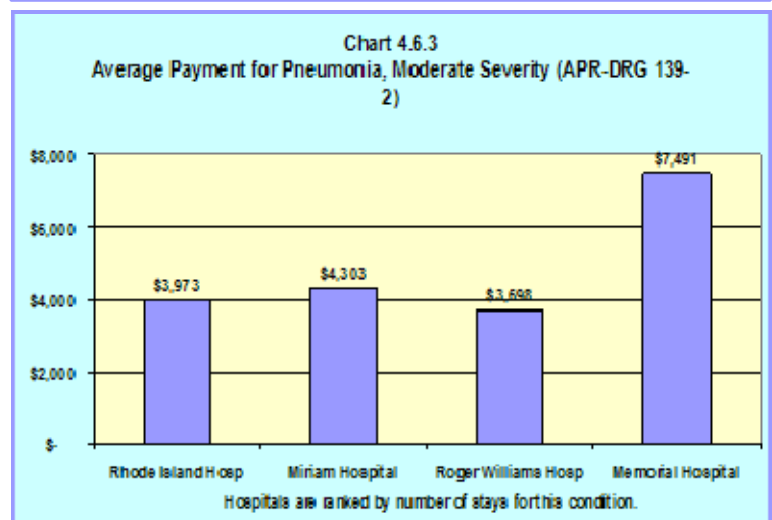
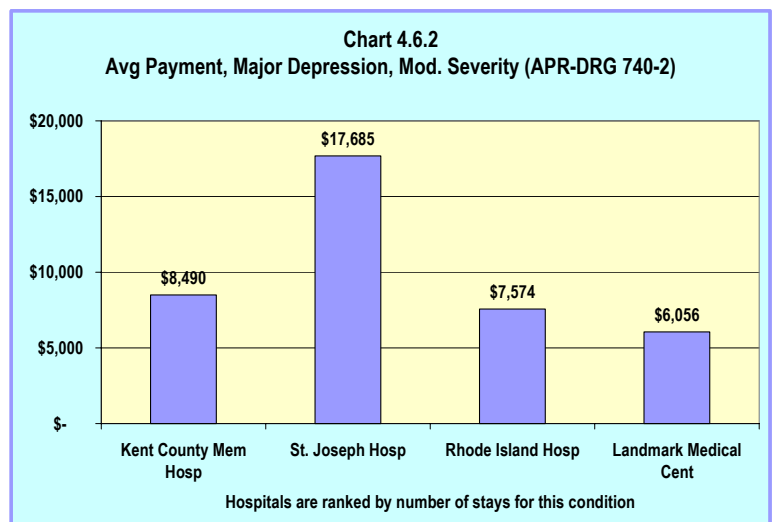
For CMS-DRGs and APR-DRGs, the most significant administrative burden is typically the analytical effort needed to set and maintain the base price and other parameters. Though the software itself is readily available and usable, the MMIS enhancement to build the complete payment method is not small (though neither it is overwhelming). For hospitals, CMS-DRGs are already well understood. APR-DRGs would be new to them as a basis for payment, though many hospitals already use APR-DRGs for internal purposes. One impact is that coding departments typically improve the completeness with which they code medical records.

## 4.8 Simplicity

As modern health care strains the boundaries of human comprehension, simplicity is a virtue all by itself. It has also been true in the past that some payment methods were so complex that providers could not figure out the incentives even if they wanted to. That said, none of the alternatives is simple. The current method earns a C; it involves the daunting combination of hospital budgets, health care claims and Medicare cost reports. CMS-DRGs receive a B, because they are so well-known. APR-DRGs receive a C; though payment by stay is fairly intuitive, the grouping algorithm is more complex than that of CMS-DRGs.

## 4.9 Quality

With pay-for-quality initiatives in their infancy, no widely used payment method specifically rewards better quality. The Department's current payment method has no relationship to paying for quality. Neither do DRG payment methods specifically reward quality; indeed, as noted above, if an avoidable infection pushes a stay into a higher-paying DRG, the hospital may be rewarded for poor quality.





Nevertheless, we have shown a C for CMS-DRGs and a B for APR-DRGs. The reason is that casemix measurement is often a prerequisite for measuring and rewarding quality. For example, the clearest financial incentive to reduce infections is to ignore increases in DRG severity that are caused by hospital-acquired infections.

APR-DRGs also enable comparison of casemix-adjusted mortality rates among hospitals, which is how organizations like [www.healthgrades.com](http://www.healthgrades.com) rate hospitals. Such comparisons can be very contentious and time-consuming, and we are not proposing that Rhode Island undertake them at this time. Our point is simply that good casemix adjustment can provide the Department, hospitals and other interested parties with very relevant data for purposes of measuring and improving the quality of care.

## 5 Next Steps

If the State were to accept our recommendation, implementation would involve the following steps, some of which could be undertaken simultaneously.

- **Legislation.** The current inpatient payment method is established in statute.<sup>37</sup> We would recommend that new statutory language define the payment method as casemix-adjusted payment per stay, with outlier payment for extraordinarily expensive cases and no settlement process. Specification of the casemix adjuster (e.g., APR-DRGs) and details such as the outlier payment pool (e.g., 5% of payments) would be more appropriately specified in regulation or policy (such as the state plan amendment).
- **Federal approval.** Payment method changes of this magnitude require federal approval of a state plan amendment. Since two-thirds of states and Medicare itself already use casemix-adjusted payment per stay, we would expect that the State would have no problem obtaining such approval.
- **Software acquisition.** Although the APR-DRG grouping algorithm is owned by 3M Health Information Systems, the company has allowed states to license it free of charge. Claims processing contractors also are already familiar with DRG modules through their work for different payers.
- **Detailed design.** Although the DRG software handles the complicated task of using clinical information from the claim to assign each stay to a DRG, there is considerable additional analysis that needs to be done. Some of the questions to be decided include:
  - Whether and how the payment method applies to psychiatric and rehabilitation stays in general hospitals and freestanding hospitals.
  - Specific provisions of the outlier policy, such as thresholds and marginal payment percentage.
  - Adjustments for transfer cases and situations in which the beneficiary has Medicaid eligibility for only part of the stay.
  - Whether outpatient services provided within a specified “window” are considered part of the inpatient stay.
  - How the payment method would be maintained and updated in future years (e.g., update of the base price, implementation of new grouper versions).
- **Prior authorization and post-payment review.** Changes in the fundamental incentives of the payment method require changes in other Department policies and processes. For example, since hospitals have a financial incentive under DRGs to minimize length of stay, it would no longer be necessary for the Department to specifically authorize the number of days for each stay. (Authorization of the admission itself would still be appropriate.)

***Implementation would require a change in statute. We recommend a collaborative implementation process that would take a minimum of 15 months.***



- **Consultation.** Our experience is that a strong consultative process results in a better payment method. A typical process would be to form two groups. One would be an internal group of Medicaid staff, claims processing personnel, and specialists in payment methods; this group would do the work on both the details of the policy and how the policy would be implemented in the claims processing system. We find that combining “policy people” and “implementation people” in the same room leads to more realistic policy and more accurate implementation. The other group would be an external advisory group comprising hospitals and others who may have an interest in the project (e.g., beneficiary advocates or RIte Care plans). Though the State would make the final decisions, there are many issues on which hospitals and other interested parties can offer considerable insight.
- **MMIS implementation.** The detailed design becomes the blueprint for the claims processing contractor to write the claims processing logic to put the method into operation. Given the magnitude of the change, extensive testing (i.e., more testing hours than coding hours) is a prerequisite for success.
- **Education and training.** With only 14 Rhode Island hospitals, the provider education effort will be less of a challenge than in most states. Nevertheless, hospitals both in and out of state will want detailed guidance on how the new payment will work. They also will want this guidance well in advance of implementation so that they can plan accordingly.
- **Time frame.** Once the decision has been made to go forward, the length of time for the design phase and the implementation phase will depend significantly on what other policy and systems projects compete for the time and attention of staff at the Department and the claims processing contractor. Minimum time periods would probably be six months for the design phase and nine months for the implementation phase.

## Notes

<sup>1</sup> National Conference of State Legislatures, *State Budget Update: November 2005*. Internet address: [www.ncsl.org/programs/fiscal/sbu200511.htm](http://www.ncsl.org/programs/fiscal/sbu200511.htm).

<sup>2</sup> ACS Government Healthcare Solutions serves approximately 30 Medicaid programs in the areas of claims processing, pharmacy benefits management, eligibility systems, and/or enrollment. As part of our services, we analyze, design, implement and/or operate a wide variety of Medicaid provider payment methods. ACS Government Healthcare Solutions is a unit of Affiliated Computer Services Inc. For more information, go to [www.acs-inc.com](http://www.acs-inc.com) and [www.acsstatehealthcare.com](http://www.acsstatehealthcare.com).

<sup>3</sup> The figure of \$139.5 million refers to allowed charges, that is the payment rate “allowed” by the payer for a particular service. Actual reimbursement from the Medicaid program to the hospital equals the allowed charge minus patient copayments minus payments for which a third party (other than Medicare) is liable. Medicaid reimbursement typically averages 97% of allowed charges.

<sup>4</sup> Swing bed payments are made when a hospital provides a level of care similar to a nursing facility, often for patients who are awaiting placement in a facility. Medicare crossover payments are made when Medicaid pays some part of the Medicare coinsurance and deductible for a patient is eligible for both programs. Our payments figure also excludes the net impact of year-end settlements, as will be explained in Section 3.2. Professional services provided within a hospital, such as those of anesthesiologists, emergency room physicians and attending physicians, are billed and paid for separately, and are also therefore outside our scope of analysis.

<sup>5</sup> Estimated from American Hospital Association, *AHA Hospital Statistics*, 2006 edition, p. 127. Total Rhode Island hospital industry revenue was \$2.1 billion in 2004.

<sup>6</sup> For the data analysis, we combined individual claims for the same stay into a single claim for each stay. Length of stay is defined as the last date of service minus the first date, except that same-day stays are counted as one day.

<sup>7</sup> Kevin Quinn and Martin Kitchener, “Medicaid’s Role in the Many Markets for Health Care,” in submission, March 2006.

<sup>8</sup> Andrew I. Batavia, Ronald J. Ozminkowski, Gary Gaumer and Mary Gabay, “Lessons for States in Inpatient Ratesetting under the Boren Amendment,” *Health Care Financing Review* 15:2 (1993), pp. 137-154.

<sup>9</sup> There is also a specific requirement that “outlier” payments be available for exceptionally costly cases where the patient is an infant or, if the patient is in a disproportionate share hospital, the patient is under 6 years old. Some of the key Social Security Act provisions on inpatient hospital payment are 1902(a)(13)(A), 1902(a)(30)(A), 1902(a)(56), 1902(s) and 1903(i)(3). Please note that our discussion of the legal framework is from a policy analyst’s perspective and is not legal advice to the Department.

<sup>10</sup> Robert F. Coulam and Gary L. Gaumer, “Medicare’s Prospective Payment System: A Critical Appraisal,” *Health Care Financing Review*, 1991 supplement, pp. 45-77.

<sup>11</sup> See Grace M. Carter, Peter D. Jacobson, Gerald F. Kominski and Mark J. Perry, “Use of Diagnosis-Related Groups by Non-Medicare Payers,” *Health Care Financing Review* 16:2 (Winter 1994), pp. 172-158.

<sup>12</sup> Examples include skilled nursing care (Resource Utilization Groups), HMO-type health plans (Diagnostic Cost Groups), home health (Home Health Resource Groups), long-term care hospitals (LTC-DRGs), rehabilitation hospitals (rehabilitation casemix groups), and hospital outpatient care (Ambulatory Payment Classification groups).

<sup>13</sup> Centers for Medicare and Medicaid Services, “Medicare Program: Changes to the Hospital Inpatient Prospective Payment Systems and Fiscal Year 2005 Rates,” Final Rule, *Federal Register* 69:154 (August 11, 2004), pp. 48971.

<sup>14</sup> Centers for Medicare and Medicaid Services, “Revision to Hospital Inpatient Prospective Payment Systems,” Final Rule, *Federal Register* 71:160 (August 18, 2006), pp. 47881-47922.

<sup>15</sup> Ingenix Inc., *The Ingenix Response to the CMS Request for Alternatives to Consolidated Severity-Adjusted DRGs* (Eden Prairie, MN: Ingenix, June 12, 2006).

<sup>16</sup> Kevin Quinn, “Dividing a Trillion-Dollar Pie: What’s Next for Healthcare Payment,” *Healthcare Financial Management*, April 2004, pp. 60-68.

<sup>17</sup> John S. Hughes, Richard F. Averill, Norbert I. Goldfield and others, “Identifying Potentially Preventable Complications Using a Present on Admission Indicator,” *Health Care Financing Review* 27:3 (Spring 2006), pp. 63-82; Richard F. Averill, James C. Vertrees, Elizabeth C. McCullough and others, “Redesigning Medicare Inpatient PPS to Adjust Payment for Post-Admission Complications,” *Health Care Financing Review* 27:3 (Spring 2006), pp. 83-93.

<sup>18</sup> ACS Government Healthcare Solutions, *ICD-10: A Guide for Medicaid Programs* (Atlanta, GA: ACS, 2006).

<sup>19</sup> For a more detailed description, see ACS Government Healthcare Solutions, *Current Methods of Purchasing Hospital Care*, Report to the Rhode Island Department of Human Services (Providence, RI: ACS, 2006).

<sup>20</sup> CMS, "Revision to Hospital Inpatient Prospective Payment Systems," August 18, 2006, p. 48303.

<sup>21</sup> ACS designed and is implementing the new method based on APR-DRGs in Mississippi. We also maintain the method used by Montana Medicaid that is based on CMS-DRGs.

<sup>22</sup> John Muldoon, "Structure and Performance of Different DRG Classification Systems for Neonatal Medicine," *Pediatrics* 103:1 (January 1999), pp. 302-318, available free of charge at <http://pediatrics.aappublications.org/cgi/reprint/103/1/SE1/302>.

<sup>23</sup> Judith R. Lave, "Developing a Medicare Prospective Payment System for Inpatient Psychiatric Care," *Health Affairs* 22:5 (September/October 2003), pp. 97-109.

<sup>24</sup> Jerry Cromwell, Jan Maier, Barbara Gage and others, "Characteristics of High Staff Intensive Medicare Psychiatric Inpatients," *Health Care Financing Review* 26:1 (Fall 2004), pp. 103-117.

<sup>25</sup> Phillip G. Cotterill and Frederick G. Thomas, "Prospective Payment for Medicare Inpatient Psychiatric Care: Assessing the Alternatives," *Health Care Financing Review* 26:1 (Fall 2004), p. 90.

<sup>26</sup> ACS Government Healthcare Solutions, *Purchasing Hospital Inpatient Care: DRG-Based Payment*, Detailed Design Document (Jackson, MS: ACS, July 25, 2006), pp. 31-37.

<sup>27</sup> Medicare also uses a "CC exclusion" list so that specific CC diagnoses do complications if they are closely related to a specific DRG.

<sup>28</sup> The following statement applies to the results showing which stays grouped to which CMS-DRGs, AP-DRGs and APR-DRGs. This report was produced using data obtained through the use of proprietary software created, owned and licensed by the 3M Company. All copyrights in and to the 3M<sup>TM</sup> Software are owned by 3M. All rights reserved.

<sup>29</sup> Cost was estimated as charges on each claim times the hospital-specific ratio of costs to charges (RCC). The RCCs were the most recent available as of August 2006. For out-of-state hospitals, average statewide inpatient RCCs from the Medicaid program were used. Hospital-specific RCCs are very reliable for measuring cost at the hospital level. Estimated costs for individual care categories need to be interpreted more cautiously because RCCs within hospitals can differ substantially by cost center (e.g., routine vs. ancillary). If stays within a care category tend to display a mix of cost centers that differs from the average for that hospital, costs for that category may be understated or overstated.

<sup>30</sup> Richard F. Averill, John H. Muldoon, James C. Vertrees and others, "The Evolution of Case Mix Measurement Using Diagnosis Related Groups," Norbert Goldfield, ed., *Physician Profiling and Risk Adjustment*, 2<sup>nd</sup> edition (Gaithersburg, MD: Aspen Publishers, 1999), p. 404.

<sup>31</sup> Since calculation of variance involves squaring the difference between a value of a variable and the average value of that variable in the dataset, calculation of R<sup>2</sup> is quite sensitive to data trimming, i.e., the elimination of extreme values from the dataset. We report values for untrimmed data and therefore the R<sup>2</sup> values are conservatively low.

<sup>32</sup> ACS Government Healthcare Solutions, *Purchasing Hospital Inpatient Care: Options for Improvement*, Report to the Mississippi Division of Medicaid (Jackson, MS: ACS, 2005), pp. 4.7-4.10.

<sup>33</sup> Muldoon, p. 311.

<sup>34</sup> Medicare Payment Advisory Commission, *Physician-Owned Specialty Hospitals*, Report to the Congress (MedPAC: Washington, DC, March 2005).

<sup>35</sup> Susan A. Oberbeck, Karen A. Williams and Kathleen E. Taylor, *Utilization of Rhode Island Hospitals 2003* (Providence: RI Department of Health, 2006); Jane Griffin, *Analysis of RI Hospital Discharges by Insurance Coverage and Age 2001-2003*, presentation, May 25, 2006.

<sup>36</sup> CMS, "Revision to Hospital Inpatient Prospective Payment Systems," August 18, 2006, p. 47892.

<sup>37</sup> For in-state hospitals, see §§27-19-14 through 27-19-16 of the Rhode Island General Laws. For out-of-state hospitals, see §14-8-13.1.