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Hospice Quality Reporting Program Fiscal Year 2015 Reporting Cycle Data Analysis

Final Report

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Fiscal Year 2015 Reporting Cycle Data Analysis**

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**HOSPICE QUALITY REPORTING PROGRAM
FISCAL YEAR 2015 REPORTING CYCLE DATA ANALYSIS**

Introduction

All Medicare-certified hospices with a valid Centers for Medicare & Medicaid Services (CMS) Certification Number (CCN) as of March 3, 2014 were required to submit data on two quality measures (QMs), the structural measure (SM) and the NQF #0209 pain measure, by April 1, 2014. The submission was part of the CMS Hospice Quality Reporting Program (HQRP) requirements for the fiscal year (FY) 2015 annual payment update (APU). The data collection period was calendar year 2013. Hospices submitted data aggregated to the CCN level through a web-based data entry system. A data export from the web-based system was provided to RTI International for analysis. The purpose of this report is to present our FY 2015 findings.

Hospices previously submitted SM and NQF #0209 data to CMS as part of the HQRP requirements for the FY 2014 APU, and all hospices had the option of reporting SM data in 2012 as part of the voluntary reporting period. RTI summarized the results from those analyses in prior memos and reports. (Rokoske, et al., 2013(a); Rokoske, et al., 2013(b); Rokoske, et al., 2013(c); Zheng, et al., 2012)

General Descriptive Statistics

According to CMS’s Quality Improvement and Evaluation System (QIES) system, 4,015 hospices were required to report for FY 2015. **Table 1** shows 3,621 hospices (90.2%) registered an account on the web-based data entry system. Of these, 3,616 (99.9%) entered data into the system and 3,606 (99.6%) submitted and attested data for at least one of the two measures.

We included in our analysis hospices that submitted and attested at least one of the two required measures, regardless of whether they were required to report for APU purposes (i.e., whether or not they had their CCN by the cutoff date for APU purposes). We applied measure-specific inclusions and exclusions based on data errors. These are discussed in the data analysis and findings section for each measure.

**Table 1.
Hospices Reporting Quality Data for the FY 2015 Reporting Cycle**

Measures	Number of Hospices		
	Registered	Entered Some Data	Attested
Structural Measure	3,621	3,591	3,502
NQF #0209 Measure	3,621	3,605	3,577
Both Measures	3,621	3,580	3,473
At Least One Measure	3,621	3,616	3,606

Structural Measure

Structural Measure (SM) Background

The SM was modified for FY 2015. In FY 2014, hospices were asked to respond to three questions. First, they indicated whether or not their Quality Assessment and Performance Improvement (QAPI) program included at least three patient care related quality indicators (QIs). Next, hospices selected the domains (and sub-domains when applicable) and specific topics of care their QIs addressed. Finally, hospices indicated the data source(s) for their QIs. For FY 2015, only the first question (Q1) was retained because CMS had obtained the information it needed regarding QAPI program content through the FY 2014 reporting cycle and the prior voluntary reporting period. Results from FY 2014 and voluntary reporting period analyses are summarized in a prior memo and report. (Rokokse, et al., 2013(a); Zheng, et al., 2012) CMS removed the SM requirement from the HQRP for FY 2016 and subsequent years.

Structural Measure Analytic Sample and Data Errors

We included in our analysis hospices that submitted and attested for at least one of the two measures because there was evidence that some hospices were not aware that they were required to submit and attest both measures individually. There were 104 hospices that submitted and attested NQF #0209 measure data but not SM data. Of these, 23 did not provide a response to Q1; the other 81 answered “yes” to Q1.

The only data error a hospice could make that would result in exclusion from the SM analysis would be to leave Q1 unanswered. Twenty-three (0.6%) hospices did not answer Q1, despite submitting and attesting NQF #0209 measure data, and were excluded from SM analysis. Therefore, the sample for SM analysis was 3,583.

Structural Measure Data Analysis and Findings

Table 2 shows the percentage of hospices for FY 2015 (and FY 2014 for comparison) who answered “yes” to the question “Does your QAPI program contain 3 or more patient care related quality indicators?” As with FY 2014, more than 99% of hospices included in the SM analysis answered affirmatively in FY 2015.

Table 2.
Hospices with 3 or More QIs Related to Patient Care in their QAPI Program

Hospices with ≥ 3 QIs		
	Number	Percent
FY 2014¹	3,248	99.5
FY 2015²	3,550	99.1

NOTES:

¹n=3,266

²n=3,583

Structural Measure Discussion

The original intent of the SM was for hospices to submit information about number, type, and data source of quality indicators used as a part of their QAPI Program. SM data gathered during the FY 2014 reporting cycle were used to ascertain the breadth and context of existing hospice QAPI programs to inform future measure development activities. In FY 2014 and FY 2015 reporting, the SM analysis shows that a very large proportion of hospices meet the SM requirement of having at least three patient related quality indicators in their QAPI programs. In addition, the SM shows very little variation. However, a small proportion of hospices do indicate that their QAPI program (required by the Medicare Conditions of Participation) does NOT contain at least three patient related quality indicators, indicating an opportunity for additional outreach and support for quality improvement in these hospices. Overall, findings from both the FY 2014 and FY 2015 data collections of the SM have provided adequate information on hospices' patient care-related indicators making further reporting on the SM unnecessary.

NQF #0209 Pain Measure

NQF #0209 Background

The NQF #0209 measures the percentage of patients who report being uncomfortable because of pain at the initial assessment and who report that pain was brought to a comfortable level within 48 hours. Patients who meet the eligibility criteria (able to communicate and understand the language of the person asking the question; able to self-report; and at least 18 years of age or older) are asked "Are you uncomfortable because of pain?" during the initial assessment. Patients who answer "yes" form the denominator of the measure, and are asked a subsequent follow-up question at 48-72 hours after the initial assessment. The follow-up question is: "Was your pain brought to a comfortable level within 48 hours of the start of hospice care?" Patients who answer "yes" to the follow-up question form the numerator of the measure.

NQF #0209 has been removed from the HQRP for FY 2016 and subsequent years because analysis of the FY 2014 reporting cycle data revealed two critical concerns with the measure. The first is that the measure does not easily correspond with the clinical processes for pain management, resulting in variance in what hospices collect, aggregate, and report. This concern could potentially be addressed by extensive and ongoing provider training or standardizing data collection at the patient level. The second (and more important) concern is the high rate of patient exclusion due to patient ineligibility for the measure and patients reporting they are not uncomfortable due to pain at the initial assessment. This high rate of patient exclusion from the measure results in a small and non-representative denominator and creates validity concerns. These concerns cannot be addressed by training or standardizing data collection. Results from FY 2014 and voluntary reporting period analyses are summarized in a prior memo and report. (Rokoske, et al., 2013(b) and 2013(c))

NQF #0209 Data Collection and Submission

For FY 2015, hospices were required to collect patient-level NQF #0209 data on all patient admissions January 1 – December 26, 2013 and report seven data elements (DEs) aggregated to the CCN level. The seven DEs were the same for FY 2014 and FY 2015. The only difference in NQF #0209 data collection and submission is the change in the data collection

period. For FY 2015, hospices submitted four quarters of aggregated data, while for FY 2014, they only submitted one quarter of data. The DEs are listed in **Table 3**.

NQF #0209 Data Analysis and Findings

The main purpose of the FY 2015 analysis for NQF #0209 is to answer the following questions about the NQF #0209 measure:

1. How many hospices can correctly report the QM, and what is the extent of data errors?
2. What is the extent of patient exclusion from the QM (DE4)? How does the number of patients included in the measure denominator (DE2) compare to the number of patients admitted to hospice (DE1)?
3. Were there any changes in findings related to errors and patient exclusions between FY 2014 and FY 2015?
4. Were there any changes in the QM scores from FY 2014 to FY 2015?

**Table 3.
NQF #0209 Pain Measure Data Elements Reported to CMS**

Total Admissions <i>January 1 – December 26, 2013</i> Initial Comfort Question Data <i>“Are you uncomfortable due to pain?”</i>	Data Element 1: Total number of admissions during the data collection period
	Data Element 2 (measure denominator): Patients who answered “yes” to the initial comfort question
	Data Element 3: Patients who answered “no” to the initial comfort question
	Data Element 4: Patients excluded from the measure*
Follow-up Comfort Question Data <i>“Was your pain brought to a comfortable level within 48 hours of the start of hospice care?”</i>	Data Element 5 (measure numerator): Patients who answered “yes” to the follow-up comfort question
	Data Element 6: Patients who answered “no” to the follow-up comfort question
	Data Element 7: Patients unable to self-report at follow up

*A patient is excluded if s/he is unable to communicate and understand the language of the person asking the question; unable to self-report; or younger than 18 years of age.

Sample and Data Errors

One of the concerns about data collection, aggregation, and reporting by hospices is the impact of data errors on the QM. The NQF #0209 measure specifications and data collection are challenging for implementation at the clinical level, and also present difficulties for providers when they are retrieving and aggregating patient-level data. We analyzed the error rates for NQF #0209 and compared them to FY 2014 findings. In **Table 4**, we show that 1,565 (43.4%) of hospices had one or more data errors, a 12.3 percentage point increase from the prior year. However, for FY 2015 hospices reported four quarters of data, compared to the one quarter of

data they submitted for FY 2014, effectively giving them more chances to make data collection errors.

**Table 4.
Frequency and Type of Data Errors**

Errors	FY 2014 ¹		FY 2015 ²	
	#	%	#	%
Hospices with one or more data errors	1,064	31.1	1,565	43.4
Hospices with one or more data errors resulting in exclusion	48	1.4	41	1.1
Any data elements left blank	1	0.0	6	0.2
de2 + de3 + de4 > de1 (number of admissions) ³	12	0.4	10	0.3
de5 + de6 + de7 > de2 (QM denominator) ⁴	42	1.2	29	0.8
Hospices with one or more other errors (missing data)	1,027	30.0	1,532	42.5
de2+de3+de4 < de1	642	18.7	1,019	28.3
de5+de6+de7 < de2	790	23.1	1,251	34.7

¹n=3,427

²n=3,606

³de2 + de3 + de4 > de1 indicates that the total number of patients who answered yes to, no to, or were not eligible to be asked the initial comfort question exceeds the number of admissions.

⁴de5 + de6 + de7 > de2 indicates that the total number of patients who answered yes to, no to, or who were unable to self-report for the follow-up question exceeds the number of patients who should have been followed up with.

As with FY 2014, the majority of errors (2,270) for FY 2015 were due to providers having “missing” patient-level data that cannot be accounted for in the aggregated DEs. The magnitude of missing data errors is striking. These two errors, DE2+DE3+DE4<DE1 (the total number of patients who answered yes or no to the initial comfort question and who are not eligible to be asked the initial question is less than the number of admissions) and DE5+DE6+DE7<DE2 (the total number of patients who answered yes or no to the follow-up question and who were unable to self-report at follow-up is less than the number of patients who should be followed up), represent 83,630 missing patients across all hospices in the analysis. In particular, the latter error represents 25,124 missing patients, or 11% of all patients in the QM denominator (DE2). Although the aggregated provider-level data does not provide insight into why so many patients were not accounted for, we offer some possible explanations based on the feedback we received from hospices. Missing data could be the result of hospices not asking the initial or follow-up comfort question to patients who should be included in the measure within the specified timeframe or not documenting patients’ responses. Missing data could also be the result of hospices aggregating data incorrectly or making data entry mistakes. For the purposes of this analysis, hospices with these errors were retained in the analysis.

Forty-one hospices (1.1%) had one or more errors that resulted in exclusion of their data from the NQF #0209 analysis, a slight decrease compared to FY 2014. These errors included having blank DEs, and/or DE2+DE3+DE4>DE1 (the total number of patients who answered yes

or no to the initial comfort question and who are not eligible to be asked the initial question exceeds the number of admissions) and/or DE5+DE6+DE7>DE2 (the total number of patients who answered yes or no to the follow-up question and who were unable to self-report at follow-up exceeds the number of patients who should be followed up). Therefore, the number of hospices whose data remained in the NQF #0209 analysis was 3,565.

Denominator Size

For a QM to be useful for public reporting, the majority of hospices should have sufficient sample size to meet minimum requirements for public reporting (i.e., had at least 30 patients who qualified for the denominator of this measure) after applying measure exclusion criteria. Denominator size for the NQF #0209 measure is determined by DE2, the number of patients who indicated that they were uncomfortable due to pain at the initial assessment (answered “yes” to the initial comfort question). Therefore, the denominator is not all patients admitted to hospice during a particular data collection period; it is a subset of patients admitted. As a first step in assessing the denominator size and its impact on reportability of the measure, we examined the distribution of hospices by DE2. **Table 5** shows that 629 (17.6%) of hospices had 1-10 patients (admitted between January 1 and December 26, 2013), that were included in the measure denominator because they reported having pain on admission. These same hospices accounted for 3,655 (1.6%) patients included in the denominator of the QM. These hospices also reported an average of 54.7 admissions per hospice during that same time period; thus less than one-fifth of their patients admitted were included in the denominator of the QM. The next highest frequency was for a denominator size of 11-20 patients. 616 or 17.3% of hospices were included in this category. Overall, 1,776 hospices (49.8%) had 30 or fewer patients in the denominator. These hospices were responsible for 25,295 patients, or 10.9% of all patients included in the denominator. On the other end of the spectrum, eight large hospices had a denominator size of more than 1000. They reported an average of 7,706 admissions during 2013. It is important to note, however, that because data was aggregated to the CCN level, we are

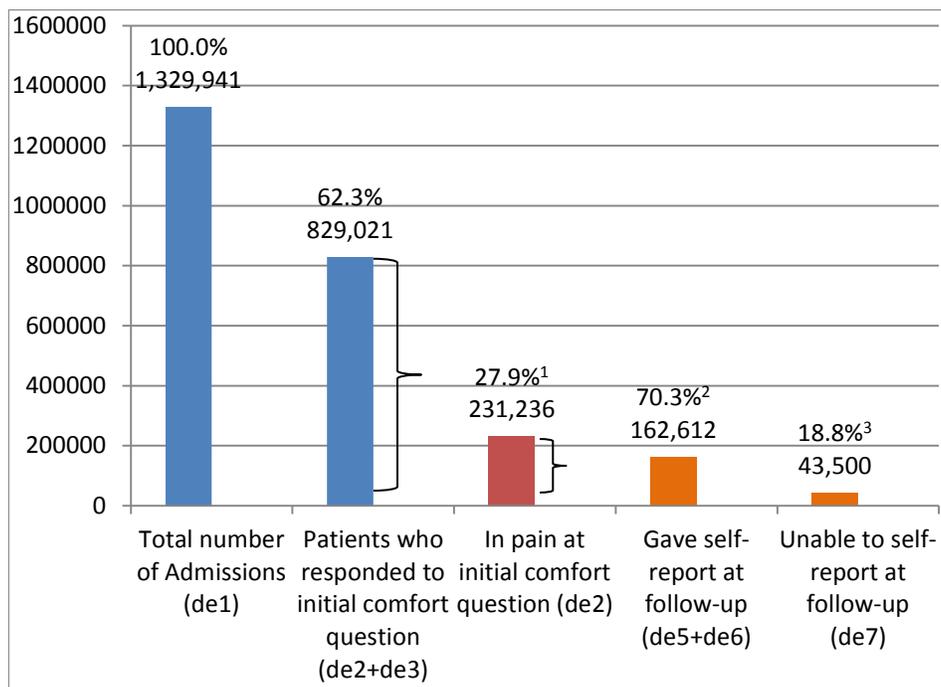
**Table 5.
Distribution of Hospices by QM Denominator (DE2)**

Denominator Size	Number of Hospices	Percent of Hospices	Average Admissions (DE1)
0	47	1.3	13.6
1-10	629	17.6	54.7
11-20	616	17.3	105.6
21-30	484	13.6	156.5
31-40	338	9.5	282.0
41-50	270	7.6	265.7
51-100	607	17.0	414.3
101-500	524	14.7	1032.1
501-1000	42	1.2	3169.8
1000+	8	0.2	7706.0
Total	3,565	100.0	373.1

unable to determine whether these numbers represent individual hospice sites or multiple hospice sites within a larger chain. In other words, we know that there are several large corporate hospice chains that include multiple sites/offices, some of which have their own CCN, and some of which have the “parent company” CCN. Therefore, the numbers we present may have a downward bias resulting in underrepresentation of the denominator size for these hospice chains.

Figure 1 shows the elimination of patients from calculation of the QM. For this analysis we aggregated hospices’ reported DEs to national patient population level. The total number of admissions (DE1) between January 1 and December 26, 2013 was 1,329,941. Of these, 829,021 (62.3%) of patients responded to the initial comfort question; the remaining patients met exclusion criteria such as unable to self-report at the time of the initial assessment, or less than 18 years of age or were unaccounted for by the hospice/missing data. Of the patients asked the initial comfort question, 231,236 (27.9%) indicated that they were uncomfortable because of pain; these patients form the denominator of the measure. Seen as a percentage of the total number of patients admitted to hospice between January 1 and December 26, 2013, the patients in the denominator would represent 231,236/1,329,941 or 17.4%. Of the 231,236 patients that indicated discomfort because of pain at initial assessment, 162,612 (70.3%) were able to self-report the follow-up question asked 48-72 hours after the initial question. 136,342 patients

Figure 1.
FY 2015 number and percent of patients represented in data elements



¹The denominator is 829,021 patients who responded to the initial comfort question.

²⁻⁴The denominator is 231,236 patients who responded yes to the initial comfort question.

reported that their pain was brought to a comfortable level within 48 hours; these patients make up the numerator of the QM. 43,500 (18.8%) patients were unable to report at follow-up due to deterioration in their condition or discharge from hospice; one of the criticisms from the hospice industry about the NQF #0209 measure is that these patients are retained in the measure denominator.

Therefore, QM Calculation is based on a very small subset of patients admitted to hospice. The denominator is reduced due to exclusions and the low number of patients reporting pain on admission. The numerator is affected by the lack of patients who are able to self-report at follow-up. These findings are consistent with the findings from the FY 2014 analysis.

Quality Measure Calculation

The NQF #0209 is calculated as follows: $DE5/DE2 \times 100$. QM scores are calculated for the hospices with data submissions that reported a non-zero DE2. 47 (1.3%) hospices submitted a value of 0 for the measure denominator (DE2); these hospices were eliminated from the QM calculation. Therefore the QM calculation includes 3,518 hospices. Note that hospices with a small denominator (i.e. fewer than 30 patients in the denominator) are included in the table, but the scores of these hospices may not be reliable for public reporting.

The mean QM score was 64.8% (S.D. 23.9), indicating that on average nearly two-thirds of patients who were admitted with discomfort because of pain report that their pain was brought to a comfortable level within 48 hours of the start of hospice care. Our data shows that 9.1% of hospices had a “perfect score”; all of their patients that reported being uncomfortable because of pain on initial assessment reported that their pain was brought to a comfortable level within 48 hours. We examined the distribution of hospices across the QM scores. **Table 6** shows that the majority of hospices scored >60% on the QM, with more than a quarter scoring >80%. Table 6 also shows the average denominator size for each QM score category. Hospices with a smaller denominator tend to have a QM score located at either the high or low end of the distribution, compared to those with a large denominator.

Table 6.
Distribution of Hospices Across QM Scores

QM Score	FY 2014 ¹			FY 2015 ²		
	#	%	Average Denominator	#	%	Average Denominator
0 to 20%	300	9.4	10.3	190	5.4	41.4
>20 to 40%	334	10.4	20.5	365	10.4	67.9
>40 to 60%	702	21.9	31.3	833	23.7	113.6
>60 to 80%	835	26.0	20.4	1142	32.5	62.0
>80 to 100%	1,035	32.3	8.8	988	28.1	33.6
Total	3,206	100.0	18.1	3,518	100.0	65.7

NQF #0209 Discussion

The findings for FY 2015 confirmed those of the FY 2014 data and reaffirm CMS's decision to no longer require the NQF #0209 measure as part of the HQRP. Data errors affected 43.4% of all hospices' data submissions, a 12.3 percentage point increase from the prior year, suggesting that hospices are not improving with time. However, for FY 2015 hospices submitted four quarters of data, compared to the one quarter of data they submitted in FY 2014, effectively giving them more chances to make data errors. Yet, the aggregated data does not reveal the exact nature of these errors or the impact they may have on the validity of the measure.

Data analysis also shows that, overall, only a very small percentage of patients admitted to each hospice would be represented by this QM. The high number of patients excluded from the measure would preclude hospices with a small average daily census from publicly reporting a facility-level QM. In addition, the NQF #0209 measure denominator specifications only include patients who answered "yes" to the initial comfort question. As a result, patients that are not uncomfortable at the time of the start of hospice care, but who develop pain later are not captured by this measure. Nearly half of the hospices had denominators of 30 or smaller.

There are some differences in QM scores between FY 2014 and FY 2015. With four quarters of data, a slightly smaller proportion scored in the 0 to 20% range as well as the >80 to 100% range. As in FY 2014, hospices with the largest denominator are in the >40 to 60% range, while those with smaller denominators are more likely to find themselves at the extreme ends.

Conclusion

In conclusion, our findings from the FY 2015 closely mirror those from FY 2014 for both the SM and the NQF #0209 measure. This is true despite the fact that FY 2014 was based on one quarter of data and FY 2015 was based on four quarters of data. These findings support CMS's decision to discontinue both measures for future reporting cycles in favor of implementing patient-level data collection using the Hospice Item Set (HIS) in the HQRP to collect standardized data to calculate seven QMs (six NQF-endorsed QMs and a modification of one NQF-endorsed QM). In addition, CMS plans to implement a patient/family post-discharge survey in the near future that will provide information about the patient/family experience of hospice care.

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