



MISSISSIPPI DIVISION OF  
**MEDICAID**

## **Quality Incentive Payment Program (QIPP)**

Potentially Preventable Readmissions

Methodology Supplement

October 2019



## Glossary and Acronyms

Actual-to-expected ratio	The actual-to-expected ratio compares the number of potentially preventable hospital returns (PPHRs) that follow inpatient admissions at your hospital to the number of expected PPHRs for an average Mississippi hospital with the same mix of DRGs, age groups, and mental health/substance abuse prevalence. For more information on how the actual-to-expected ratio is calculated, see Section 2.3: Measuring readmission and hospital return performance.
All Patient Refined Diagnosis Related Groups (APR-DRGs)	3M grouping approach for inpatient admissions. APR-DRGs may also be referred to as DRGs.
At-risk inpatient admission	An initial inpatient stay that may or may not be followed by one or more inpatient readmissions or return emergency department (ED) visits. At-risk inpatient admissions exclude inpatient admissions that met the criteria for global exclusions, such as stays for APR-DRGs that have a particularly high rate of expected readmissions (see globally excluded conditions below), or where the patient was transferred to another acute care facility, died, or left against medical advice.
ED	Emergency department
Globally excluded conditions	When measuring the PPHR (and potentially preventable readmissions (PPR) or potentially preventable ED visit (PPED)) rate, several conditions which are expected to have a high rate of unpreventable hospital return events are excluded from consideration. These conditions include major trauma, metastatic malignancies, HIV, and sickle cell anemia. In addition, this report excludes obstetric and newborn stays as they are not expected to have significant hospital return events.
Hospital return chains	Hospital return chains occur when an initial inpatient admission is followed by one or more inpatient readmissions and/or return ED visits. Hospital return chains are only measured once in the PPHR rate and actual-to-expected ratio, regardless of how many related inpatient readmissions and/or ED visits are included in the chain.
Initial admission	An initial admission refers to the inpatient stay that leads to a chain of one or more inpatient readmissions and/or ED visits.
Medicaid Care Categories (MCCs)	Clinical categorization scheme that groups medically similar stays.
Potentially preventable ED visits (PPEDs)	PPEDs identify emergency department (ED) visits that follow an initial inpatient admission within 15 days and are

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	clinically related to the initial admission. The PPED rate is provided for informational purposes only.
Potentially preventable hospital returns (PPHRs)	PPHRs identify potentially preventable inpatient readmissions plus return emergency department visits that occur within 15 days of an initial admission. Hospital return events are considered potentially preventable if they are clinically related to the initial admission and the reason for the visit (as identified by the stay's APR-DRG) is not one of the globally excluded conditions. The Quality Incentive Payment Program (QIPP) will measure performance on the PPHR actual-to-expected ratio.
Potentially preventable readmissions (PPRs)	PPRs identify inpatient readmissions that follow an initial inpatient admission within 15 days and are clinically related to the initial admission. The PPR rate is provided for informational purposes only.
Quality Incentive Payment Program (QIPP)	QIPP is a new Division of the Medicaid program that bases a portion of Mississippi Hospital Access Program (MHAP) payments on quality indicators.
Secondary readmission/ED visit	<p>A secondary readmission/ED Visit is a readmission or ED visit that occurred following an inpatient readmission at your hospital, which does not belong to a hospital return chain attributed to your hospital. These readmissions and ED visits do not count against your hospital in the performance metric, but the list of secondary readmissions is provided for informational purposes only. For example, consider the following sequence:</p> <ol style="list-style-type: none"><li>1. Initial admission at hospital A</li><li>2. Readmission at hospital B within 15 days</li><li>3. Return ED Visit at hospital B within 15 days</li></ol> <p>The readmission at hospital B (2) would be considered as both a readmission following the initial admission at hospital A, and as a secondary initial admission at hospital B, followed by a return ED visit (3). The secondary initial admission at hospital B would appear on hospital B's detail report under the Secondary Readmissions tab for informational purposes.</p>

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# 1 Measuring Readmissions

Despite the apparent simplicity of the concept, measuring readmissions is a complex topic, with several approaches in use by Medicare, various states, commercial payers, quality improvement organizations, and researchers. “All-cause” measurements can be a crude measure of clinical care and health system performance, especially when calculated across many disparate clinical conditions.<sup>1</sup> Alternatively, a tight focus on specific readmissions (e.g., those deemed avoidable by at least three reviewers<sup>2</sup>) misses the many situations when care may not reflect medical error, but could potentially be improved. These approaches are not simply different methods of measuring the same thing. Rates can vary two-fold even on the same population, and performance rankings can vary sharply depending on the approach used.<sup>3</sup>

The Mississippi (MS) Quality Incentive Payment Program (QIPP) uses the “potentially preventable readmission (PPR)” approach developed by 3M™ Health Information Systems.<sup>4</sup> The PPR approach strikes a balance between the poles of all-cause and clearly preventable; is clinically specific; provides categorical results that are easy to interpret; is designed for an all patient population; and has previously been used by California, Florida, Illinois, New York, Maryland, Texas, Utah, Wisconsin and the Medicare Payment Advisory Commission.<sup>5</sup> This approach was chosen because we believe it provides the most balanced view into inpatient readmission performance.

In addition, the 3M approach provides a window into potentially preventable return emergency department visits (PPEDs). Similarly to readmissions, high rates of return Emergency Department (ED) visits can signal problems with premature discharge, inadequate discharge planning, poor follow-up care, or difficulty accessing care in the community.<sup>6</sup> The 3M PPR/ED algorithm allows us to identify PPEDs for at-risk inpatient stays in a similar manner to identifying PPRs (“at-risk stays” refers to an initial inpatient stay that may or may not be followed by one or more readmissions or return ED visits). As with PPRs, PPEDs are clinically related to the original inpatient stay. For example, an ED visit for a surgical wound infection following an inpatient surgical procedure would be considered potentially preventable, while an ED visit for a broken leg following the same original inpatient stay would not. As with PPRs, PPEDs are considered *potentially* preventable and do not signal ED visits that could always be prevented. Rather, higher than average rates of PPRs and PPEDs suggest that better management of the originating inpatient stay and subsequent follow-up care could reduce the rate at which patients return to the hospital. We combine PPRs and PPEDs into a measure of potentially preventable hospital returns (PPHR), which identify inpatient admissions that were followed by either a PPR or a PPED.

QIPP Hospital Reports provide insight into your hospital’s overall PPHR rate, and how it compares to statewide MS Medicaid rates during the baseline period (calendar year (CY) 2018). The PPHR rate indicates the proportion of at-risk inpatient stays at your hospital that led to one or more PPRs, PPEDs, or both (see methodology section for a description of what is considered an at-risk inpatient stay). The actual-to-expected ratio compares your hospital’s performance to the statewide average during CY 2018 for a hospital with the same patient mix of demographics and casemix (see Section 2.3 for a description of how the actual-to-expected ratio is calculated). Values greater than one indicate your hospital performed worse than the statewide baseline, while values less than one indicate your hospital performed better than the statewide baseline.

Each quarterly QIPP Hospital Report describes performance during the year ending two quarters prior to the report in order to allow time for claims to be submitted to the payment system. The program assesses a full year of claims in each quarterly report in order to promote stability in each

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evaluation and reduce variability between quarters. For each quarterly report, one new quarter is added to the dataset, and the oldest quarter is removed from the dataset; this is referred to as a rolling year. Statewide performance during the baseline year (CY 2018) will be used to set performance targets for year two of QIPP, which will cover performance during CY 2019.

## 2 Methodology Overview

### 2.1 Dataset

The data for each reporting period consists of one year of inpatient stays and ED visits, ending two quarters before the report date. For example, the report released on October 4, 2019 includes inpatient stays and ED visits with last dates of service from April 1, 2018 through March 31, 2019. To allow for a 15 day readmission window, readmissions and return ED visits were captured through April 15, 2019. The data are extracted five months after the close of the reporting period. The data include both fee-for-service (FFS) claims and managed care encounter data (submitted by the coordinated care organizations).

The data for the baseline period were drawn from CY 2018 data, with inpatient stays and emergency department (ED) visits with last date of service from January 1, 2018 through December 31, 2018. Readmissions and return ED visits were captured through January 15, 2019. The baseline data were extracted June 1, 2019, and include paid dates through May 27, 2019.

### 2.2 Identifying readmissions and return ED visits

The 3M PPR/ED methodology is an algorithm based on claims data submitted by hospitals. Although complex, the algorithm is available for inspection by hospitals, health plans, and others with an interest in the details of its operation.<sup>7</sup>

In readmission studies, an “at-risk admission” refers to an initial inpatient stay that may or may not be followed by one or more readmissions or return ED visits. Of the many ways to define and report readmissions, the simplest approach is to count all readmissions within a given time period. The 3M PPR approach is more sophisticated because it counts only readmissions for which a plausible clinical connection exists between the reason for the index admission and the reason for the readmission. Typically, studies show that about 60% of all readmissions are categorized as potentially preventable in the 3M algorithm.<sup>8</sup>

The 3M software categorically excludes several types of admissions and readmissions from the PPR analysis. Although some of these exclusions (such as a death) are made in almost every readmission measurement approach, the PPR methodology is more sophisticated in its efforts to exclude readmissions that are unlikely to be preventable. The “global” exclusions include the following:

- Sick newborns, because the algorithm was not designed for the specific clinical needs of this population.
- Admissions for the medical (i.e., non-surgical) treatment of major metastatic malignancies, major trauma, human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), sickle cell anemia crisis, and several less common conditions,<sup>9</sup> because readmissions for these conditions were very likely to have been either planned or unpreventable.
- At-risk admissions where the patient self-discharged against medical advice.
- At-risk admissions during which the patient died.

- At-risk admissions where the patient was transferred to another acute care hospital. Because the receiving hospital has taken over care, the stay at the receiving hospital becomes the at-risk admission.

We also excluded inpatient stays for obstetric and normal newborn patients, as these patients are high volume but historically have extremely low readmission rates. Including this population would make it more difficult to see changes in readmissions and return ED visits over time.

Only admissions for acute care are considered for analysis. Stays for sub-acute care, e.g., in an acute care hospital for rehabilitation or convalescence, or in a sub-acute setting such as a nursing facility, were defined as “non-events,” that is, neither an index admission nor a readmission. Observation stays – during which a patient occupies a bed but is considered an outpatient – are excluded entirely, since an observation stay is not an inpatient admission.

Readmissions may be measured within different “windows” of time. The shorter the window, the more likely a readmission was related to the hospital care or inadequate discharge transitions. The longer the window is (e.g., 30 days or longer), the more likely a readmission may reflect deficiencies in patient compliance, in post-hospital care in the community or in the patient’s baseline health status. QIPP uses a readmission window of 15 days.

### 2.3 Measuring readmission and hospital return performance

The most straightforward way to measure hospital return events, including readmissions and return ED visits, is to measure the PPHR rate. The PPHR rate indicates the proportion of at-risk inpatient stays that were followed by one or more readmissions or return ED visits (or both). The sequence of the initial inpatient visit and subsequent readmissions and return ED visits is referred to as a PPHR “chain.” Table 2.3.1 shows an example of a hospital return chain. Each hospital return chain is only counted once in the PPHR rate, regardless of how many readmissions and return ED visits may be included in the chain. Each PPHR chain may include readmissions or return ED visits to multiple hospitals; the PPHR chain is attributed to the hospital responsible for the initial admission.

**Table 2.3.1**  
**Example of a PPHR Chain**

Chain Number	Patient ID	Type of Claim	Admit Date	Discharge Date	Hospital
1	1	Initial admission	1/1/2018	1/3/2018	Hospital A
1	1	Inpatient readmission	1/5/2018	1/7/2018	Hospital A
1	1	Return ED Visit	1/10/2018	1/10/2018	Hospital B
1	1	Return ED Visit	1/15/2018	1/15/2018	Hospital B
1	1	Inpatient readmission	1/17/2018	1/19/2018	Hospital B
2	1	Initial admission	2/20/2018	2/25/2018	Hospital C
2	1	Inpatient readmission	3/1/2018	3/3/2018	Hospital C

Your hospital’s baseline and rolling year PPHR rates are listed on your quarterly QIPP hospital report. Note that at-risk stays that are followed by multiple readmissions and return ED visits do not increase the measured hospital return rate; as a result, the PPHR rate is less sensitive to heavy utilizers of care than other readmission measures.<sup>10</sup> Each quarterly report also lists the PPR and



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PPED rates for informational purposes only. All rates are calculated across Diagnosis Related Groups (DRGs) that had at least two at-risk stays in the overall statewide dataset.

The PPHR (or PPR or PPED) rate can vary significantly from hospital to hospital based on various patient characteristics, such as the reason for the at-risk inpatient stay, the acuity of the patient's condition, the patient's age, and the presence of mental health or substance abuse comorbidities (MH/SA). Both patient age<sup>11</sup> and MH/SA comorbidities have been shown to significantly increase the risk of readmissions,<sup>12</sup> and readmission rates vary widely across patient conditions (see statewide performance). To account for variation in patient mix between hospitals, we calculated a baseline casemix-adjusted statewide average PPHR rate for each hospital. The baseline casemix-adjusted statewide average PPHR rate indicates the PPHR rate for an average Mississippi hospital with the same mix of conditions, age groups, and MH/SA burden during the CY 2018 baseline period. Baseline casemix-adjusted statewide average rates are also reported for PPRs and PPEDs.

**Calculating the baseline casemix-adjusted statewide average:** The first step was to calculate statewide averages, or norms, for each combination of base APR-DRGs, severity, and age category during CY 2018. Table 2.3.2 shows an example of the calculation of the actual-to-expected ratio for a hospital with just two base DRGs.

APR-DRG	Description	Age Category	Mental Health Comorbidities	Statewide Norm	MH/SA Adjustor	Hospital A At-Risk Stays	Hospital A Actual PPHRs	Expected PPHRs
139-1	Other Pneumonia	Adult	Yes	7.32%	1.22	25	2	2.23
139-1	Other Pneumonia	Ped	Yes	4.44%	1.77	25	1	1.96
139-1	Other Pneumonia	Adult	No	7.32%	0.93	100	6	6.83
139-1	Other Pneumonia	Ped	No	4.44%	0.97	100	5	4.30
750-1	Schizophrenia	Adult	N/A	17.28%	N/A	50	10	8.64
750-1	Schizophrenia	Ped	N/A	14.29%	N/A	50	6	7.14
<b>Total</b>						<b>350</b>	<b>30</b>	<b>31.12</b>

### Notes:

1. Hospital A PPHR rate =  $30/350 = 8.6\%$
2. Average MS hospital =  $31.12/350 = 8.9\%$
3. Hospital A actual-to-expected ratio =  $8.6\%/8.9\% = 0.97$

For each at-risk stay in the dataset, the calculation of the expected number of PPHRs was: statewide norm x MH/SA adjustor, where the statewide norm was the average rate for the unique combination of the base DRG, the severity of illness, and the age group during CY 2018. The MH/SA adjustor was calculated as the ratio of the statewide PPHR rate across DRGs for patients with and without mental health comorbidities (calculation of MH/SA adjustor not shown in example). The MH/SA adjustor corrects for the higher rate of expected PPHRs among stays for patients with MH/SA comorbidities; the MH/SA adjustor is not applicable for MH/SA or rehabilitation at-risk stays. The expected number of PPHRs was then summed across all the at-risk stays for your hospital during the quarterly reporting period to get the expected number of PPHRs for an average hospital with the same mix and volume of DRGs, severity, age and mental health

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burden. This number is divided by the number of at-risk stays at your hospital to measure the PPHR rate for an average MS hospital with the same casemix and patient demographics.

**Calculating the actual-to-expected ratio:** Using the baseline casemix-adjusted statewide average rate, we then calculated the actual-to-expected ratio that measures how well your hospital performed. The actual-to-expected ratio compares the actual rate of PPHRs (or PPRs or PPEDs) for at-risk inpatient stays at your hospital to the expected rate for an average MS hospital with the same patient mix during the baseline year (CY 2018). Actual-to-expected ratios less than one indicate that your hospital performed better than the average MS hospital. Values greater than one indicate that your hospital performed worse than the average MS hospital. The PPHR average-to-expected ratio is the metric that is used for overall performance measurement. Note that actual-to-expected ratios are not calculated for low-volume hospitals. Low volume hospitals are defined as having fewer than five actual or expected PPHRs (or PPRs or PPEDs).

## 3 Interpreting Your Hospital's Quarterly QIPP Hospital Report

Your hospital's report contains six separate tabs: Cover, Hospital Summary, Chart Hospital Return Rate, Chart Performance, Hospital Detail, and Secondary Readmissions. This section of the Methodology summary contains an overview of each section.

### 3.1 Cover

The cover tab contains overview information helpful in reviewing the rest of the report. Note the glossary of key terms at the bottom of the tab; this glossary will help you understand the terminology we use throughout the report.

### 3.2 Hospital summary

The hospital summary tab provides an overview of your hospital's performance for all quarters since the baseline period. The section titled "Hospital Performance" contains information about your PPHR rate relative to statewide averages for a hospital with the same casemix and patient demographics as your hospital during the baseline period. The PPHR actual-to-expected ratio is the key metric for performance measurement. Actual-to-expected ratios greater than 1 indicate that your hospital is performing worse than the baseline statewide average. Actual-to-expected ratios less than 1 indicate that your hospital is performing better than the baseline statewide average. If your hospital's actual-to-expected ratio is listed as "Low Volume," that means that your hospital had fewer than 5 actual or expected PPHRs, and the actual-to-expected ratio was not computed. The PPHR rate and actual-to-expected ratio are shown for each quarterly reporting period since the baseline period.

The section titled "Additional Performance Metrics" lists your hospital's PPR and PPED rates, compares these rates to the casemix-adjusted statewide rates, and provides the actual-to-expected ratio for these metrics. The PPR and PPED rates are provided for your information only, and to help you interpret your PPHR rate. For example, if the PPHR actual-to-expected ratio is higher than 1, the PPR and PPED rates can help you determine if the higher than average PPHR rate is due primarily to inpatient readmissions or return ED visits, or both.

The "Details" section provides detailed data for each of the three metrics. This section provides the number of at-risk admissions, the number of at-risk admissions that led to at least one PPHR, PPR or PPED, and the total number of inpatient readmissions or return ED visits that followed an inpatient admission at your hospital. Note that the total number of PPHRs, PPRs, and PPEDs may include hospital return events that were part of a chain initiated at another hospital. The Details section lists the current reporting period details only (details from prior reports are not included).

### 3.3 Chart hospital return rate

The chart hospital return rate tab provides a graphic view of your hospital's PPHR, PPR, and PPED rates over time. The top chart plots PPHR rates over time, while the lower left chart shows PPR

rates and the lower right chart shows PPED rates. In each case, the solid line indicates your hospital's rate, while the dashed line indicates the rate at an average MS hospital with the same demographics and casemix during the baseline period.

### 3.4 Chart performance

The chart performance tab illustrates the actual-to-expected ratios over time for PPHRs (orange line), PPRs (blue line), and PPEDs (green line). The dashed gray line represents average performance during the baseline period. Points above the dashed line indicate worse than expected performance, while points below the dashed line indicate better than expected performance.

### 3.5 Hospital detail

The hospital detail tab lists all the initial admissions, inpatient readmissions, and return ED visits that occurred as part of a PPHR chain initiated at your hospital during the current reporting period. This listing may include inpatient readmissions and return ED visits that occurred at other hospitals, or that followed inpatient admissions at other hospitals, but that were part of a PPHR chain that started with an inpatient admission at your hospital. These inpatient readmissions and return ED visits are listed so that you can identify patients with frequent return visits to the hospital that may need additional care coordination in the community setting. All inpatient readmissions and return ED visits that are part of a PPHR chain are identified by the PPHR chain number in column A.

### 3.6 Secondary readmissions

The secondary readmissions tab lists all readmissions and return ED visits that were preceded by an inpatient stay at your hospital that was not the initial admission that generated the PPHR chain. These readmissions and return ED visits do not count against your hospital's PPHR rate, and are provided for your informational purposes only. These secondary readmissions may contribute to your overall assessment of strategies and approaches to reducing readmissions and return ED visits.

## 4 Statewide Performance during the Baseline Period

Across the state of Mississippi during the CY 2018 baseline period, the overall PPHR rate was 14.2%, indicating that 4,513 out of 31,684 at-risk stays led to at least one PPR, a PPED, or both. Among at-risk stays, 7.0% were followed by at least one PPR, while 8.2% were followed by at least one PPED. Table 4.1 below shows how the PPHR, PPR and PPED rates were distributed across Medicaid Care Categories (MCCs). MCCs are a clinical categorization scheme that groups medically similar stays. The 11 MCCs shown in the table reflect the policy areas of a typical Medicaid program and the internal organization of a typical hospital (with the exceptions of obstetrics and newborns, who are excluded from the QIPP population). MCCs are similar to the Major Diagnostic Category (MDC) scheme used by Medicare, although MCCs differentiate pediatric from adult patients (adult patients are categorized as those 21 years of age and older).

Table 4.1 also demonstrates that adult populations tended to have higher PPHR, PPR and PPED rates than pediatric patients. Note that the same stays are considered at-risk for PPHRs and PPRs; the reason the PPHR rate is higher is that it includes PPED visits in addition to PPRs. The number of at-risk stays for the PPED metric is higher than the number of at-risk stays for PPHRs and PPRs as some inpatient readmissions are also considered at-risk for a return ED visit.

For adult patients, the highest hospital return event rates were for circulatory and gastroenterology conditions, while for pediatric patients, mental health stays had the highest PPR rates, while pediatric miscellaneous stays had the highest PPED rates.

Medicaid Care Category	Number of Patients	At-Risk Stays	PPHR Rate	At-Risk Stays	PPR Rate	At-Risk Stays	PPED Rate
Adult misc	6,794	8,555	16.8%	8,555	7.6%	8,999	10.4%
Adult mental health	2,890	4,189	17.2%	4,189	9.2%	4,558	9.8%
Adult circulatory	2,147	2,784	20.6%	2,784	9.9%	2,983	12.0%
Adult gastroent	1,857	2,195	21.0%	2,195	10.0%	2,358	12.0%
Adult respiratory	1,677	2,126	17.7%	2,126	9.2%	2,309	9.4%
Adult transplant	2	2	0.0%	2	0.0%	2	0.0%
<b>Adult subtotal</b>	<b>13,574</b>	<b>19,851</b>	<b>18.0%</b>	<b>19,851</b>	<b>8.7%</b>	<b>21,209</b>	<b>10.6%</b>
Pediatric mental health	4,278	5,351	8.2%	5,351	5.7%	5,613	2.7%
Pediatric misc	3,364	3,793	9.3%	3,793	3.3%	3,853	6.0%
Pediatric respiratory	2,400	2,650	5.6%	2,650	2.1%	2,678	3.6%
Pediatric transplant	-	-	0.0%	-	0.0%	-	0.0%
<b>Pediatric subtotal</b>	<b>9,830</b>	<b>11,794</b>	<b>8.0%</b>	<b>11,794</b>	<b>4.1%</b>	<b>12,144</b>	<b>4.0%</b>
Rehab	38	39	5.1%	39	0.0%	39	5.1%
<b>Total</b>	<b>23,420</b>	<b>31,684</b>	<b>14.2%</b>	<b>31,684</b>	<b>7.0%</b>	<b>33,392</b>	<b>8.2%</b>

**Note:**

1. Patients may have at-risk inpatient admissions, inpatient readmissions and/or ED visits in more than one Medicaid Care Category. For this reason, the total number of patients is lower than the sum of patients across Medicaid Care Categories.

## Notes

<sup>1</sup> K.E. Joynt and A.K. Jha, “Thirty-day Readmissions—Truth and Consequences,” *New England Journal of Medicine* 366:15 (2012), pp. 1366-1369.

<sup>2</sup> C. Van Walraven, C. Bennett, A. Jennings, et al., “Proportion of Hospital Readmissions Deemed Avoidable: A Systematic Review,” *Canadian Medical Association Journal* 183:7 (2011), pp. E391-E402.

<sup>3</sup> A.E. Boutwell and S. Jencks, “It’s Not Six of One, Half-Dozen the Other,” presentation at the Academy Health 2011 annual meeting. The authors analyzed a dataset of 717,688 Massachusetts stays using the 3M PPR method, the Medicare method, and an all-cause method developed by United Healthcare.

<sup>4</sup> This report was produced using proprietary computer software created, owned and licensed by the 3M Company. All copyrights in and to the 3M [APR™] Software, and to the 3M [APR™ DRG] classification system(s) (including the selection, coordination and arrangement of all codes) are owned by 3M. All rights reserved.

<sup>5</sup> See, for example:

- Florida: [www.FloridaHealthFinder.gov](http://www.FloridaHealthFinder.gov), especially the methodological discussion at [www.floridahealthfinder.gov/Researchers/Reference/Methodology/Methodology.aspx](http://www.floridahealthfinder.gov/Researchers/Reference/Methodology/Methodology.aspx).
- Illinois: <https://www.illinois.gov/hfs/MedicalProviders/hospitals/PPRReports/Pages/default.aspx>
- New York: M. Lindsey, W. Patterson, K. Ray and P. Roohan, *Potentially Preventable Hospital Readmissions among Medicaid Recipients: New York State, 2007*, Statistical Brief No. 2 Albany, NY: New York Department of Health; M. Lindsey, W. Patterson, K. Ray and P. Roohan, *Potentially Preventable Hospital Readmissions among Medicaid Recipients with Mental Health and/or Substance Abuse Health Conditions Compared with All Others: New York State, 2007*. Statistical Brief No. 3. Albany, NY: NYDOH. See also W. Patterson, M. Lindsey and P. Roohan, *A Comparison of Potentially Preventable Hospital Readmissions where Preceding Admission Was a Behavioral Health, Medical or Surgical Admission: New York State Medicaid Program, 2007*. Statistical Brief No. 4. Albany, NY: NYDOH.
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<sup>6</sup> K. Quinn, P. Brown, “3M™ PPR ED: Potentially Preventable Revisits to the Emergency Department Methodology Overview,” Personal communication: April 4, 2019.

<sup>7</sup> This section is a summary of the PPR/ED methodology developed by 3M Health Information Systems and used for this analysis. No changes were made to the methodology for this analysis. For details about the PPR/ED methodology, licensed users can reference the PPR Classification System Definitions Manual at [https://apps.3mhis.com/download/3m\\_docs\\_secured/groupers/ppr/defman/v36\\_ppred/index.htm#acknowledgements.htm](https://apps.3mhis.com/download/3m_docs_secured/groupers/ppr/defman/v36_ppred/index.htm#acknowledgements.htm).

<sup>8</sup> K. Quinn, D. Weimar, J. Gray, B. Davies, “Thinking about Clinical Outcomes in Medicaid,” *Journal of Ambulatory Care Management* 39:2 (April-June 2016), pp. 125-135.

<sup>9</sup> Licensed users of the 3M PPR/ED algorithm can review details of the globally excluded conditions in the PPR Classification System Definitions Manual at

[https://apps.3mhis.com/download/3m\\_docs\\_secured/groupers/ppr/defman/v36\\_ppred/index.htm#acknowledgements.htm](https://apps.3mhis.com/download/3m_docs_secured/groupers/ppr/defman/v36_ppred/index.htm#acknowledgements.htm).

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