Technical Expert Panel Summary Report: Development of Home Health Within-Stay Potentially Preventable Hospitalization Measures for Home Health Agencies (HHAs)

September 2019

ACKNOWLEDGMENTS

We would like to thank the members of our technical expert panel for their valuable contributions to this work. In particular, we would like to acknowledge our chair person, Dr. Terrence A. O'Malley, for his service.

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1. Section 1 – Introduction

CMS has contracted with Abt Associates to develop potentially preventable hospitalization measures. The contract name is Outcome and Assessment Information Set (OASIS) Quality Measure Development and Maintenance Project. The contract number is HHSM -500-2013-13001I, Task Order HHSM-500T0002. As part of its measure development process, CMS asks contractors to convene groups of stakeholders and experts who contribute direction and thoughtful input to the measure contractor during measure development and maintenance.

On April 24, 2018, Abt Associates Inc. convened the first Technical Expert Panel (TEP) webinar meeting to seek input on the development of a within-stay potentially preventable hospitalization (PPH) measure for home health. On June 14, 2018, Abt convened an in-person TEP meeting and then subsequently held a final follow-up TEP webinar on December 12, 2018 to provide additional input on PPH definition and measure specifications.

1.1. *Background and Purpose*

As part of its measure development process, CMS asks contractors to convene groups of stakeholders and experts who contribute direction and thoughtful input to measure contractors during measure development. This report provides a summary of the TEP process and proceedings, detailing the discussion of key issues and the technical expert panel's recommendations.

The all-cause measures provide a foundation for developing hospitalization measures that are more narrowly defined, yet there is not currently an approach that solely addresses potentially preventable hospitalizations for post-acute care (PAC). Though a variety of methodologies and definitions of potentially preventable readmissions or hospitalizations have been developed and used throughout the literature, there is no consensus or existing approach pertaining to how these could be defined specific to PAC providers. Given this context, the primary objectives of the TEP were to develop an approach for defining potentially preventable hospitalizations and to provide input on a preliminary set of conditions that would be considered potentially preventable causes of a hospital admission from home health, on the basis of a comprehensive environmental scan and other clinical and technical input. In addition, the TEP provided input on the measure specifications, including measure exclusions and the risk adjustment approach

1.2. *Organization of the Report*

This report summarizes the TEP proceedings for the development of a within-stay potentially preventable hospitalization measure for home health. Section 2 details the TEP selection process and composition, as well as the environmental scan and approach for defining potentially preventable admissions. Section 3 outlines the TEP's discussion of issues and recommendations during webinars and an in-person meeting. Section 5 provides the main takeaways from the TEP and the next steps for PPR measure development.

2. Section 2 – Process of the TEP Meeting

2.1. *TEP Selection and Composition*

In January 2018, the measure development team began seeking TEP nominations with the posting of a Call for TEP announcement and a TEP Nomination Form on the CMS website. To increase awareness about this TEP opportunity, Abt contacted several key stakeholders, such as national provider associations, former TEP members, and other national experts, via email. The nomination period lasted approximately 4 weeks, and the process of selecting TEP members began in March. Given that the focus of this TEP was to obtain feedback on development of a PPH definition, measure developers prioritized nominees with strong clinical backgrounds and those with knowledge of hospital admissions and technical expertise in quality measurement and risk adjustment during the TEP selection process. Abt made a strong effort to select a balanced panel with respect knowledge of Home Health, along with experts with cross-setting perspectives that could consider broader post-acute care issues. In March 2018, 11 nominees were appointed to the TEP, including a TEP Chair. For more details on the TEP composition, see Table 1 below.

Table 1: TEP Composition List

Name, Credentials, and Professional Role	Organizational Affiliation, City, State	Practicing Clinician	Quality Improvement	Performance Measurement of hospitalizations	Claims-based QM Development	Research Methods: risk adjustment /statistical analyses	Data Collection and Implementation	Health Disparities	Consumer/ Patient Perspective	Conflict of Interest Disclosure
Kintrell Liddell, MD Vice President Healthcare Quality Management	Mid-Delta Health Systems, Inc., Total Health Care Services, Inc. Adult Day Care Starkville, MS	Y	x	x			x	x		**None**
Timothy Peng, Phd, Vice President Healthcare Quality Management	Visiting Nurse Service of New York, New York, NY	N	x	X	x	X	X	X		**None**
Gayle Kricke, PhD, MSW Clinical Quality Leader	Northwestern Memorial Healthcare Chicago, IL	N	X	X			X	X	x	**None**
Terrence O'Malley, MD, TEP chairman. Director of Non-Acute Care Services	Partners Healthcare System Boston, MA	Y	X	X		X	X	X		**None**
Rebecca Cartright, MBA, MSW, FACHE Executive Director Home Care	Baptist Health Home Care Lexington, KY	N	X	X			X		X	**None**

Name, Credentials, and Professional Role	Organizational Affiliation, City, State	Practicing Clinician	Quality Improvement	Performance Measurement of hospitalizations	Claims-based QM Development	Research Methods: risk adjustment /statistical analyses	Data Collection and Implementation	Health Disparities	Consumer/ Patient Perspective	Conflict of Interest Disclosure
Misty Kevech, MS, RN RN Project Coordinator	Quality Insights Charleson, WV	Y	X	X		X		X	X	None
Robert Rosati, PhD Chair of the Connected Health Institute and VP of Data Research and Quality	VNA Health Group, Holmdel, New Jersey	N	X	X	X	X	X			None
Melissa Butler, RN COS-C, HCS-O, COQS Sr. Director Clinical CAM	Amedisys Inc. Baton Rouge, LA	N	X	X			X			
Tracy Mroz, PhD Assistant Professor	University of Washington - Department of Rehabilitation Medicine; OT Division Seattle, WA	Y	X	X	X	X	X			None
Chloe Slocum, MD, MPH Associate Medical Director of Quality	Spaulding Rehabilitation Network	Y	X	X			X		X	None
Susan Hinck, PhD, APRN Administrator	Haven Home Health and Therapy Ozark, MO	Y	X	X		X	X			None

3. Section 3 – TEP Proceedings

3.1. *Defining Potentially Preventable Hospitalizations*

In advance of the first TEP webinar, the Abt team prepared preliminary data analytic output to aid the newly-formed TEP to learn of prior measure development work that served as the building block for this measure development effort. The Abt team followed the established approach used previously in the development of the cross-setting potentially preventable readmission measures[1]. The defining of potentially preventable hospitalization relies on the previously developed conceptual framework that for certain diagnoses, proper management and care of the condition by the home health agency, combined with appropriate, clearly explained, and implemented discharge instructions and referrals, can potentially prevent a patient's admission to the hospital. On the basis of this framework, the team followed the working conceptual definition for potentially preventable hospitalizations for home health created during the development of the home health 30-days post discharge potentially preventable readmission measure. Although not specific to PAC or hospitalizations, the team used AHRQ PQIs/Ambulatory Care Sensitive Conditions (ACSCs) as a starting point for this work. The list of ACSCs consists of conditions for which hospitalization can potentially be prevented, given good outpatient care and early intervention.[2]

Abt also performed analyses on Medicare claims data to identify the most frequent diagnoses associated with admissions among home health beneficiaries (see Appendix), and then applied the conceptual PPH definition to evaluate whether these common conditions for a hospitalization may be considered potentially preventable. This list of conditions identified from the literature and claims analysis formed the preliminary PPH definition.

The main objective of the TEP was to develop a definition for potentially preventable hospitalizations for home health. Most of the in-person TEP meeting was focused on discussing the measure development team's proposed PPH definitions. Before the meeting, the list of PPH conditions was presented to TEP members. The list of conditions, grouped based on clinical rationale, was the foundation for the clinical discussion during the meeting. The following clinical rationales were developed:

- Inadequate management of chronic conditions
- Inadequate management of infection
- Inadequate management of other unplanned events
- Inadequate prophylaxis
- Inadequate injury prevention

Abt provided a worksheet for TEP members to rate (1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = strongly agree) and provide written comments for each of the proposed conditions. The worksheet also provided the opportunity for TEP members to suggest additional conditions for consideration. The Appendix includes a copy of the TEP worksheet. The worksheets, which were collected at the end of the meeting along with TEP discussion surrounding the proposed PPH definition, formed the basis of the PPH definition and measure development.

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[1] https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Post-Acute-Care-Quality-Initiatives/Downloads/Potentially-Preventable-Readmissions-TEP-Summary-Report.pdf

[2] Agency for Healthcare Research and Quality: AHRQ Quality Indicators—Guide to Prevention Quality Indicators: Hospital Admission for Ambulatory Care Sensitive Conditions. AHRQ Pub. No. 02-R0203. Rockville, MD. Agency for Healthcare Research and Quality, 2001.

3.2. *Summary April 2018 Webinar*

3.2.1 Discussion of Observation Window

The April 2018 Webinar kicked off with an overview of TEP logistics for the full committee. TEP participants reviewed the claims-based quality measures currently in the Home Health Quality Reporting Program (HH QRP), including the Acute Care Hospitalization (NQF# 0171), the Re-hospitalization during the First Thirty Days (NQF# 2380), and the Thirty Day Post-Discharge Potentially Preventable Readmissions (PPR) measures. The team specifically reviewed the observation window for each of these measures and how each could be a template for the PPH measure. The TEP favored a measure based on the full home health stay, with a stay defined as a sequence of home health payment episodes separated from other home health payment episodes by at least two days. Table 2 below presents the observation window for each of the three measures considered and the new measure. The TEP further agreed, that similar to the HH PPR QM, this new measure should exclude planned hospitalizations.

Table 2: Comparison of Numerator Specifications

Measure	Numerator Details		
	Observation Window	Condition Type	Setting
Acute Care Hospitalization	During first 60 days of HH	All Cause Unplanned	Inpatient Admissions
Re-hospitalization	During first 30 days of HH	All Cause Unplanned	Inpatient Readmissions
30 Day Post-Discharge Potentially Preventable Readmissions	30 days post-discharge from HH	Potentially Preventable	Inpatient Readmissions
Within-Stay Potentially Preventable Hospitalizations	**Within stay**	**Potentially Preventable**	**Inpatient Admissions**

3.2.2 Calculation of Rate of Potentially Preventable Hospitalizations

The team presented the TEP with three ways of defining potentially preventable hospitalization rates, described as the within-stay rate, the observation cap rate, and the events per time rate.

Within-Stay Rate

The within-stay rate is defined by the following steps:

1. Gather all eligible stays for each agency (Denominator)

2. Flag stays that have at least one PPH event during the stay (Numerator)

3. Agency-level rate is:

$$\frac{\text{\# HH stays with at least one PPH event during the stay}}{\text{\# of eligible HH stays}}$$

TEP members favored this approach because it was the simplest approach for both providers and patients to understand and it is consistent in approach to the 30-Day Post Discharge PPR measure. The TEP's main concern with this approach to defining rate of hospitalization was that it would not account for agencies that may have patients with longer lengths of stay. The team presented risk-adjusted hospitalization rates using this method that showed that rates remain very stable even for the longest stays when risk adjusted.

Observation Cap Rate

The observation cap rate method was defined by the following steps:

1. "Gather all eligible stays for each agency" (Denominator)

2. Flag stays that have at least one PPH event during the stay **during the first X days** (Numerator)

3. Agency-level rate is:

$$\frac{\text{\# HH stays with at least one PPH event during the first X days}}{\text{\# of eligible HH stays}}$$

TEP members liked this approach of calculating rate of hospitalization because it assessed the period of time when the patient was at highest risk for preventable hospitalization. The team presented different options for capping the observation time, including <30, 30-60, 60-120, 120-180, and 180-360 days. The adjusted rate increased as the days included in the observation window increased, up to 360 days. The TEP's major concern with this method was that it did not hold agencies accountable for performance during the entire home health stay for the shorter time windows. The TEP was also concerned with the unintended consequences of agencies not enrolling patients who may be at risk for re-hospitalization during a shorter observation window and use of the cap method.

Events Per Time Rate

The third approach considered was the events per time method that is defined by the following steps:

1. "Gather all eligible stays for each agency"

2. Sum up the total length of time for all stays

3. Count the number of PPH events across all stays

4. Agency-level rate is:

$$\frac{\text{\# of all PPH events during HH stays}}{\sum \text{(eligible HH stay-lengths)}}$$

The TEP had strong concerns with this approach since it had the potential of double-counting PPH outcomes. This method addressed stay length concerns but after the TEP saw that the within-stay rate method when risk adjusted also addressed concerns around length of stay they overwhelmingly did not favor this approach.

After discussion of the benefits and concerns with each method, the TEP strongly favored the within-stay rate methodology as the most comprehensive and also simplest for the general public to understand as a measure that could be added to the home health quality reporting program.

3.2.3 Inclusion of Observation Stays

The TEP was asked by the measure development team to assess the potential for including observation stays within the definition of hospitalizations. TEP members noted that there is evidence from literature that observation stays are on the rise. They also noted that hospitals could misuse observation stays as a means of reducing their readmission rates since other measures of readmissions and hospitalizations did not currently account for observation stays. There was a concern that observation stays could be double counted if an observation stay was to become an inpatient stay at a later time. The team confirmed in a review of the claims data that these stays would not be double counted because of the length of time before the claims data is compiled. This means that there will be a clear determination if the stay remains

an observation stay or becomes an inpatient stay. TEP members suggested that the same concept used to define a preventable hospitalization would also apply to a preventable observation stay and observation stay inclusion in the definition would help to capture cases of preventable hospitalization that would otherwise not be captured. The TEP agreed to add observation stays to the definition of potentially preventable hospitalizations.

3.3.   Summary of June 2018 In-Person TEP Proceedings

This section of the report summarizes the TEP discussions throughout the in-person June 2018 meeting. TEP members provided general feedback as well as specific feedback related to PPH definitions. We categorized TEP comments into major themes, as described below, and summarized the detailed clinical discussions on specific conditions or sets of conditions for which hospitalizations may be considered potentially preventable.

Recap of Discussions and Decisions from April 2018 TEP Webinar

The team started the in-person meeting with a review of the conclusions from the prior TEP webinar meeting. TEP members reaffirmed the decision to use the within-stay rate calculation and the decision to include observation stays.

3.3.1   Within-stay PPH Definition
The team also reviewed the background research that guided the approach to the PPH measure definition:

- The Yale/CMS Planned Readmission Algorithm[3] used for numerator exclusion criteria. This focuses on removing any planned readmissions.

- The AHRQ Ambulatory Care Sensitive Conditions (ACSCs)[45]

- The Potentially Preventable Within Stay Readmission Measure for Inpatient Rehabilitation Facilities[6]

3.3.2   Discussion of Potentially Preventable Condition Groups
Before the TEP meeting, the TEP was provided the listing of clinical conditions defined by the AHRQ ACSCs as conditions for which good outpatient care can potentially prevent the need for a hospitalization. The clinical conditions grouped based on clinical rationale are the following:

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[3]   https://hscrc.maryland.gov/documents/HSCRC_Initiatives/readmissions/Version-2-1-Readmission-Planned-CMS-Readmission-Algorithm-Report-03-14-2013.pdf

[4]   https://www.ahrq.gov/downloads/pub/ahrqqi/pqiguide.pdf

[5] [5]   Agency for Healthcare Research and Quality: AHRQ Quality Indicators—Guide to Prevention Quality Indicators: Hospital Admission for Ambulatory Care Sensitive Conditions. AHRQ Pub. No. 02-R0203. Rockville, MD. Agency for Healthcare Research and Quality, 2001.

[6]   https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/IRF-Quality-Reporting/IRF-Quality-Reporting-Program-Measures-Information-.html

Table 3: Potentially Preventable Conditions by Group

Potentially Preventable Condition	HH Within-stay PPH Definition	IRF Within-stay PPR Definition	HH Post-Discharge PPR Definition	AHRQ Ambulatory Care Sensitive Conditions/Performance Quality Indicators
Inadequate management of chronic conditions				
Congestive heart failure (CHF)*	X	X	X	X
Chronic obstructive pulmonary disease (COPD)*	X	X	X	X
Diabetes short-term complication*	X	X	X	X
Hypertension*/Hypotension	X	X	X	X
Adult asthma*	X	X	X	X
Inadequate management of infections				
Septicemia (except in labor)	X	X	X	
Urinary tract infection*/ Kidney infection	X	X	X	X
Bacterial pneumonia*	X	X	X	X
Skin and subcutaneous tissue infections	X	X	X	
C. difficile infection	X	X	X	
Influenza	X	X	X	
Inadequate management of other unplanned events				
Acute kidney failure*	X	X	X	X
Dehydration*/ Electrolyte imbalance	X	X	X	X
Arrhythmia	X	X	X	
Anticoagulant complications	X	X		
Deep vein thrombosis / Pulmonary embolism	X	X		
Aspiration pneumonitis; food/vomitus	X	X	X	
Deficiency and other anemia	X	X		
Pressure ulcers	X	X	X	
Intestinal impaction	X	X	X	
Acute delirium	X	X		
Inadequate injury prevention				
Head injury	X	X		
Fractures	X	X		

TEP members discussed whether the information used in each clinical grouping should be solely based on claims or also include assessment data. The measure development team stressed that the condition groupings are established using claims data that are robust enough to include the national population of home health patients. The team also stressed that the focus will be on the principal diagnosis on each inpatient or observation stay claim. A TEP member discussed a concern about a delay in coding for some

kinds of conditions in which additional time is needed to determine a principal diagnosis, such as CHF. CHF is difficult to identify and requires a constellation of symptoms. Another clinician on the panel noted that measure development team will need to highlight the difference between the patient's condition(s) and the main reason for the patient's current hospitalization.

A number of TEP members stressed the need for this measure to not be biased against underserved populations. They shared the need to run analyses to determine whether smaller or rural home health agencies (HHAs) are disproportionately affected by how the measure is constructed. They stressed also the need to consider transportation needs that can be barrier to some HHAs and that could limit a patient's ability to follow through on a home health agency's coordination of care efforts. The measure team will seek to look at regional indices that define rural and urban areas in an effort to assess the impact of geographical variation on this measure.

The TEP discussed the clinical groupings with the goal of addressing the following questions for each grouping and specific conditions within each group:

- Are there any conditions that would not be applicable for the home health measure?
- For each condition, are we able to apply the same inpatient definition to observation stays?
- Are there clinical codes that should be removed from the definition?
- Are there any additional clinical codes that should be considered as part of the definition?

Inadequate management of chronic conditions

When discussing the clinical grouping of inadequate management of chronic conditions, the TEP supported inclusion of CHF, COPD, diabetes short-term complication, hypertension/hypotension, and adult asthma in the within-stay potentially preventable hospitalization definition. Some members with clinical expertise noted that hypertension is likely to be the primary diagnosis and that hypotension, though less common, required early identification for best clinical results. Members also discussed that with chronic conditions, education around proper medication and compliance to clinical guidelines can reduce the likelihood of hospitalizations. One TEP member also wondered how the TEP should consider conditions with relatively low occurrences in the data such as adult asthma. The group discussed that low volume conditions can still be very important as the burden of identifying the conditions and preventing cases that require clinical treatment are offset by the reduction in likelihood of hospitalizations.

Inadequate management of infections

- *Septicemia.* The TEPs discussion of septicemia began with a concern around the HHA's responsibility with respect to this condition. A TEP member suggested that the HHA has early identification responsibility. Other TEP members were concerned that the HHA has limited control to deal with sepsis once the patient is presenting signs of sepsis. Another TEP member noted that sepsis could be present with other conditions at the start of hospitalization and that there needs to be a focus on sepsis as the primary diagnosis. The TEP discussed infection control strategies that would limit a patient's condition reaching the point of a sepsis diagnosis. The group reviewed the prevalence data on sepsis conditions and noted the largest category is unspecified sepsis. A number of TEP members shared that sepsis is broad category that encapsulates a broad range of infection control failures. The TEP supported including sepsis in the PPH definition with the understanding that it is the primary diagnosis for hospitalization and not a condition that presents after the patient is hospitalized.

- *Urinary Tract Infection/Kidney Infection.* The TEP supported including these conditions in the PPH definition. One TEP member shared that even though the specific organism that is the source of the infection may not be known at admission, this is an issue that HHAs can positively impact. A TEP member suggested that conditions in which a UTI develop for a patient with a catheter should be included. The TEP agreed with this suggestion. Since UTI source can be undefined,

one TEP member argued for including all aspects of UTI in the definition of PPH and the TEP supported this recommendation.

- **Bacterial Pneumonia.** The TEP noted that with this condition, there is a need for identification, communication and immunization. One TEP member shared that as a clinician it is critical that the HHA strives to ensure that patients have follow-up x-rays. Some TEP members raised concerns with a HHA having limited capacity to ensure patients follow through with appointments even if they are established through HHA efforts. The TEP agreed that processes could be put in place to help guide the patient to their primary care provider or other provider that would reduce the risk for a hospitalization. The TEP therefore supported including bacterial pneumonia in the definition of PPH.

- **Skin and Subcutaneous tissue infection.** TEP members believed that preventing wounds to the skin is an area of clinical strength for HHAs. One TEP member shared that home health aides are being trained as part of a national intervention to better manage wound care. TEP members supported the inclusion of these conditions in the PPH definition.

- **C. Difficile Infection.** TEP members noted that HHAs have opportunities for early detection of C. Difficile. They also stressed that the patient presenting with this infection likely had a previous, recent hospitalization. The TEP agreed to include C. Difficile in the PPH definition.

- **Influenza.** There was broad agreement amongst TEP members that HHAs can confirm the flu vaccination status of patients and encourage vaccination if necessary, thereby reducing the patient risk of hospitalization due to influenza. The TEP supported including influenza as a part of the PPH definition.

Inadequate management of other unplanned events

The TEP supported the inclusion of Dehydration/Electrolyte Imbalance, Intestinal Impaction, and Deep Vein Thrombosis/Pulmonary Embolism in the PPH definition by votes of assent without additional discussion.

Below are other inadequate management of unplanned events discussed by the TEP:

- **Acute kidney failure.** One TEP member reviewing the data noted that this is a diagnosis of unspecified origin. Another TEP members shared that, similar to sepsis, this diagnosis is a catchment for any number of conditions whose root cause may be difficult to determine. One TEP member wondered whether the real issue is a case of dehydration. The measurement team noted that the issue of primary diagnosis is based on what is coded on the claim and not necessarily what is written in any clinical notes. The TEP supported the addition of acute kidney failure to the PPH definition.

- **Arrhythmia.** The TEP raised a number of issues that a HHA could address to reduce the likelihood of hospitalization based on this condition. One TEP member suggested that heart rate should be checked at every HHA visit and that everyone from nurses to therapists to aides can be checking a patient's heart rate. Another TEP member noted that early identification is possible for an engaged HHA. The TEP supported including arrhythmia in the PPH definition.

- **Anticoagulant complications.** The TEP supported the addition of these conditions to the PPH definition since the patient's medications should be checked regularly. A regular review of medications should lower the risk of hospitalization from this condition area.

- **Aspiration Pneumonitis.** The TEP supported the inclusion of this condition in the PPH definition because HHAs regularly engage in speech therapy and education of family members or patients around prevention of this condition.

- *Deficiency and Other Anemia.* During discussion of this condition area, TEP members stressed the need for medication compliance for nutrients such as Iron or Vitamin B12. Another TEP member shared that although the counts of cases of these conditions are low in this condition group, there are interventions that can be implemented. The TEP provided support for the inclusion of these conditions in the PPH definition.

- *Pressure Ulcers.* The TEP noted that stage one or two ulcers should not be reason for hospitalization. The TEP supported the inclusion of pressure ulcers greater than stage two in the PPH definition since there are a number of interventions a HHA could implement to prevent the worsening of a pressure ulcer or injury.

- *Acute Delirium.* The TEP did not support the inclusion of acute delirium in the PPH definition. TEP members were especially concerned that this is a condition that may often be miscoded. Other concerns were that in the vast majority of cases, delirium would be a secondary diagnosis. Occurrence of acute delirium as a principal diagnosis was less than half of one percent in national data. Another TEP member suggested that a better focus for conditions in this area could be on decline in mental, emotional, or behavioral status.

Inadequate injury prevention

One clinician TEP member shared that HHAs can meaningfully impact this condition area but also stressed that a robust risk adjustment is also necessary. The TEP noted that sociodemographic issues can impact falls risk and injuries that could be related to falls. One TEP member shared that they would not be comfortable including inadequate injury prevention in the PPH algorithm without adequate risk adjustment. A few clinicians specifically noted cognitive and functional status as necessary components of risk adjustment if inadequate injury prevention is included. The measure team agreed to assess these items as part of the measure's broader risk adjustment approach. The TEP supported including inadequate injury prevention in the PPH definition with an understanding that comprehensive risk adjustment model would be developed for this measure.

Other Condition Groups

- The TEP members were given the opportunity to suggest other conditions not listed in the main group of conditions that were compiled before the meeting. During the TEP meeting, the TEP could review a broader data workbook of results that listed diagnoses for home health patients with an inpatient or observation stay. The following items are the result of TEP's broader review of conditions.

- *Behavioral Health.* A number of TEP members expressed interest in seeing some more diagnoses related to behavioral health. A TEP member noted that the diagnoses that could result in a hospitalization would be psychotic breaks or suicidal ideation. Another TEP member raised the issue of the kinds of clinical staff available to HHAs that could diagnose a psychiatric issue. They were concerned with a RN without specialized training trying to make a psychiatric diagnosis. A number of other TEP members noted that a social worker would be in a better position to address psychiatric issues. Another TEP participant wondered why dementia or cognitive impairment didn't make it on the list of conditions. The measure development team shared that the inpatient psychiatric facility (IPF) claims are not currently included in the measure data set. This measure is constructed with alignment to the hospital-wide readmission measure. Analysis found that the readmissions model didn't work appropriately for psychiatric patients. The measure development team agreed to pull IPF claims to see whether they could be helpful in broadening the PPH definition to some behavioral health areas. Numerous TEP members spoke of the scarcity of resources available for behavioral health and some members acknowledged that these resources can be especially scarce in rural areas.

- *Dementia, cognitive impairment.* A TEP member noted that HHAs are better positioned to address issues of dementia and other cognitive impairment, which are issues that could result in a

hospitalization. A TEP member shared that dementia is chronic, not acute and that HHAs can make a difference for patients with chronic dementia. They noted that patients with dementia can avoid hospitalization with good follow-up care. A final TEP member shared that dementia may be the reason for diagnosis but it's not going to be the primary diagnosis because it won't be reimbursed.

- *Opioid Misuse.* One TEP member asked the broader TEP if there is anything that could be done to reduce opioid misuse. She reported seeing an uptick in cases in her health system. The measure development team looked at a broader set of terms in the full diagnosis listings and found 347 cases. A TEP member noted that the primary diagnosis won't be medication misuse but some other condition such as CHF or respiratory failure. The TEP agreed that more data would be necessary before inclusion of this condition area in the PPH definition.

- *Stroke.* Some TEP members saw an opportunity for inclusion of this condition area in the PPH definition since they believed that an HHA has an opportunity for early identification of precursors to a stroke. The HHA can assess blood pressure and medication adherence and may have more actionable tasks if the patient has a cardiac-related diagnosis. The TEP suggested to the measure development team to further explore the inclusion of stroke.

- The TEP also considered orthopedic procedures, diabetes, seizures, all of which had results smaller than 100 in the diagnostic listing database available to TEP meeting attendees. The TEP agreed in principle to not include any condition in the definition that had fewer than 100 occurrences in the national claims data for a calendar year.

Observation Stay Definition Discussion

The TEP reviewed the listing of potentially preventable clinical groupings for home health patients who had an observation stay. The measure team noted that there was a difference in rank order of conditions with largest occurrences from the rank order based on inpatient stays. The TEP suggested that the same decisions that were made in review of inpatient clinical condition groupings should apply to the inclusion criteria for potentially preventable observation stays.

3.3.3   Preliminary Risk Adjustment

The measure development team presented the team's work on risk-adjustment modeling and sought input from the TEP on the current indicators included in the model. The team started with demographic indicators along with indicators of care received within a year of the home health stay. One TEP member asked the measure development team to look at data sources beyond post-acute and acute care such as psychiatric admissions. Another TEP member asked whether it was feasible to include an indicator of caregiver involvement that is available via the OASIS assessment tool. Other TEP members shared additional items from the OASIS that they would be interested in using as risk adjusters such as cognitive status. The measure development team noted that it was assessing the feasibility of including OASIS items in the measure development process.

The measure development team noted that in prior risk adjustment work for claims-based measures, a prior proximal hospitalization and age have a large impact on the risk adjustment models in its early stage. A number of TEP members expressed concern that agencies will seek to avoid patients with multiple hospitalizations or any other factors that can predict an additional hospitalization. The measure development team noted that when a risk adjustment model if fully specified, it will include a broader set of indicators such as hierarchical condition categories (HCC) comorbidities and clinical classification codes that will reduce the impact of any individual indicator.

Some TEP members suggested other sources of data to consider in the risk adjustment process. One TEP member suggested looking at data from the chronic conditions warehouse (CCW). Another TEP member wondered how accountable care organization (ACO) patients would perform based on the proposed risk

adjustment model. The measure development team noted that they will follow up regarding the availability of CCW and data on ACO patients.

3.3.4   Preliminary Socio-demographic Status Testing

The team discussed preliminary findings from socio-demographic status (SDS) testing, looking specifically at Medicaid dual enrollment status, urban versus rural status, and race indicators. Based on c-static results, the impact of the individual or combined SDS indicators was minimal on the broader risk adjustment model. The TEP discussed the importance of the factors and the need to include the indicators if a large difference in impact on the risk adjustment model was not noted for the preliminary risk adjustment model.

TEP members raised the issue of variability in inpatient admission rates for hospital referral regions. Another TEP member added that the team will have to consider this carefully to not reward bad habits by providers. The TEP discussed the potential of using area deprivation index (ADI)[7] data to address geographic variability and some socioeconomic considerations.

3.3.5   Next Steps

The in-person TEP meeting closed with the measure development team recapping the discussions and outlining next steps in updating the conditions included in the PPH definition, the risk adjustment model, and SDS testing approach. The measurement team also requested the TEP return any additional input from the TEP worksheet electronically to ensure all TEP input is incorporated.

3.4.   *Summary of December 2018 Webinar*

3.4.1   Refinement of Potentially Preventable Conditions

Abt and the measure development team convened a follow-up webinar in December 2018 to provide an update on follow up analyses and issues of concern raised by the TEP. The measure development team reviewed additional analyses of cases of septicemia and confirmed that 99.6% of cases were patients with a primary diagnosis of septicemia. Since the team is using primary diagnoses to classify clinical conditions, the team can rely on the validity of septicemia cases identified as present on admission. The team also investigated diagnostic codes related to acute respiratory failure as a proxy for opioid abuse. The cases of acute respiratory failure were extremely low and not likely to appropriately address the opioid issue. The TEP further reviewed the additional results for two additional clinical conditions of stroke and epilepsy. The TEP did not believe either condition warranted an addition to the PPH algorithm.

3.4.2   Refinements to Risk Adjustment

The measure development team presented results for additional risk adjustment variables that the TEP recommended for exploration. Regarding a variable to assess cognitive status, the measure development team shared that the cases of prior psychiatric visits was not large enough to support inclusion in the risk adjustment model. Only 0.2% of patients in the home health sample had an instance of psychiatric inpatient care in the year prior to their home health stay.

The measure development team also presented results assessing the addition of the OASIS-based indicators of living situation and functional status. The measure development team found no observable trend between a home health patient's living situation and adjusted PPH rate. The team also reviewed the addition of the OASIS-based functional status items to the risk adjustment model. The measurement development team noted that the OASIS-based functional indicators did not meaningfully increase the risk adjustment model fit and did result in collinearity concerns between the claims-based indicators of functional status and the OASIS-based items. The team further noted that the claims-based functional indicators do account for both functional and cognitive status of the home health patient. Some TEP

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[7]   https://www.hipxchange.org/ADI

members noted that a new payment model would likely shift the activity of daily living scores found on home health claims as providers change practice to match the new payment model. The measure development team shared that it will be ready to update the risk adjustment model based on implementation of a new home health payment model. The team also shared that matching between assessment and claims-based data results in attrition of some usable data.

3.4.3   Refined SDS Testing

The measure development team provided an updated SDS testing analysis that included testing of ADI in addition to indicators of rural/urban status, dual Medicaid status, and race. The team noted that ADI did not contribute to greatly increasing the model fit of the risk adjustment model, whether it included only the ADI indicator or ADI plus the previously tested indicators.

4. Section 4 – Conclusions

4.1. *Key TEP Recommendations*

Recommendations were based on the TEP discussions from an April 2018 webinar, a June 2018 in-person meeting that was facilitated by our TEP chairperson, a follow up December 2018 webinar as well as written TEP feedback obtained using the TEP worksheets, which were submitted by all TEP members after the in-person meeting. TEP members recommended that the following principle diagnoses be included in the definition of potentially preventable hospitalization:

- Chronic Conditions
    - CHF
    - COPD
    - Diabetes Short-Term Complications
    - Hypertension/Hypotension
    - Adult Asthma

- Infections
    - Urinary Tract Infection / Kidney Infection
    - Bacterial Pneumonia
    - Skin and Subcutaneous Tissue Infections
    - C. Difficile Infection
    - Influenza
    - Septicemia

- Injuries
    - Head Injuries
    - Fractures

- Other Unplanned Events
    - Acute Kidney Failure
    - Dehydration
    - Arrhythmia
    - Anticoagulant Complications
    - Deep Vein Thrombosis
    - Aspiration Pneumonitis
    - Deficiency and Other Anemia
    - Pressure Ulcers
    - Intestinal Impaction

The TEP also recommended the inclusion of potentially preventable observation stays into the measure calculation to better capture preventable hospitalizations from home health.

Finally, TEP members encouraged risk-adjustment for motor function, cognitive status, and sociodemographic status.

The next steps for the development of the home health within-stay potentially preventable hospitalization measure include the following:

- Disseminate measure specification for public comment

- Revise measure specifications on the basis of public comments and any additional TEP feedback

- Submit PPH measure to the Measure Application Partnership
- Continue measure development, including analysis
- Finalize measure specifications
- Conduct testing and prepare analyses for the technical report

CMS also intends to submit the home health within-stay potentially preventable hospitalization measure in the future to the National Quality Forum for endorsement. The measure development team will continue to refine the measure as policy decisions are made with regard to issues such as updated functional assessment claims data that will be tested in the risk adjustment model. CMS and its measure development contractors will continue to keep stakeholders updated on the progress of this work.

Agenda

Technical Expert Panel (TEP) Workgroup Meeting
Home Health Within-Stay PPH Measure
June 14, 2018

- Welcome and Introductions & Review of Agenda **8:30 – 9:00 AM**
- Review Measure Development timeline **9:00 – 9:05 AM**
- Review of Within Stay PPH Measure **9:05 – 9:15 AM**
- Recap of Discussions and Decisions Made during the 4/24 Webinar **9:15 – 9:30 AM**
- Introduction of the Within-Stay PPH Measure Definition **9:30 – 9:45 AM**
- Break **9:45 – 10:00 AM**
- Review diagnoses under each potentially preventable condition for inclusion in the measure definition **10:00 – 12:00 PM**
- LUNCH **12:00 – 12:45 PM**
- Wrap up - Review diagnoses under each potentially preventable condition for inclusion in the measure definition **12:45 – 1:30 PM**
- Review potentially preventable conditions by admission time **1:30 – 2:00 PM**
- Observation Stay Definition Discussion **2:00 – 3:15 PM**
- Break **3:15 – 3:30 PM**
- Risk-Adjustment Considerations **3:30 – 4:00 PM**
- Next Steps/Closing Remarks **4:00 – 4:15 PM**
- Logistics for TEP reimbursement **4:15 – 4:25 PM**

TEP WORKSHEET

For each condition, please rate your level of agreement for inclusion in a Home Health definition for within-stay PPH or PPOBS as listed in the columns. 1=strongly disagree; 2=disagree; 3=neither agree nor disagree; 4=agree; 5=strongly agree	Rating: Within-stay PPH	Rating: Within-stay PPOBS	Comments
CHRONIC CONDITIONS:			
Congestive heart failure (CHF)*			
Chronic obstructive pulmonary disease (COPD)*			
Diabetes short-term complication*			
Hypertension*/Hypotension			
Adult asthma*			
INFECTIONS:			
Septicemia (except in labor)			
Urinary tract infection*/Kidney infection			
Bacterial pneumonia*			
Skin and subcutaneous tissue infections			
C. difficile infection			
Influenza			
OTHER UNPLANNED EVENTS:			
Acute kidney failure*			
Dehydration*/ Electrolyte imbalance			
Arrhythmia			
Anticoagulant complications			
Deep vein thrombosis/Pulmonary embolism			
Aspiration pneumonitis; food/vomitus			
Deficiency and other anemia			
Pressure ulcers			
Intestinal impaction			
Acute delirium			
Decline in mental, emotional, behavioral status,			

For each condition, please rate your level of agreement for inclusion in a Home Health definition for within-stay PPH or PPOBS as listed in the columns. 1=strongly disagree; 2=disagree; 3=neither agree nor disagree; 4=agree; 5=strongly agree	Rating: Within-stay PPH	Rating: Within-stay PPOBS	Comments
INJURY PREVENTION:			
Head injury			
Fractures			
Lumbar/spine/pelvic fracture to be included with other fractures			
OTHER:			
Substance/opioid abuse			
Epilepsy & recurrent seizure			
Stroke			
Dementia			

*Ambulatory Care Sensitive Conditions (ACSCs)/Performance Quality Indicators (PQIs)

Frequencies of Potentially Preventable Conditions

Conditions	# PPH	% Unplanned Admissions	% PPH
Inadequate management of chronic conditions	**143,110**	**17.6%**	**32.4%**
Congestive heart failure (CHF)*	84,863	10.4%	19.2%
Chronic obstructive pulmonary disease (COPD)*	35,723	4.4%	8.1%
Diabetes short-term complication*	12,151	1.5%	2.8%
Hypertension*/Hypotension	9,229	1.1%	2.1%
Adult asthma*	1,144	0.1%	0.3%
Inadequate management of infections	**177,965**	**21.8%**	**40.3%**
Septicemia (except in labor)	81,812	10.0%	18.5%
Urinary tract infection*/Kidney infection	35,300	4.3%	8.0%
Bacterial pneumonia*	28,483	3.5%	6.4%
Skin and subcutaneous tissue infections	22,070	2.7%	5.0%
C. difficile infection	8,406	1.0%	1.9%
Influenza	1,894	0.2%	0.4%
Inadequate management of other unplanned events	**97,122**	**11.9%**	**22.0%**
Acute kidney failure*	33,262	4.1%	7.5%
Dehydration*/Electrolyte imbalance	22,583	2.8%	5.1%
Arrhythmia	13,455	1.7%	3.0%
Anticoagulant complications	11,395	1.4%	2.6%
Deep vein thrombosis/Pulmonary embolism	10,430	1.3%	2.4%
Aspiration pneumonitis; food/vomitus	10,858	1.3%	2.5%
Deficiency and other anemia	2,388	0.3%	0.5%
Pressure ulcers	1,982	0.2%	0.4%
Intestinal impaction	1,030	0.1%	0.2%
Inadequate injury prevention	**23,487**	**2.9%**	**5.3%**
Head injury	4,792	0.6%	1.1%
Fractures	18,695	2.3%	4.2%

*Ambulatory Care Sensitive Conditions