Problems with the Medicare Readmission Penalty

July 8, 2013

Abstract

The Congress directed that the Medicare program implement a system to decrease the number of readmissions in hospitals, initially focusing on three conditions. The system creates penalties for hospitals with high readmission rates for these conditions, but there are many problems with the system. The most dramatic of these problems stems from a flaw in the statute itself. The essence of this flaw is that the penalty level is driven by a factor that produces a penalty that is five (5) or ten (10) times the actual cost of the excess readmissions for each applicable condition[1]. In the future, as more conditions are added, these penalties may become more severe as the current conditions are those with the highest readmissions rates. Ultimately, this could lead to penalties that are 20 times the actual cost of the excess readmission.

In addition, the manner in which CMS implemented the readmission penalty means it takes a long time before a hospital's efforts to reduce readmissions impact the penalty, and it is very difficult for a hospital to assess its own performance on an ongoing basis, as well as making it impossible for patients to use the results to compare the relative quality levels of hospitals.

Introduction

The discussion that follows highlights several problems with the Medicare readmission penalties at two levels: 1) errors and questionable policy decisions made in the drafting of the Affordable Care Act (ACA); and, 2) problems with the implementation of the statutory language by the Medicare program (the Centers for Medicare and Medicaid Services – CMS). Before discussing these problems we would like to make clear that we are not opposed to penalties that are applied as incentives to reduce unplanned readmissions per se. However, these incentives need to be appropriately designed and implemented and the current incentives are neither. In fact incentives for good quality outcomes in health care are long overdue, and an effort to reduce unplanned readmissions is an excellent start in that direction. It is clear from the health policy literature that high levels of unplanned readmissions are an indicator of poor quality, and that present readmission rates are excessive. However, we take exception with the manner in which the readmission incentives/penalties are being calculated, and some of the perverse incentives and misperceptions that will result from the flawed policy design and implementation.

We begin with a discussion of the readmission penalty provisions included in the ACA, which include in our view both drafting errors and flawed policy decisions. We then continue the discussion focusing on the implementation of this statutory language by the CMS and the avoidable problems which have been embodied in the implementation. Readers should be mindful that the current

---

[1] The factor is basically the reciprocal of the nationwide readmission rate for the condition.

readmission penalty creates perverse incentives negatively affecting providers and Medicare beneficiaries alike.

Readmission Penalty Provisions in the ACA

The first and most egregious problem in the statutory language is in the specification of the formula for the calculation of the readmission penalty. This formula results in a penalty which is a multiple of the amount of revenue received by the hospital for the excess readmissions themselves.

Because of the technical nature of this error a detailed discussion of the statutory language and the nature of the error has been recused to Appendix A. The effect of the error is that the penalty for a particular condition is calculated using a multiplier that is the reciprocal of the readmission rate for the particular condition. This means the penalty factor is determined by the total admissions for a condition (100%) divided by the readmissions for the condition (a small portion of those admissions) which results in a factor that in many cases is substantially above 1.0 dramatically driving the penalty upward. While this effect increases the effect of the penalty, this makes no policy sense! While some might think it reasonable to extrapolate the penalty from the three conditions currently used in estimating excess readmissions to the entire patient population, this is not what the formula does. CMS was directed to implement the readmission penalty based on the conditions with the highest or very high readmission rates. The extrapolation that is specified in the ACA is irrational and unfair, and as conditions with lower overall readmission rates are added to the adjustment the multiplier will only increase (perhaps dramatically so making the penalties much more severe.

Second, the limitation of the readmission penalty's applicability to a small number of conditions, three for the first year of implementation, might seem like a reasonable, cautious approach. However, such a limitation is not necessary given the current expertise in the analysis of readmissions, and the pattern of readmissions for the three conditions included, pneumonia, heart failure and acute myocardial infarction, are probably not representative of the excess readmission patterns for the patient population of the hospital as a whole. This restriction to a limited number of conditions also has the potential effect of causing hospitals to focus their attention predominantly or exclusively on those conditions to the detriment of patients with other conditions – the equivalent of teaching to the test.

A third and potentially more important concern is the limitations placed on judicial review of the administration's implementation of the readmission method. While it is understandable that Congress (or perhaps even the administration itself) might have wanted to protect the administration from a flurry of time-consuming and delaying lawsuits on an issue that is very technically complex and which inevitably involves multiple somewhat subjective decisions, the preclusion language goes further and seeks to prevent interested and affected parties including adversely affected Medicare beneficiaries from challenging outright errors or badly flawed policy decisions in the implementation of the readmission penalties. Such preclusion of review seemingly directly prevents the judiciary from review of the executive branches implementation of broadly written legislation which as we point out here has been poorly or at least inartfully implemented and could pose harm for hospitals and beneficiaries alike.

Technical Issues in the Implementation of the Readmission Penalty

While not all inclusive, several aspects of the implementation of the readmission penalty involve serious flaws. The first is the lack of any adjustment for the socioeconomic condition of patients, such as, patients that are dually eligible for Medicare and Medicaid (the dually eligible) who demonstrably have a substantially higher readmission rate than more affluent Medicare patients. However, no account is taken of this effect in the formula for calculating the excess readmission ratio. Second, under the CMS method, hospital size has an influence on the probability of a hospital being subject to the readmission penalty with larger hospitals more likely be penalized than smaller hospitals. This may and likely will cause problems with the perception of lower quality care being provided by larger hospitals. A patient shopping for the good quality hospital might erroneously believe that the fact that a hospital was being hit by a penalty meant that the probability of a readmission of patients using that hospital was higher than the probability of readmission of a patient using a smaller hospital. However, this would not be true. A small hospital and a large hospital with precisely equal readmission rates could be in a situation where the large hospital was subject to a penalty while the small hospital was not – this is due to some of the statistical techniques used in the development of the excess readmission ratio. A third issue is the use of the "predicted" readmission rate rather than the "actual" readmission rate in the calculation of the excess readmission ratio. This latter point is highly technical in nature so our discussion of this technique is not expansive. The fourth and final point discussed here is the effect of patients that die once admitted.

Each of the above issues are discussed in more detail below. The discussion includes, among other things, a rationale for why the options chosen by Medicare have undesirable consequences, together, generally, with suggestions for how the issue should have been treated, so that our presentation is not simply negative. A summary of the calculation of the readmission ratio and then the readmission penalty is provided in Appendix A.

We would note that these issues were brought to the attention of CMS during the notice and comment period of such proposals; however, the agency made a conscious decision to ignore such comments, and has provided only rationalizations for why the agency believes its proposed implementation makes sense. It will be clear to the reader that we do not concur with these rationalizations and why we believe these flaws should be corrected.

Inappropriate Penalties Caused by the Lack of an Adjustment for Socioeconomic Status

A variety of studies[i] make clear that poor patients in general, and Medicaid beneficiaries specifically, have much higher risk adjusted readmission rates than other patients. In spite of public comments to the agency on this topic, CMS has steadfastly refused to adjust for such factors, saying that they do not want to set a different standard for quality for different categories of patients while the agency makes such distinctions in others of its policies. This is extremely bad public policy, since it further disadvantages hospitals with relatively high levels of poor patients, and actually provides an incentive not to admit patients that have a high probability of readmission.

This incentive will cause inadvertent harm to the affected hospital and to the affected Medicare beneficiaries. While hospitals are unlikely to actually turn away patients in need of care because of this incentive, it will also discourage hospitals from offering outreach efforts in poor neighborhoods, exactly the places such efforts are most needed. Making an adjustment for the Medicaid enrollment status of patients would not weaken the incentives to reduce admissions, but would make the system fairer for hospitals in poor neighborhoods. We hypothesize that the underlying reason for the agency not making such a change is that for some reason it is wedded to the proposed policy.

It is instructive to look at the magnitude of the differences between hospitals with different levels of disproportionate share patient percentage (DSH, a measure of the proportion of the patients at a hospital that are eligible for Medicaid or SSI (SSI – Supplemental Security Income) that is used by Medicare in establishing payment rates), and to consider the difference in CMS' policy position regarding their payments for disproportionate share and the readmission penalty. Only 5% of hospitals in the lowest quartile of disproportionate share patient percentage (i.e., the 25% of hospitals with the lowest percentage of Medicaid and poor patients) are subject to a readmission penalty, but 12% of hospitals in the highest DSH quartile are subject to a penalty.

An alternative way of looking at this is to calculate the correlation between the readmission ratio for each of the three readmission conditions used by Medicare and the DSH percentage:

	Disproportionate share percentage
Pneumonia readmission ratio	0.24
Heart failure readmission ratio	0.25
Acute myocardial infarction readmission ratio	0.03

All of these correlation coefficients are highly statistically significant ($P<0.001$), except for the 0.03 for acute myocardial infarction ($P=0.06$).

Medicaid patients have a higher risk of readmissions than other patients and that it makes no policy sense to penalize hospitals for treating a higher proportion of Medicaid patients. If an adjustment for socio-economic condition were to be included in the risk adjustment method used for calculating the readmission penalty, the incentive to reduce readmissions for all patients would still exist, and be just as strong,. There are any number of known reasons for higher expected readmission rates for these dual Medicare/Medicaid patients many of which are not and cannot be known to hospitals upon admission. These include: poorer health status upon admission, poor living environments, poor dietary habits, not taking maintenance and discharge related medications as prescribed post discharge, etc. and all of these reasons offer support such an adjustment.

The solution to this issue is easy: simply include an adjustment for the proportion of poor patients treated by the hospital.

Impact of Hospital Size on the Penalty

CMS uses a statistical technique that adjusts for small numbers of cases in order to ensure that hospitals are not identified as being poor or good performers because of statistical fluctuations in the data. Again this seems like a laudable intent, however, the impact is to make the published results almost useless for a patient trying to compare the relative readmission rates of hospitals. In the words of CMS "In essence, the predicted readmission rate for a hospital with a small number of cases is moved toward the overall U.S. national readmission rate for all hospitals". As a result of this technique, 97% of hospitals are reported as having a readmission rate for acute myocardial infarction that is no different from the U.S. national rate. MedPAC[ii] commented "As a result, beneficiaries have little useful information on hospital performance and hospitals have little information on where they stand relative to other hospitals and where they could improve."

Only 6.9% of hospitals in the lowest quartile of bed size (i.e., the 25% smallest hospitals) are subject to a readmission penalty, but 9.0% of hospitals in the highest bed size quartile are subject to a penalty.

The correlations between bed size and readmission ratio for each of the 3 conditions are presented in the table below.

	BEDS
Pneumonia readmission ratio	0.24
Heart failure readmission ratio	0.24
Acute myocardial infarction readmission ratio	0.48

All of these correlation coefficients are highly statistically significant (P<0.001).

In spite of the attempt by CMS to rationalize doing so on statistical grounds, letting hospitals off the hook for a readmission penalty just because they are small makes no sense.

The solution would be to use a statistical technique that does not water down the results for small hospitals, and simply exclude hospitals from penalties if they have too few cases to produce a reliable result.

Predicted versus Actual Readmission Ratio – what it means and its implications

The ACA states that the excess readmission ratio is the lesser of 1.0 or:

The risk adjusted readmissions based on "actual" readmissions divided by the risk adjusted "expected" readmissions.

Normally one would use the "actual" readmissions as the numerator of this ratio, but instead CMS is using the "predicted" readmissions. "Predicted' readmissions are calculated using the results of a regression model. We will not get into the technical details of how the calculation is performed, except to say that this approach has the effect of adding to the hospital's

readmission rate some proportion of the national average, with the proportion increasing as the number of included cases for the particular condition at the hospital decreases which makes the relationship to the penalty less direct. It is this phenomenon that results in the hospital bed size impacting the results and penalty. It also makes it very difficult for a hospital to determine how they are likely to perform, and renders the results useless for patients wishing to use them to compare the relative performance of hospitals. Generally, in order for hospitals to respond to the incentives of any system, the respondent hospital(s) need to: 1) understand the incentive, 2) perceive it as fair, and 3) be able to measure their position and their progress as they improve their position relative to the incentive. Under the system the CMS has implemented none of these three elements exists, a major tactical (and potentially conceptual) error.

The solution would be to use the actual number of readmissions, and compare this with the expected number, after making all the necessary adjustments.

Treatment of Patients Who Expire/Die During the First Admission

As has been pointed out by Gorodoski, Starling and Blackstone[iii], there is an inverse relationship between a hospital's mortality rate and its readmission rate as calculated by CMS. They state "a patient who dies during the index episode can never be readmitted. Hence, if a hospital has a lower mortality rate, then a greater proportion of its patients are eligible for readmission. As such, to some extent, a higher readmission rate may be a consequence of successful care." This is an issue that is worthy of additional investigation.

Conclusion

The above discussion clearly enunciates the issues associated with the readmission policy as it is being implemented. Some of these issues represent statutory flaws while others are clearly regulatory implementation flaws. Both types of flaws could be inadvertent but in either case, they should be corrected if the incentive is to be implemented properly and more importantly the goal of the program is to be achieved. Failing to make such corrections is inexcusable, leads to perverse incentives and results, and causes perverse potentially harmful effects on hospitals and beneficiaries thereby defeating the very purposes for which the provision was created. These perverse effects seemingly cannot be addressed other than by Congress and CMS as judicial review is precluded by the statute itself.

Any discussion of the readmission incentive/penalty must keep in mind the following four things.

1) whatever the applicable penalty (however high it might be) the first year's penalty is limited to 1.0% (FY 2013)and this threshold increases in subsequent fiscal years (2.0% in FY 2014 and 3.0% in FY 2015);

2) the number of conditions to which the penalty applies can be increased by CMS by regulation without legislative action;

3) this provision can and will have a perverse effects on hospitals and Medicare beneficiaries as we have explained, the legislative drafting error which defines the penalties will only make the penalties more severe as conditions are added; and

4) any review of these provisions and their implementation is "precluded" (or prevented) by the statute itself.

Therefore, if this provision is flawed (as we believe it is), its effects are only going to get worse and it's not going to get corrected any time soon. For these reasons this provision and its implementation is worthy of attention by hospitals and beneficiaries alike.

Appendix A: Formula for Extrapolating from the Excess Readmission Ratio to the Readmission Penalty

The specific relevant language in the ACA for this calculation specifies that the payment to the hospital shall be:

The base operating DRG amount times the readmission adjustment factor for the hospital for the fiscal year.

The readmission adjustment factor (ignoring the 1% cap on the penalty that applies for the first year) is defined to be:

1 minus the ratio of the aggregate payments for excess readmissions and the aggregate payments for all discharges with respect to the applicable hospital for the applicable period.

The aggregate payments for excess readmissions are defined to be:

The base operating DRG payment amount for such hospital for such applicable period for such condition times the number of admissions for such condition for such hospital for such applicable period times the excess readmission ratio for such hospital for such applicable period minus 1.

The excess readmission ratio is defined to be:

The risk adjusted readmissions based on actual readmissions divided by the risk adjusted expected readmissions for such hospital for such condition with respect to such applicable period.

Ignoring the floor on the adjustment, the adjustment factor for excess readmissions is:

1) 1 – {(aggregate payments for excess readmissions)/(aggregate payments for all discharges)}

The aggregate payments for excess readmissions for a given condition are:

2) Base DRG operating amount x Number of admissions for the condition x (excess readmission ratio – 1)

3) Excess readmission ratio = Risk adjusted actual readmissions/Risk adjusted expected readmissions,

4) Risk adjusted actual readmissions = excess readmissions + Risk adjusted expected readmissions.

So, Excess readmission ratio – 1 = Excess readmissions/Expected readmissions.

Substituting this in 2) we get:

Base DRG operating amount x # admissions for condition x (excess readmissions/Expected readmissions)

Shuffling the terms this becomes:

5) Base DRG operating amount x Excess readmissions x F,

where F = # admissions for the condition/Expected readmissions for the condition. This is the big error in the statute!

The first two terms in 5) are an estimate of the amount that Medicare paid for the excess readmissions for the given condition.

The factor F is a multiplier that could be 5 or 10, so the amount to be recovered from the hospital is probably 5 to 10 times the amount the hospital collected for the excess readmissions.

[i] J. Graham Atkinson, D.Phil., "Flaws in the Medicare Readmission Penalty", New England Journal of Medicine, 367;21, November 22, 2012.
[ii] MedPAC, Report to Congress: Medicare Payment Policy, March 2012, page 57.
[iii] Eiran Gorodeski, Randall Starling, Eugene Blackstone, "Are All Readmissions Bad Readmissions?", New England Journal of Medicine, 363;3, July 15, 2010.